



# Indexes to select Angus sires for use on dairy cows

Stephen Miller – Angus Genetics Inc.

Jason Archer – AbacusBio Ltd

# Beef on dairy – a growing market

 **The Cattle Site**

Sign Up!  
Weekly Newsletter  
Click here for more details 

News & Analysis | Features | Markets & Reports | Sustainability | Knowledge Centre | Directory | Events | Our Shop

**Featured Articles**

**Angus Bulls on Dairy Farms: As Easy as Black and Black and White**  
09 December 2014

Stable and easy calving, Aberdeen-Angus cattle have been a popular choice for dairy herds for nearly twenty years.

Share This | Partners

**Related Articles**

How can live yeast visibly help reduce the impact of heat stress on beef cattle?  
05 May 2020

**beef+lamb** BY FARMERS FOR FARMERS

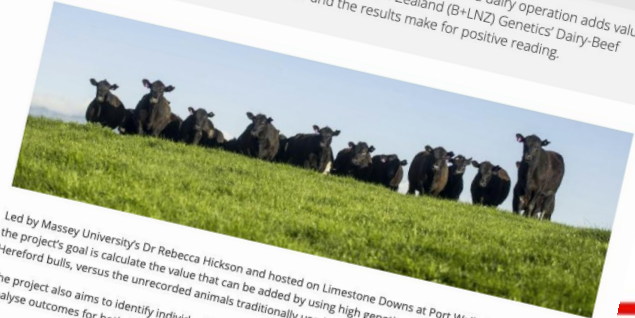
Knowledge hub | Data & tools | Compliance | Login / Register | About B+L+NZ

Home > News & views > Beef bulls adding value

**Beef bulls adding value**

Making use of strategically-selected beef bulls as follow-up bulls in a dairy operation adds value, with minimal downside. A four-year Beef + Lamb New Zealand (B+L+NZ) Genetics' Dairy-Beef Progeny Test is now into its second year and the results make for positive reading.

Tuesday, 9 May 2017



“Limestone Downs dairy manager Aaron Frazer was surprised to see how well the beef-cross calves grew in the calf-rearing system – putting on weight easily.”

Led by Massey University's Dr Rebecca Hickson and hosted on Limestone Downs at Port Waikato, the project's goal is calculate the value that can be added by using high genetic-merit Angus and Hereford bulls, versus the unrecorded animals traditionally used as "follow-up bulls". The project also aims to identify individual bulls that perform strongly in a dairy-beef system and analyse outcomes for both the dairy farm and finishing farm operators.

**BEEF** Animal Health | Market Reports | Management | BEEF Vet | Cow-Calf | COVID-19 | Our Events

WEBINAR: Don't miss our Rancher Roundtable webinar series on pasture and range management... Register here

HOME > LIVESTOCK > FEEDLOTS

Bottom falling out of U.S.-China relations  
MAY 28, 2020

**Quick online accreditation for agriculture professionals.**  
Ag CEU Online  
BROWSE THE FREE COURSES  
Former National Hog Farmer editor Fleming passes away  
MAY 28, 2020

Packing capacity begins returning: will it be enough?  
MAY 28, 2020

SPONSORED CONTENT  
Calving photos for Feeding America  
MAY 11, 2020

**Beef-on-dairy: Hitting the tipping point**

While beef-on-dairy production has long been viable, it's now becoming a regular part of the mix of cattle in the beef marketing chain.  
Burt Rutheford | Mar 09, 2020

**ANGUS**  
THE BUSINESS BREED

  
**abacusbio.**  
BRIDGING SCIENCE & BUSINESS

# Understanding the US beef x dairy system and issues



Study tour in December

- Packers
- Feeders
- Dairy operations
- Calf ranches
- USDA dairy genetic evaluation scientists

# Key messages

## Dairy sector

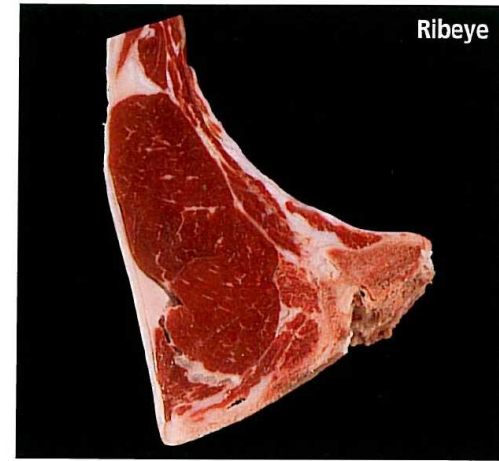
- Calving ease a priority for dairy sector

## Feed yard

- Growth and conversion in feed yard is an issue for Angus x Jersey
  - Longer on feed, finished at lighter weights
- Need to look like beef animals
  - Tall and narrow don't fit

## Processor

- Carcass length can be a problem in Angus x Holstein
- Sunken strips can be a problem – more-so in Angus x Jersey
- Quality grade is generally acceptable



Dairy Type

# Wish-lists



- Calving ease a priority
- Avoid bulls which are too tall (height penalty)
- Extra muscle desirable

“Moderate framed, easy calving, muscular bull, with marbling prioritized over growth”



- Calving ease a priority
- Need additional growth
- Need additional muscle
- Height not an issue

“High growth, easy calving, very muscular bull, with growth prioritized over marbling”

# \$Value – birth to carcass

	\$M	\$B
Calving Ease	✓	
Growth to weaning	✓	
Milk	✓	
Mature weight	✓	
Fertility	✓	
Docility	✓	
Foot score	✓	
Post-weaning growth		✓
Post-weaning intake		✓
Carcass weight		✓
Yield Grade		✓
Quality Grade		✓

# \$Value – birth to carcass

	\$M	\$B	\$AxH	\$AxJ
Calving Ease	✓		✓	✓
Growth to weaning	✓		✓	✓
Milk	✓			
Mature weight	✓			
Fertility	✓			
Docility	✓			
Foot score	✓			
Post-weaning growth		✓	✓	✓
Post-weaning intake		✓	✓	✓
Carcass weight		✓	✓	✓
Yield Grade		✓	✓	✓
Quality Grade		✓	✓	✓

# \$Value – birth to carcass

	\$M	\$B	\$AxH	\$AxJ
Calving Ease	✓		✓	✓
Growth to weaning	✓		✓	✓
Milk	✓			
Mature weight	✓			
Fertility	✓			
Docility	✓			
Foot score	✓			
Post-weaning growth		✓	✓	✓
Post-weaning intake		✓	✓	✓
Carcass weight		✓	✓	✓
Yield Grade		✓	✓	✓
Quality Grade		✓	✓	✓

Utilises economics from USA Net Merit assumptions



# \$Value – birth to carcass

	\$M	\$B	\$AxH	\$AxJ
Calving Ease	✓		✓	✓
Growth to weaning	✓		✓	✓
Milk	✓			
Mature weight	✓			
Fertility	✓			
Docility	✓			
Foot score	✓			
Post-weaning growth		✓	✓	✓
Post-weaning intake		✓	✓	✓
Carcass weight		✓	✓	✓
Yield Grade		✓	✓	✓
Quality Grade		✓	✓	✓

Growth from birth to slaughter

# \$Value – birth to carcass

	\$M	\$B	\$AxH	\$AxJ
Calving Ease	✓		✓	✓
Growth to weaning	✓		✓	✓
Milk	✓			
Mature weight	✓			
Fertility	✓			
Docility	✓			
Foot score	✓			
Post-weaning growth		✓	✓	✓
Post-weaning intake		✓	✓	✓
Carcass weight		✓	✓	✓
Yield Grade		✓	✓	✓
Quality Grade		✓	✓	✓

Re-parameterized for dairy beef system

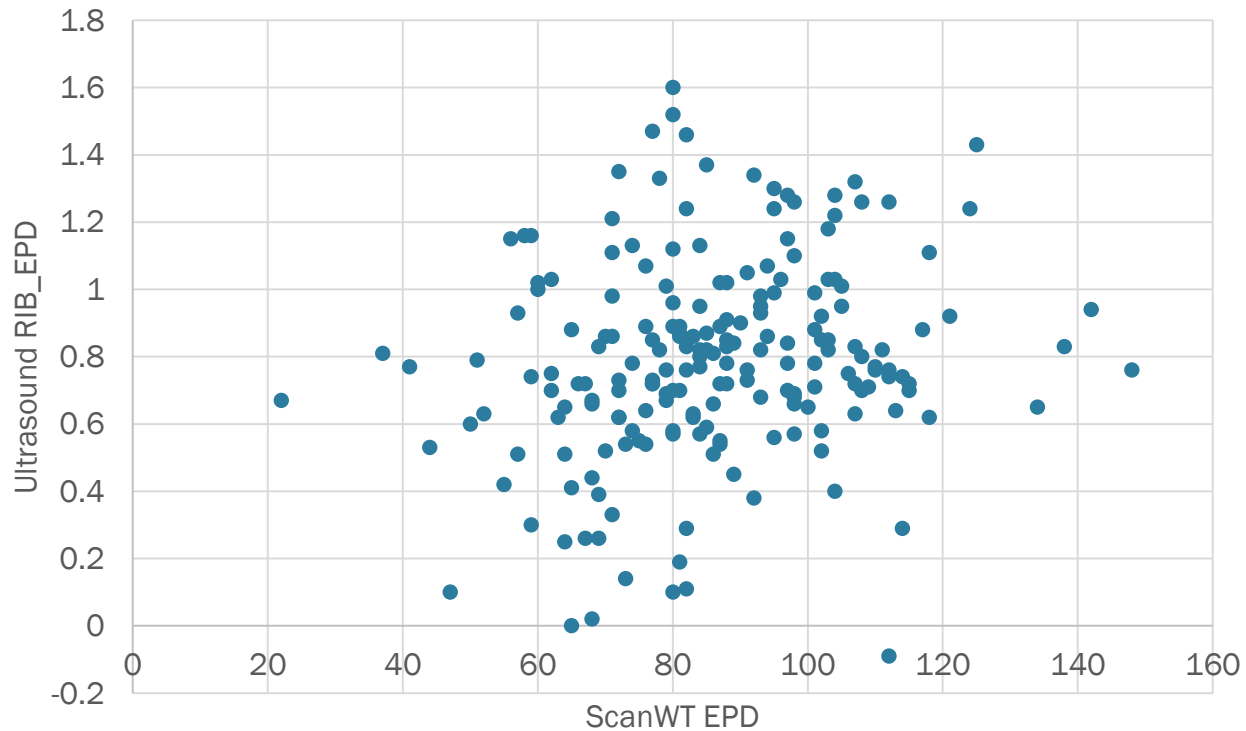
- Slower growth
- Poorer conversion
- Less fat cover
- Fed for longer
- Slaughtered lighter

# \$Value – birth to carcass

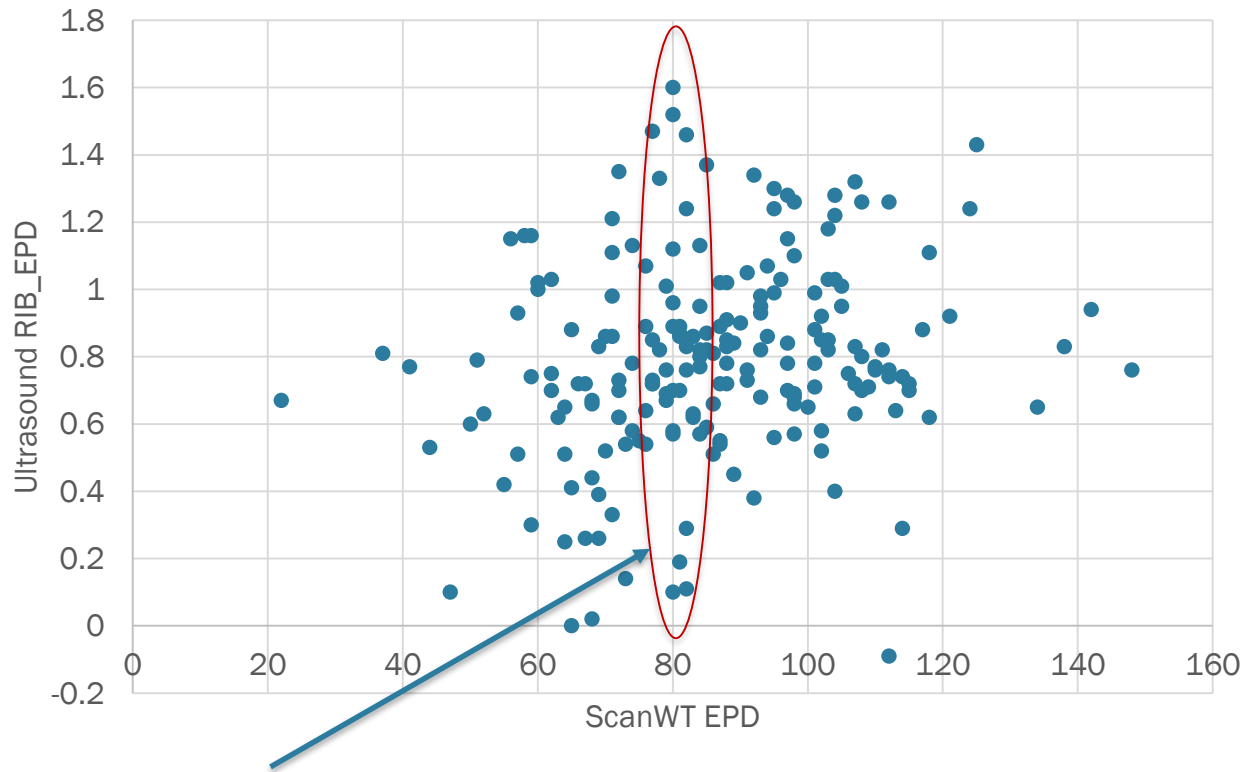
	\$M	\$B	\$AxH	\$AxJ
Calving Ease	✓		✓	✓
Growth to weaning	✓		✓	✓
Milk	✓			
Mature weight	✓			
Fertility	✓			
Docility	✓			
Foot score	✓			
Post-weaning growth		✓	✓	✓
Post-weaning intake		✓	✓	✓
Carcass weight		✓	✓	✓
Yield Grade		✓	✓	✓
Quality Grade		✓	✓	✓
Muscling			✓	✓
Height			✓	

New traits added to penalize bulls with poor muscling or excessively tall

# Determination of Muscling

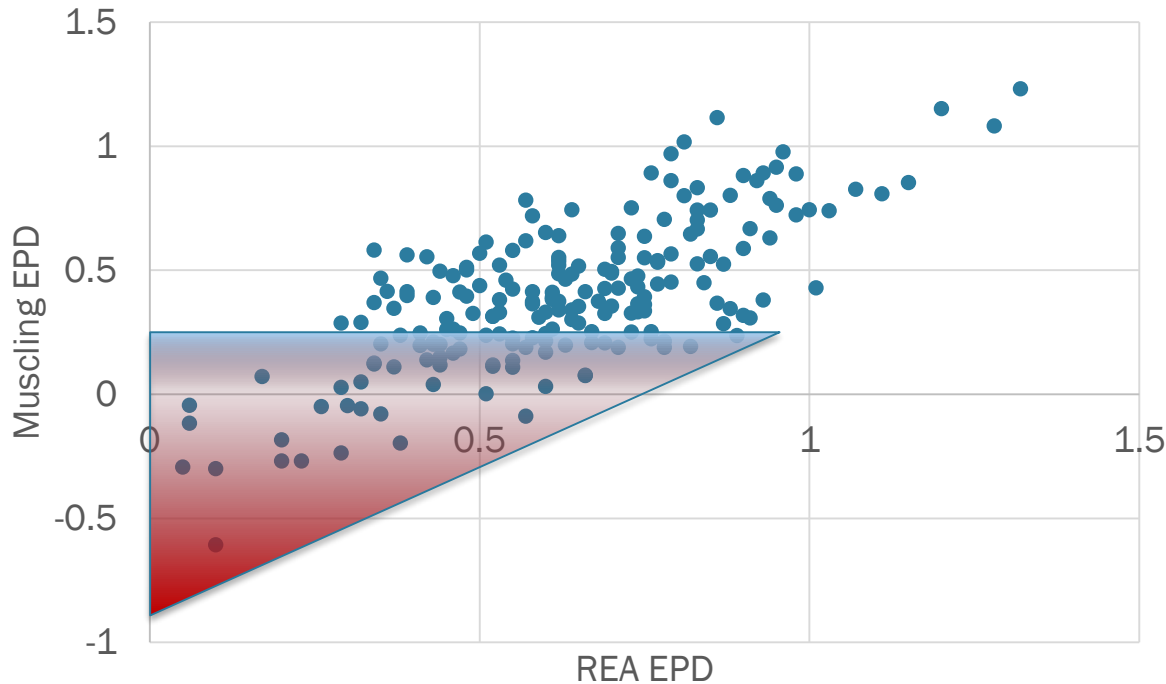


# Determination of Muscling

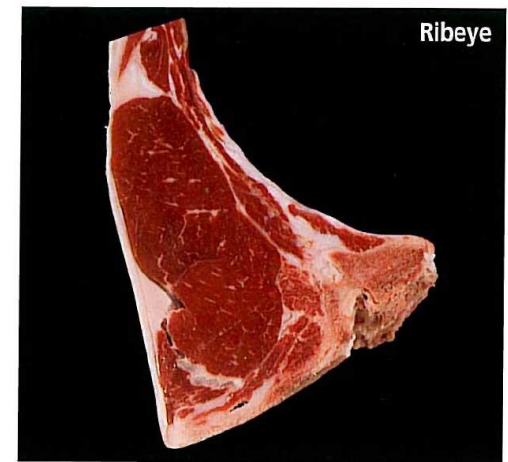


These animals all have similar Weight EPD, but vastly different Ultrasound RIB-EYE Area EPD

# REA EPD and Muscling



Poor muscling will lead to increased percent Sunken Strips



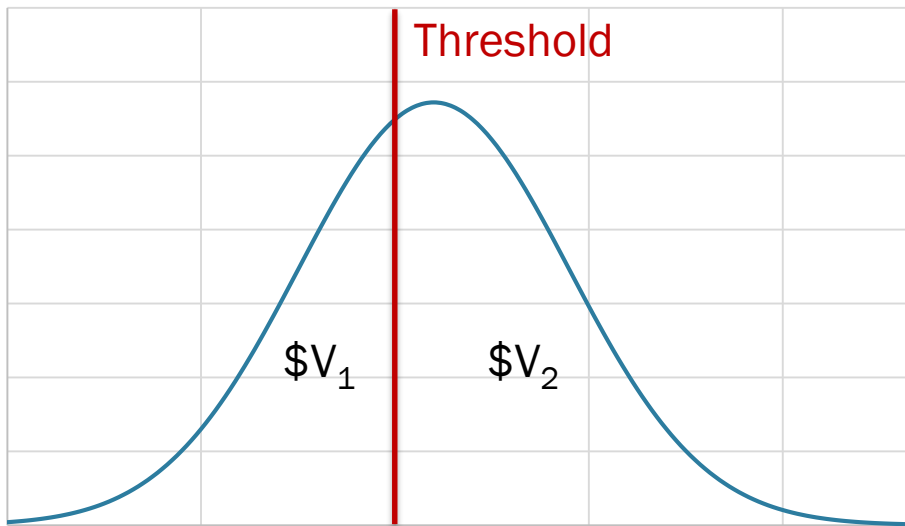
Dairy Type

Sunken Strip discount is \$20/CWT

Sunken Strip frequency 3X higher in AxJ vs. AxH

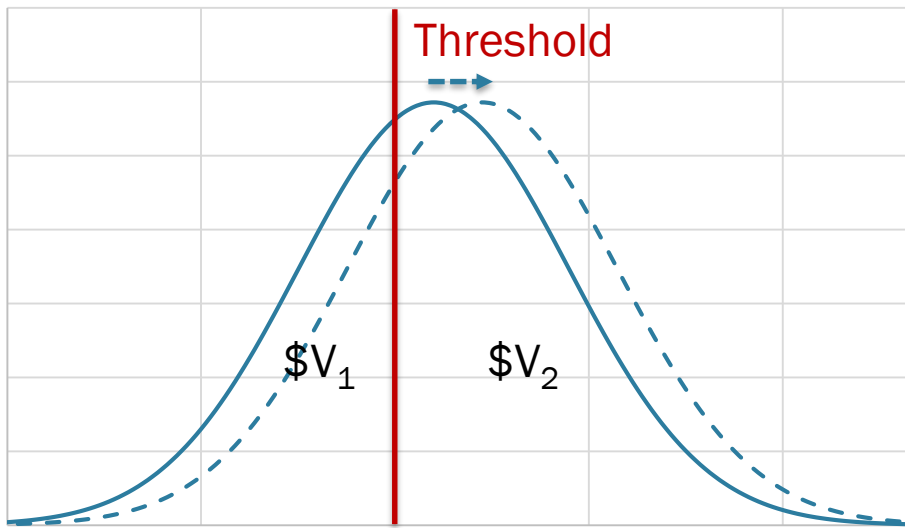
Creates a non-linear economic emphasis

# Modelling thresholds



Rib Eye Area distribution of progeny

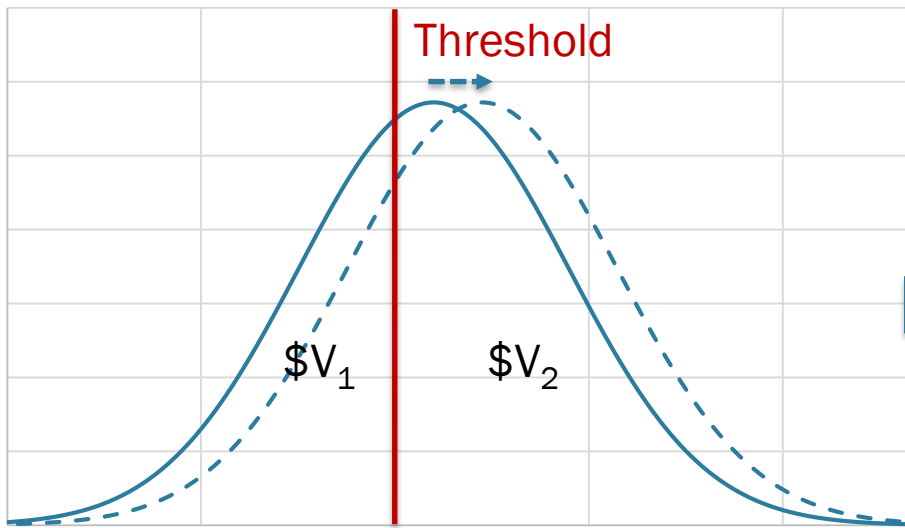
# Modelling thresholds



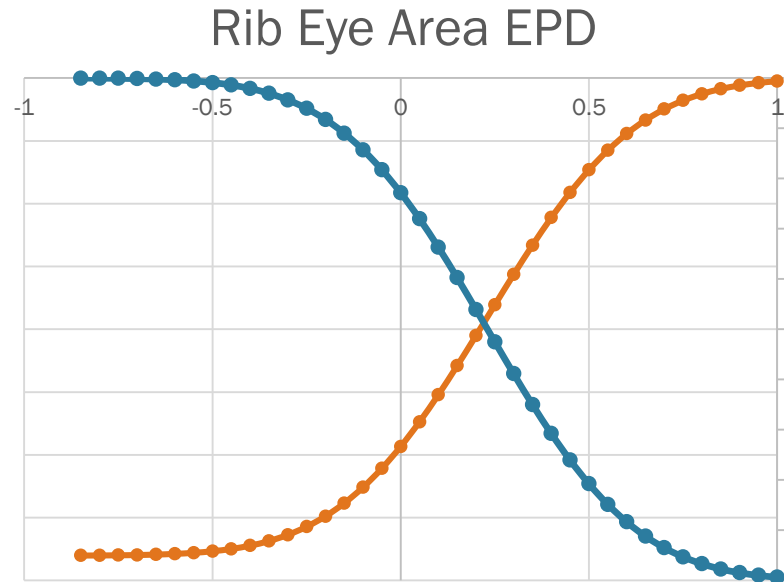
Rib Eye Area distribution of progeny



# Modelling thresholds

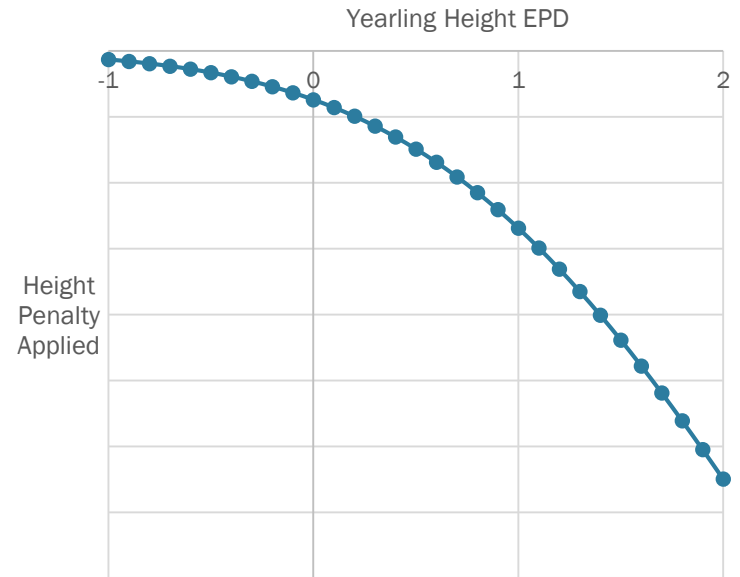
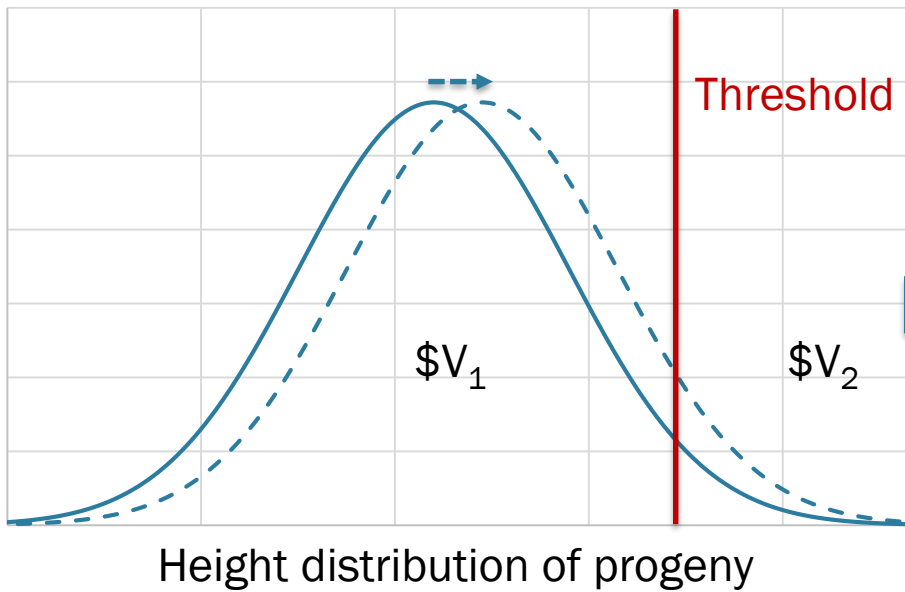


Rib Eye Area distribution of progeny



- Penalty per carcass
- Proportion too flat

# Modelling thresholds



# Two Indexes in the end Coming later this summer



$\$AxJ$   
Angus on  
Jersey  
Value

0.95  
Correlation  
on Current  
Sires



$\$AxH$   
Angus on  
Holstein  
Value

# Correlation to \$B is moderate

## Result: significant re-ranking



\$AxJ  
Angus on  
Jersey  
Value

.72

0.95  
Correlation  
on Current  
Sires

\$B

.67



\$AxH  
Angus on  
Holstein  
Value

**The dairy cow is to the beef industry  
what the laying hen is to the broiler  
industry**



Need to put a little  
meat on them bones

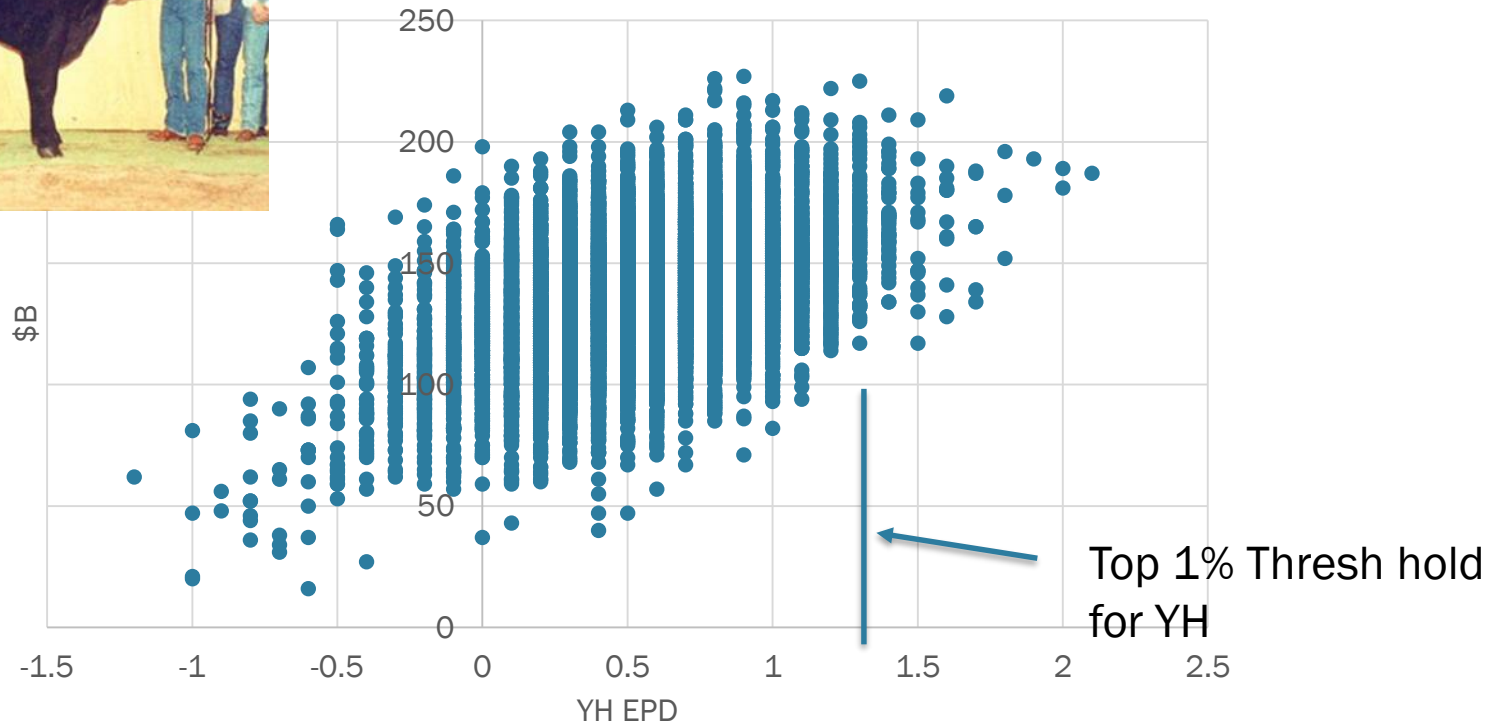


# Rib-eye is to the dairy indexes what carcass weight was to \$B

Correlations	\$B	\$AxH	\$AxJ
CW EPD	0.74	0.41	0.54
REA EPD	0.54	0.73	0.81

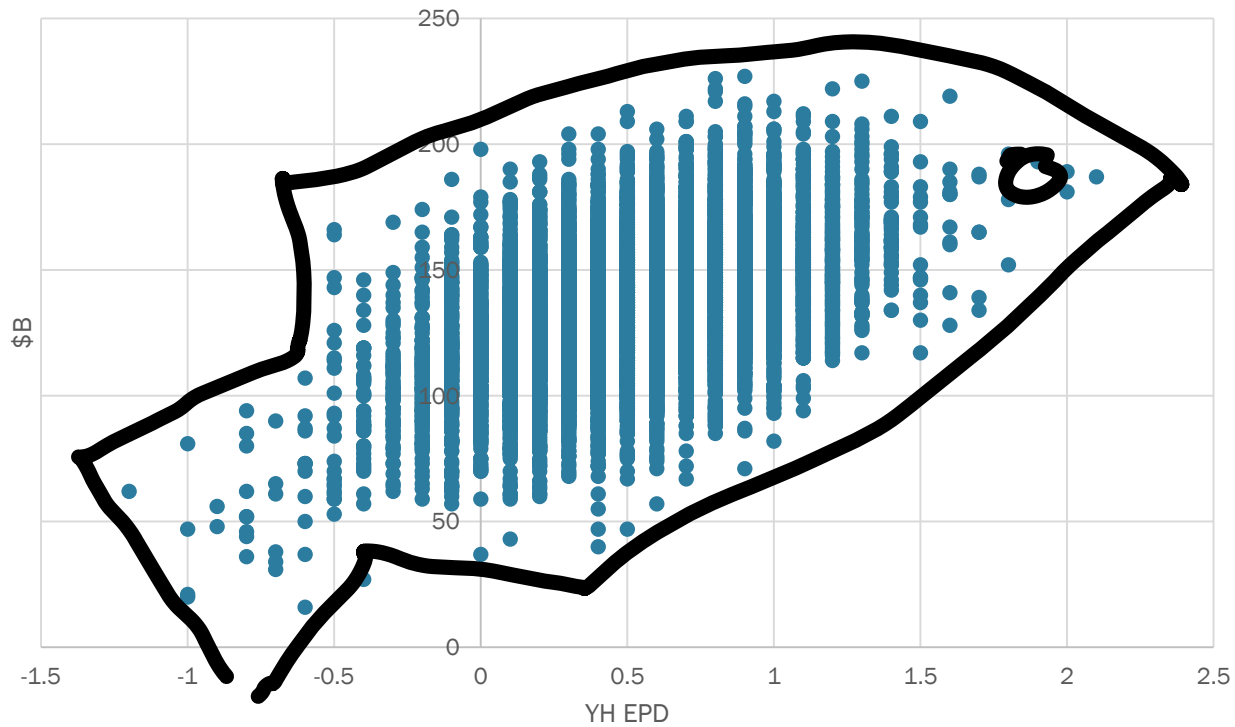
Correlation across ~10,000 current sires

# \$B and YH EPD are positively correlated (0.47)



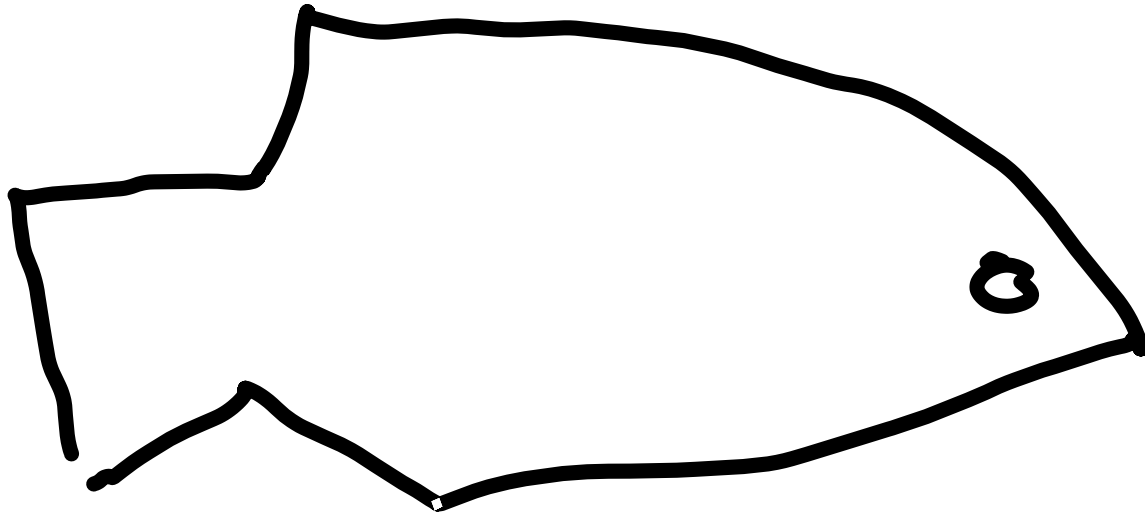
Correlation between YH EPD and \$B is 0.47

# Can you see the rising fish?



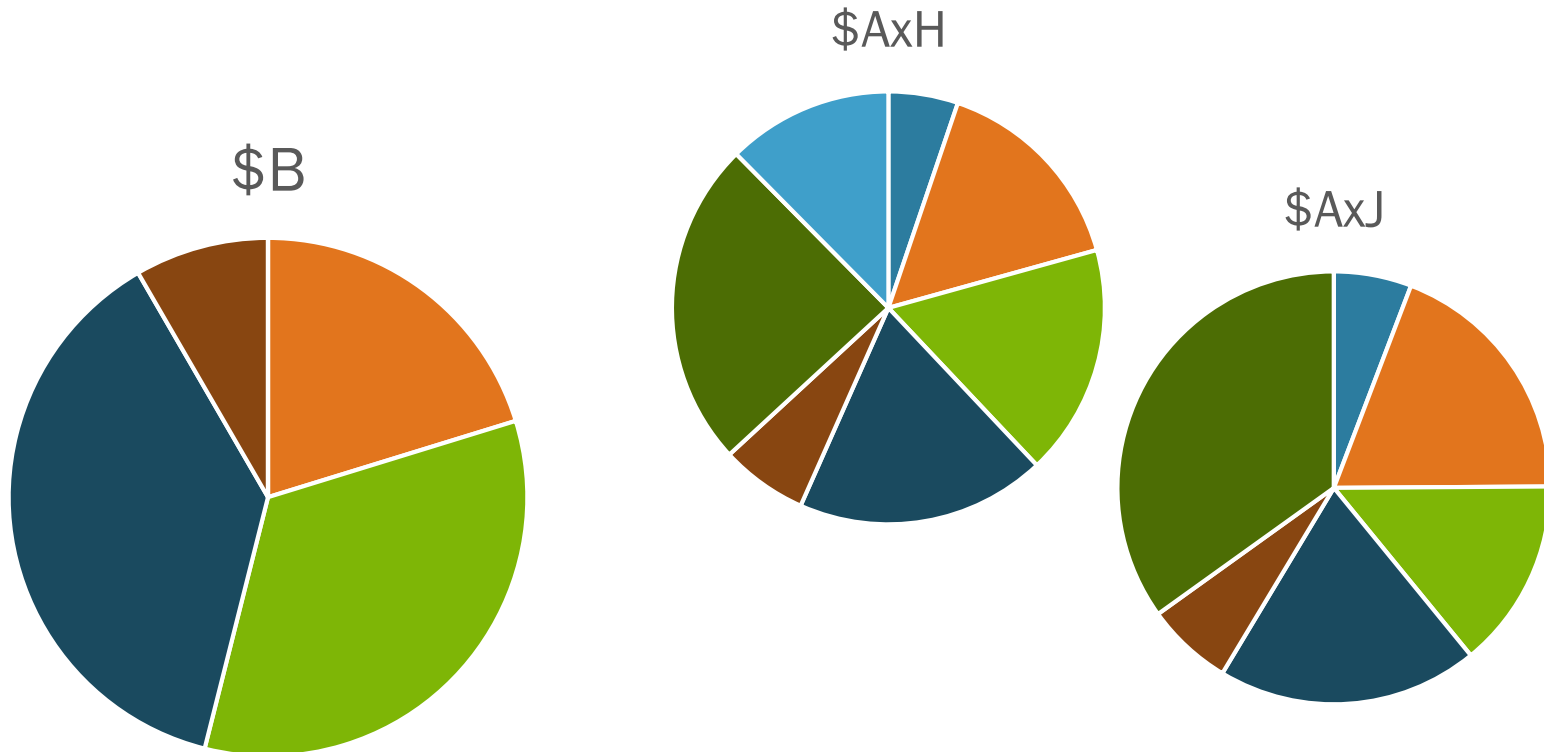


# \$AxH Turns the fish from rising to level



Correlation between YH EPD and \$AxH is Zero

# Comparing Emphasis



- Calving Ease
- Growth
- Marbling
- Yield
- Efficiency
- Muscling
- Height

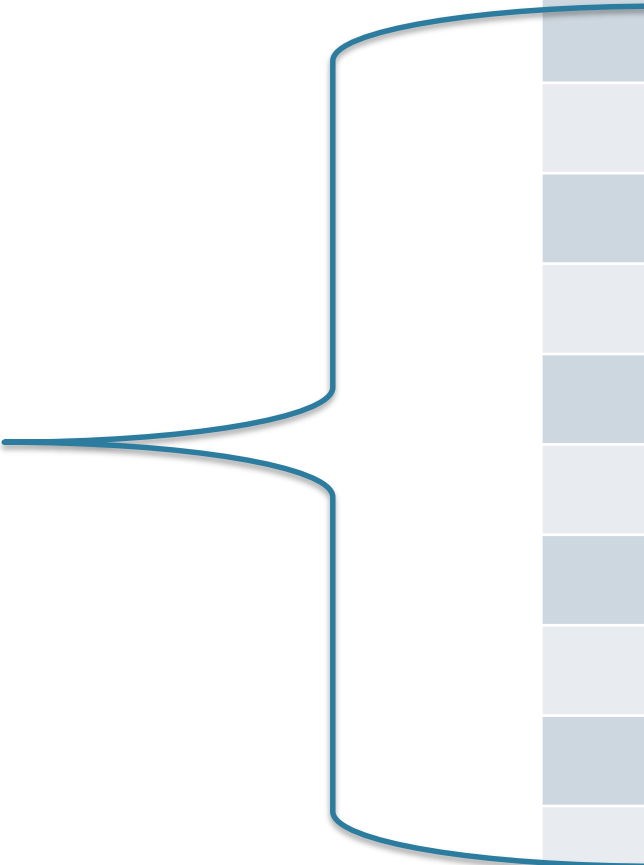
# Poorest 10 CED from top 100 on \$Value

These  
bottom 5%  
of the breed  
for CED  
don't make  
the top 100  
on AxJ or  
AxH

\$B	\$AxH	\$AxJ
-11	3	-4
-9	3	0
-7	3	1
-5	4	1
-4	4	2
-2	5	2
-1	5	3
-1	6	3
1	6	4
1	6	4

# Highest 10 YH from top 100 on \$Value

Top1% of the breed for YH is 1.3. Far fewer of those in Top 10 on \$AxH.



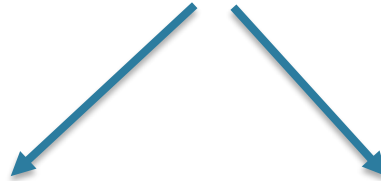
\$B	\$AxH
1.8	1.3
1.6	1.2
1.5	1.1
1.4	1.1
1.4	1
1.4	1
1.4	1
1.3	1
1.3	0.9
1.3	0.9

# Far Fewer Top \$AxH bulls in Top 1% for YH

9,690 Current Sires



163 > 1.3 YH EPD



124 over  
150 \$B

15 over  
150 \$AxH

# More ways to fail



Poor Calving Ease

Poor Muscling

Too much height

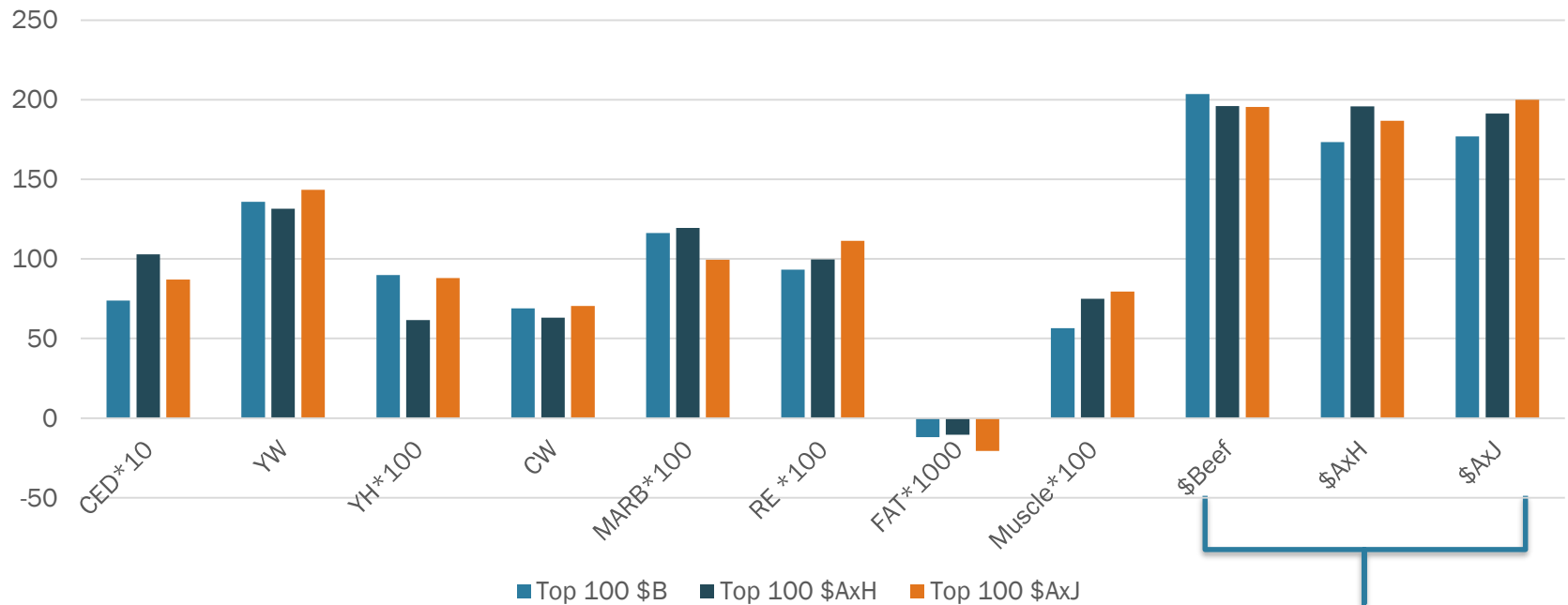
Longer Feeding Period



Bulls that tick all the “wrong boxes” will compound discounts and have a seriously negative \$AxH or \$AxJ

-200 AxH or AxJ is possible.

# Average of Top 100 Current Sires on each index



Average EPD of Top 100 bulls on each index

Compare within not  
between indexes

# In a Nut Shell



- Growth – Similar to \$B – Highest in \$AxJ
- More CED
- Muscle – more in \$AxH and most in \$AxJ
- Height – High YH EPD penalized in \$AxH
- Similar CW
- Similar MARB in \$AxH, less in \$AxJ





# Questions/Discussion

Stephen Miller, Ph.D.  
[smiller@angus.org](mailto:smiller@angus.org)

Genetic Research Director  
816-383-5157