



BEEF
GENETICS
FORUM

Real world genomics in the U.S

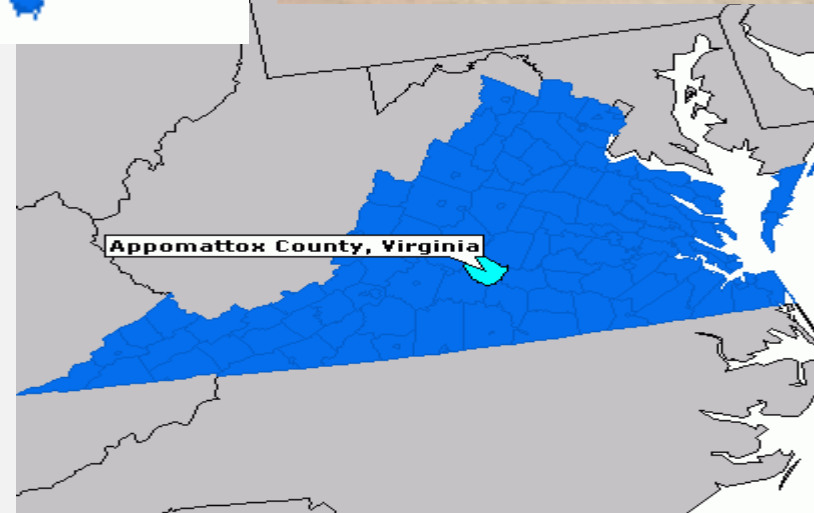
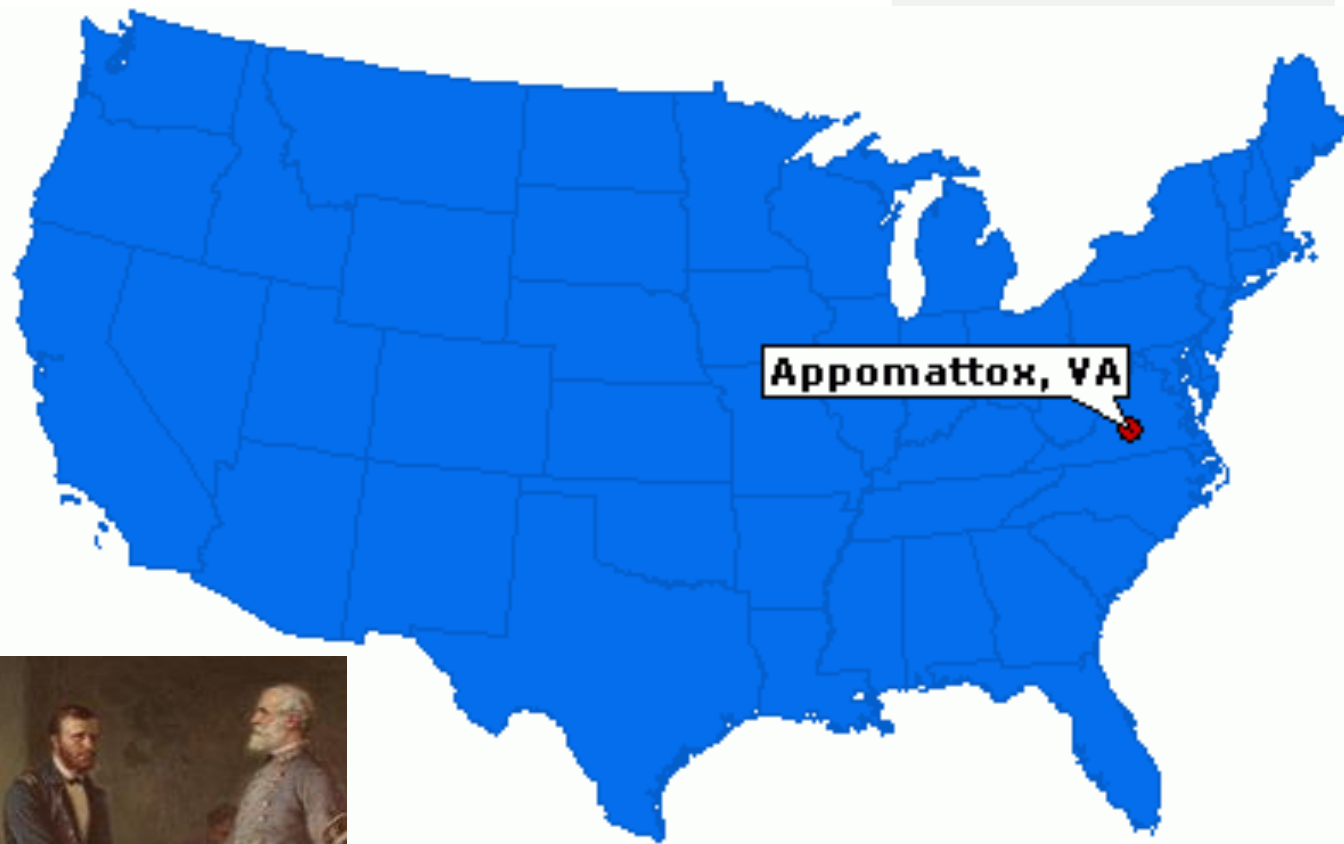
Jim Johnson, Zoetis Beef Genetics Manager



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A little about myself

WHERE I LIVE IN THE U.S.

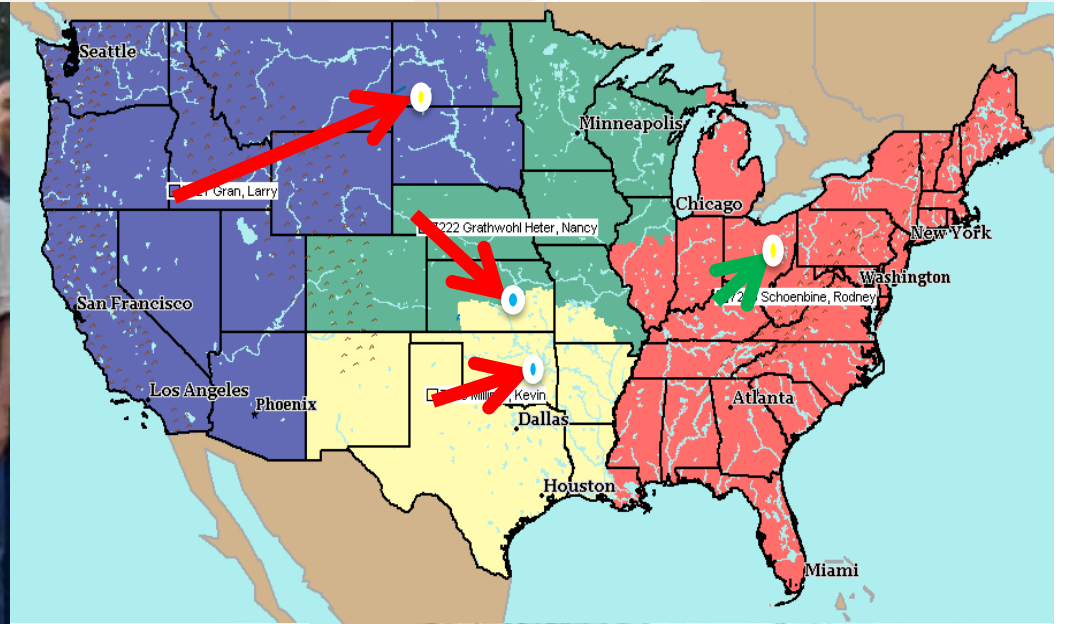


ABOUT MYSELF

beef4genetics
GENETICS



MY TEAM IN THE U.S.

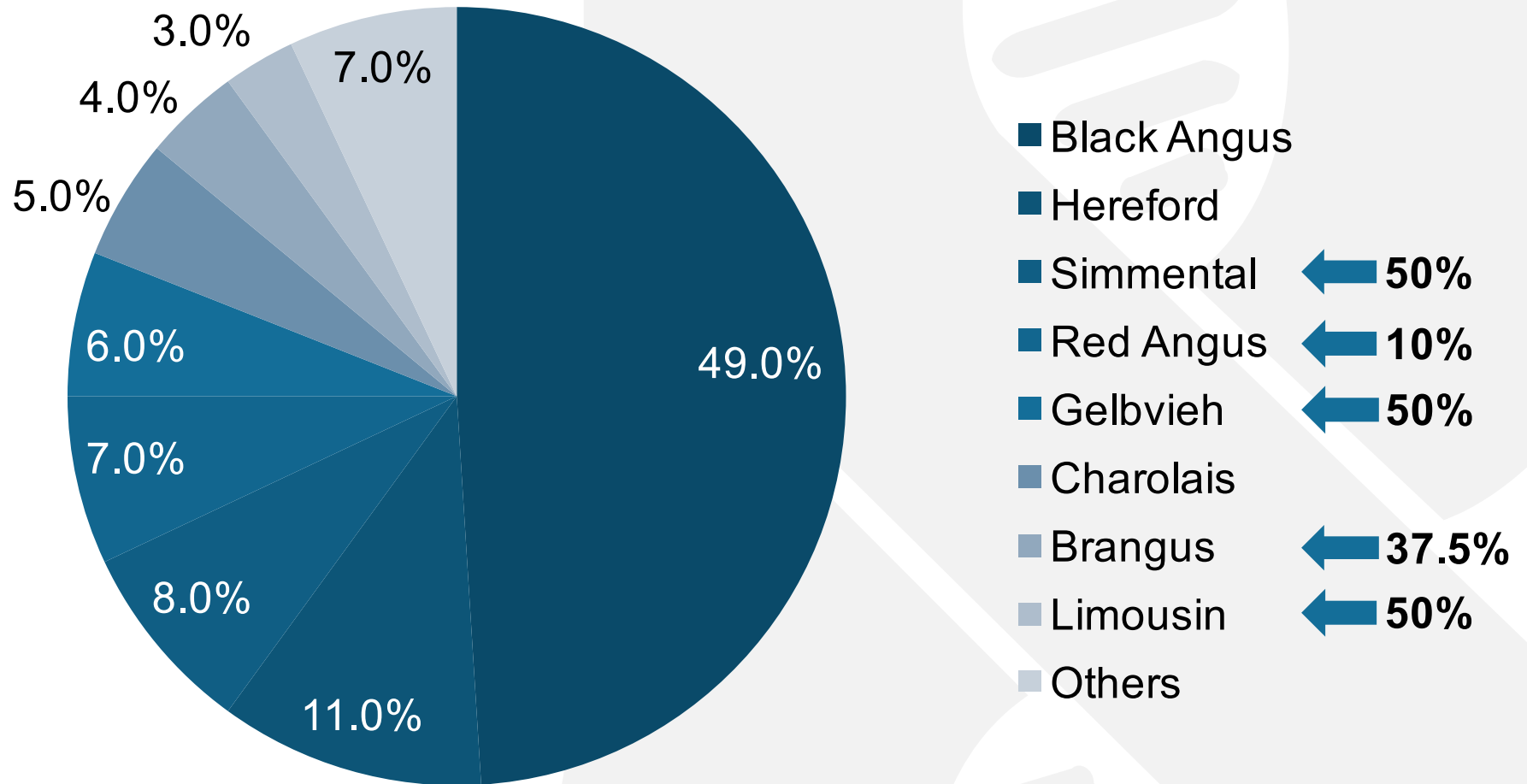




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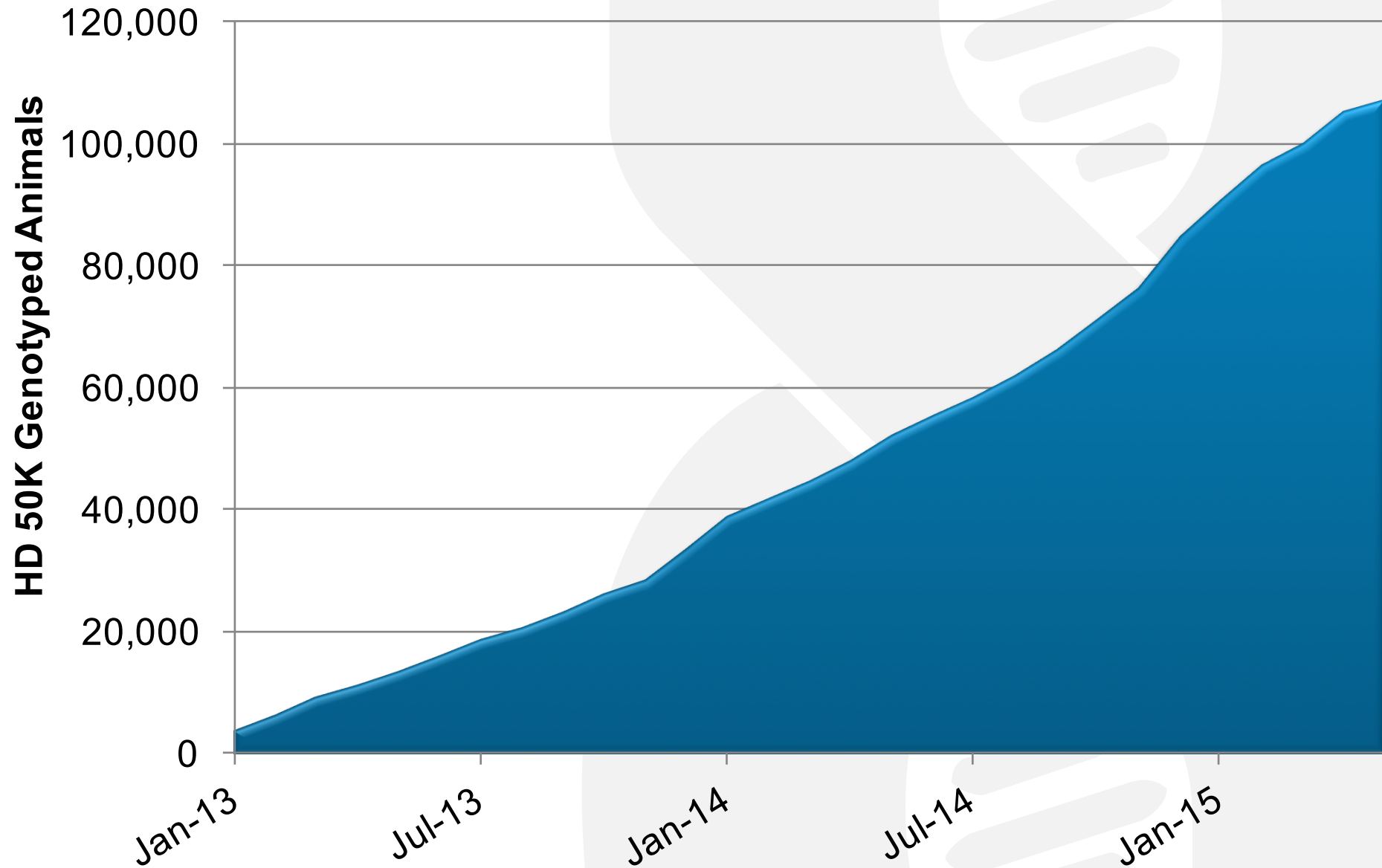
How genomics are doing in the U.S.

SEEDSTOCK SEGMENT IN THE U.S.



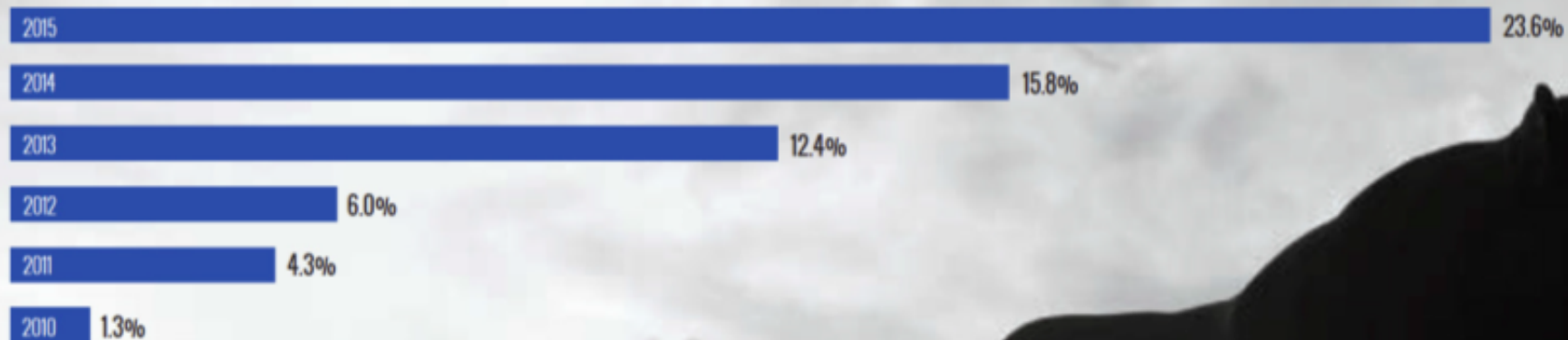
8 BREEDS 93% OF THE MARKET

50K FOR ANGUS ADOPTION



Growth in Genomic Testing

As a percentage of total Angus registrations



KEYS TO SUCCESSFUL GENOMIC IMPLEMENTATION



1. Selection

- a) How fast can I make genetic progress.
- b) How much faster can I make progress than my competition

2. Marketing

- a) Making sure my customer are aware of my commitment.

3. Education

- a) How much more confidence can my customers have in my product.



Noon - Viewing of Bulls
5:00 p.m. - CAB® Steak Dinner Served
Special Cattleman's Discussion on the topic of
"More Dependable Bull Buying with Genomic-Enhanced EPDs"
Featuring Tonya Jansen, Angus Genetics Inc., Dr. Kent Anderson, Pfizer Animal Genetics
& Nolan Stone, JBS Piro Rivers Feeding

GENOMIC IMPACT ON SELECTION EFFICIENCY AND RATE

Scenario 1: Traditional Selection Using EPD

Path	Selection %	Intensity	BIF Acc	Acc (rTI)	Gen. Int (L)	i * rTI
Sires of Bulls	5	2.06	0.65	0.94	10	1.93
Dams of Bulls	10	1.75	0.10	0.44	5	0.76
Sires of Cows	20	1.40	0.15	0.53	6	0.74
Dams of Cows	20	1.40	0.05	0.31	6	0.44
Genetic Gain (sd units)		0.14		Totals	27	3.87

Scenario 2: Selection Using Genomically Enhanced EPD

Path	Selection %	Intensity	BIF Acc	Acc (rTI)	Gen. Int (L)	i * rTI
Sires of Bulls	5	2.06	0.66	0.94	7	1.94
Dams of Bulls	10	1.75	0.29	0.70	5	1.24
Sires of Cows	20	1.40	0.31	0.72	5	1.01
Dams of Cows	20	1.40	0.26	0.67	6	0.94
Genetic Gain (sd units)		0.22		Totals	23	5.13

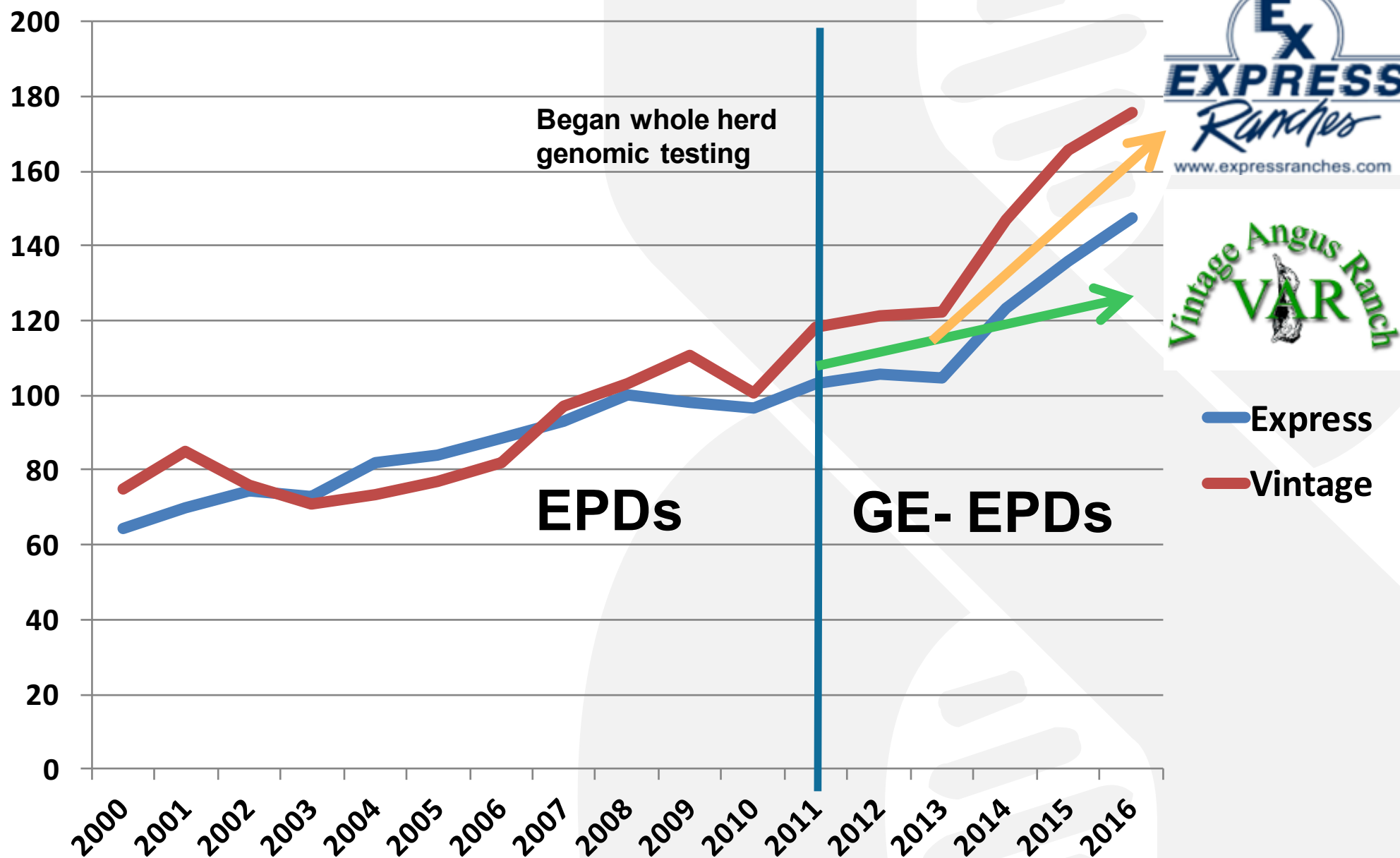
Rate Improvement 56%

SHARL vs. JIM



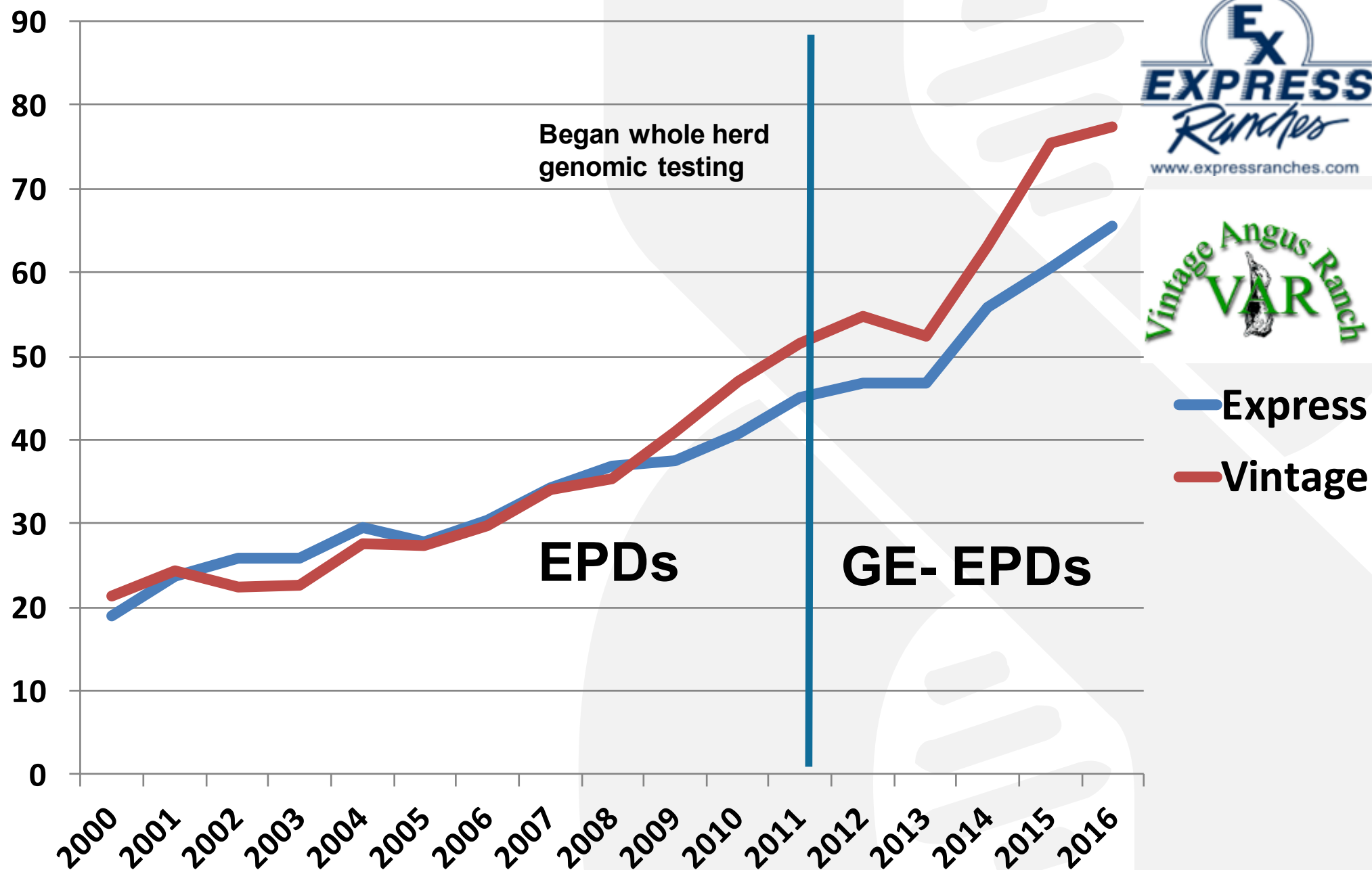
EXPRESS AND VINTAGE GENETIC POST-WEANING (\$B) TRAITS – BEFORE AND AFTER GENOMICS

beef4genetics
GENETICS



EXPRESS AND VINTAGE GENETIC MATERNAL (\$W) TRAITS – BEFORE AND AFTER GENOMICS

beef4genetics
GENETICS



MARKETING YOUR COMMITMENT



zoetis

Better bull buying — GE-EPDs and percent ranks powered by HD 50K from Zoetis

The more cow-calf producers know about the bulls they buy, the more they can take advantage of the genetic forces — selection and mating — that drive the productivity and value of each calf-crop. With genomic-enhanced expected progeny differences (GE-EPDs) and percent ranks powered by High-Density (HD) 50K from Zoetis, commercial users can unlock the power of these forces like never before.

The value of HD 50K

HD 50K for Angus includes genetic predictions in the form of percent ranks for 19 traits plus parentage verification. For most of these traits, Angus Genetics, Inc. (AGI), computes and reports weekly GE-EPDs powered by HD 50K, which are the most accurate genetic predictions possible for young bulls with limited or no progeny. The resulting EPD accuracy is generally equivalent to tested bulls having an initial progeny proof of roughly a dozen calves/carcaasses/daughters with performance data contributing to their EPDs (ranges from six to 22 progeny, depending upon the trait — Table 1). Increasingly, Angus bull buyers are demanding tested bulls (Figure 1).

HD 50K percent ranks, interpretation for non-GE-EPD traits

HD 50K percent ranks from Zoetis are currently based on a reference population of nearly 40,000 tested Angus animals. Ranks range from 1 to 100, with lower numbers generally favored for most traits (Table 1). Some traits for which HD 50K percent ranks are available do not yet have GE-EPDs. These include ranks for residual feed intake (RFI) and end-product tenderness (Tend).

Percent ranks for RFI provide Angus bull buyers with added feed efficiency information, while ranks for Tend explain approximately one-fourth of the genetic differences in this component of eating satisfaction.¹

Selection — Better bull buying for specific purposes

Higher-accuracy GE-EPDs and more complete trait information from HD 50K percent ranks help Angus bull buyers more dependably select bulls for specific purposes, including:

- **Heifer bulls** — GE-EPDs for calving ease direct (CED) and birth weight (BW) have accuracies roughly equivalent to bulls with 22 and 12 progeny, respectively, with calving ease and birth weight data recorded (Table 1).
- **Growth/carcaass bulls** — GE-EPDs for growth (WW & YW), feed efficiency (RADG) and carcaass merit (CW, Marb, RE, Fat) have accuracies that are basically equal to bulls having 21, 17 and 10 progeny/carcaasses, respectively, with performance data recorded (average of trait groupings from Table 1).
- **Maternal bulls for making replacements** — GE-EP (YH and MW) deliver the rough equivalent accuracy recorded for these traits (average of trait grouping calving ease maternal (CEM) provide information
- **All-purpose bulls** — Across all applicable traits, G to bulls with a dozen progeny/carcaasses/daughte

Mating

Besides selection, mating is the other genetic force that matched with sets of females to accentuate strengths and replacements. This is especially true if commercial Angus sires are used for selection and mating (see www.angus.org).

As well, HD 50K-verified parentage improves the accuracy of inbreeding. It also reliably documents relationships to be

Summary

Angus bulls with more accurate and complete GE-EPDs matched with females for specific purposes to produce

To learn more, visit zoetisUS.com/genetics or angus.org, your Zoetis or American Angus Association, represent

1 KCF Bennett Absolute C55

ANGUS Calved: 02/08/2015 Reg#: 18339205 Tattoo: C55

#SAV Final Answer 0035

KCF Bennett Absolute

Thomas Miss Lucy 5152

Fintry of Graham 48708

KCF Miss 48708 X236

+KCF Miss In Focus U90

#Sitz Traveler 8180

SAV Emulous 8145

#+Wulffs Ext 6106

Thomas Miss Lucy 3050

Fintry of Graham 47134

Graham Ali 6

#Mytty In Focus

KCF Miss Sentry M266

CE	BW	WW	YW	Milk	SC	DOC	CW	Marb	RE	SW	SB	Dam Prod
+12*	+2*	+72*	+131*	+21	+1.40*	+25*	+51*	+53	+54*	+81.58*	+160.62*	4@104

★ True to his sire's billing, C55 is a big testicled, heavy muscled calving ease prospect who also ranks in the top 1% of the breed for WW and YW. His combination of CE, BW, WW, YW, RADG, SC, DOC, \$W, \$F and \$B is unmatched among all non-parent bulls in the breed. His dam, by the rare 48708, is a top tier producer, just like most of her paternal sisters.



1 EXAR DENVER 5977B

Reg. No: +18039978 Tattoo: 5977B DOB: 1/12/2015

EXAR UPSHOT 05628 SITZ UPWARD 3037R
EXAR DENVER 2002B EXAR BARBARA 1020
EXAR ROYAL LASS 1067 EXAR 263C
SYDGEN MANDATE 6079 S S OBJECTIVE T510 0726
V A R RITA 2160 SYDGEN GINA 4235
V A R RITA 0141 CONNEALY ALL AROUND
JLM RITA 6957

EPDs current as of 03/22/2016

CED	BW	WW	Milk	YW	SC	DOC	CW	MARB	REA	Fat
6	1.9	67	35	123	0.70	7	60	1.01	0.61	0.063

HP EPD	SW (Weaning)	SF (Feedlot)	SG (Grid)	SB (Beef)
13.0	75.24	93.25	35.70	176.36

CED	BW	WW	YW	RFI	DMI	YH	SC	DOC	HP	CEM	Milk	MW	MH	CW	Marb	REA	FAT	Tend
39	60	10	4	74	73	10	52	64	40	24	9	17	6	3	19	31	81	36

3-Star Calving-Ease. Excellent performance — big weaning weight and yearling weight. Tremendous phenotype with moderate birth. Top 1% \$B, Top 1% \$F, Top 1% CWT, Top 1% Milk, Top 1% YW, Top 2% SW, Top 2% WW, Top 10% Marb

Chair Rock 100X 6017

Birth Date: 1/31/2016 Cow +18426611 Tattoo: 6017

6017's	Production	Record	ACT BW	BWR	WWR	YWR	6017's	Production	Record	%IMF	REA	FAT	RU FAT
6017's	Production	Record	ACT BW	BWR	WWR	YWR	6017's	Production	Record	%IMF	REA	FAT	RU FAT
6017's	Production	Record	ACT BW	BWR	WWR	YWR	6017's	Production	Record	%IMF	REA	FAT	RU FAT

A A R Ten X 7008 SA
G A R 100X +17774305 G A R 5050 New Design A91
G A R New Design 5050
Chair Rock 5050 G A R 1131 (DOF) 17176578 Chair Rock Objective 7042
Mytty In Focus
A A R Lady Kelton 5551
G A R New Design 5050
B/R New Design 036
G A R Precision 706
S S Objective T510 0726
Chair Rock Grid Maker 4047



CED	BW	WW	YW	DMI	YH	SC	DOC	HP	CEM	Milk	MW	MH	CW	Marb	RE	Fat	Tend
8	18	10	5	75	25	79	9	45	30	5	40	54	8	11	7	38	69

1B

Chair Rock 100X 6018

Birth Date: 1/31/2016 Cow +18426612 Tattoo: 6018

		Overall Date: 1/1/2010				COW				1/1/2012				Overall Date: 1/1/2010																			
		CRP%	CEU%	BW%	WW%	YW%	RADG%	DMI%	YH%	SC%			CRP%	CEU%	BW%	WW%	YW%	RADG%	DMI%	YH%	SC%												
6018's																																	
Production		+161%				-1.74%				+644%				+1201%				+2710%				+6780%				+910%				-3095%			
Record		DOC%				HP%				CEM%				Milk%				MW%				MH%				SEN%							
ACT BW		+321%				+23.61%				+143%				+332%				+585				+270%				-22.8896%							
		CW%				MARB%				REA%								Fat%															
BWR		+534%								+8815%				+1.231%								-384%											
		SW%				SF%				SG%				SOG%				SYG%				SB%											
WWR		+87.501%				+81.863%				+52.432%				+38.7510%				+13.671%				+172.571%											

A A R Ten X 7008 SA
G A R 100X +17774305 G A R 5050 New Design A91
G A R New Design 5050
Chair Rock 5050 G A R 1131 (DOF) 17176578 Chair Rock Objective 7042
Mytty In Focus
A A R Lady Kelton 5551
G A R New Design 5050
B/R New Design 036
G A R Precision 706
S S Objective T510 0726
Chair Rock Grid Maker 4047



CED	BW	WW	YW	DMI	YH	SC	DOC	HP	CEM	Milk	MW	MH	CW	Marb	RE	Fat	Tend
2	6	15	5	96	20	93	2	31	4	10	74	59	15	11	3	16	58

EDUCATION IS KEY!



11:00 AM - Presentation by Zoetis, Kevin Milner & Blake Confer on "Enhanced EPD's from DNA Testing and its Impact on Cattle Values"

**Are you using the
new DNA TOOLS
to your best
Advantage?**



Larry Gran
zoetis.com

LARRY GRAN, Zoetis Genetics – How to use genetic testing for profit and selection in your commercial cow herd.

Dr. TONYA AMEN, Angus Genetics Inc. - Breeding cattle in the Genomics Era.

TOM BRINK, Top Dollar Angus – How to add value to feeder calves through Top Dollar Angus.



How does Genomics apply to my operation?

Nancy Grathwohl Heter had been involved in the genomics industry since 2005. She is responsible for education of the Zoetis Genetics Portfolio. **She will discuss the genomics tools available today to more quickly & accurately select cattle that will enhance the profitability of your operation.**



10:00 a.m.
10:45 a.m.

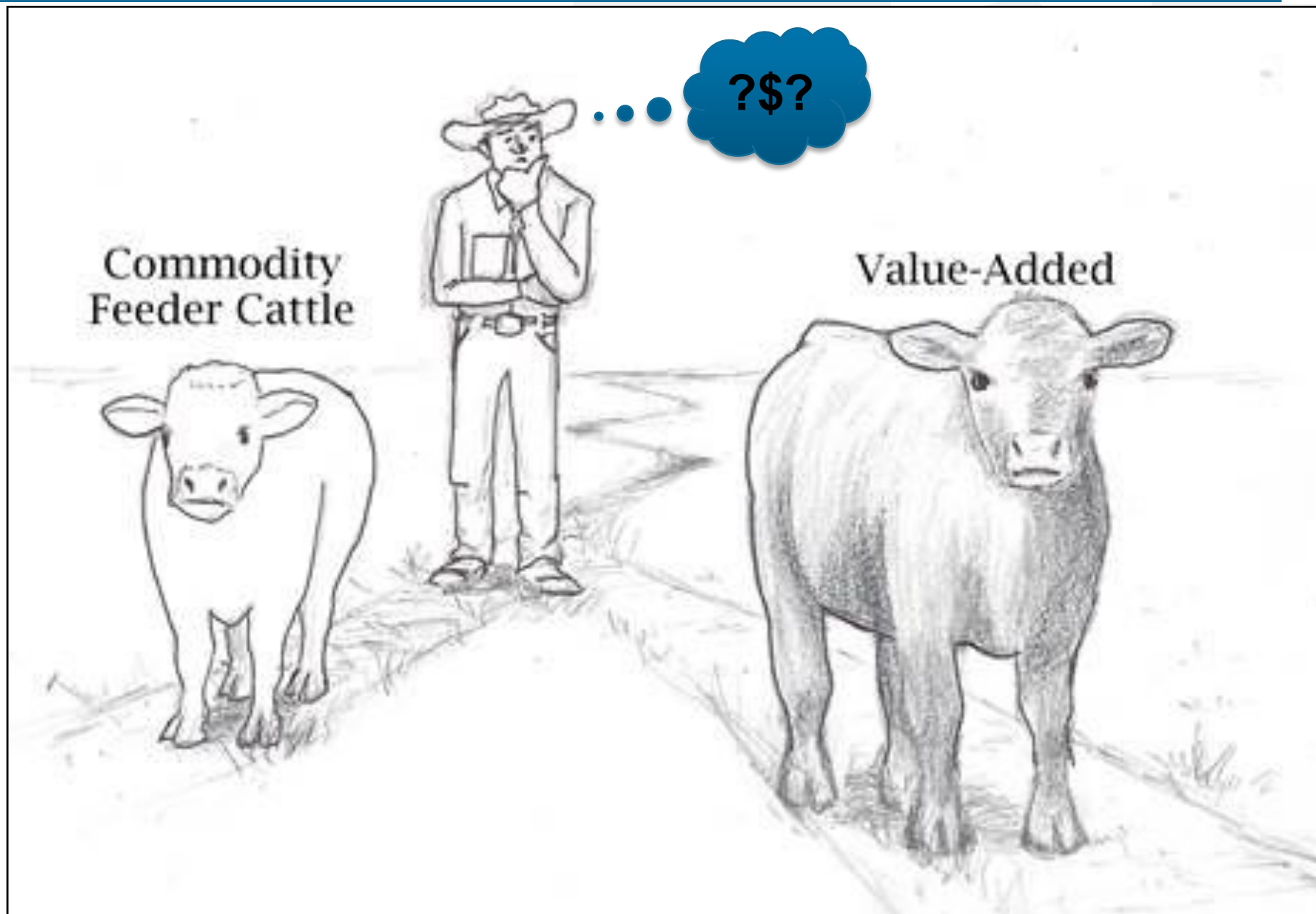
Rodney Schoenbine, Zoetis
Trade Show, Beef Unit Tour & Lunch



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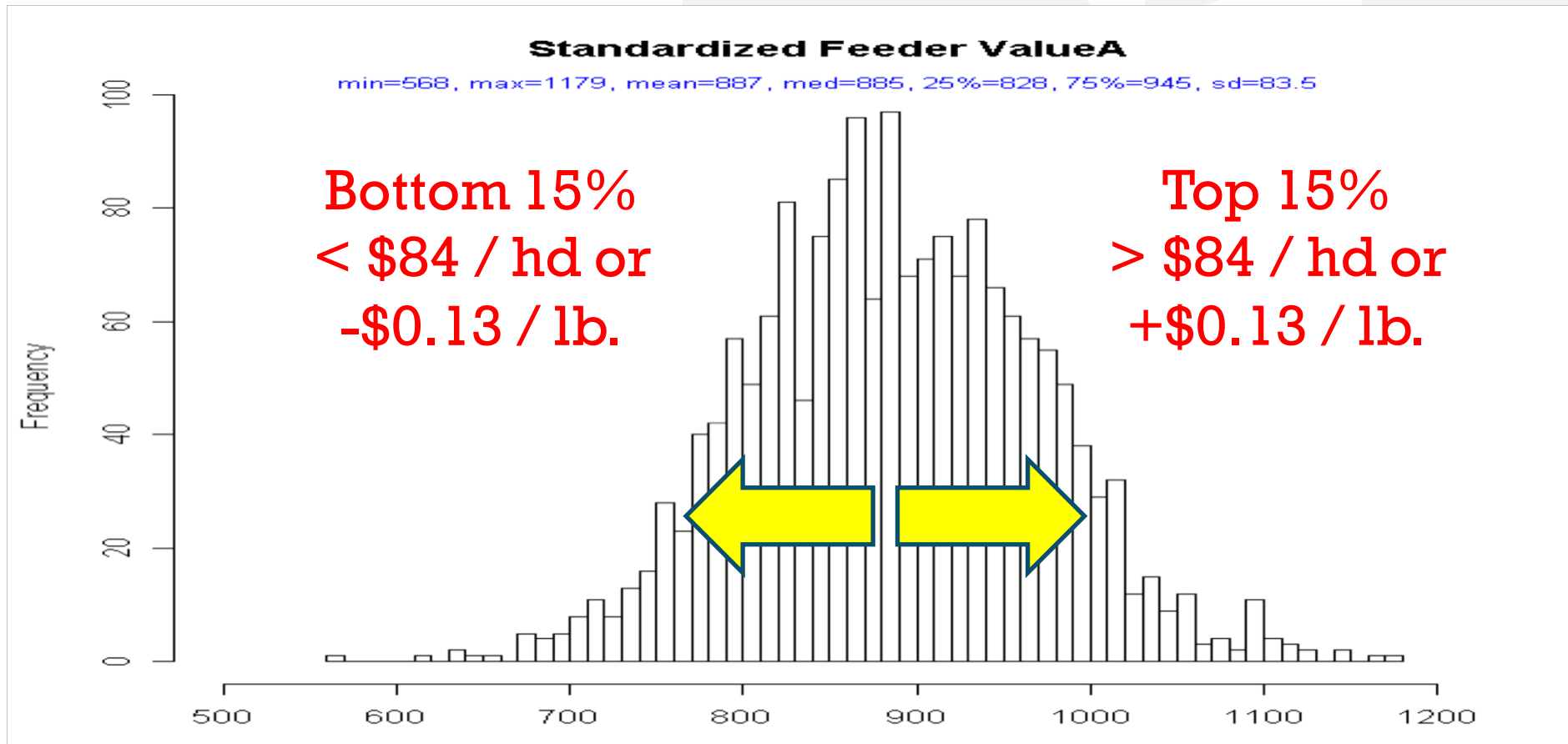
**Genomics at the point
of commerce.**

Cattle Feeder's Dilemma



FEEDLOT CLOSEOUTS PROVE IT!

- DCFY feedlot data analysis of 185,000 head and 2,800 lots over 5 years.
- Estimated breakeven standardized to 650 lb. in weight, constant \$1.20 fed market, \$6 / bu corn, typical grid marketing formula.



**True breakeven purchase price range
of \$0.90 to \$1.80 per lb. on a 650 lb steer!**

\$585

GAIN & GRADE ECONOMICS

Business

MONEY In The BANK

Cattle that grow and grade are exactly what feedyards want. BY TOM BRINK

The purpose of this article is to highlight the exceptional value and profit potential created by cattle that grow fast and grade well. Cattle that grow and grade are winners at all points along the beef supply chain. Feedyard managers and packers really like these cattle, and will bid aggressively to get them.

Why? Because cattle that grow and grade are excellent performers in the feedyard and

weighed 1,350 lbs. or more when leaving the feedyard, and graded 65% Prime and Choice or higher at the packing plant. These cattle are appropriately labeled high-growth, high-grade (HGG).

The second group is comprised of 113 pens (26,779 head) that finished lighter and graded lower. These steers finished below 1,300 lbs., graded 45% or less Prime and Choice, and can be aptly identified as low-growth, low-grade (LGG) cattle.

Both groups were fed in the same Five Rivers feedyards, managed the same from placement to finish, and marketed during the same period of the year. Thus, most of the difference

alone is evidence of that. Let's look at how these two groups of cattle compare in key performance categories.

Feedyard results

- * Days on feed: HGG steers stayed on feed 16 days longer. This is because they kept eating and had the genetic propensity to continue growing efficiently and reach a heavier finish weight. Feedyards appreciate this characteristic, especially when feeder cattle numbers are in as small supply as they are currently.
- * Dry feed intake: High-performance cattle tend to eat more

Tom Brink

Feedlot Closeouts, yearling steers	High Growth, High Grade*	Low Growth, Low Grade**
No. of Pens	151	113
Total Head	36,266	26,779
Death Loss	1%	1%
Placement wt., lbs.	806	797
Finish wt., lbs.	1,402	1,282
Days on Feed	166	150
Daily Dry Matter intake, lbs.	20.66	19.92
Average Daily Gain, lbs.	3.59	3.3
DMI/gain, lbs.	5.77	6.05
Cost of gain, \$/cwt.	\$88.39	\$93.64
Dressing %	64.6	64.1
% Prime and Choice	73%	40%
% CAB	19%	5%
% Yield Grades 1-3	89%	95%
Grid Premium, \$/head	\$39	(\$13)
Value/head sold	\$1,415	\$1,256
Profit/(loss) per head	\$44.28	(\$35.59)

Source: BEEF,
October 2012

Difference
\$80.17

FEEDER CALF VALUATION



RFC CERTIFICATE

- **Genetic Merit Scorecard**

- Computed using bull battery EPDs from last 10 years
- If unavailable, may use current bull battery EPDs, and Genomics:
 - Dams, or
 - Heifer mates, or
 - Feeder cattle

- **SelectVac® included**



Genetic Merit Scorecard

Tom and Paula Watkins
Yale Ranch
Hugspood, OK 73748
2014 Fall Calf Weighing

\$41.24
Relative Value / CWT

Estimated at a live weight of 100 lbs.

Average Daily Gain	Carcass Weight	Feed:Gain
★★★★★	★★★★★	Not Available
Ribeye Area	Yield Grade	Percentage of Choice
★★★★★	★★★★★	★★★★★

Age and Source
This certification assures the ranch origin as noted above. The cattle were born beginning on 9/7/2014 and ending on 12/10/2014

Calf Management Practices
These cattle were managed in accordance with prescribed veterinary practices as follows:

Action	Product	Administered/Expected Date
Cows - Vaccination	FlagGuard Gold PP 10	12/4/2014 - Audited
Cows - Deworm	Moxanta 1% Iq	12/4/2014 - Audited
Calfs - Vaccination	Corvac 8, SPOVACE 3	12/4/2014 - Audited
Calfs - Vaccination	Bov-Shield Gold BR-BVD	3/25/2015 - Audited
Calfs - Vaccination	Vision 7 Scissors w/Spur	3/25/2015 - Audited
Calfs - Deworm	Moxanta 1% Iq	3/25/2015 - Audited

Non-Hormone Treated Cattle (NHTC)
These cattle have not been administered hormonal growth promotants (HGP's) at any time during their life and also meet all requirements of source and age verification. Any animal identified as nonconforming has been removed from the program. Beef from cattle which are certified under this PVP, from birth to harvest, meet the import requirements established by the European Union.

Never Ever 3 (NE3)
These cattle have not been administered hormonal growth promotants (HGP), antibiotics or animal or avian by products at any time during their life. Any animal identified as non-conforming has been removed from the program. Beef from cattle that are certified under this PVP, from birth to harvest, meet the import requirements established by the European Union.

Certificate Number
2015173352053541

Signed: *[Signature]*
Verified Beef

REPUTATION FEEDER CATTLE



DIFFERENCES CAN BE LARGE



Genetic Merit Scorecard		
Jeremy Haselhorst Jeremy Haselhorst Mansfield, SD 57460 Spring 2014		\$16.18 Relative Value / CWT
Estimated at a base weight of 500 lbs.		
Average Daily Gain	Carcass Weight	Feed:Gain
★★★★☆	★★★★★	☆☆☆☆☆
Ribeye Area	Yield Grade	Percentage of Choice
★★★★★	★★★☆☆	★☆☆☆☆

Genetic Merit Scorecard		
Steve Harrison Riverbend Ranch Dillon, MT 59725 2014 Steers		\$23.83 Relative Value / CWT
Estimated at a base weight of 500 lbs.		
Average Daily Gain	Carcass Weight	Feed:Gain
★★★★☆	★★☆☆☆	☆☆☆☆☆
Ribeye Area	Yield Grade	Percentage of Choice
★★★★★	★★☆☆☆	★★★★★

Genetic Merit Scorecard		
Tom and Paula Watkins Yolo Ranch Ringwood, OK 73768 2014 Fall Calves		\$43.60 Relative Value / CWT
Estimated at a base weight of 500 lbs.		
Average Daily Gain	Carcass Weight	Feed:Gain
★★★★★	★★☆☆☆	☆☆☆☆☆
Ribeye Area	Yield Grade	Percentage of Choice
★★★★★	★★★☆☆	★★★★★

The scale of the Relative Value can vary significantly but just as importantly, the stars give buyers a better understanding of why.

$$\begin{aligned} \$43.60 - \$16.18 &= \\ \$27.42 \end{aligned}$$

$$\$27.42 \times 5 = \$137.10$$

How much more are the bulls worth?

TOP DOLLAR ANGUS (TDA) CERTIFICATION

- 1,000,000 head standing order for qualified Angus feeder cattle @ \$50/hd premium above negotiated price
- Certified based on combinations of Angus sire and dam (maternal grandsire) \$B predictions (top 25%)
- For dams or heifer mates,
 - GeneMax Focus or Advantage
 - 75% and greater Angus
- **May include SelectVac® documentation**



TOP DOLLAR ANGUS

How to qualify your calves for the Top Dollar Angus brand & premium:

	 SIRES					Feeder Calf Tested
	Top 15% \$B	Top 25% \$B	Top 25% \$B	Top 15% \$B	Top 15% \$B	GMX® >80
COWHERD	Top 50% \$B	\$50				
	Top 25% \$B		\$50			
	GMX® >75			\$50		
	GMX® 60-74				\$50	
	Angus-base					\$30
	Angus-base					\$50



Brian McCulloh

Nothing in this world is perfect, including the tools we have to predict outcomes in the vast, magnificent world of biology. But EPDs are still, and will remain, the selection tools to use in choosing bulls to buy. They account for all sources of information on the individual, including pedigree, with collateral relatives' performance, individual performance, and genomic testing. They are the best tools we have and most definitely have worked for us.

Woodhill Farms

Thank you.
