

Master Beef Producer



UExtension

Tennessee Beef Cattle Improvement Initiative

Genetics is the study of

How Traits are Inherited

•All body cells contain "Blueprints" with instructions as to how an animal will look or act etc.

The science of 1/2's since each living animal receives a Sample 1/2 of its genetics from its father and a sample 1/2 of its genetics from its mother.







Homologous Chromosomes

Humans – 23 pairs of chromosomes Beef cattle – 30 pairs of chromosomes

http://library.thinkquest.org



Gene Dominance

One Gene overshadows The expression of its other pair (allele)

We're heterozygous (different)









Recessive Genes • The gene that is overshadowed by a dominant gene. Recessive genes can only be expressed when they both are present

RED COAT COLOR = bb









Incomplete Gene Dominance The expression of the trait is mid-way between the dominant

and recessive effect.







Roaning in Shorthorn

Incomplete Dominance (W.F. < > SOLID)







Wf S = Solid with WF

Incomplete Dominance (D.S. < > SOLID)









Ds S = Solid with striped tail or lined back



QUALITATIVE TRAITS

TRAITS THAT ARE AFFECTED BY A SINGLE OR A FEW PAIR OF GENES

COAT COLOR

HORNS

QUANTITATIVE TRAITS

TRAITS AFFECTED BY NUMEROUS PAIRS OF GENES

The thousands of genes present make countless combinations possible in an animal. Since genes are too small to identify individually, they express their presence by such outward effects as differences in growth, carcass or reproduction traits

Quantitative Traits (cont'd)

Growth traits Birth weight Weaning weight **Yearling weight Growth rate (ADG) Frame size Carcass traits Rib eye area Fat thickness** Marbling **Reproduction traits** fertility

PHENOTYPE AN ANIMAL'S VISUAL EXPRESSION OR PERFORMANCE IN ANY TRAIT



INFLUENCED BY THE GENETICS FOR EXPRESSION OF THAT TRAIT AND THE ENVIRONMENT PROVIDED FOR THE EXPRESSION OF THE TRAIT





Which calf has the best genetics for growth?

Is the calf on the left bigger because he had better genetics for growth or because he was provided a better environment?

IMPROVEMENT OF ANY TRAIT DEPENDS:

MEASURING DIFFERENCES IN A TRAIT

ACCURATELY IDENTIFYING SUPERIOR INDIVIDUALS IN THE TRAIT

USING SUPERIOR INDIVIDUALS AS PARENTS

HOW HERITABLE THE TRAIT IS (heritability)

What is Selection?

- Choosing animals to be parents for the next generation to improve certain characteristics
- Low Birth weight
- Heavier Weaning Weight
- Fasting Gaining
- Horned or Polled
- Temperament *****
- Better Eating Quality





- Winchester was born on the Kish ranch and is the result of mating PRCA World Champion Mr. T with Oscar bred Kish Cow.
- Winchester had an average ride score of 88 points and was selected to perform at the NFR and PBR Finals.
- Don Kish used Winchester as a breed bull prior to our purchasing him in 2001. He continues to have success with Winchester sons and females.
- Winchester is the sire to Blowin' Smoke, Wintwister, Redchester, The Game, T.D. Stinger and Shooter. All performed at the ABBI Finals. Wintwister continues to perform on the Built Ford Tough Series.



XS 931 Spotted Lizard

Red Lizard

Kish Breeding

Mr. T

Hal Burns Breeding

Kish Breeding

Kish Breeding

Bearcat (no dna)

Sutton Rodeo Cow

XS Ranch Breeding

DOB: 1999

- Spotted Lizard was born in 1999 on our ranch and is the sire to Page & Buck's "Big Deal"! Many have asked, "did he buck"? Yes he did, but he crippled himself and few got to see him in his prime.
- Spotted Lizard is a maternal brother to Wasp Stinger, out of XS 31. Wasp Stinger was a PRCA short round hull for Vernon Guidry.
- In 2008 everyone is going to see is breeding ability. We'll be showcasing bulls from his first full crop since Big Deal. You'll be pleasantly surprised.
- We have only sold one female and one bull calf sired by Spotted Lizard!



XS 815 Velvet Hour

XS 31 Molly Tamale

XS Breeding

- Velvet Hour was hurt as a 3 year old and suffered a career ending injury at a Pro Rodeo in Joseph, OR.
- He was named after a bull from the 1980's called Velvet Hour that was hauled to the NFR.

Naccarato Breeding **Too Legit** Naccarato Breeding







Heritability

Percentage of the differences (measured or observed) in a trait between animals that are transmitted to the offspring.

Reproduction LOW fertility, etc. Production Moderate growth Product High carcass (Heritability is a measure of how a trait will respond to selection)

MATCHING GENETICS TO FIT THE BEEF INDUSTRY

Dr. F David Kirkpatrick Professor Animal Science University of Tennessee

SEGMENTS OF INDUSTRY

- Consumer
- Retailer
- Packer
- Feeder
- Backgrounder
- Cow-calf producer
- Purebred Breeder

CONSUMER

- Price/ Value
- Consistency
- Tenderness
- Taste/ Flavor
- Portion Size
- Safety/ Health



RETAILER

- Shelf life
- Lean to fat ratio
- Portion size



PACKER

- Dressing Percent
- Quality Grade
- Yield Grade
- Conformance



Yield Grade 1













Moderately Abundant

Slightly Abundant

Moderate







FEEDER

- Health
- Gain
- Feed Efficiency



BACKGROUNDER

Growth on forage

• Health



COW-CALF PRODUCER

- Reproduction
- Maintenance Cost
- Growth
 - -Weaning -Yearling





Beef Cattle ECONOMIC IMPORTANT TRAITS

	RELATIVE
TRAIT	IMPORTANCE
REPRODUCTION	2
PRODUCTION	1
PRODUCT	1

MEASURABLE TRAIT (Phenotype)

 GENETIC EFFECTS -¹/₂ GENETICS FROM SIRE -¹/₂ GENETICS FROM DAM • ENVIRONMENTAL EFFECTS - WEATHER - NUTRITION -HEALTH – Etc.

Genetic Evaluations

Phenotypes and Pedigrees

Objective: convert phenotypic data into genetic information for the purpose of selection

Separate genetic portion of phenotype from environment.



- 235 DAYS OLD
- ON FARM "A"
- BULL CALF
- 6 YR DAM



- 220 DAYS OLD
- ON FARM "A"
- BULL CALF
- 2 YR DAM

WHAT ARE THE KNOWN ENVIRONMENTAL EFFECTS?

Known Environmental Effects





AGE - 15 DAYS 15 DAYS

AGE OF DAM6 YR OLD2 YEAR OLD

FARM





Known Adjustment Factors (BIF) (Weaning Weight)		
Age of Dam		
2 yr	+60	
<mark>3 yr</mark>	+40	
4 yr	+20	
5-10 yr	+0	
11 +	+20	

Breed Associations have own adjustment factors

Adjusted 205 day wt. formula

(Actual Wt - Birth wt) Age in days

Adjusted 205 day wts.



 $\frac{(680-80)}{235 \text{ days}} \ge 205+80+0$



 $\frac{(650-80)}{220 \text{ days}} \ge 205+80+60$

= 603 Lbs.

= 671 Lbs.

Herd Averages (adj. 205 wt.)

615 Lb. Herd Avg.



640 Lb. Herd Avg.



• ON FARM "B"

• ON FARM "A"

WHAT ARE THE <u>KNOWN</u> ENVIRONMENTAL EFFECTS?
Contemporary Group Ratios (how an individual compares with its contemporaries)



Herd Avg. = 615

Ratio = 603/615

98



Herd Avg.= 640

Ratio = 671/640

104

Useful for within herd selections but not between herds

National Cattle Evaluation

Genetic merit

The purpose of genetic evaluations is to provide an assessment of the genetic merit of different traits of animals for selection purposes.

Separate out the environmental portion from the phenotype



Genetic Evaluation Traits

- Birth Weight
- Weaning Weight
- Milk
- Yearling Weight

- Carcass Traits
- Calving Ease
- Mix of others...

Listed in Breed Association Sire Summaries or on the WWW

Genetic Evaluations

Source of data

Ancestors Collateral relatives Descendents Own performance Correlated traits National Cattle Evaluation Breed Specific

Breed summaries report EPDs. Expected Progeny Differences

Interpreting EPDs

Provide a prediction of future progeny performance of one individual compared to future progeny performance of another individual within a breed for a specific trait.

Allow one to compare or rank the genetic superiority of individual animals within a breed for a specific Trait.

EPDs are reported in the actual unit that the trait is Measured (Lbs. for growth traits).

They can be positive or negative numbers

National Cattle Evaluation Accuracy Each EPD has an associated accuracy. Accuracies range from 0.05 to 0.99 And are a measure of reliability of the EPD

ACCURACY IS A FUNCTION OF AVAILABLE INFORMATION ON THE INDIVIDUAL EVALUATED

AS INFORMATION OR DATA INCREASES, SO DOES ACC.

<u>College Football BCS</u>

Purpose is to identify best college football teams

Source of Data :

AP ranking USA Ranking Record Strength of schedule etc.

Just as rankings change as more games are played, EPDs can change as more information becomes available

What Does A Single EPD Tell You ?

Wean Weight EPD = + 25 Lbs.

Nothing, unless you have something from which to compare

Weaning Weight EPD Bull A Bull B





Diff 25 Lbs

You would expect calves sired by Bull A to average 25 Lbs Heavier at weaning than calves sired by Bull B Value of Bull A over B (calves @ \$95/cwt.)

\$0.95 X 25 Lbs. = \$23.75 per calf

X 30 calves per year

+ \$712.50 per calf crop



One would expect calves sired by Bull A to average 5.0 Lbs. Less at birth than calves sired by Bull B.

BIRTH WEIGHT EPD'S DO NOT REVEAL HOW MUCH THE CALF WILL WEIGH AT BIRTH !!!

BIRTH EPD AVG. BIRTH WT

+3.5 80 N.E. 83.5



Daughters of Bull A should wean calves that are 15 lb. heavier than calves from daughters of Bull B (due to inherited superior milking ability)

Maternal Milk EPD

- <u>Not</u> a measure of Lbs. of Milk Produced !
- A measure of increased Lbs. of weaning weight a sire's daughters will produce as a result of their milking ability they inherited from their sire.
- Should be considered when saving replacement heifers.

Calving Ease Direct (CED), is expressed as a difference in percentage of unassisted births, with a higher value indicating greater calving ease in first-calf heifers. It predicts the average difference in ease with which a sire's calves will be born when he is bred to first-calf heifers.

e.g.

+6 CED should experience less calving difficulty than + 2 CED

102 < 99 CED

Calving Ease Maternal (CEM), is expressed as a difference in percentage of unassisted births with a higher value indicating greater calving ease in first-calf daughters. It predicts the average ease with which a sire's daughters will calve as first-calf heifers when compared to daughters of other sires.

e.g. +6 CEM should experience less calving difficulty than + 2 CEM

102 < 99 CEM





What is the Breed Averages for Different Traits ?

Are all different Breed EPDs the same ?

Is the average zero ?

Does an animals EPD ever change ?

Can be found on the web at Breed Homepage.

Breed Average EPDs

Spring 2010 Non-Parents

Breed	B W	WW	YW	Milk
Angus	2.1	45	82	21
Heref	3.6	43	71	17
R Ang	0.0	31	58	17
Short	2.3	15.1	25	2.3
Limo	1.6	42	80	21
Simm.	1.1	31.2	55.9	4.4
Charol	0.7	24.2	42.4	6.7
Gelbv	1.3	41	75	18
Salers	1.9	32.6	63.1	18.4
Brang.	0.5	21.8	39.7	7.7

How do you use EPDs in a selection program ?

Do they work?

5 to 9 times more effective than absolute records

EPD Traits for Production

Birth Weight

Weaning Weight

Yearling Weight

Milk

EPD Traits for Reproduction Birth Weight

Scrotal Circumference

Milk

Calving Ease DIRECT & MATERNAL Stayability

Gestation Length

Heifer pregnancy

Stayability

 Percent difference of daughters staying in a herd until six years of age

Stary

Where Can I Find EPDs ?

Individual's EPD

Percentile Ranking

Breed Averages



Prospective Angus Bull

How could I use him?





FIND BREED AVERAGE EPDs

Animal Search:	THE	BUSINESS	BREED	all the second	
Member Search:	3201 Frederick Av	Americ re. St. Joseph, MO 6	an Ang 4506 Phone: 81	us Asso 6.383.5100 E-mail:	ciation® angus@angus.org
Site Search:	Special Features	General Info Rules a	and Forms Missi	on Statement Conta	ict Us Data Access a
0	Angus Calend	ar Sale Books	Sale Reports	Show Results	
Angus Home		view	rall		^
Angus Foundation	8/5/2010	LEAD Conference		Nashville, TN	
Angus Genetics Inc.® Angus Info	8/6/2010	Pinkerman Angus Dis	spersion	Bethany, MO (Lamoni, IA)	
AngusSource®	8/7/2010	Donnell Cattle Co. F	emale Sale	Graham, TX	
API/Angus Journal	8/7/2010	Newman Angus Priv	ate Treaty Sale	Carmel, IN	
AIMS Software	0.710010				AROUSOUR
Auxiliary	For word Widow	-			The Angus R
Certified Angus Beef	Click on the follow	ving items to view vide	os featuring the A	nous breed and cattle	Carcase Chal
Commercial Programs	industry		se reataning the A		and lifetime m
Junior Activitios/NIAA	ata Searches Home	Anew	credit card partne	ership, AngusSource	more
Links/Associations	value Search ge In Davs Calculator	esults,	and lifetime mem	berships.	UPDATE Pre
Marketing Tools A News Room F	ge in Days Carculator ngusSource [®] PD/Pedigree Lookup	w vide	o highlights		Results - Not The following
Performance/AHIR [®] /BRS	estation Calculator				listing of preli
Sales & Calendar 📃 🕨 M	lember Lookup	0.22	12.11.0		provided by D
Shop Online O	ptimal Milk Module	arship	s — 8/2		University of I
Shows and Events P Suggestions S	athfinder [®] ire Evaluation Search	s — 8/2	2		organizations
Web Sites	AngusSource S	urpasses Half-Million	n Mark — 7/30		Data Sea



Angus Sire Evaluation Report - Fall 2010

Disclaimer- Please read before continuing. Introduction How To Read The Results - Definitions

Instructions

Search the Angus Sire Evaluation Database

Research Docility Genetic Evaluation Research report Use of Docility EPDs View Sires

Research Heifer Pregnancy Genetic Evaluation Research report Use of Heifer Pregnancy EPDs View Sires

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AMERICAN ANGUS ASSOCIATION® — THE BUSINESS BREED

3201 Frederick Avenue • St. Joseph, MO 64506 • (816) 383-5100 • Fax (816) 233-9703 • E-mail: angus@angus.org

Sire Evaluation | More Info | Available Searches | E-mail

Breed Average EPD and \$Values - Fall 2010

		PF	RODU	CTIO	N			MATERNAL			CARCASS			\$VALUES					
	CED	BW	ww	YW	YH	SC	CEM	Milk	MW	MH	\$EN	CW	Marb	RE	Fat	\$W	\$F	\$G	\$B
Current Sires ¹	+5	+2.0	+43	+80	+.4	+.39	+7	+21	+31	+.4	+3.36	+12	+.31	+.12	+.009	+24.42	+21.96	+20.75	+39.11
Main Sires	+5	+1.9	+46	+84	+.3	+.41	+7	+21	+31	+.4	+2.26	+12	+.31	+.13	+.010	+25.52	+25.65	+20.10	+39.09
Supplemental Sires	+6	+1.7	+47	+86	+.4	+.51	+7	+22			+.27	+14	+.34	+.15	+.013	+25.65	+26.46	+21.19	+42.34
Current Dams ¹	+4	+2.3	+39	+71	+.4	+.28	+6	+20	+31	+.5	+7.02	+9	+.26	+.06	+.007	+22.94	+15.67	+19.14	+34.12
Non-Parent Bulls	+5	+1.9	+45	+83	+.3	+.44	+7	+22			+1.63	+12	+.35	+.15	+.012	+25.28	+24.20	+22.75	+42.37
Non-Parent Cows	+5	+1.9	+45	+82	+.3		+7	+22			+1.64	+12	+.40	+.18	+.012	+25.30	+24.08	+23.21	+42.86

11

¹ at least one calf record in herd book within the past two years

Prospect 3.9 48 88



FIND AN INDIVDUAL'S EPDs





Bon View New Desi	gn 878 Reg:	AAA #13062750	Bull	
Birth Date: 02/17/1998 Tat	too: 878 Twin: Twin	w/Bull	{AMF-	CAF-NHF}
Parentage: Blood type, Microsa Genomic profile	atellite		Curly ca	lf free-AMF
Breeder: 254314 - Brad R	Hillman, Sioux Falls	SD	Fawn ca	lf free-CAF
Owner(s): 328737 - Leachr 623740 - Woodh 623840 - Woodh	man Cattle Co, Eaton nill Farms Inc, Viroqua and Farms, Hinsdale	a VI MT	Hydro fi	ee- NHF
		A A R New Trend	AA	A #9958634
V D A	R New Trend 315	AAA #11105489 [AMF-CAF	NHF]	
		V D A R Lucy 704	AA	A #10281408
B/R New Design 036 AAA	#11418151 [AMF-NHF]			
		K&K Top Gun	AA	A #10624281
B/R E	Blackcap Empress 76	6 AAA 10970296		<pre>{CAC-AMF}</pre>
		QLC A70 Blkcp Empres	s E43T 🗛	A +19675813
		Tehama Bando 155	AV	A #9891499 [AMF-NAF]
Bon \	/iew Bando 598	AAA #11104267 [CAC-AMF]		
		Bon View Dora 56	AA	A #10792795
Bon View Gammer 85 AAA	12346837			
		N Bar Emulation EXT	AA	A #10776479 [AMF-CAF-NHF]
Bon \	/iew Gammer 233	AAA 11901123		
		Bon View Gammer 2409	AA AA	A 11225670

Pathfinder + Embryo Transplant

📠 EPD Percentiles

						_				As di	Ა୫<i></i>//2/2010
Production								Mater	rnal		
CED	BW	WW	YW	YH	SC	CEM	Milk	MkH	MW	MH	\$EN
Acc	Acc	Acc	Acc	Acc	Acc	Acc	Acc	MkD	Acc	Acc	
+9	+1.4	+43	+82	+.4	+.44	+11	+30	3321	+16	+.5	+2.40
.96	.99	.98	.97	.97	.97	.94	.97	14117	.94	.94	

		Car	cass		
CW	Marb	RE	Fat	Carc Grp	Usnd Grp
Acc	Acc	Acc	Acc	Carc Pg	Usnd Pg
+9	+.44	02	+.019	102	8760
.82	.84	.83	.82	252	20740

		\$\	Values				
\$\/\/	\$F	\$G		\$06	\$YG	I	\$R

Percentile Ranking

How does the bull rank within the breed?

Important to know in the Tennessee Beef Cattle Enhancement Genetic Program For Cost Sharing

FIND PERCENTILE TABLES

THE BUSINESS BREED

Animal Search:	THE
Member Search:	3201 Frederick A
Site Search:	Special Features
Angus Home Angus Education Center Angus Foundation Angus Genetics Inc. [®] Angus Info AngusSource [®] API/Angus Journal AIMS Software Auxiliary Certified Angus Beef Commercial Programs	8/5/2010 8/6/2010 8/7/2010 8/7/2010 8/7/2010 Featured Vide Click on the follo
Data Searches/Tools Junior Activities/NJAA Links/Associations Marketing Tools News Room Performance/AHIR [®] /BRS Sales & Calendar Shop Online Shows and Events Suggestions Videos	Data Searches Home \$Value Search Age In Days Calculator AngusSource [®] EPD/Pedigree Lookup Gestation Calculator Member Lookup Optimal Milk Module Pathfinder [®] Sire Evaluation Search

Web Sites

American Angus Association®

3201 Frederick Ave. St. Joseph, MO 64506 Phone: 816.383.5100 E-mail: angus@angus.org Data Access a

General Info Rules and Forms Mission Statement Contact Us Special Features

Angus Caler	ndar	Sale Books	Sale Reports	Show Results	
		view	v all		^
8/5/2010	LEA	D Conference		Nashville, TN	
8/6/2010	Pink	erman Angus Dis	Bethany, MO (Lamoni, IA)		
8/7/2010	Don	nell Cattle Co. F	emale Sale	Graham, TX	
8/7/2010	New	man Angus Priv	ate Treaty Sale	Carmel, IN	~
0.710010					

Featured Videos

e Evaluation Search

Click on the following items to view videos featuring the Angus breed and cattle inductry

> A new credit card partnership, AngusSource esults, and lifetime memberships.

v video highlights

arships — 8/2

- 8/2

The Angus R card partnersh Carcass Chall and lifetime m more... UPDATE Pre Results - Notin

The following u Arachnodactyl listing of prelin provided by Dr University of III submitted to h organizations.

AngusSource Surpasses Half-Million Mark - 7/30

Data Sea



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	Fall 2	010												
	Curr	ent Sires	G Curre	nt Dams	Non-P	arent Bu	Ills Nor	n-Parent	Cows					
									F	Percentil Non-Pa	e Breakd arent Bu	lown I lls		
			Produ	iction				Matern	al		Ca	rcass		
Top Pct	CED	BW	ww	YW	YH	SC	CEM	Milk	\$EN	CW	Marb	RE	Fat	\$W
1%	+14	-2.2	+64	+113	+1.1	+1.70	+13	+32	+21.50	+30	+.95	+.61	032	+34.24
2%	+13	-1.6	+62	+109	+1.0	+1.54	+12	+31	+18.42	+27	+.87	+.55	027	+33.18
3%	+12	-1.3	+60	+107	+.9	+1.44	+12	+30	+16.69	+26	+.81	+.52	024	+32.59
4%	+12	-1.0	+59	+106	+.9	+1.36	+12	+29	+15.26	+25	+.78	+.49	021	+32.11
5%	+11	9	+59	+104	+.8	+1.30	+11	+29	+14.34	+24	+.75	+.47	019	+31.74
10%	+10	2	+56	+100	+.7	+1.10	+11	+27	+11.08	+22	+.64	+.40	013	+30.45
15%	+9	+.2	+54	+97	+.6	+.97	+10	+26	+9.03	+20	+.58	+.35	008	+29.55
20%	+9	+.6	+52	+94	+.6	+.87	+9	+26	+7.39	+18	+.52	+.31	004	+28.83
25%	+8	+.9	+51	+92	+.5	+.78	+9	+25	+6.13	+17	+.48	+.28	001	+28.22
30%	+8	+1.1	+50	+90	+.5	+.70	+9	+24	+5.00	+16	+.45	+.25	+.002	+27.65
35%	+7	+1.3	+49	+89	+.4	+.63	+8	+23	+4.03	+15	+.41	+.22	+.004	+27.10
40%	+7	+1.6	+48	+87	+.4	+.56	+8	+23	+3.11	+14	+.38	+.20	+.007	+26.58
45%	+6	+1.8	+47	+85	+.4	+.49	+8	+22	+2.20	+13	+.35	+.17	+.009	+26.07
50%	+6	+2.0	+46	+84	+.3	+.43	+7	+22	+1.30	+12	+.33	+.15	+.012	+25.56
55%	+5	+2.2	+45	+82	+.3	+.37	+7	+21	+.39	+11	+.30	+.12	+.014	+25.04
60%	+5	+2.4	+44	+80	+.3	+.31	+7	+21	53	+10	+.27	+.10	+.017	+24.50
65%	+4	+2.6	+42	+78	+.2	+.24	+6	+20	-1.45	+9	+.25	+.07	+.019	+23.92
70%	+4	+2.8	+41	+76	+.2	+.17	+6	+19	-2.37	+8	+.22	+.05	+.022	+23.31
75%	+3	+3.0	+40	+74	+.1	+.10	+5	+19	-3.31	+7	+.19	+.02	+.025	+22.64
80%	+2	+3.3	+38	+71	+.1	+.02	+5	+18	-4.54	+6	+.16	- 1		TITLE STATES
85%	+1	+3.6	+36	+68	+0	08	+4	+17	-5.79	+4	+.13	- 2		And -
90%	+0	+4.0	+34	+64	1	20	+3	+15	-7.43	+3	+.08			Provide the second
95%	-1	+4.6	+30	+58	2	39	+2	+13	-9.91	+0	+.02	Lind out		
Total Animals	113,387	118,479	118,479	118,479	12,602	28,815	113,387	118,479	123,776	45,970	45,970	45,		
Avg	+5	+1.9	+45	+83	+.3	+.44	+7	+22	+1.63	+12	+.35	+.15	+.012	+25.28
		3.9	48	88				11						

Find bulls that fit my specs.

BirthWeanMilkYearlingMarbling< 1.8</td>> 47> 20> 90> 0.45



FIND A BULL TO FIT YOUR SPECS.

Animal Search:		THE BU	SINESS	BREED		
Member Search:	3201 Fr	ederick Ave. St	Americ Joseph, MO 6	an Ang 4506 Phone: 8	us Asso 16.383.5100 E-mail:	ciation® angus@angus.c
Site Search:	Special F	eatures Gene	ral Info Rules	and Forms Missi	ion Statement Conta	ct Us Data Acces
(us Calendar	Sale Books	Sale Reports	Show Results	
Angus Home Angus Education Center	•		viev	v all		^
Angus Foundation	8/5/	2010 LEA	D Conference		Nashville, TN	
Angus Genetics Inc.® Angus Info	8/6/	2010 Pink	erman Angus Di	spersion	Bethany, MO (Lamoni, IA)	
AngusSource®	8/7/	2010 Don	nell Cattle Co.	Female Sale	Graham, TX	
API/Angus Journal	8/7/	2010 New	man Angus Priv	ate Treaty Sale	Carmel IN	
AIMS Software	0.7	2010 01		,	5	-MARA
Auxiliary Certified Angus Beef Commercial Programs	Click	ired Videos on the following i	tems to view vide	eos featuring the A	Angus breed and cattle	The Angu card partne Carcass C and lifetim
Data Searches/Tools Junior Activities/NJAA Links/Associations	 Data Search \$Value Sear Age In Days 	es Home ch Calculator	A new esults,	credit card partne	ership, AngusSource berships.	WPDATE
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Web Sites	Angu	sSource Surpa	sses Half-Millio	n Mark — 7/30		Data S



List to Search Main O Supp	Who qualifies?			
Display First 100 Only ✓ Selection Trait Download to Excel ● ○ Exclude Tested Carriers Asc Desc	Valid Range	Minimum	Maximum	Minimum Accuracy .00 to .99
Production				
Calving Ease Direct	-18 to 19			
O Birth Weight	-8.1 to 9.5		1.8	
Weaning Weight	-3 to 88	47		
Yearling Weight	-11 to 146	90		
Yearling Height	-1.2 to 1.5			
O Scrotal Circum.	-1.64 to 2.71			
Maternal				
Calving Ease Maternal	-12 to 18			
O Milk	-14 to 46	20		
O Mature Weight	-94 to 152			
O Mature Height	-1.5 to 2.1			
Cow Energy (\$EN)	-25.83 to 48.91			
Carcass				
Carcass Weight	-40 to 52			
O Marbling	-0.42 to 1.35	.45		
Ribeye Area	-0.78 to 1.20			

8	8 Bu	IS	OU	t o	-2	05,	909)		Materr	nal						Carcass				ŝV	alues	
Peristration	Tattas	CED	DM	1404	-	ML I	60	CEM	Mile	Mill	MIN	ML	4EN	0	Mark	DE	Eat	0	llead	enar	45	400	40
Name	Birth Date	Acc	Acc	Acc	Acc	Acc	Acc	Acc	Acc	MkD	Acc	Acc	\$EN	Acc	Acc	Acc	Acc	Grp/Pg	Grp/Pg	\$m	\$G	\$QG \$YG	şв
15027250[NHC-AMF]	12R	+6	+1.2	+54	+91	I+.4	+.07	+8	+33				-11.60	+16	+.56	+.33	016		9	+32.37	+28.61	+26.18	+58.48
BT Lead ON 12R	01/16/2005	.43	.66	.53	.47	.05	.24	.19	.21					.23	.30	.34	.26		41		+34.63	+8.45	
13009379(AMP-CAT-NHP)	872	+9	+1.5	+51	+95	+.1	01	+10	+33	226	+28	+.3	-4.77	+17	+.58	+.52	+.019	39	1,338	+36.77	+33.79	+26.64	+59.59
C R A Bextor 872 5205 608	02/08/1998	.91	.96	.95	.93	.93	.92	.74	.83	629	.69	.69		.75	.78	.78	.73	113	3,406		+33.78	+7.14	
14771823(AHF-NHF)	3133	+7	+1.1	+61	+96	+.3	+.29	+8	+24	1			-4.45	+20	+.48	+.15	008		11	+34.76	+30.89	+23.91	+55.89
Cabin Creek Impact 3133	09/05/2003	.40	.72	.59	.45	.19	.31	.16	.19	1				.14	.23	.26	.22		25		+28.72	+4.81	
14098261(AMF-CAT-NHF)	2058	+8	+1.2	+63	+111	+.6	+.27	+11	+24	27	+16	+.4	-3.74	+26	+.60	+.70	004		118	+36.77	+45.58	+27.19	+70.69
Circle A Endeavor 2058	01/07/2002	.62	.84		.66	.58	.70	.41	.52	63	.32	.33		.28	.39	.91/	.36		228		+30.99	+9.80	
14220086	2268	+10	+1.7	+55	+99	+.7	+.31	+13	+25	3			-6.68	+16	+.72	34	+.024		25	+28.69	+36.28	+29.97	+49.17
Connealy 1407 67	02/04/2002	.53	.76	.00	.58	.65	.51	.20	.31	9				.25	-32	.39	.28		94		723.31	-6.46	
19493252(ANC-NIF)	683A 02/05/2006	+9	+1.1	+51	+98	+.1	+.57	+12	+27				-7.70	+33	+.46	+.58	+.015		29	+27.92	+36.85	+23.30	+63.50
Conneary Cathetac	02/03/2000		.00		.62	.00	.00		-24					.23			.28		11/		+20.00	+5.30	
Connealy In Focus 4925	6680	+10	+.5	+64	+108	+.3	+.94	+10	+27				-11.04	+29	+.55	+.27	009		31	+34.09	+42.00	+25.88	+63.02
15325987tamr-car-num	9015	+8	+.4	+54	+102	+.3	- 30	+6	+21		I+25	I+.2	-2.65	+2	+.70	+.26	+.005		32	+29.06	+39.78	+29.58	+52.45
Diamond Justice 901S	02/08/2006	.50	.79	.70	.63	.65	.64	.19	.21		.05	.05		.15	.25	.33	.19		150		+37.49	+7.91	
14292649[NHC-AMP-CAP]	M250	+7	+.6	+61	+101	3	48	+7	+29	21	+24	+.2	-7.03	+0	+.65	+.43	+.046	9	1,141	+38.15	+35.95	+28.41	+46.36
Dr J Analyst M250	10/24/2002	.89	.96	.94	.91	.90	.91	.40	.43	37	.32	.33		.46	.56	.61	.48	14	2,556		+34.50	+6.09	
14809171	4B22	+9	+1.0	+55	+119	+1.0	+.40	+12	+24	1	I+69	I+1.0	-11.57	+26	+.63	+.47	+.050		11	+23.63	+57.67	+27.98	+65.59
DRMCTR 1407 Design 4B22	04/15/2004	.45	.64	.51	.50	.66	.55	.21	.23	1	.05	.05		.24	.30	.37	.28		52		+28.82	+.84	
15270965(AHC-CAT-NHF)	553B	+9	+.1	+52	+98	1	+.64	+10	+24	2			-4.71	+24	+.93	+.24	+.044		6	+29.27	+36.45	+33.46	+62.77
DVA Scout 553	02/11/2005	.41	.73	.62	.54	.64	.53	.19	.28	10				.18	.25	.33	.22		43		+32.01	-1.45	
14751094[NHC-AMF]	4104	+11	+.2	+48	+96	I+.4	15	+11	+24	3	I+40	I+.6	-3.85	+19	+.66	+.34	001		14	+27.22	+35.99	+28.68	+62.75
E&B 1407 New Design 4104	02/01/2004	.46	.73	.62	.50	.05	.63	.29	.34	13	.05	.05		.25	.32	.37	.28		61		+35.32	+6.64	
14492305(AMF-CAT-NHF)	N013	+10	9	+54	+95	+.1	+.60	+9	+20	42	+42	+.3	+5.88	+1	+.67	40	+.016		170	+37.64	+32.61	+28.95	+38.61
ER Justice N013	01/15/2003	.79	.85	.85	.85	.87	.87	.61	.70	200	.71	.71		.20	.31	.40	.26		742		+26.63	-2.32	
14796169	P058	+13	-2.8	+62	+121		+.35	+10	+25	1			-13.43	+31	+.49	+.46	+.016		13	+31.04	+56.88	+24.20	+67.19
ER Patriot P058	01/24/2004	.44	.74	.05	.57		.39	.23	.35	18				.29	.32	.32	.26		39		+28.32	+4.12	
15012747(AMP-CAP-REP)	5508	+8	+1.3	+57	+113	+.4	+.59	+12	+42	33	+29	+.5	-24.39	+23	+.87	+.57	+.018	1	493	+30.49	+50.23	+32.58	+72.75
15603496auccatauc	7524	.70	.32	.09	.00	.00	.00	.37	.02	134	-27	-23	-10.10	.34			.30	2	1,449	+ 36.01	143.31	+0.70	
Evar Top Shelf 7524	/324	-46	-1.0	.52	48		40	17	19				-10.10	20	.27	.34	7.050		49	+20.91	+28.62	+3.02	+60.68
1548219fcanc.cat.aum	C11E	+0	+ 7	+56	+110	+0	+ 10	+0	+26		1+2	T+ 1	-0.92	+17	+ 51	+ 46	- 010	6	21	+20.50	+47.41	+24.70	+62.20
G A R Game On	08/15/2005	.47	.75	.65	.55	.54	.52	.20	.21		.05	.05	-0.02	.44	.50	.50	.43	11	45	+29.39	+34.03	+9.24	103.20
13728513rave-cat-wirt	5050	+9	+.9	+54	+106	+.3	- 31	+8	+37	81	+49	+7	-13.27	+30	+.77	+.80	+.024	9	877	+35.06	+43.98	+30.90	+73.52
G A R New Design 5050	08/09/2000	.85	.95	.92	.89	.92	.90	.62	.72	248	.67	.67		.51	.60	.61	.51	13	2.229	133.00	+38.50	+7.60	
15283265(AMP-CAT-WHP)	N5255	+9	+1.6	+53	+94	+.5	+.53	+10	+24		I+16	I+.5	-3.06	+27	+.87	+.71	+.012	10	13	+30.02	+31.99	+32.58	+72.16
G A R Prediction	06/10/2005	.46	.78	.68	.58	.62	.48	.21	.22		.05	.05		.59	.63	.63	.58	38	28		+40.85	+8.27	
15059680(AHC-NHF)	C515	+6	+1.5	+61	+103	+.7	36	+9	+26		I+61	I+.9	-8.40	+21	+.67	+.41	+.002		28	+32.58	+38.01	+28.95	+65.08
G A R Retail Design	02/09/2005	.56	.75	.65	.53	.52	.52	.23	.24		.05	.05		.26	.31	.39	.29		47		+35.81	+6.86	
14222615(AHC-NHP)	6032	+13	6	+48	+90	+.4	34	+1	+28	216	+47	+.5	-2.49	+3	+.86	+.31	013	39	1,361	+33.71	+29.93	+32.41	+55.79
G A R Solution	08/12/2002	.91	.96	.94	.92	.94	.92	.72	.78	532	.72	.72		.75	.78	.79	.74	134	3,373		+42.46	+10.05	

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American Gelbvieh Association

July 2010 International Cattle Evaluation--Gelbvieh Blended B 2007- 2008 Born Non-Parent Percentile Breakdown

	CE	BW	WW	YW	MK	ТМ	GL	CED	SC	ST	CW	
Average	105	1.3	40	74	17	38	-1.4	104	0.4	5	9.24	0
Low	83	-6.8	5	25	0	9	-8.0	90	-0.8	-5	-23.00	-0
High	126	9.6	78	126	34	60	2.6	116	1.9	19	52.00	0
Percentile	Breakdo	own										
1%	115	-3.0	58	100	25	50	-4.0	110	1.2	11	22.00	0
2%	113	-2.4	56	97	24	49	-3.6	109	1.1	11	19.00	0
3%	112	-2.0	55	95	24	48	-3.4	109	1.0	10	18.00	0
4%	111	-1.7	53	94	24	47	-3.2	108	0.9	10	17.00	0
5%	111	-1.5	53	92	23	46	-3.1	108	0.9	10	17.00	0
10%	109	-0.7	50	88	22	45	-2.6	107	0.8	8	14.00	0
15%	108	-0.3	48	85	21	43	-2.4	106	0.7	8	13.00	0
20%	107	0.1	47	83	20	42	-2.2	106	0.6	7	12.00	0
25%	107	0.4	45	81	20	42	-2.0	106	0.6	7	11.00	0
30%	106	0.6	44	79	19	41	-1.9	105	0.5	6	10.00	0
35%	106	0.8	43	78	19	40	-1.7	105	0.5	6	9.00	0
40%	105	1.0	43	77	19	40	-1.6	105	0.4	5	8.00	0
450/	105	1 0	40	75	10	20	1 5	104	0.4	5	7 00	•



PERFORMANCE PERFORMANCE DATA EPD LOOKUP IMPORTANCE OF EPDs SIRE SUMMARY PROGRAMS ULTRASOUND DATA HELPFUL TOOLS



PERFORMANCE

PERFORMANCE DATA

and how to submit your animal's data to the ASA. Click Here.

EPD LOOKUP

Find out what performance data is This EPD lookup page allows you to search the active sire and dam database to meet your EPD requirements. Click Here.

IMPORTANCE OF EPDs

Here you will find out why Expected Progeny Differences (EPDs) remain the best tool for cattlemen to use in making accurate and rapid genetic progress. Click Here.

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ULTRASOUND DATA

data to the ASA. Click Here.

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2010 AUCA JUNIOR NATIONAL

Junior Nationals

AICACalendar

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August 21 • Iowa State Fair Class A Des Moines, Iowa.

P



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Ranchers are enjoying the advantages of across the summer video sales as feed reputation cattle that offer value-added Age & Source Verification.

FCCP Brochure

Red Angus Vid

Red Angus feeders STAR on the big screen!

RAAA sponsors SLA's Video Royale XVIII

New Data Deadlines... for National Cattle Evaluation Data





Angus Avgs.	LOT: 58 P A BLACK ENIGHT 80 BREED: ANGUS BORN:	13990523 TATTOO:80 9/24/01 CONSIGNOR:PARHAM ANGUS
(2002)	BIRTH WEANING EPD EPD ACC EPD ACC	MATERNAL YEARLING MILK
Birth 2.7	VALUES 1.4 .42 48 .41	83 .26 31 .34
WWT 33.0	N BAR EMULATION EXT	CARCASS EPDs - ACC #10776479 CARC WT 6 .26
	B A R EXT TRAVELER 205	12452829 MARBLN3 .02 .27
Milk 17.0	B A R QUEEN TRAVELER 3015	#11991303 RIBEYE .19 .26
	BON VIEW BANDO 598	#11104267 FAT THK 01 .26
Yrlng 62.0.	ATHENA 39	13415889 %RET PR .19 .26
8	ATHENA 116 OF 9M9	12662372
		ON FINAL
	WHAT IF THERE ARE	NO EPDs
	LISTED IN CATALO	OG ???
	AGE OF DAM 2	REA(in2) .
	EAR TAG= 58	INTRAMUSCULAR FAT= . %

Calculating Pedigree Estimate EPDs



Pedigree Est. EPD = $\frac{1}{2}$ Sire EPD + $\frac{1}{4}$ MGS EPD

Calculating Pedigree Estimate EPDs (catalogs with no EPDs)

Sure Shot (Birth EPD = 6.4)



Big Hitter (Birth EPD = 8.8)

Pedigree Est. Birth EPD = $\frac{1}{2}(6.4) + \frac{1}{4}(8.8) = 5.4$

Lucy

EPDs Identify How To Use Different Bulls For Different Purposes

(TAEP)

Balanced Bulls Produce Replacement Heifers Terminal Sires Calving Ease Bulls (Heifer bulls) Carcass Bulls

FY 2010-11 TAEP Cattle Genetics Program - Beef EPD Requirements by Breed - 3

Options

To Qualify: A bull must meet or exceed EPD requirements in EACH EPD category for 1 of the following 3 bull types. Each bull type (Balanced, Terminal or Heifer) has separate EPD requirements. Negative values in (). Balanced and Heifer bulls must meet 3 of 3 EPD categories. Terminal bulls must meet 2 of 2 EPD categories.

"BALANCED" Bulls	Must meet or exceed EPD requirements for: Calving ease and Growth and Maternal												
(1st <u>bull type</u> option)	1.) CALV	/ING	EASE +	<u>2</u> .) GRC	• <u>WTH</u> +	3.) MATERNAL						
	Minim	um	Maximum	Minimu	m	Minimum	Minimu	m	Maximum				
Breed	CE	or	BW	<u>ww</u>	or	<u>YW</u>	MILK		MILK				
ANGUS	3	or	3.2	39	or	73	16	to	31				
BRANGUS & ULTRA-BLACK			0.7	15.9	or	30.5	3.6	to	20.7				
CHAROLAIS	4	or	0.2	16.8	or	30.6	3.1	to	17.1				
CHIANGUS & CHIANINA			1.5	36.5	or	67.4	6.5	to	23.7				
GELBVIEH	104	or	1.4	36	or	67	14	to	25				
GELB-BALANCER	104	or	0.2	30	or	65	13	to	26				
HEREFORD	(0.6)	or	4.3	39	or	64	13	to	30				
LIMOUSIN	7	or	1.6	38	or	73	17	to	35				
LIM-FLEX	7	or	0.6	41	or	80	22	to	37				
MAINE ANJOU			1.5	36	or	71.7	16.6	to	31				
MAINE-TAINER			1.3	32.3	or	66.5	15.9	to	32				
RED ANGUS	3	or	1.1	26	or	49	13	to	28				
SALERS	(0.2)	or	2.3	34.8	or	68.1	14.1	to	29.8				
SHORTHORN & HYBRID	(1.3)	or	2.1	10.4	or	17.6	0.7	to	7.4				
SIMMENTAL	7.4	or	0.9	24.5	or	44.9	(0.1)	to	14.5				
SIMM-HYBRID			-0.1	18.5	or	37.2	(1.1)	to	14.1				

FY 2010-11 TAEP Cattle Genetics Program

"TERMINAL" Bulls	Must meet or exceed EPD requirements for: Calving ease an												
(2nd <u>bull type</u> option)	1.) CAL	/ING	EASE +	<u>2.)</u>	GRO	<u>NTH</u>							
	Minim	um	Maximum	Minimu	m	Minimum							
Breed	<u>CE</u>	or	BW	<u>ww</u>	or	<u>YW</u>							
ANGUS	(1)	or	4.8	46	or	84							
BRANGUS & ULTRA-BLACK			2.2	22.4	or	41							
CHAROLAIS	(3.5)	or	3	25.3	or	44.3							
CHIANGUS & CHIANINA			3.7	44.3	or	80.6							
GELBVIEH	99	or	3.4	42	or	75							
GELB-BALANCER	100	or	2.1	36	or	75							
HEREFORD	(2.9)	or	5.9	44	or	73							
LIMOUSIN	3	or	3.8	44	or	82							
LIM-FLEX	4	or	2.2	46	or	89							
MAINE ANJOU			4.2	41.5	or	81.4							
MAINE-TAINER			3.3	37	or	74.4							
RED ANGUS	(1)	or	3.5	32	or	60							
SALERS	(1.1)	or	3.8	33.3	or	64.1							
SHORTHORN & HYBRID	(5.7)	or	4.5	15.6	or	25.7							
SIMMENTAL	3.1	or	3.4	32.2	or	57.5							
SIMM-HYBRID			2.1	27.1	or	52.7							

FY 2010-11 TAEP Cattle Genetics Program													
"HEIFER" Bulls	Must me	et or	exceed EPD r	equirement	s for:	Calving ease a	nd Growth	and	Maternal				
(3rd <u>bull type</u> option)	1.) CALV	ING	EASE +	<u>2.</u>) GRC	<u> </u>	<u>3.)</u>	ERNAL					
	Minimu	ım	Maximum	Minimum		Minimum	Minimu	m	Maximum				
Breed	<u>CE</u> or		BW	<u>ww</u>	or	<u>YW</u>	MILK	_	MILK				
ANGUS	7	or	1.5	34	or	64	16	to	31				
BRANGUS & ULTRA-BLACK			-0.9	11.1	or	22.8	3.6	to	20.7				
CHAROLAIS	10.9	or	-3.7	12.7	or	23	3.1	to	17.1				
CHIANGUS & CHIANINA			-0.9	31.1	or	58.2	6.5	to	23.7				
GELBVIEH	109	or	-0.7	32	or	60	14	to	25				
GELB-BALANCER	107	or	-1.5	26	or	58	13	to	26				
HEREFORD	2.6	or	1.8	33	or	54	13	to	30				
LIMOUSIN	12	or	0	30	or	60	17	to	35				
LIM-FLEX	10	or	-1.2	35	or	71	22	to	37				
MAINE ANJOU			-0.6	29.3	or	60.8	16.6	to	31				
MAINE-TAINER			-0.6	26.3	or	58.2	15.9	to	32				
RED ANGUS	6	or	-0.8	21	or	40	13	to	28				
SALERS	0.7	or	0.7	20.4	or	43.9	14.1	to	29.8				
SHORTHORN & HYBRID	2.6	or	-0.9	6.9	or	12.2	0.7	to	7.4				
SIMMENTAL	12	or	-1.8	21	or	39.2	(0.1)	to	14.5				
SIMM-HYBRID			-2	14.6	or	30.2	(1.1)	to	14.1				

EPD Traits for Product Carcass Weight - CW Rib Eye Area - REA Fat Thickness - FAT Marbling – Marbl. Grid Merit (Gelbvieh - Angus) \$ values

Why Carcass Merit?

- Tennessee is known as a feeder calf producing state
- Feeder calf production initiates the beef chain



Industry Need For Carcass EPDs ?

National Beef Quality Audits point to several concerns

Low Overall Uniformity & Consistency
Inadequate Tenderness
Low Overall Palatability
Insufficient Flavor
Excessive Weights of Cuts
Low Overall Cutability

Objectives for Carcass Merit EPDs

- Primary Objective: Provide producers with tools to genetically change carcasses
 - Composition (lean/fat-yield grade)
 - Quality (consistency, flavor, juiciness, and tenderness)
- Secondary Objective: Meeting specs (carcass weight, portion size)

Carcass Data

- Hot carcass weight
- 12-13th rib fat thickness
- Ribeye Area
- Kidney-Pelvic-Heart fat % (an estimate)
- Marbling Score
- Tenderness

Obtained from progeny of individuals



Ultrasound Data





•Live weight
•12-13th rib fat
•Rump fat
•Ribeye area
•% Intramuscular fat (IMF)





Using Carcass Merit EPDs

- Must Define the Target
 - High yield and lean endpoint vs. a quality endpoint
 - Is portion size (ribeye area) a consideration?
 - Will replacement heifers be retained?
 - Not a good idea to remove the ability of the cow to deposit fat needed for reproduction



CARCASS EPD,s TRAIT RESULT

- + Marbl.
- + **REA**
- + FAT
- - Marbl.
- - **REA**
- - FAT

- INC MARBLING
- INC REA
- INC FAT
- DECR MARBLING
- DECR REA
- REDUCE FAT

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Sire Evaluation | More Info | Available Searches | E-mail

Breed Average EPD and \$Values - Fall 2010

		PF	RODU	СТЮ	Ν			MA	TERI	VAL		CARCASS					
	CED	BW	ww	YW	YH	SC	CEM	Milk	MW	MH	\$EN	CW	Marb	RE	Fat		
Current Sires ¹	+5	+2.0	+43	+80	+.4	+.39	+7	+21	+31	+.4	+3.36	+12	+.31	+.12	+.009		
Which bull would sire calves with the greatest likelihood of grading choice?																	
		A		C' Ar	W		ľ	1arb Acc			RE Acc			Fat Acc	6		
	+16							+.28 +.39 .55 .53					+.046 .48				
				C' Ar	W		1	1arb Acc			RE Acc		Fat Acc				
	+	10 1 8			23 .52			+.38 .49			065 .46						
	0	.51						0.1	1								

EATING SATISFACTION IS DEPENDENT UPON THE **ABILITY TO IDENTIFY SEEDSTOCK THAT PASS THESE TRAITS ON TO** THEIR OFFSPRING

FEEDER CALF ALLIANCES

Some are requiring calves from sires with a minimum EPD for carcass traits. e.g. Marbling or IMF

Use Genetic Tools --- EPDs

Identify Bulls that will contribute to Improvement in economically important traits





@ if one saves their own replacement heifers

Establish Benchmark of Productio by Maintaining Performance Records

Performance Records Reveal The current level of herd performance What direction (if any) the herd needs to move? Identifies which trait(s) need improvement **Reference point for selection in trait(s) that** need improvement
Genetic Correlations (Antagonisms)



- Growth rate and Calving ease Birth weight vs. Yearling weight
- Milk production, Growth rate (size) <u>vs. Fertility</u>

vs. Maintenance requirements

Quality vs. Red Meat Yield

USING EPDs IN SIRE SELECTION

Assists in identifying outliers (low birth – high growth)

(high marbling – low fat)



Which is the "BEST BULL"?

Pick A Bull



Calving Ease Bull ?



Don't buy a "pig in a poke' or a "bull in a bag" without Some type of label.

Nutrition Facts Serving Size 1 cup (228g) Servings Per Container 2	*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or low er depending on your calorie needs: Calories: 2,000 2,500
Amount Per Serving Calories 260 Calories from Fat 120	Total Fait Less than 659 80g Sait Fait Less than 20g 25g Choleste rol Less than 300mg 300mg Sodium Less than 2,400mg 2,400mg
Total Eat 13a 20%	Dietary Fiber 25g 30g
Saturated Eat 5d 26%	Calories per gram:
Cholesterol 30mg 10%	Fat9 • Carbohydrane 4 • Protein 4
Sodium 660mg 28%	
Total Carbohydrate 31mg 10%	
Dietary Fiber 0g 0%	
Sugars 5g	
Protein 5g	
<u>Vitamin A 4%</u> ● Vitamin C 2% Calcium 15% ● Iron 4%	

Preliminary Selection on EPD's Then focus on:

- Structural soundness

- -Conformation
- frame, muscling, etc.
- Temperament
- Scrotal circumference





STRUCTURAL SOUNDNESS

Skeletal design & how well the bones support the animal's body

Related to Longevity FEET LEGS UDDERS













ANGLE OF PASTERN



Shock Absorber for the animal

FRONT LEG STRUCTURE



HIND LEG STRUCTURE



Correct

Too straight



Sickle-hocked







Cow-hocked

Australian Angus Association

STRUCTURAL ASSESSMENT – an explanation

The structural assessment system uses a 1-9 scoring system for feet and leg structure:

- A score of 5 is ideal.
- 4 and 6 show slight variation from ideal, but this includes most animals. Any animal scoring 4 or 6 would be acceptable in any breeding program.
- 3 and 7 shows greater variation, but would be acceptable in most commercial breeding programs. However seedstock producers should be wary.
- 2 and 8 are low scoring animals and should be looked at carefully before purchasing.
- 1 and 9 should not be catalogued and are considered culls.





ANGLE OF SHOULDER



45 degree angle is desired



Correct (Left) / Incorrect (Right) Structures



Angle of Pastern is usually same as angle of shoulder

UDDER SOUNDNESS



RELATED TO: INJURY MASTITIS LONGEVITY CALF PERFORMANCE (AFFECTED BY REDUCTION OF MILK FLOW)

TEAT SIZE





NEWBORN CALVES AND COLOSTRUM CIRCUMFERENCE vs. LENGTH



Time to first nursing & Relationship to sickness

Time to first nursing & Relationship to teat score



UDDER & TEAT CHARACTERISTICS APPEAR TO BE HERITABLE



Genetic Improvement in a Herd

- Identifying & Selection of genetic superior individuals
 - **–Using EPDs**

• Crossbreeding – Heterosis & Complementarity

Benefits of Crossbreeding

Optimizing breed complementarity Blending good characteristics of 2 or more breeds into one individual

muscling, carc. quality & growth

e.g. Continental X British breeds

Capitalizing Heterosis (Hybrid Vigor)

HETEROSIS (HYBRID VIGOR)

Measure of the superior performance in a trait of the Crossbred individual over and above the average of performance of that trait in the two parental breeds.

Example of % heterosis: Breed A avg. weaning weight = 450 Lbs. Breed B avg. weaning weight = 510 Lbs. Average of A & B weaning weight = 480 Lbs **AB** crossbred avg. weaning weight = 504 % Heterosis = <u>504 - 480 X 100 = 5%</u> 480

Response to Heterosis

Inversely related to the heritability of the trait

More diverse origin of breeds greater response

"It is possible to have negative heterosis with the use of a Genetically inferior individual within a parental breed"

Beef Cattle Traits

	<u>Heritability</u>	<u>Heterosis</u>
Reproduction (fertility)	Low	High
Production (growth)	Moderate	Moderate
Product (carcass)	High	Low

Types of Heterosis

Individual expressed in the XB calf Maternal expressed in the cow Paternal expressed in the sire

Single Most Important Trait In The Beef Industry ??

REPRODUCTION





Measure of Production

Lbs calf weaned / cow exposed = % calf crop weaned X avg. wn. Wt.

Prorates total lbs. Calf weaned across all cows maintained Best measure of productivity

Lbs. Calf Weaned / Cow Exposed

<u>% Calf crop</u>	<u>Avg. W.W</u>	<u>Lbs. / cow</u>
100	500	500
90	500	450
80	500	400
70	500	350

% Heterosis expressed in Beef Cattle for various traits

Trait	Individual	Maternal
Calving %	3.4	6.6
Calf survival	1.7	2.0
Birth wt.	2.7	1.6
Wean Wt	4.7	4.2
Lbs calf/cow	8.5	14.8
% heterosis for Lbs. Calf/cow



Maternal & Individual Heterosis is additive

% of Maximum Heterosis realized in different crossbred percentages

Crossbred %	% Max. Heterosis
50: 50	100
50:25:25	100
9/16:7/16	87.5
3/8:5/8	75
5/16:11/16	62.5
75:25	50
3/16:13/16	37.5
7/8:1/8	25

Crossbreeding Systems

To improve Lbs. Calf weaned per cow maintained

Two Way Cross



Only Capture Heterosis in Calf (+ **8.5** % lbs calf/cow)

TWO BREED ROTATION

Replacements

Breeding Group 1

Females bred to Bull of Breed "A" Example:Angus bulls **Breeding Group 2**

Females bred to Bull of Breed "B" Example: Hereford bulls

Replacements

Requires 2 sires, 2 pastures & minimum 50 cows – captures 67 % of Heterosis (+16% lbs. calf/cow) Select sires similar in maternal, calving ease & mature size



Requires: 3 Bull breeds, 3 separate pastures, a minimum of 75 cows And captures 86% of Heterosis (+20% Lbs calf/cow) Select sires similar in calving ease, maternal traits & mature size

Maximizing Both Maternal and Individual Heterosis



+ 23.3 % Lbs. Calf weaned / cow exposed

Angus X Angus:Hereford (backcross)



+ 19 % increase Lbs. Calf weaned / cow exposed

Heterosis in different crossbreeding systems

% Heterosis in XB Population

System	brood cows	calves	lbs calf wn/cow
Straightbred	0	0	0
Two breed	0	100	8.5
2 breed crisscross	67	67	15.6
3 breed rotation	86	86	20.0
3 brd cross termina	al 100	100	23.3
Backcross	100	50	19.0

Effect of Heterosis for Commercial Producers

Consider pounds of calf weaned per cow exposed to breeding

Breeding System		Productivity*	lb calf	\$ increase (@ 0.85/Lb.)
1.	Straightbred cows producing straightbred calves	100	525	0
2.	Straightbred cows producing crossbred calves	108.5	570	\$ 38.25
3.	Crossbred cows producing crossbred calves	123.3	645	\$ 102.00

*Based on data from USDA MARC involving Bos taurus crosses and purebreds.

Main Advantage of XB

Because of maternal heterosis for productivity (fertility, survivability, calf weaning weight, longevity), much of the advantage from crossbreeding systems comes from the use of a *crossbred cow*.

XB Replacement Heifers



Opportunity

Crossbreeding Considerations

- Systematic crossbreeding has benefits. Heterosis; Complementarity
- Planning is critical.

Use within breed EPDs as a tool.

• Crossbreeding is NOT a substitute for poor management.

Breeding Systems

- Choose your breeds based on marketability, availability, uniformity and adaptability.
- In a crossbreeding system, balance the characteristics of the breeds used.
- Target calving ease, growth, maternal, and cow size genetics to match environment
- Choose superior performance bulls. Use EPDs as a tool.

Breeds Grouped Into Biological Types

	Growth &	Lean to	Age At	Milk
Breed Group	Size	Fat	Puberty	Prod
Jersey	X	X	X	XXXXX
Herf-Ang	XXX	XX	XXX	XX
Red Poll	XX	XX	XX	XXX
Tarentaise	XXX	XXX	XX	XXX
Pinzgauer	XXX	XXX	XX	XXX
Brahman	XXXX	XXX	XXXXX	XXX
Braunvieh	XXXX	XXXX	XX	XXXX
Gelbvieh	XXXX	XXXX	XX	XXXX
Holstein	XXXX	XXXX	XX	XXXXX
Simmental	XXXXX	XXXX	XXX	XXXX
Limousin	XXX	XXXXX	XXXX	X
Charolais	XXXX	XXXXX	XXXX	X
Chianina	XXXX	XXXXX	XXXX	X

Crossbreeding Considerations

Avoid "Sale Barn Sire Selection".





Keep it Simple!

ELIMINATE "WRECKS" (follow a plan)

