

Genetics and the Bull Purchase Decision

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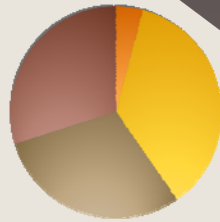
Advisor: Jayson L. Lusk, Ph.D.

Intended Audience

- Oklahoma Beef Producers
 - > Bull Breeders
 - > Cow-Calf Producers
- Expansion opportunities
 - > Continuing Education Courses
 - > Multi-State Extension Beef Conferences
- Goal
 - > Provide valuable information on a new technology to producers
 - > Increase profitability

Why is *this* program important?

- New genetic testing technology
 - > Genotype of cattle
 - > Age of producers



- < 35 years old
- 35-54 years old
- 55-64 years old
- > 65 years old

- Beef production is important in Oklahoma
 - > Oklahoma ranks in the top 3 states by cows per sq. mile
 - > 48,000 cattle producers

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Why is *this* program important?

- Genetic change is an important drive of profit
 - Offspring value
 - Calves
 - Replacement female selection
 - Fertility
 - Growth Rate
 - Calving ease
- Genetic information is appearing in bull sale catalogs and being directly marketed to producers
- Costs of a breeding mistake are great

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Beef Production – a Sire Selection Mistake is Costly

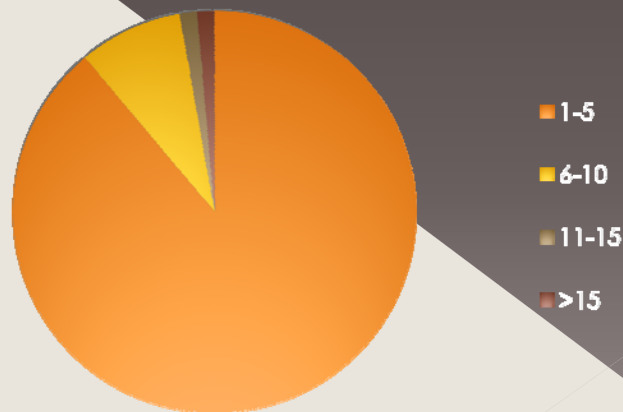
- Production Lag – time lag between the time production decisions are made and the output is produced.
 - Beef – 2 years
 - Chicken – slightly more than one month
- Yearling bull: 10-15 cows
- 2-3 year old bull: 20-25 cows

Norwood, Bailey F., and Jayson L. Lusk 2008. *Agricultural Marketing and Price Analysis*. Pearson Education, Inc., Upper Saddle River, New Jersey.

Lalman, D., et al. 2002. "Beef Cow Herd Calendar." Dept. Animal Science. F-3561-8, Oklahoma State University.

Beef Production – a Sire Selection Mistake is Costly

Number of OBI Bulls Purchased In last 2 years



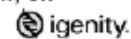
Extension Information for Producers



CF Crossover 5908 [AMC-NHC]

CALVED: 9/23/08 • AAA: 16437612 • TATTOO: 5908
OWNER/S: Frey Angus (Clarence), Mulhall, OK

#CA Future Direction 5321 AMC-NHC



BT Crossover 758N AMC-NHC

+14509685

BT Royal Pride 237G

Roth Exacto 0288

CF Traveler 6602

14537983

CF Traveler Max 900

RFI	9	FAT	6
ADG	7	REA	7
TEND	9	HP	3
MARB	7	STAY	7
%CH	7	MCE	4
YG	8	DOC	6

Test No.	No. In Test	On-Test Wt.	Off-Test Wt.	Test Index
91	118	768	1243	95.5

ADG	WDA	Adj. Yr. Wt.	Adj. Yr. Ht.	Scrotal Circ.
4.24	3.26	1212	50.5	36.0

Trait	BW	WW	YW	Milk	CW	Marb	REA	Fat
EPD	+0.5	+47	+85	+28	+18	+51	+37	+0.22

• BW 73

\$Wean	\$Feedlot	\$Grid	\$Beef
+29.57	+25.38	+29.48	+53.89

Genetic Tools

- Igenity
 - > 14 Quantitative traits
- Pfizer Animal Genetics
 - > Tenderness
 - > Marbling
 - > Feed Efficiency
- MMI genomics
 - > Marbling
 - > Tenderness

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What has Research Shown?

- 1,668 Feedlot Steers & Heifers
 - > Value of Leptin Genotype
 - > Using genotypic information to select and feed certain genotypes:
 - \$23.00/head – Steers
 - \$28.00/head – Heifers
 - > If cattle were marketed by genotype profits of the premium genetic cattle can increase to \$60.00

Lusk, Jayson L. 2007. "Economic Value of Selecting and Marketing Cattle by Leptin Genotype." *Journal of Agricultural and Resource Economics*. 32(2):306-329. .

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What has Research Shown?

- 590 Feedlot Steers & Heifers
 - > Value of Leptin Genotype
 - > Increase value up to \$48.00/head

DeVuyst, Eric, A., et al. "Selecting and Marketing Cattle by Leptin Genotype." *Journal of Agricultural and Resource Economics*. 32(2):291-305.

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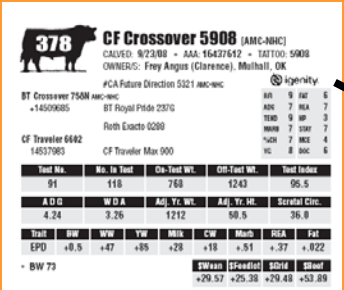
Igenity (1-10 Score)

- Fat Thickness
- Marbling Score
- Quality Grade
- Rib Eye Area
- Yield Grade
- Average Daily Gain
- Tenderness
- Residual Feed Intake
- Dry matter Intake
- Heifer Pregnancy Rate
- Stayability (longevity)
- Maternal Calving Ease
- Docility

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Igenity (1-10 Score)

- The higher the value – indicates that the animal has the potential for more of that trait



378 CF Crossover 5908 (AMC-NHC)
 CALVED: 9/23/08 • AAL: 16437612 • TATTOO: 5908
 OWNER(S): Frey Angus (Clarence), Mulhall, OK

PCA Future Direction 5211 mce-wc
 BT Crossover 75M mce-wc
 +1450965 BT Royal Pride 2270
 Roth Exacto 0200
 CF Traveler 6692
 14517083 CF Traveler Max 000

Test No.	No. in Test	On-Test Wt.	Off-Test Wt.	Test Index
91	118	763	1243	95.5

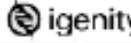
ADC	WDA	Adj. Yr. Wt.	Adj. Yr. Ht.	Scrotal Circ.
4.24	3.26	1212	50.5	36.0

Trait	BW	WW	YW	MILK	CW	Marb	REA	Fat
EPD	+0.5	+47	+85	+28	+18	+51	+37	+022

• BW 73

SWain	SPandit	SDid	SDest
+29.57	+25.38	+29.48	+53.89

• 16437612 • TATTOO: 5908
 Clarence), Mulhall, OK

AMC-NHC 

RFI	9	FAT	6
ADG	7	REA	7
TEND	9	HP	3
MARB	7	STAY	7
%CH	7	MCE	4
YG	8	DOC	6

Off-Test Wt.	Test Index
1243	95.5

Incorporating Genetic Information

- Use all information provided
- Production Goals
 - > Cow-herd maturity
 - Mature cows – large calves
 - Younger herd – low birth weight
 - > Marketing of Calves
 - Weaned & Sold
 - Preconditioned
 - Retained to Finish
 - Sold live
 - Sold on a grid

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Example

- 57 year old male rancher
- 35 Cows
- Cow herd has a smaller frame size
- Does not have hired laborer
- Sells calves at weaning

- What can he expect to pay for a new bull?

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**Oklahoma State Ag Economics
Bull Budgeting Tool**

Directions: Click on each orange cell. A drop down menu will appear, make a selection. After you have chosen the desired qualities of the bull you would like to purchase the approximate price of that bull will appear in the light orange box at the bottom of the spreadsheet.

Test Performance				igenity			
Test Index Score	110	Bull's Birth Weight	60	Heifer Pregnancy	0.8	Docility	0.8
				Marbling	0.8	Maternal Calving Ease	0.8
EPD				Ultrasound Information:			
Birth Weight	+0.5	Yearling Weight	+100	365-day adjusted rib-eye area	10'		
Milk	+30	Marbling	49.83	percentage intramuscular fat	6.5%		
Approximate Price:			\$3,548.07				

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Conclusion

- Genetic tests aid in Selection Decisions
- Evaluate business goals and production design
- Genetic information provides important information in addition to EPDs, Ultrasound, and Test Performance.

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