Field Testing $Beef in Purebred Angus Cattle

…and the Need for More Demonstration Projects of Similar Kind

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Do EPDs Work?

Not everyone is convinced.

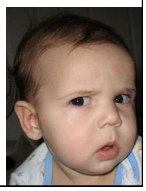
	Average MARB EPD	Marbling Score	
		95 DOF	148 DOF
High Sire Group	0.27	4.20	5.00
Low Sire Group	-0.17	3.60	4.30
Difference	0.44	0.60	0.70

Bertrand, J. K., W. O. Herring, S. E. Williams, and L. L. Benyshek. 1993. Selection for increased marbling and decrease back fat in Angus cattle using expected progeny differences. J. Anim. Sci. 71(Suppl. 1):93 (Abstract.)

Other studies completed on carcass traits, milk, and weaning weight EPDs in the late 1990s and early 2000s.

After that it gets pretty quiet. Why?

We convinced ourselves EPDs work, but skeptics remain.



Field Testing $Beef in Purebred Angus Cattle

Purpose:

---Demonstrate that EPDs/$Indexes work very well in a real-world setting

---High-value cattle can be easily created using the tools available to commercial breeders today (Angus EPDs & $Beef index)

Gardiner Angus Ranch

Zoetis, Inc. (ZTS)

Top Dollar Angus, Inc.

Field Testing $Beef in Purebred Angus Cattle

Methods:

---High $B and Low $B purebred Angus embryos implanted in recipient dams in July 2014.

---Calves born April 8 to May 22, 2015.

---Calves on pasture with dams through weaning, then placed on wheat pasture and supplemented with a grower ration until early June.

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Methods (continued):

---Cattle placed on feed on June 4, 2016 and DNA samples collected.

---Targeted equal fat endpoint and therefore marketed in three drafts from late September to early November 2016.

---All 43 head harvested at National Beef in Dodge City, KS and priced via USPB grid.

Results

$BEEF Comparison: $141.12 vs. $47.40

High $B cattle outperformed their Low $B counterparts in every metric evaluated by the study.

Pedigree average $B difference was **$93.69** between the two groups **($141.12 versus $47.40)**.

The study evaluated the animals themselves (not their progeny), so the expected value difference between the High $B and Low $B groups is twice their pedigree average $B difference or **$187.38 per head** ($93.69 x 2 = $187.38, which is the $B difference expressed in ***breeding value*** terms).

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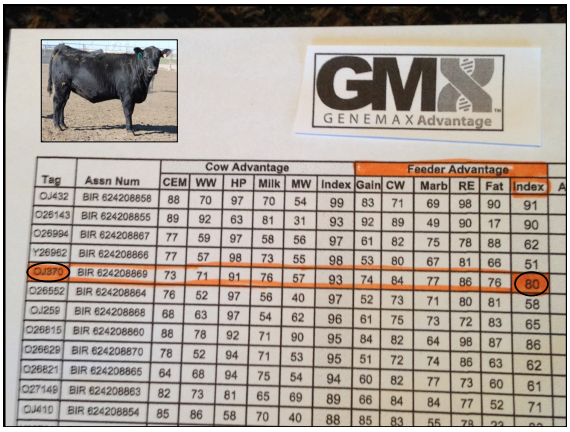
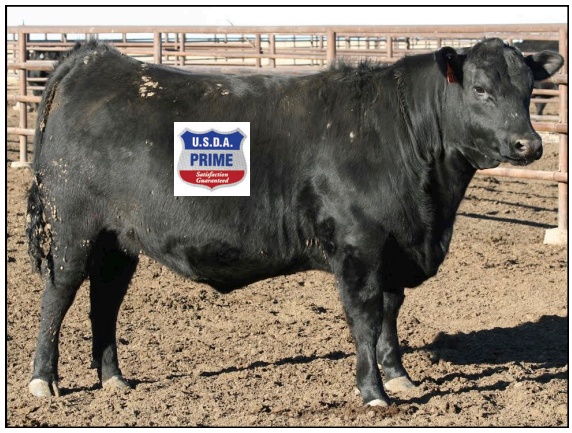
Actual difference quantified by the study = $215.47 per head

Trait or Characteristic	High $Beef Advantage versus Low $Beef	Statistically Different
Parental Average $Beef	$93.69	Yes
$Beef Difference as a Breeding Value	$187.38	Yes
Zoetis i50K Percentile Rank Difference* (average of YW, CW, MARB, & REA)	75.2%	Yes
GeneMax Feeder Advantage Score	67 points	Yes
Lifetime Weight Per Day of Age	0.158 lbs.	Yes
Age at Harvest	-15.9 days	Yes
Carcass Weight (non age constant)	27 lbs.	Yes
Carcass Weight (age-constant basis)	56 lbs.	Yes



Tag	Assn Num	Cow Advantage						Feeder Advantage					
		CEM	WW	HP	Milk	MW	Index	Gain	CW	Marb	RE	Fat	Index
OJ432	BIR 624208858	88	70	97	70	54	99	83	71	69	98	90	91
O26143	BIR 624208855	89	92	63	81	31	93	92	89	49	90	17	90
O26994	BIR 624208867	77	59	97	58	56	97	61	82	75	78	88	62
Y26962	BIR 624208866	77	57	98	73	55	98	53	80	67	81	66	51
OJ370	BIR 624208869	73	71	91	76	57	93	74	84	77	86	76	80
O26552	BIR 624208864	76	52	97	56	40	97	52	73	71	80	81	58
OJ259	BIR 624208868	68	63	97	54	62	96	61	75	73	72	83	65
O26815	BIR 624208860	88	78	92	71	90	95	84	82	64	98	87	86
O26629	BIR 624208870	78	52	94	71	53	95	51	72	74	86	63	62
O26821	BIR 624208865	64	68	94	75	54	94	60	82	77	73	60	61
O27149	BIR 624208863	82	73	81	65	69	89	66	84	84	77	52	71
OJ410	BIR 624208854	85	86	58	70	40	88	85	83	55	78	23	80



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Trait or Characteristic	High $Beef Advantage versus Low $Beef	Statistically Different
Marbling Score (MS units)	227	Yes
Ribeye Area	1.41 sq. inches	Yes
Back fat	-0.05 inches	No
Calculated Yield Grade	-0.46 YG Units	Yes
Carcass Value Per Head	$166.82	Yes
Feed & Yardage Savings Per Head	$48.65	Yes
Total Financial Advantage Per Head	$215.47	Yes

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High $Beef Genetics = 

Low $B Heifer

Low Choice YG2 870-lb. Carcass

High $B Heifer

Prime YG2 887-lb. Carcass

Predicted Difference = $187.38

Measured Difference = $215.47

The measured difference is conservative, because it included no feed efficiency advantage for the High $Beef group.

$Beef worked extremely well in projecting real-world value differences in purebred Angus cattle.

Results suggest that (if anything) the EPDs and mathematical calculations that drive $Beef are conservative compared to current cattle market valuations.

Takeaway from the study is simple:

Use EPDs and indexes, because they work very well in creating real-world performance and financial advantages.

----Write-up is available---

Next Project in Queue…

- Red Angus "EPDs in Action"
- Conducted with JRA
- Project entitled ***Live WiRED***
- Direct comparison of Red Angus sires with high growth/carcass EPDs to those low on the bell curve for growth and carcass traits.

50 Red Angus sired pregnancies out of ONE cow!

Conclusion

- More simple studies validating EPDs are needed to convince the skeptics and the coming generation of cowherd managers
- *Breed association databases represent a large aggregation of field data that can be used for this purpose as well*
- *Incorporate the ability to compare differing levels of EPDs into other research for dual benefit*