# PROFIT FROM GENETIC PROGRESS

## (New Windows Are Opening)


LARRY SCHIRM

# Welcome!

**Intermediate and Reserve Grand Champion Ayrshire Cow**

# Are You Listening…

- XYZ has never been a listener, they know “ALL’ and want “*Puppets*” to follow.
- If they would listen to what Breeders are asking for and provide it, the breeders would use it and their sales would follow…But;
- They *Insist* they (AI) know "what is best for the breed" and their sales continue to fall...
- ”*Ice to Eskimos*”...you can not sell something to someone if they do not want it!

Remember as days get colder animals are attracted to the warmth of cars so check wheel arches or other hiding places.

# Delivering Cow Side Genetics

# Our Mission

*"Pioneering animal genetic improvement to help nourish the world"*

The United Nations Food and Agriculture Organization (FAO) predicts a **100-percent** increase in demand for meat, milk and eggs by **2050**.

In the year 2050, the world **population** will require **100%** more **food,**[1] and **70%** of this food must come from efficiency-improving **technology**[2]

# Global Impact

- *All countries (Breeds) will need to have an Impact…*

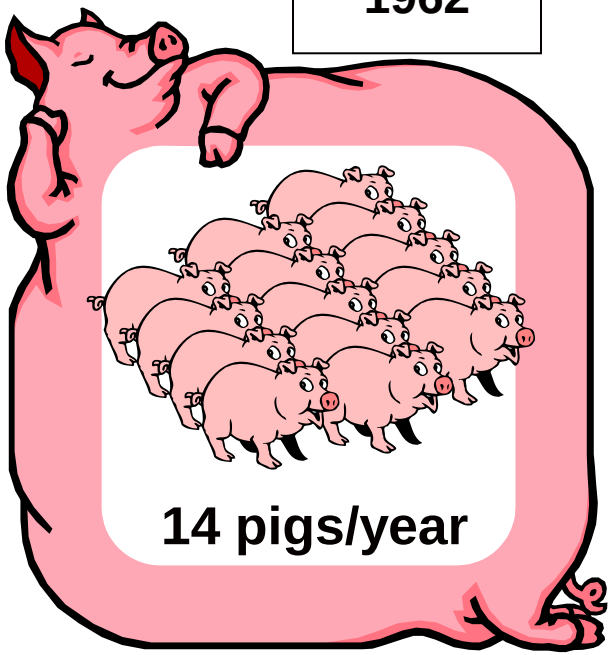

ABS Global Mission:
We are a world-class people organization delivering bovine genetics
and innovative solutions for the betterment of the food industry.

# Our Role


- Build products our costumers want
  - Regardless of the Identified Genetic Opportunities
- Make big data useable
  - Dairy Cattle have Volumes of Data
- **Genetic progress**

# Profit Related Genetic Improvement

**1962**




**Changes in national pig performance**

**50% more pigs**

**$20 each difference**

**33% less feed**

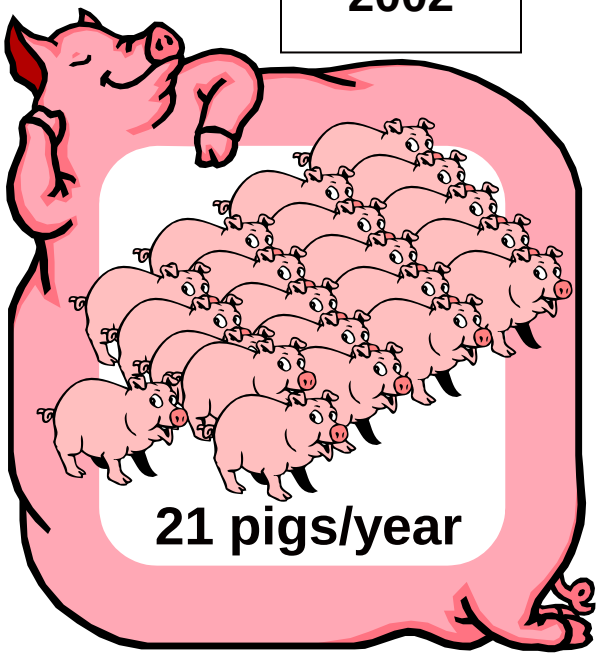
**$20 per pig difference**

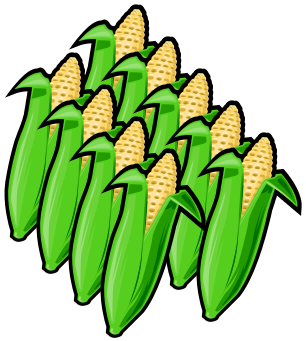
**33% more lean**

**$25 per pig difference**

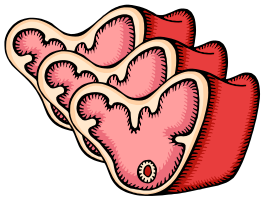
**50% less manure per kg of lean**

**2002**



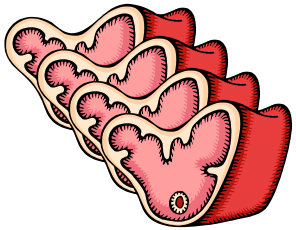



**410 kg of feed each pig**



**34 kg of lean each pig**

**273 kg of feed each pig**



**45 kg of lean each pig**

Profit From Genetic Progress

ABS

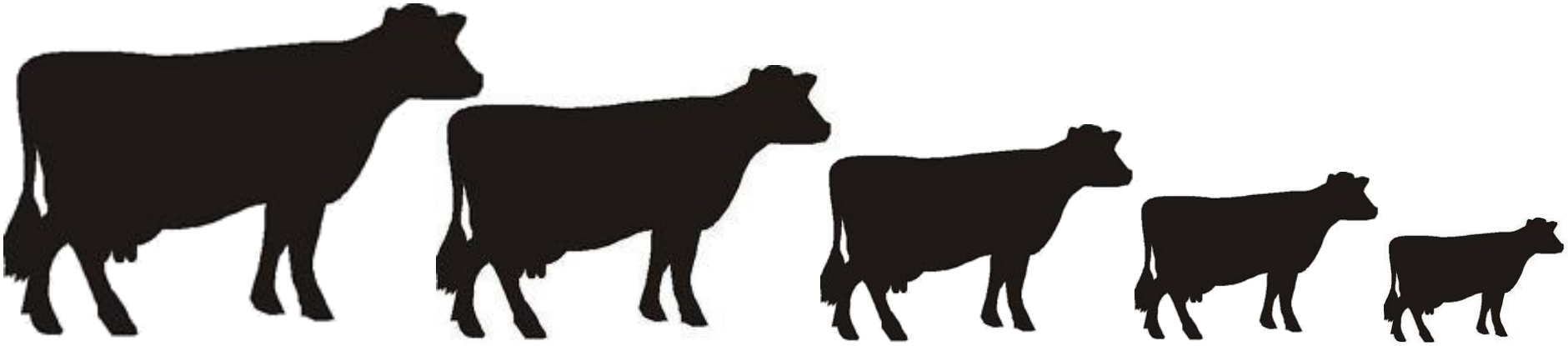
# ABS Genetic Strategy "20:20" Vision

*" Can we Afford to Maximize Genetic Progress…*

*Can we Afford  Not To"*

Profit From Genetic Progress

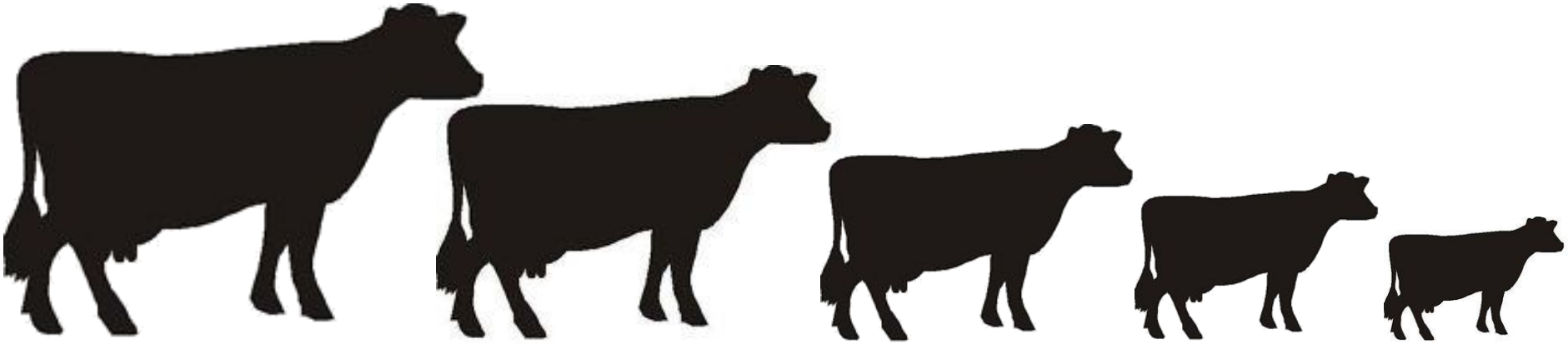
# Which Cow is the Right Cow for You



Show Type | Intensive Management | Durability | Robot | Grassland

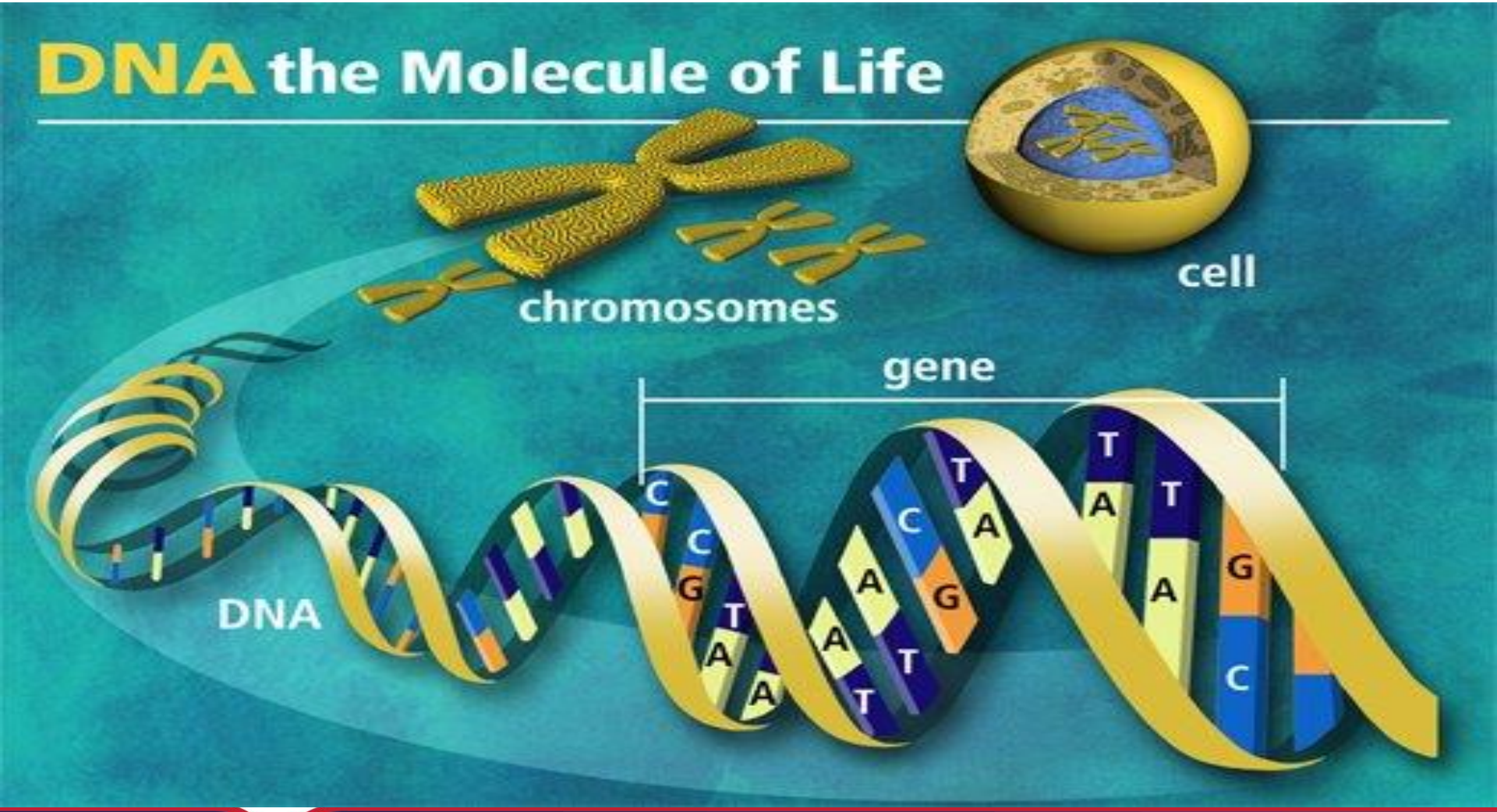

"THE AYRSHIRE COW"

# Which Cow is the Right Cow for You

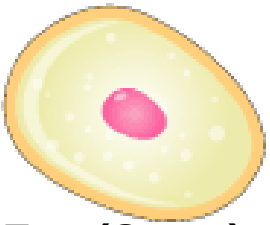


Holstein Ayrshire Norwegian Red Kiwi Cross Jersey

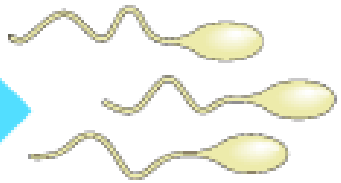
# Basic Biology of Genetics



# Reproduction

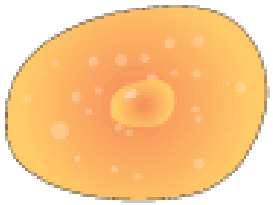


Egg (Ovum)
30
Chromosomes

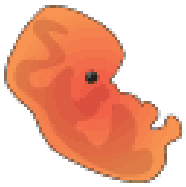


Sperm
30
Chromosomes

Fertilisation



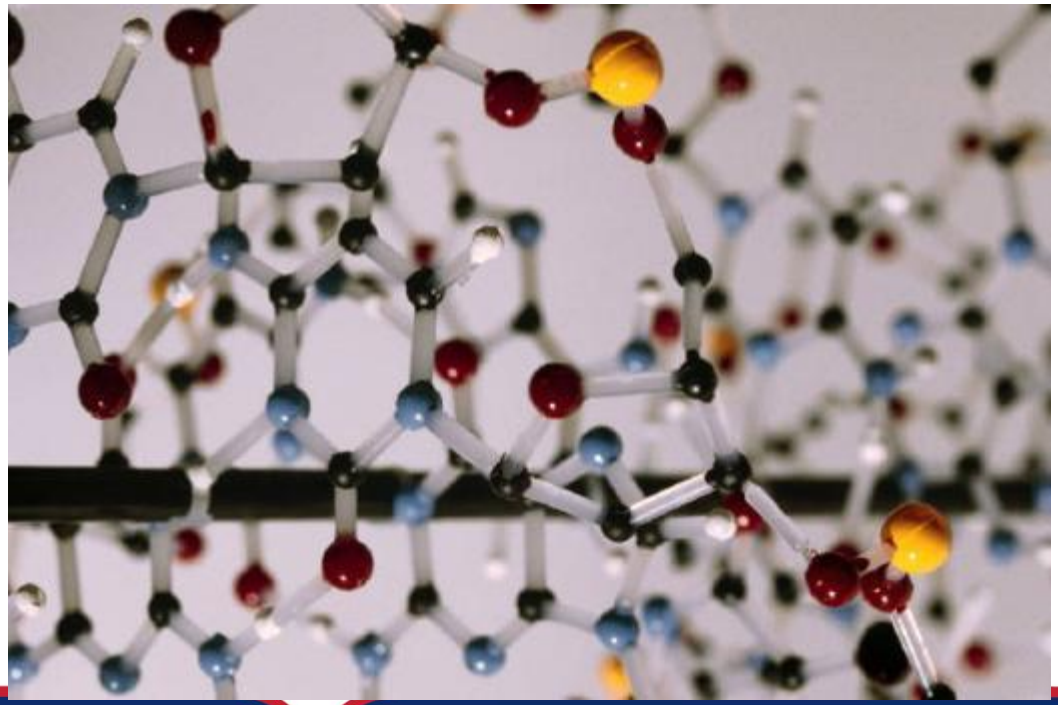
Embryo
60
Chromosomes
In 30 pairs



Zygote
60
Chromosomes
In 30 pairs

# How many chromosomes do cows have?

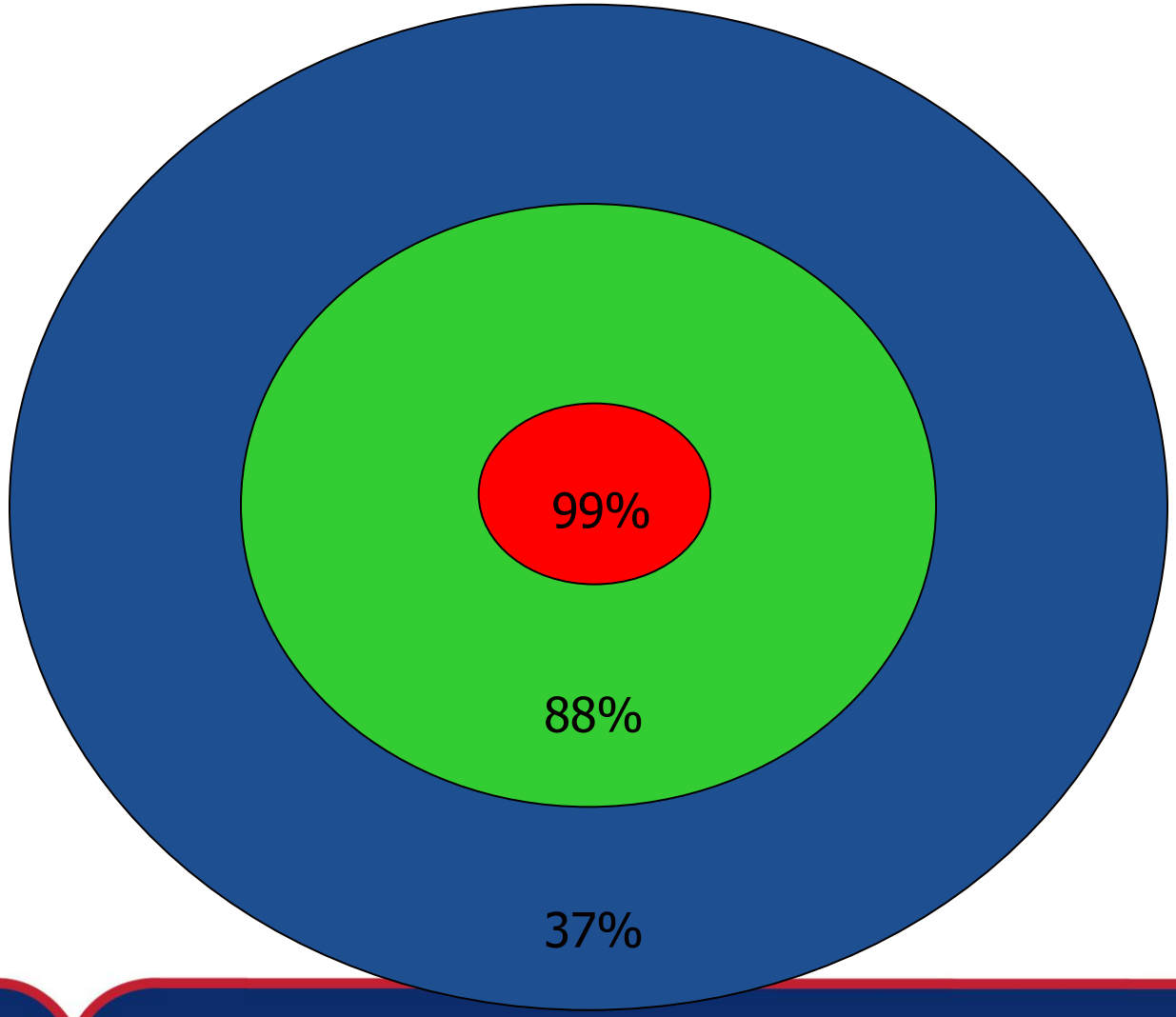
Dairy cattle have 30 chromosome pairs



How many possible combinations with 30 pairs of chromosomes?

$2^{30}=1,073,741,800$

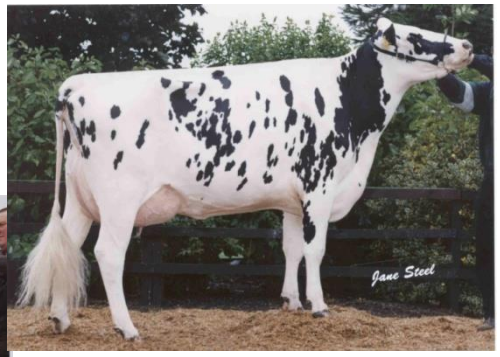
# Where's the Genetic Bulls-Eye?

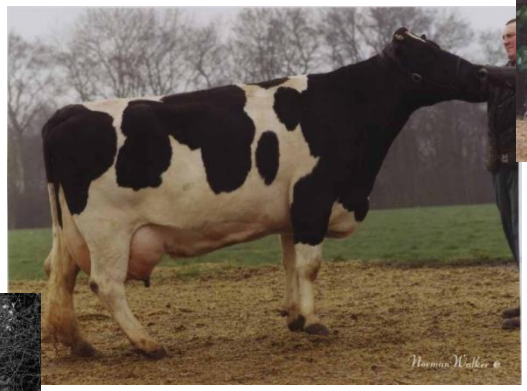


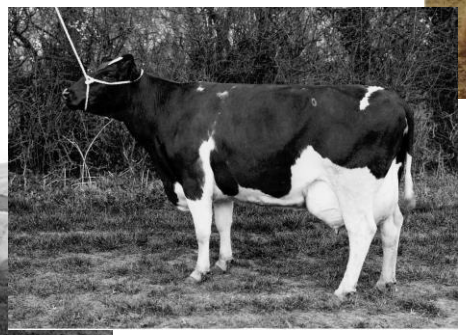
# Genetic Selection

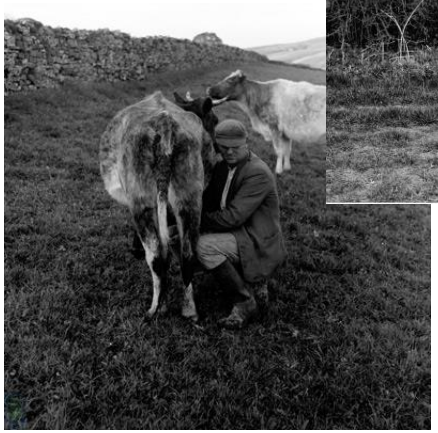
Our help in the past came from the Male Side…

# Sire Selection Has Brought Great Progress







# Making Genetic Progress—The Four Major Factors

$$\Delta G_{year} = \frac{\sqrt{\text{reliability}} \times \text{selection intensity} \times \sqrt{\text{genetic variance}}}{\text{generation interval}}$$

- **ΔG =** genetic gain each year
- **reliability =** how certain we are about our estimate of an animal's genetic merit
- **selection intensity =** how high standards are set for traits of interest in selection of breeding stock for the next generation
- **genetic variance =** population variation due to genetics
- **generation interval =** the ***average age of a parent*** when offspring are born

# Welcome GENOMICS

AGTCCATGGGGTTGCAGAGTCAGACACAGTGGAGTCACACACATACACACG
GCCCCACGCTGGGTTAAGGCGGGGCTGAGACAAGGGCAGGTGAGGCCTCCCA

**Have Genomics Reduced Generation Interval?**

**YES – We use Younger and Younger Males…**

# Welcome GENOMICS

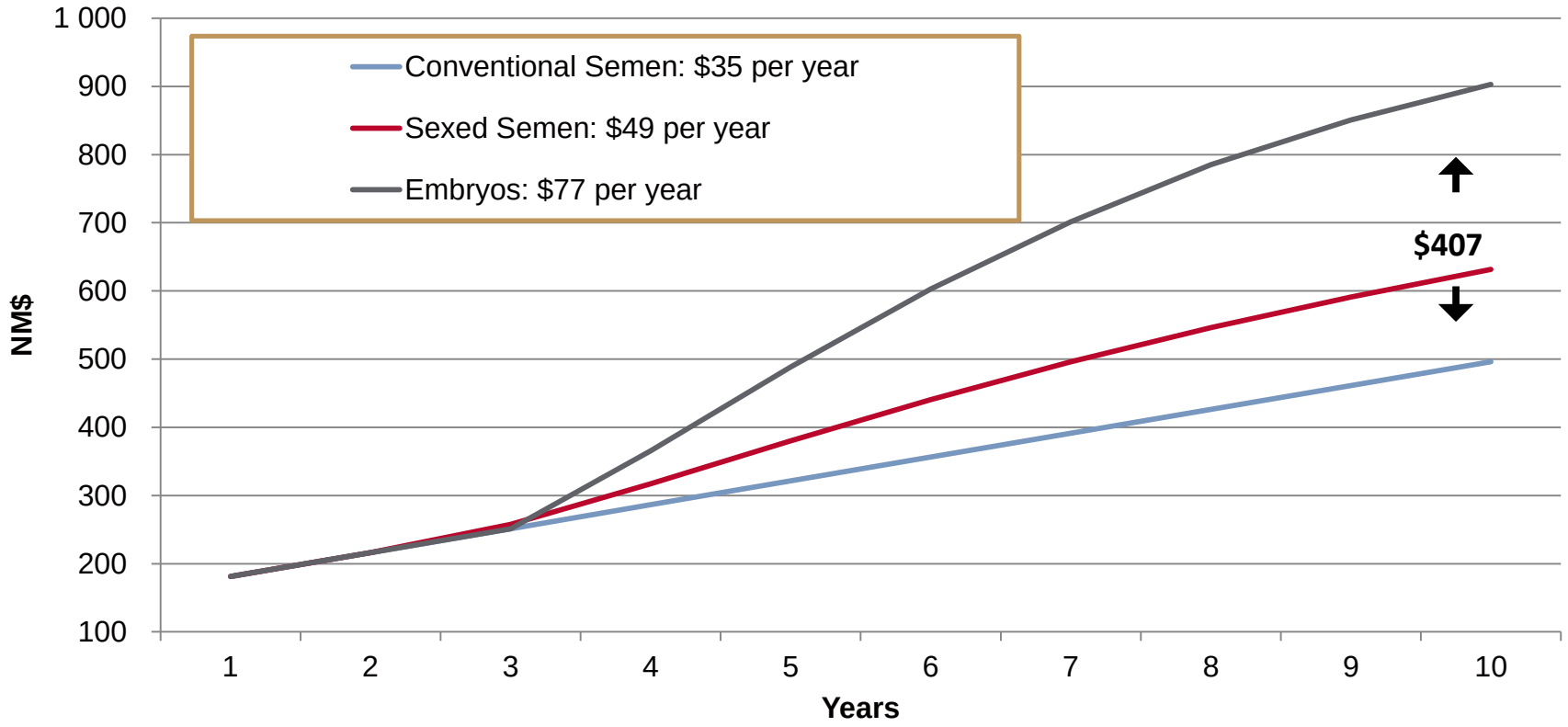
AGTCCATGGGGTTGCAGAGTCAGACACAGTGGAGTCACACACATACACACG
GCCCCACGCTGGGTTAAGGCGGGGCTGAGACAAGGGCAGGTGAGGCCTCCCA

**<u>Have Genomics Reduced Generation Interval</u>?**

***(Are we using younger females as the mothers for our next generations?)***

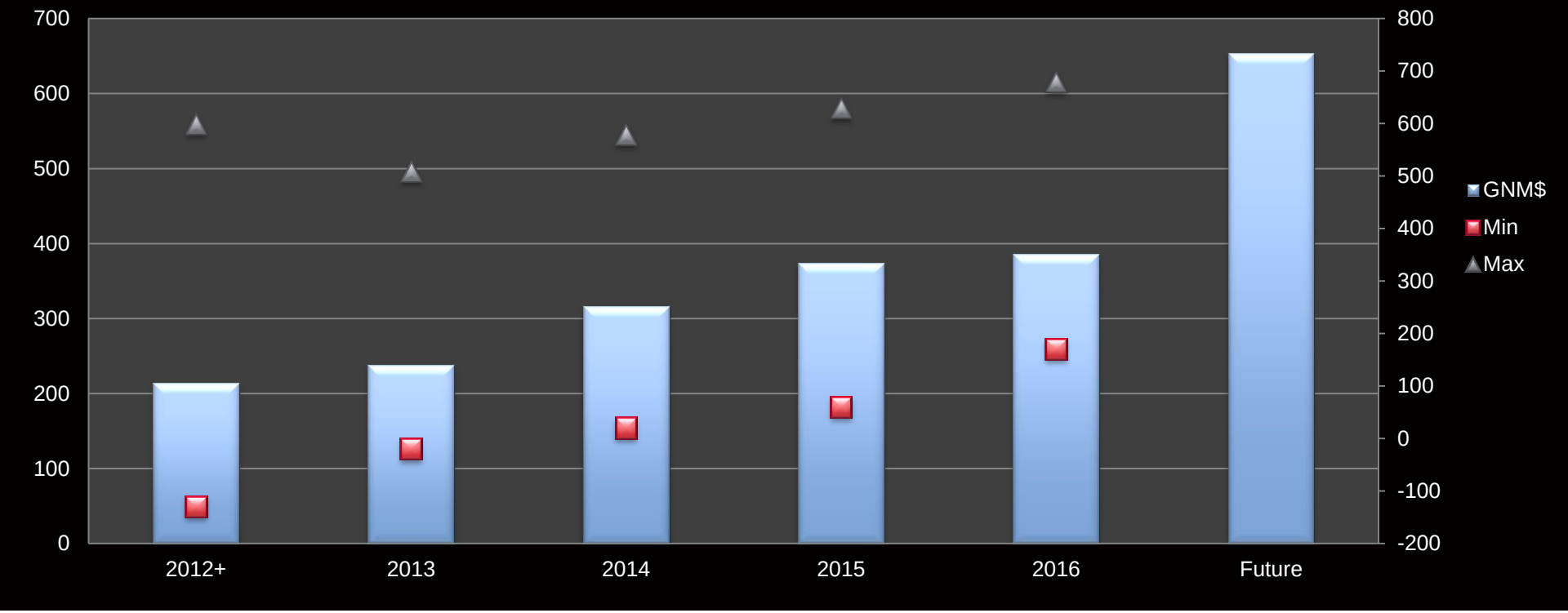
# Genetic Embryos Brings Faster Annual Genetic Improvement

**Change in Net Merit (NM$) of cows in the herd according to method used to introduce genetics. Selection of cows and bulls exclusively based on NM$.**

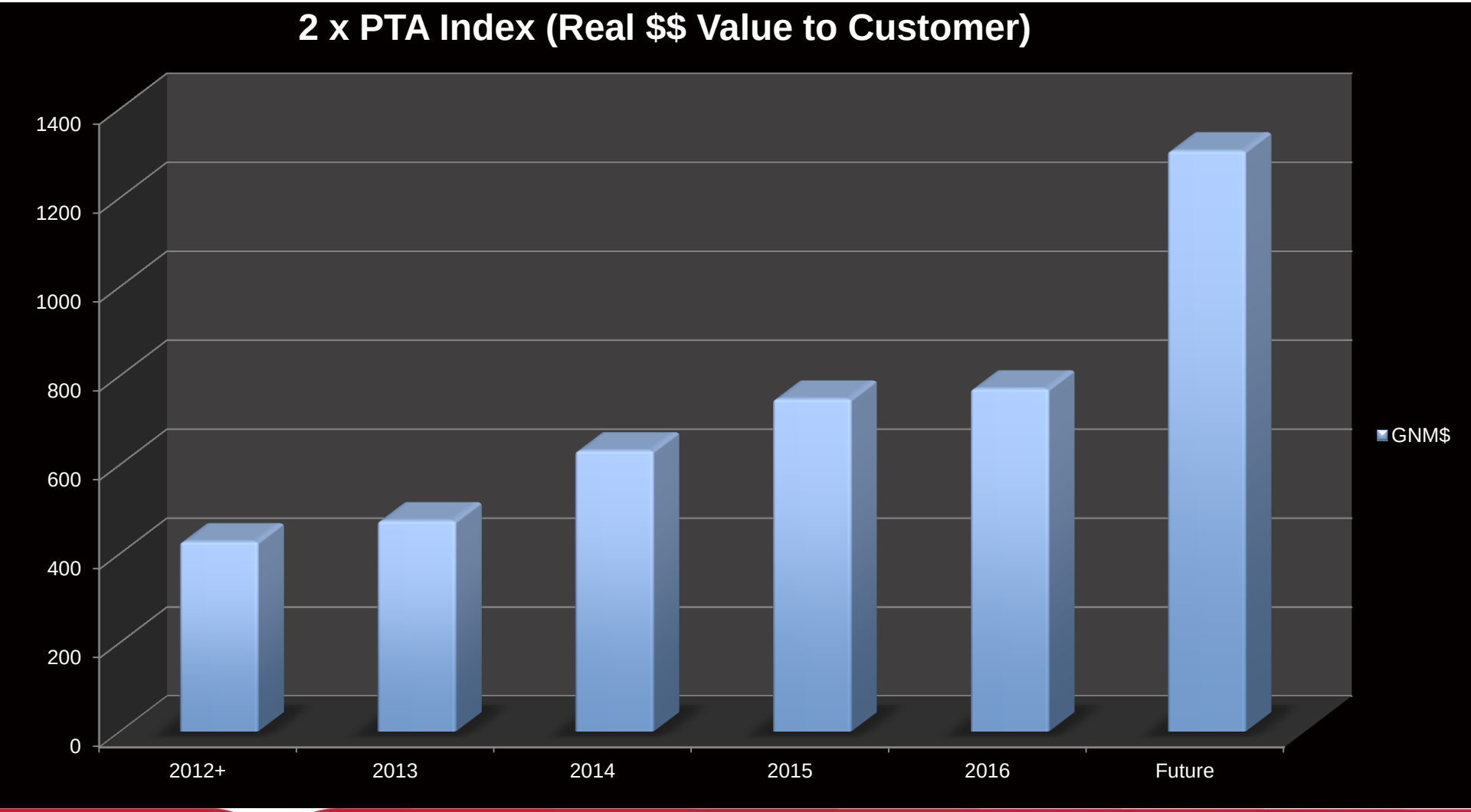


# Tracking Economic Genetic Progress

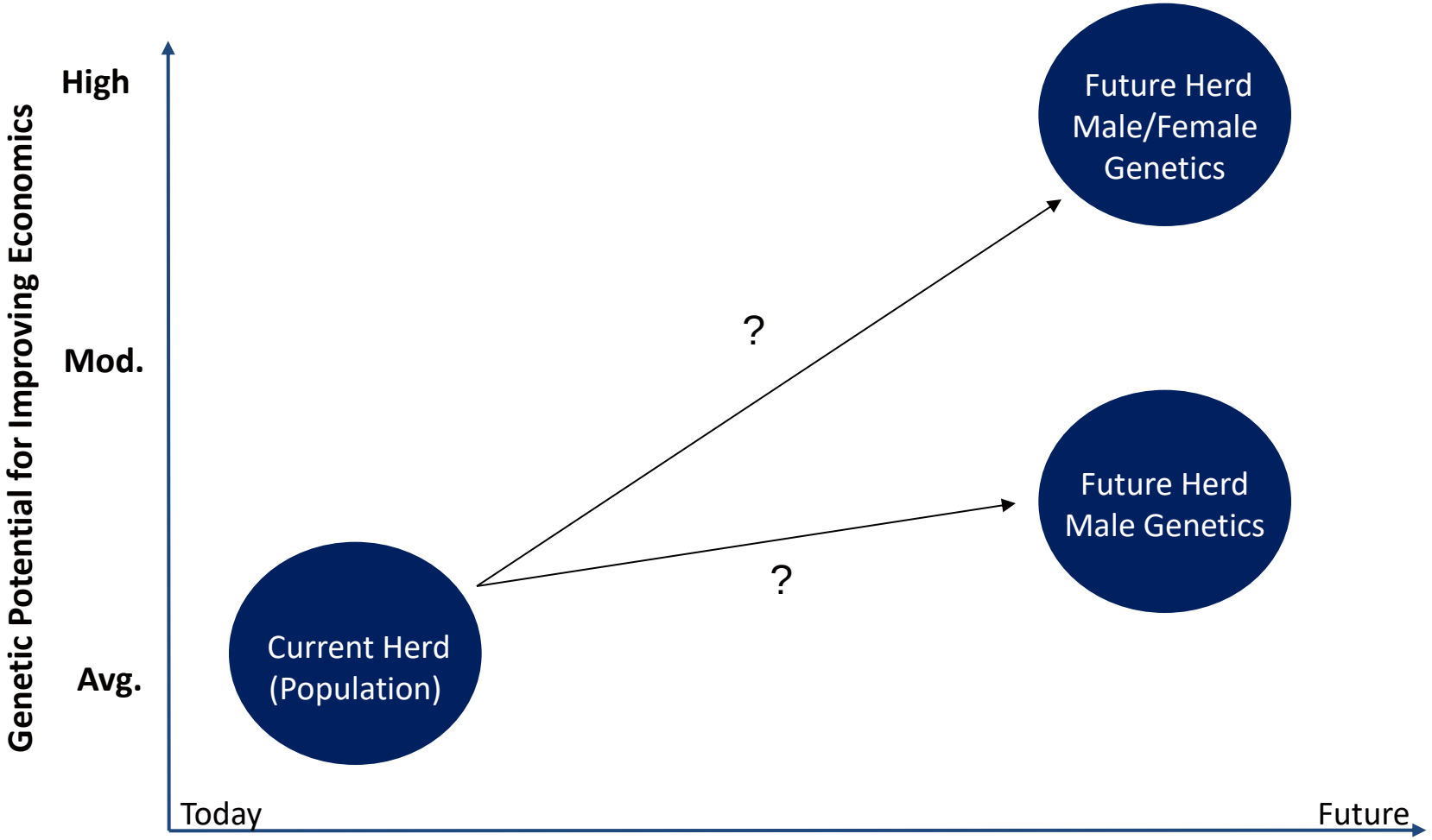
## Comparing Male Genetic Selection with Added Female Selection



# Exponential Improvement Window…



# Genetic Decisions Today Impact Economic Profit of the Future



# Prophet From Genetic Progress

## GRAND MOTHERS

**Seek**: I want to be the Recipient Mother of my Granddaughters‘ Future

**Value:** Profitability from shortening the generational interval (and I am an Experienced Mother)

## DAUGHTERS

**Seek:** Use of our own Genetic Indexing and Herd Rankings to identify our Genetic Needs

**Value:** Profitability from choosing only the Top Male and Female Genetics for this Herd

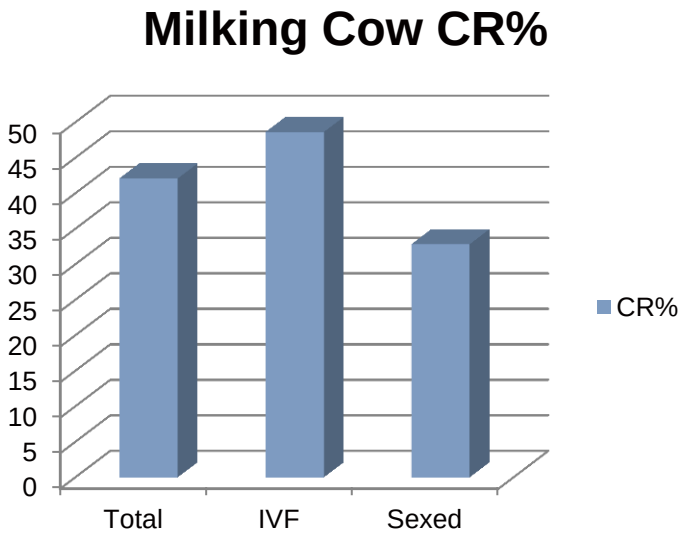
# IVF Projects

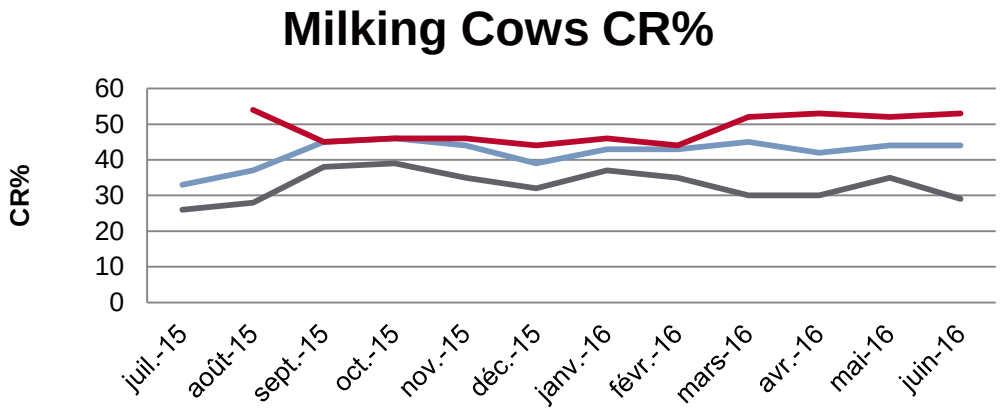
## Using Embryos Reduces Open Days by Improving Conception Rates

- 20,000 embryos
- produced and transferred ( 2016)

- 200 embryos transfered/day
50 donors aspirated/day

# Using Embryos Reduces Open Days by improving Conception Rates




| | juil.-15 | août-15 | sept.-15 | oct.-15 | nov.-15 | déc.-15 | janv.-16 | févr.-16 | mars-16 | avr.-16 | mai-16 | juin-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 33 | 37 | 45 | 46 | 44 | 39 | 43 | 43 | 45 | 42 | 44 | 44 |
| IVF | | 54 | 45 | 46 | 46 | 44 | 46 | 44 | 52 | 53 | 52 | 53 |
| Sexed | 26 | 28 | 38 | 39 | 35 | 32 | 37 | 35 | 30 | 30 | 35 | 29 |

# ABS 20:20 Vision Statement:

## “Bull Selection has Provided a Positive Result…”

*“ We Must Add Female Genetic Selection*

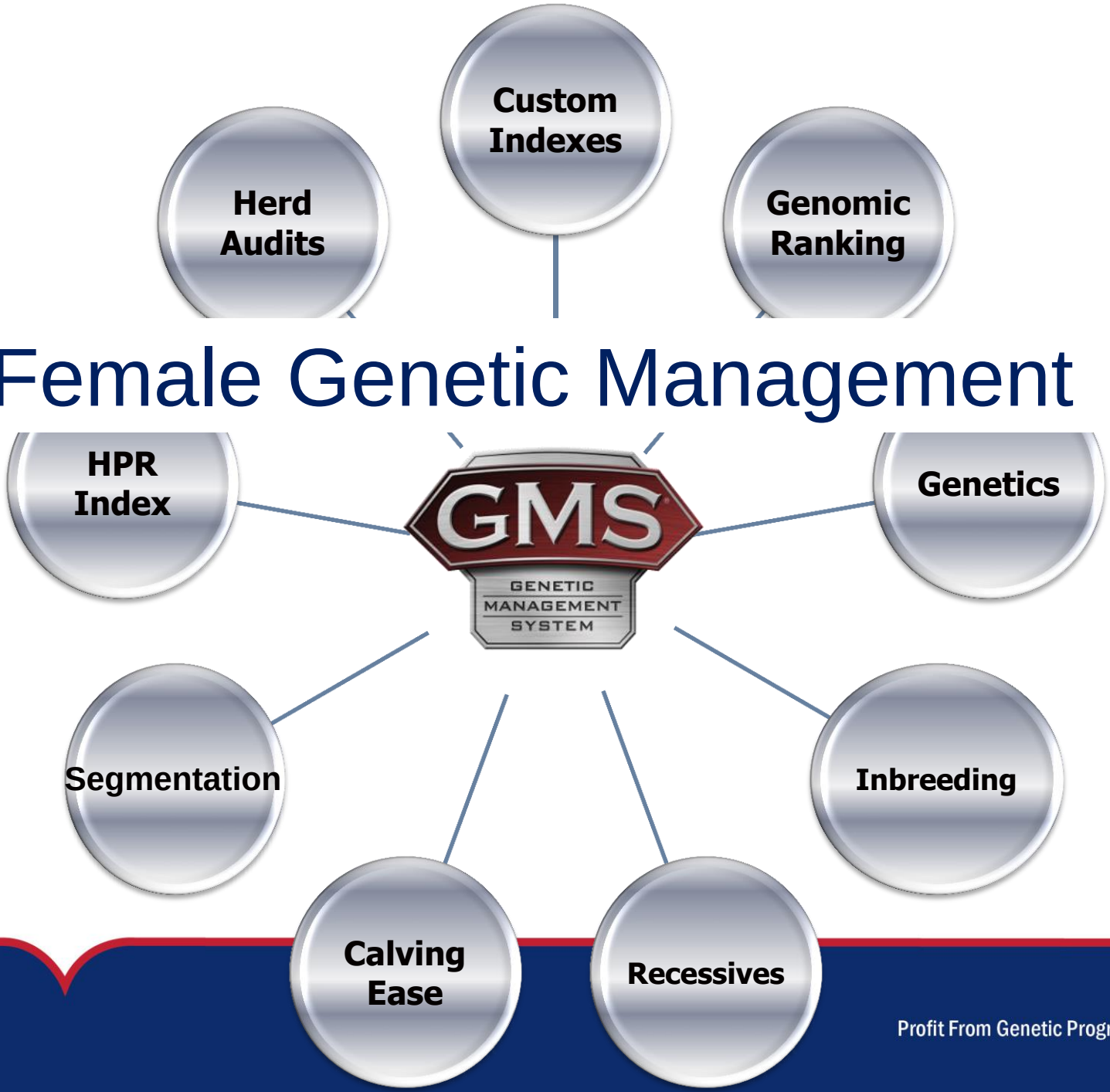
*to*

*Maximize Genetic Progress…”*

Profit From Genetic Progress

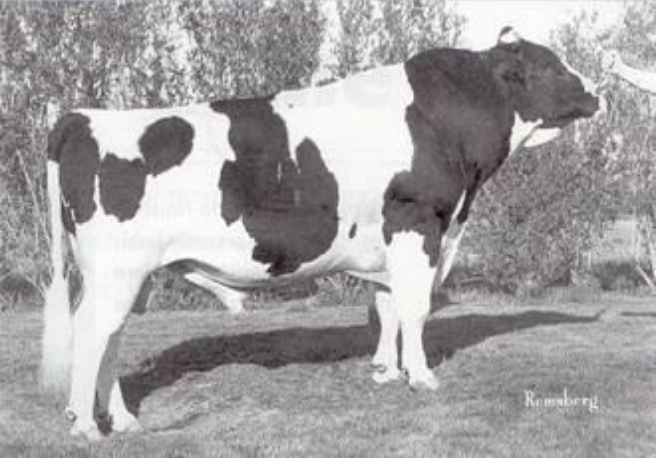
ABS

# Female Genetic Management



# What's the 'Right' Genome… easy with genomics?

12122220102001201122201020102010200202010
21020102010201020102221020111102010210101
22110101121102010102010210210210210210211
01010012112222010210110201120101022201120
11111111111101010221022222222221100001101
00102101111201022022121102010011121102010
20102110201020002111102010201102010102012
00102110201020102010200020102011102010 2
11211200121221122010201020001212010201101
21212010201102011121201020100222220111021



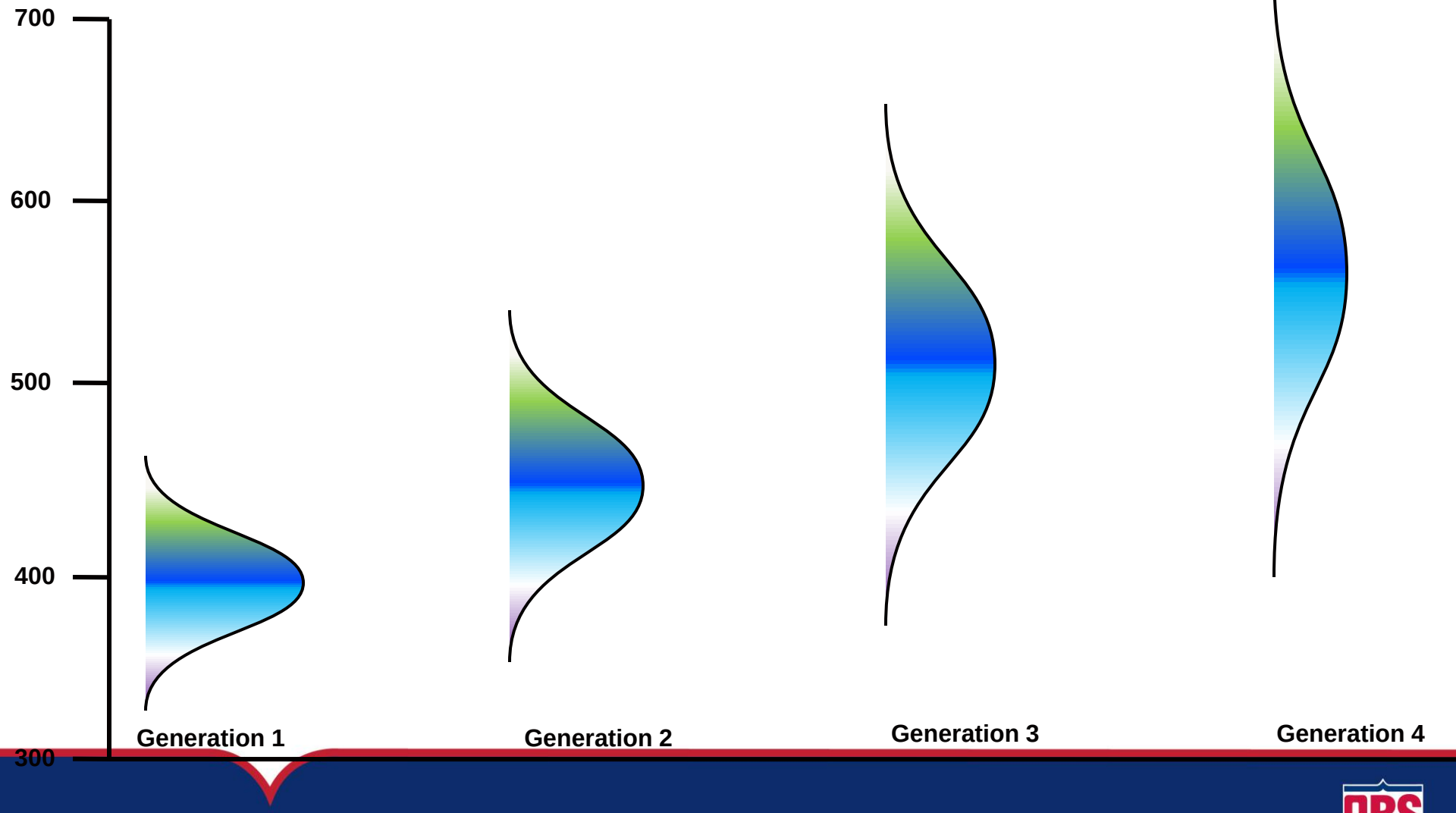
# Genotype Data for Elevation

## Chromosome 1

10001112200200121110111121111011110011211000201220022201111202101200211
12211002111200111100101101101022001100220110112002011010202221211221020
01001110001122022122112021120120201002022020000211000112020112211121 1
10220111100002122020002210120200022112201110121001112111021121100201 02
10002200022010002011000022022110221121011211101222200121121222002001 2
02002020201222110022222220022121111210021111200110111011200202220001 11
20110102111212111020221002112012110011111021112110211122000101101102 02
20022111010201112111011202102102121101102212200121101121101202201100 2
22002100211000111002110211011100022200202212121100022201020022221212 2
11211120020110202001222222112212021211210110012110110200220002001002 2
00011110110012110212121112010101212022101010111102110211221111112102 0
12111210110120011111021111011111220121012121101022202021211222120110 12
22002121210121210201100111222121101201220102011220120122020012212211 0

# Using Genomic Bulls Creates Faster Progress

# But Causes Increased Variation



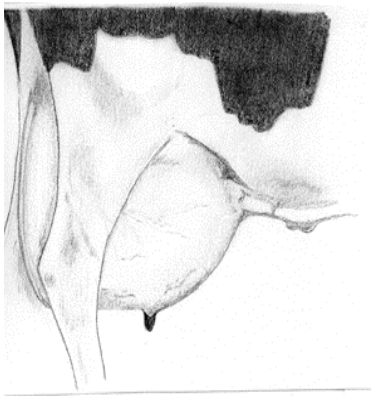
# Welcome GENOMICS

AGTCCATGGGGTTGCAGAGTCAGACACAGTGGAGTCACACACATACACACG
GCCCCACGCTGGGTTAAGGCGGGGCTGAGACAAGGGCAGGTGAGGCCTCCCA

**Genomics Are Reducing Generation Interval!**

***(Have we been using Correct Breeding Assumptions?)***

# Worst Trait - NOT Right Answer



Poor Udder Depth

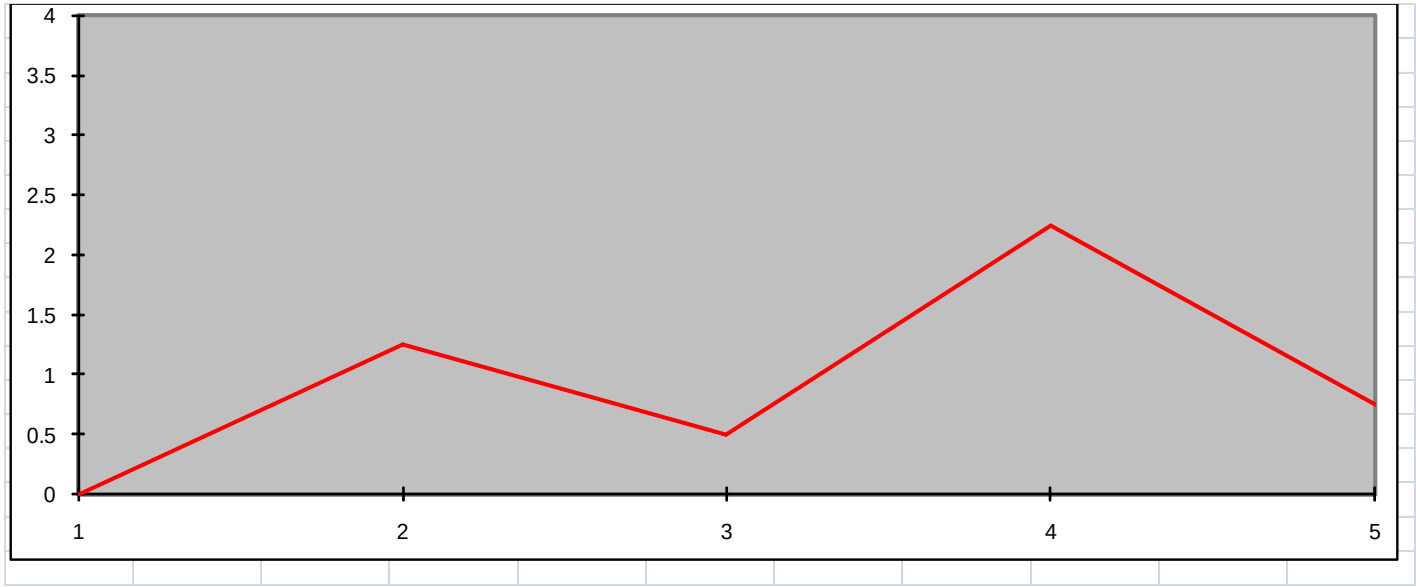
+


Bull w/good UD

=

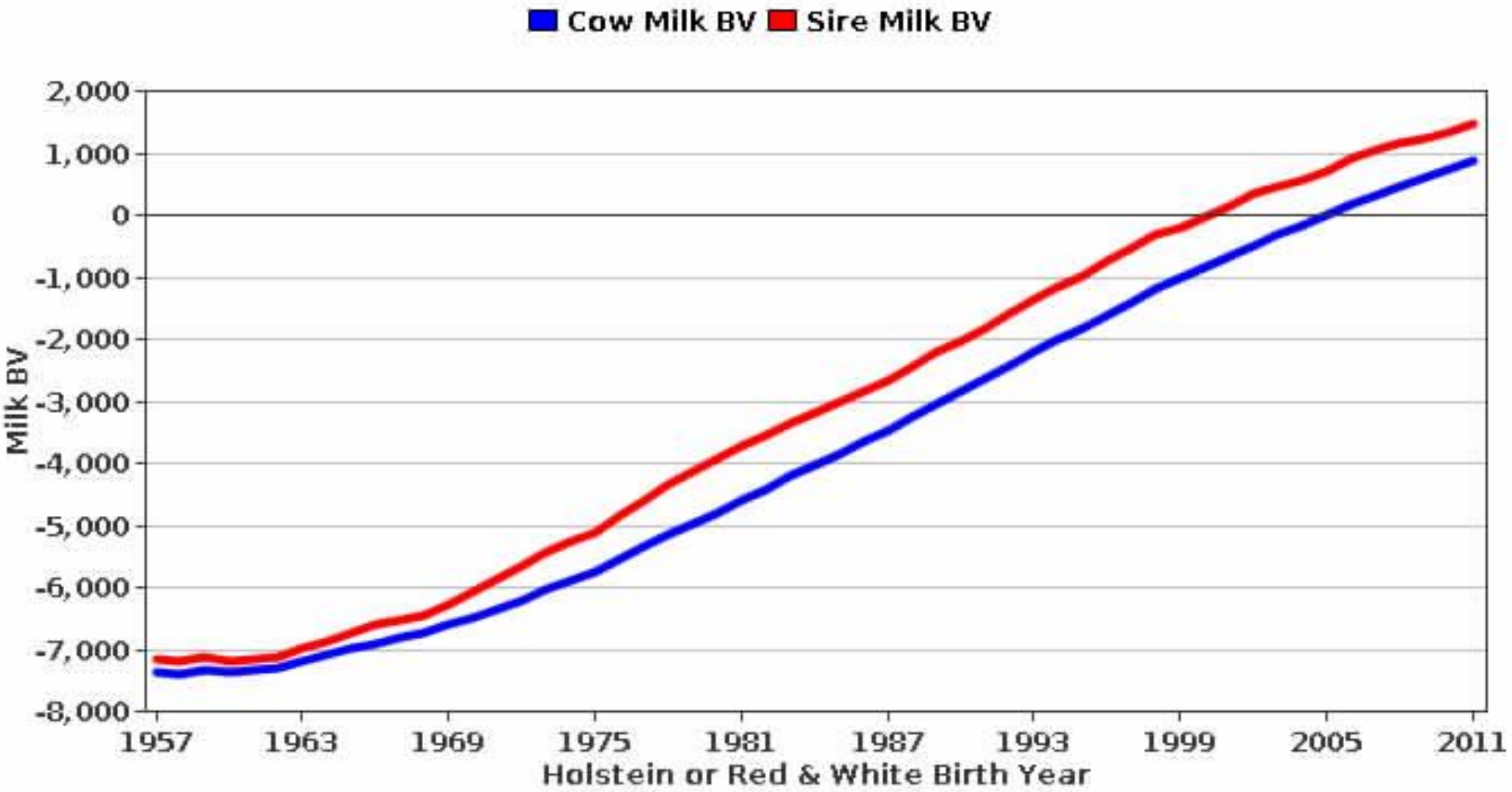
**Improved UD but poor in other traits**

# Worst Trait Selection Process

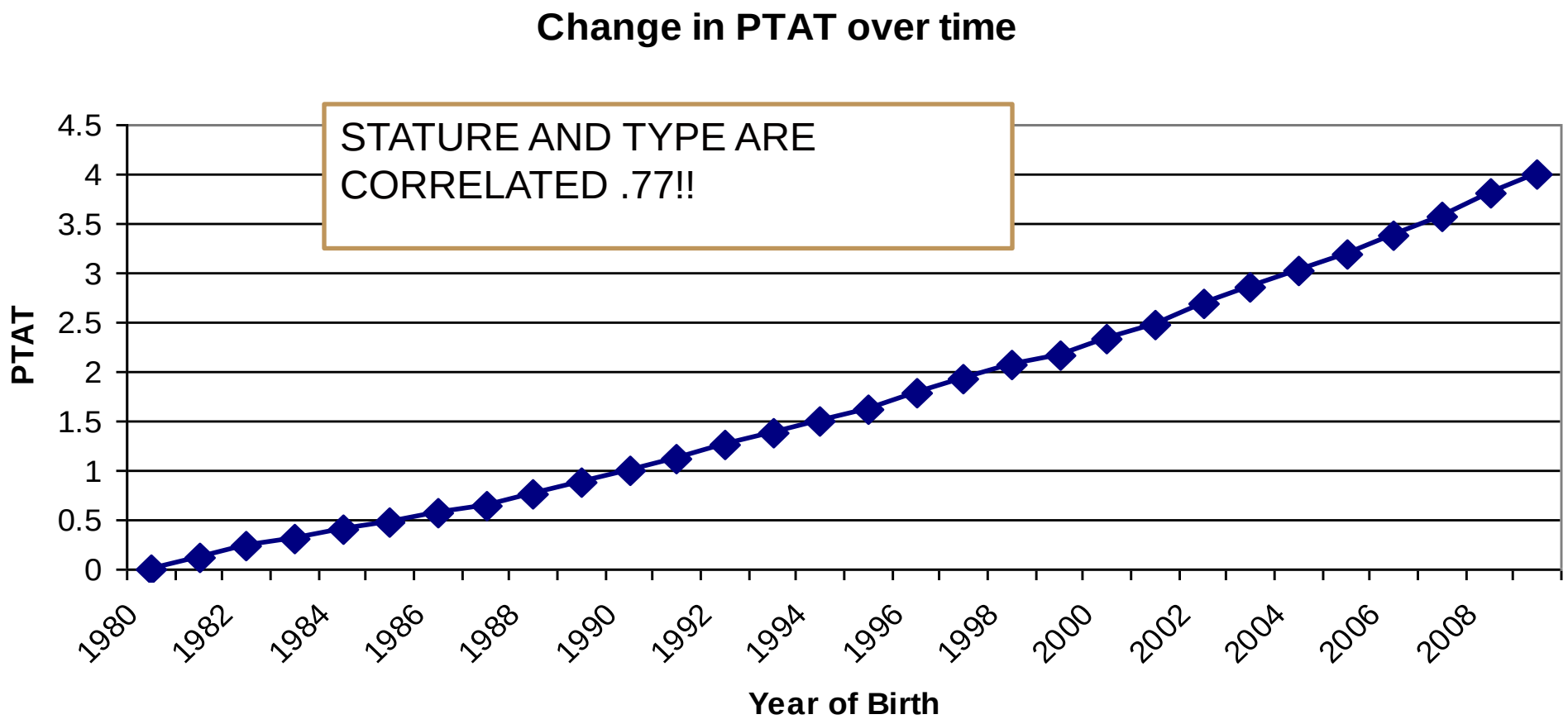



Improvement only because of bull group selected

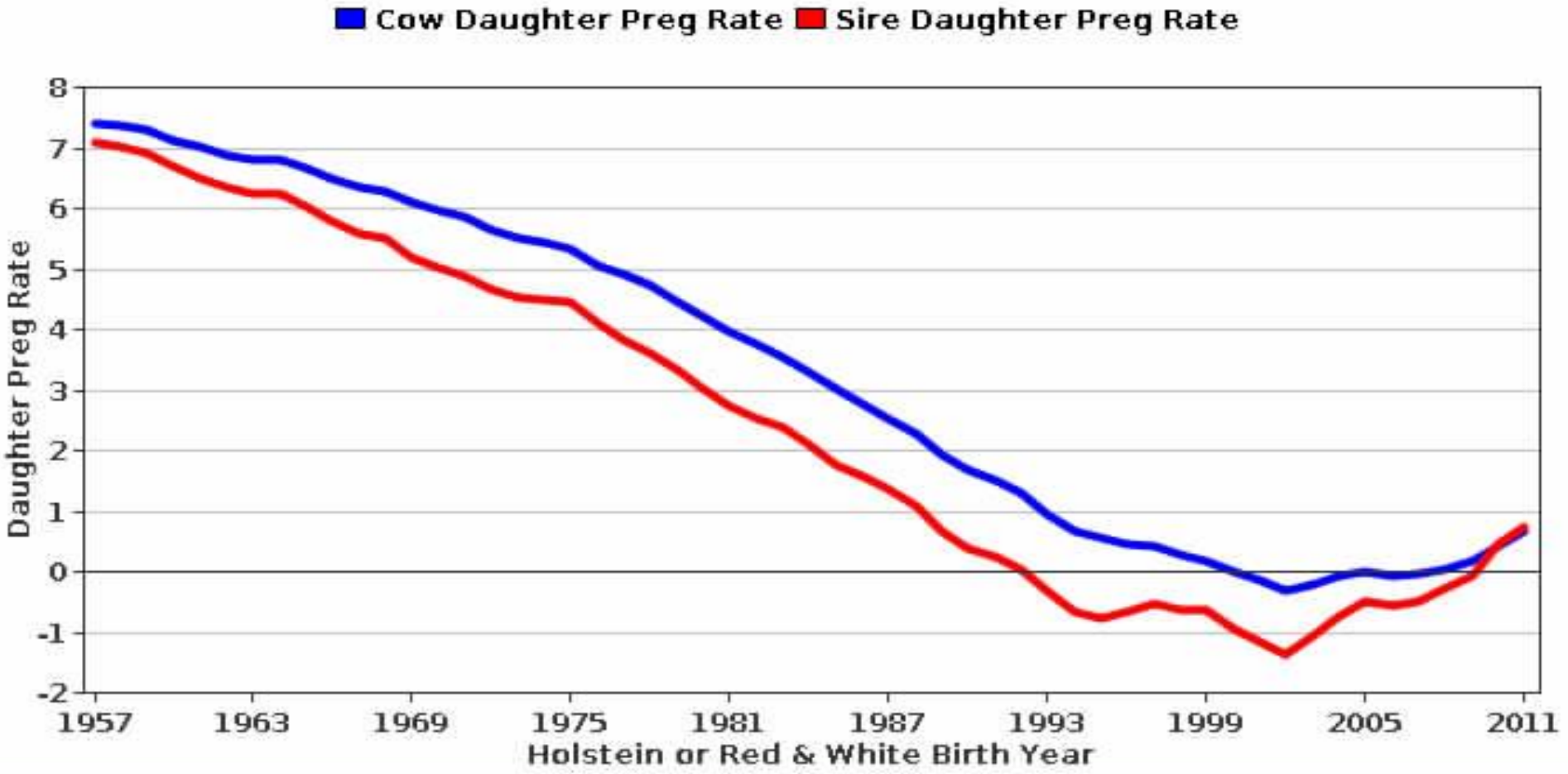
# Milk Breeding Values over Time



# Change in  type over time



# DPR (not everything has been positive…)

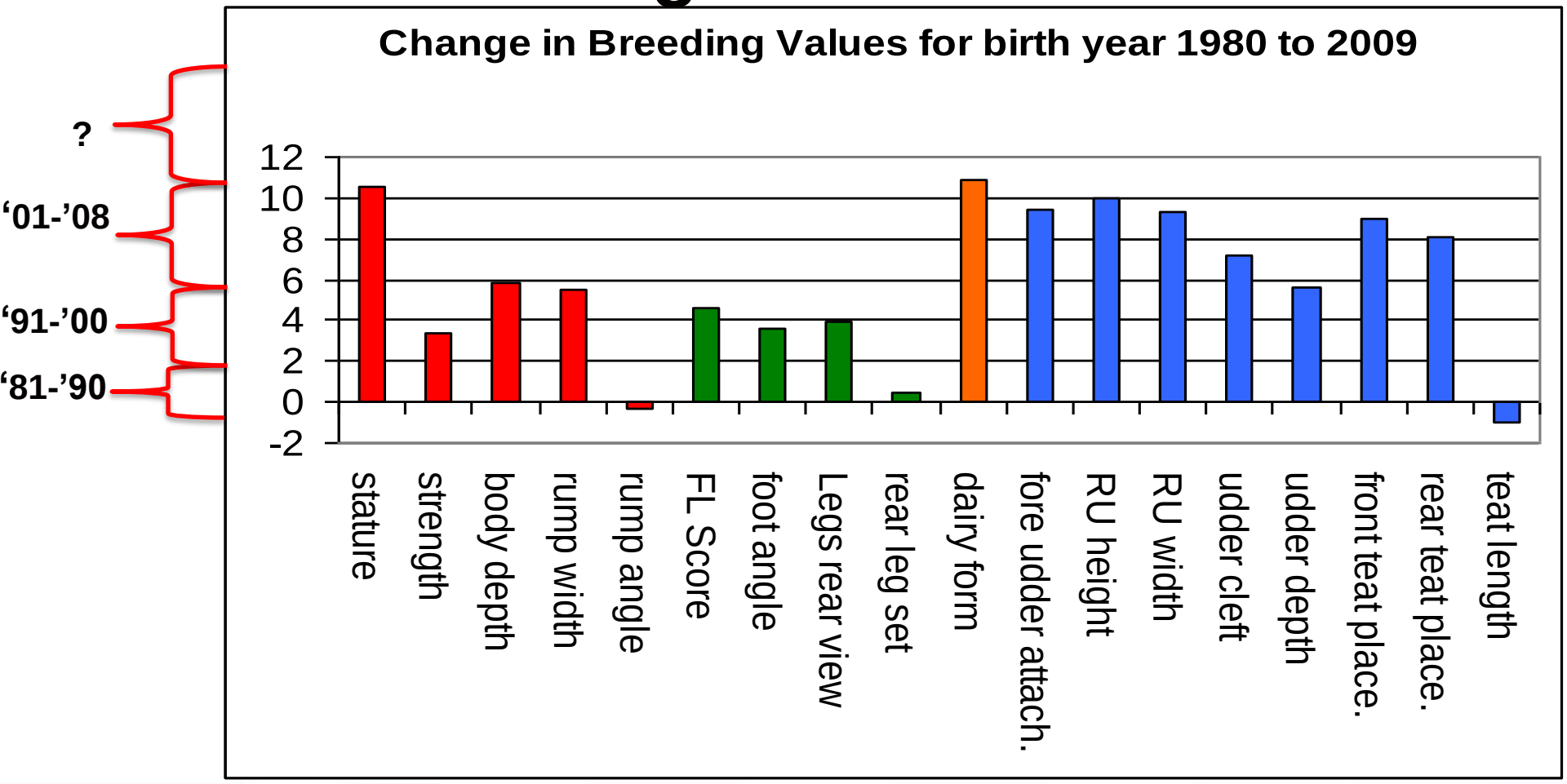


# The High Impact of Low Heritability

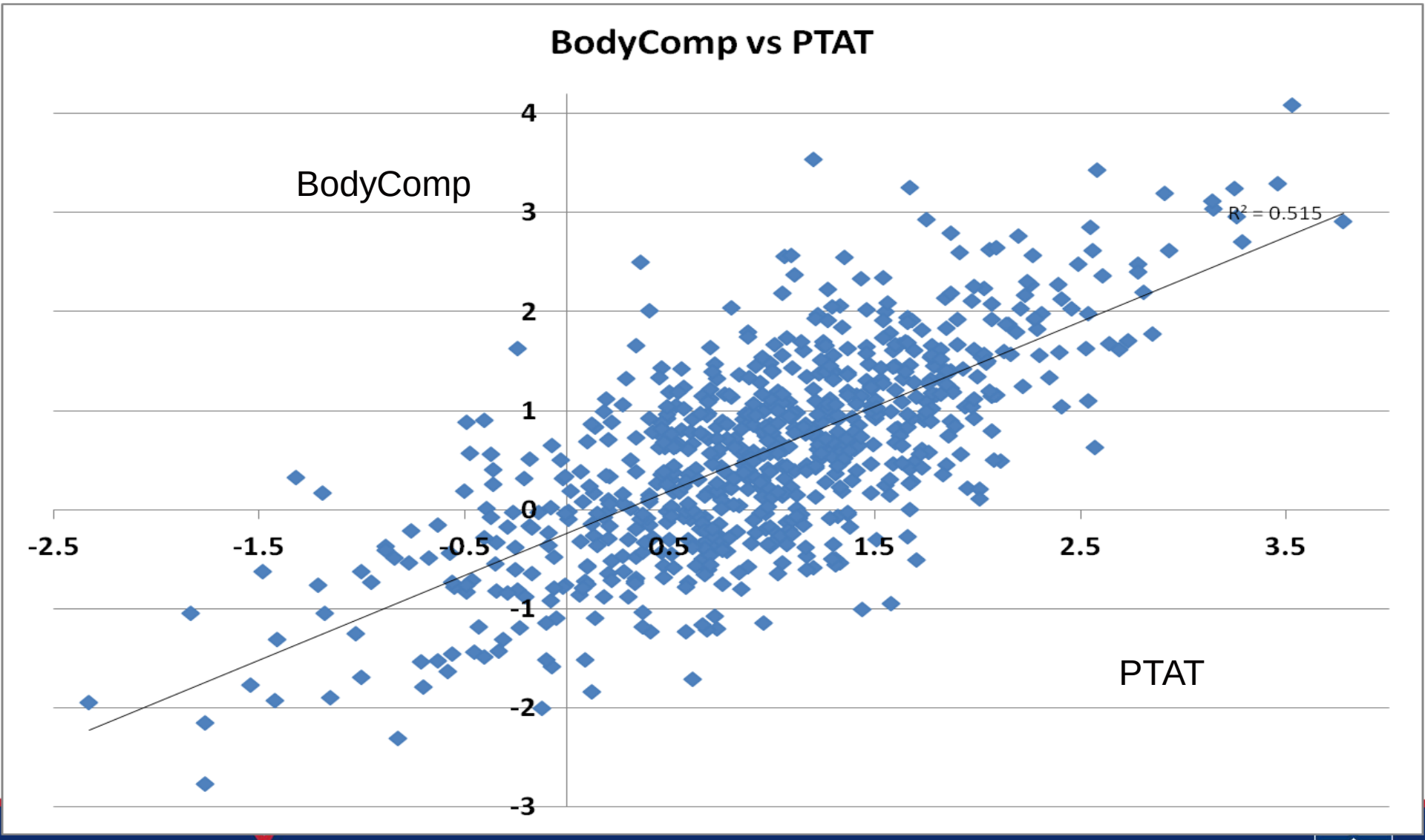
****Ranked by Sire PTA DPR****

| # Cows | PTA DPR | Days Open | % Preg | Times Bred |
|---|---|---|---|---|
| 1202 | 3.2 | 99 | 76% | 1.9 |
| 2403 | 0.42 | 108 | 69% | 2.1 |
| 1202 | -1.8 | 120 | 63% | 2.2 |

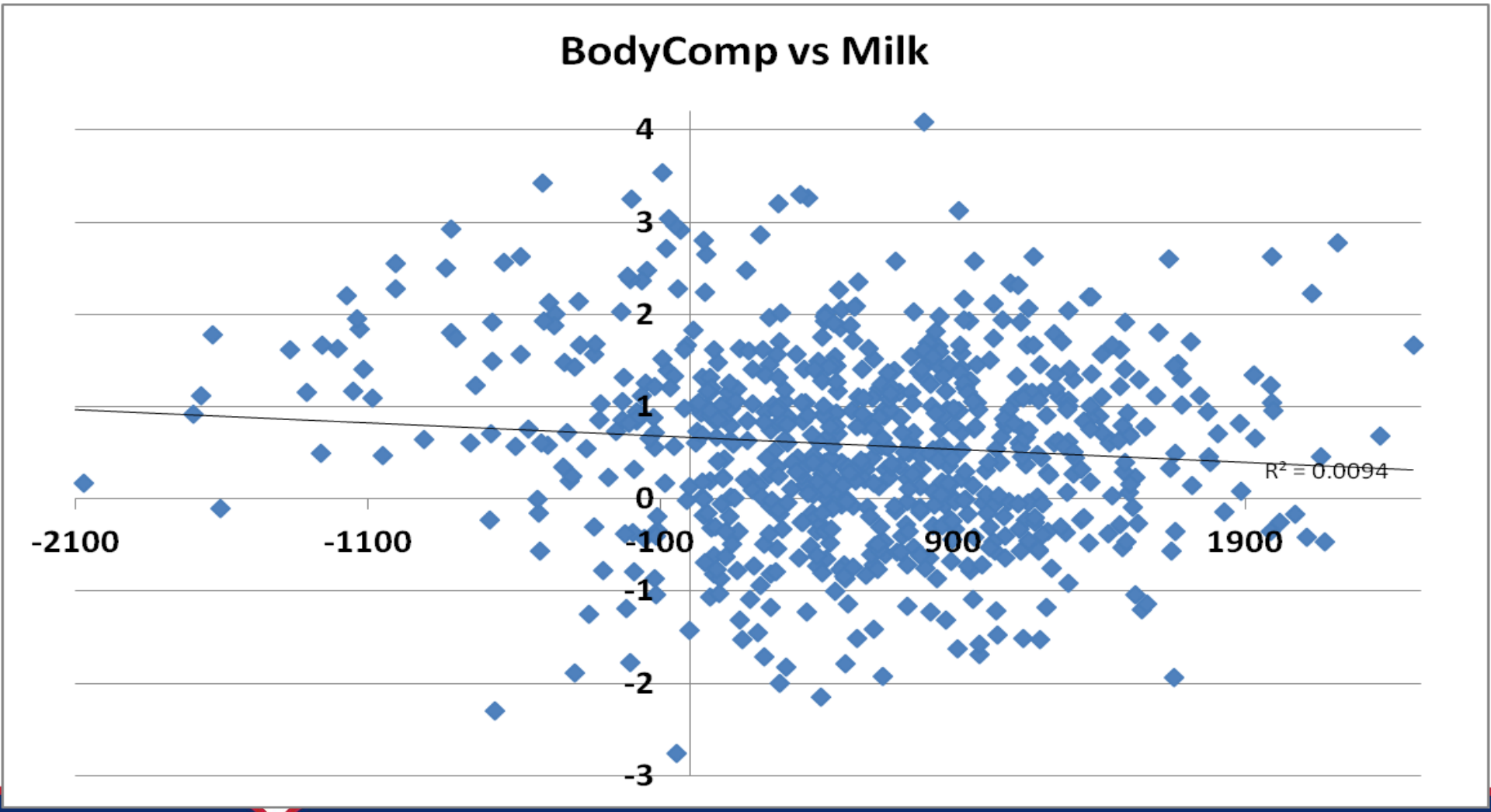
# Linear Traits—Change over time



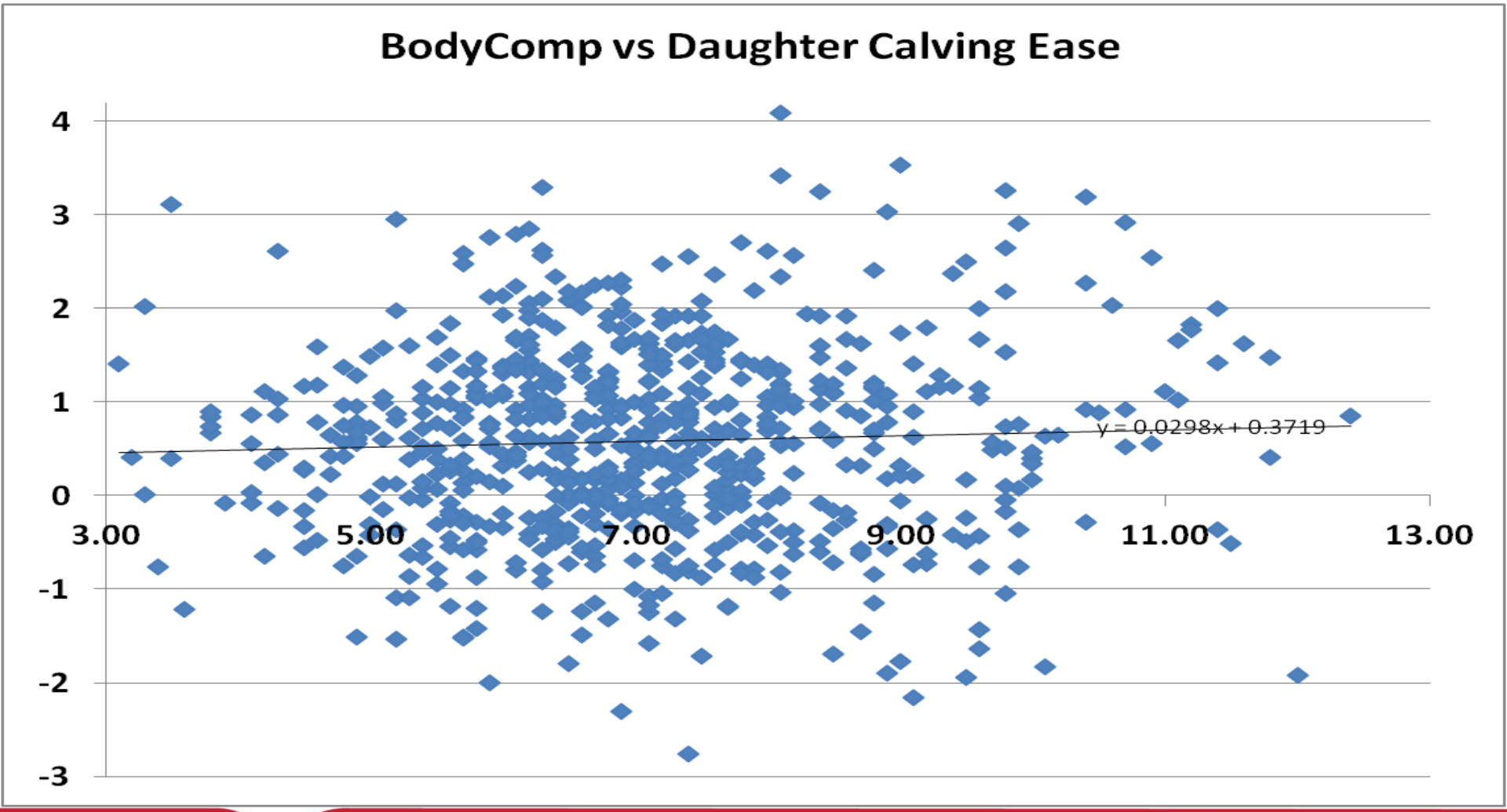
# Do bigger cows score higher?



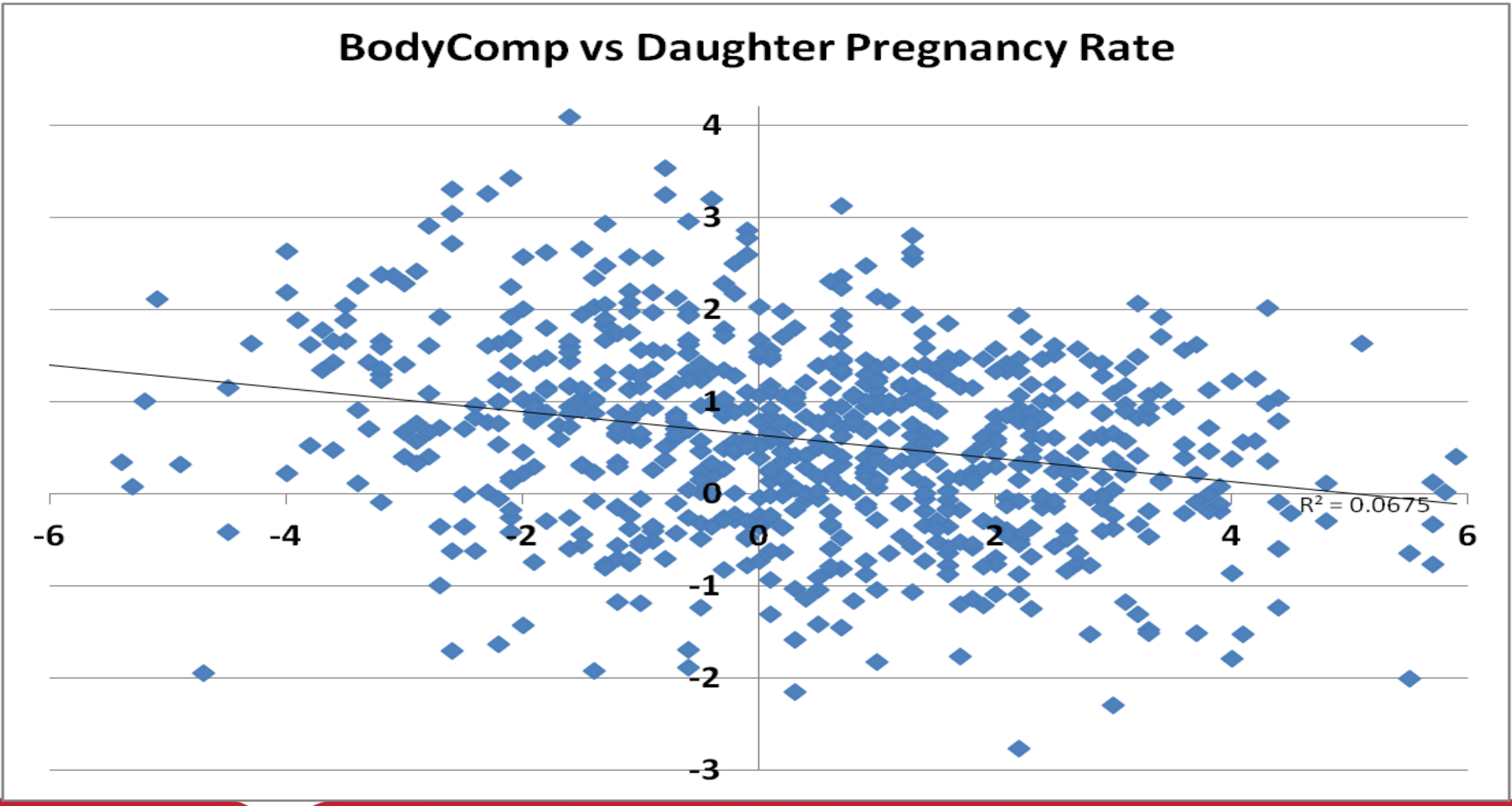
# Does more BDC mean more milk?



# Do larger cows calve easier?

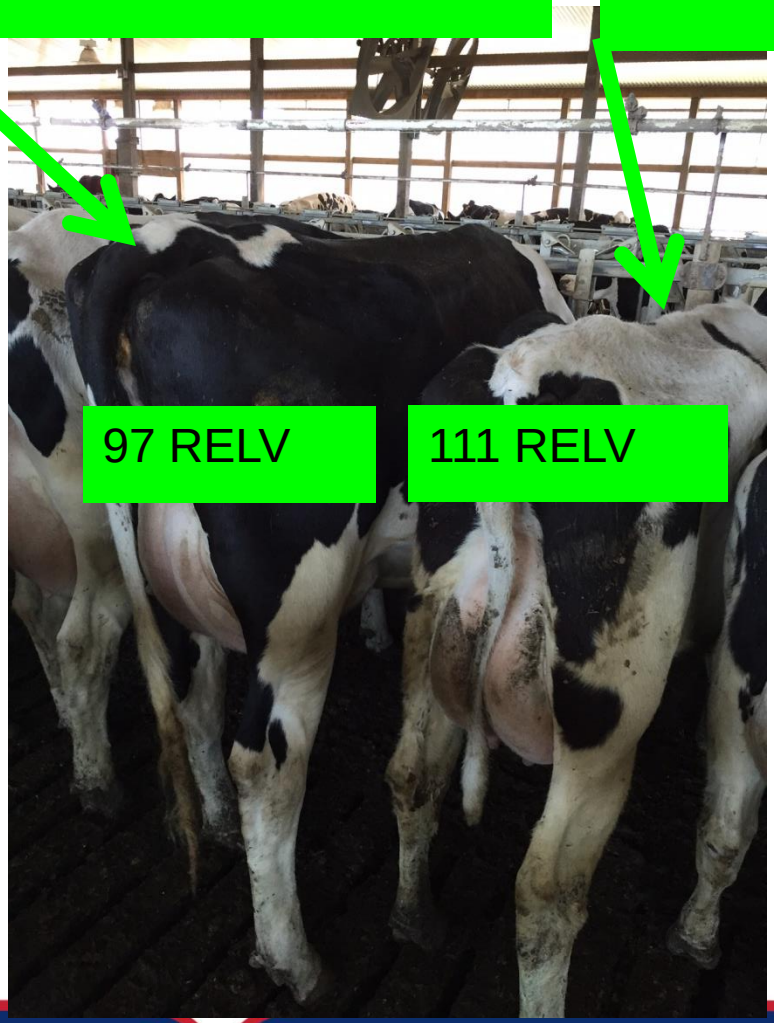


# Do larger cows breed back easier?



3.33 PTAT (4.35 Stat)
2.95 UDC
1.58 FLC

.35 PTAT (-1.39 Stat)
.67 UDC
-.79 FLC




# Following Historic Index Models Have Given Us Inbreeding


- Large Cow
  - High DMI
  - Fit Freestall
- Low Fertility
  - More Semen
- Higher Cull Rates

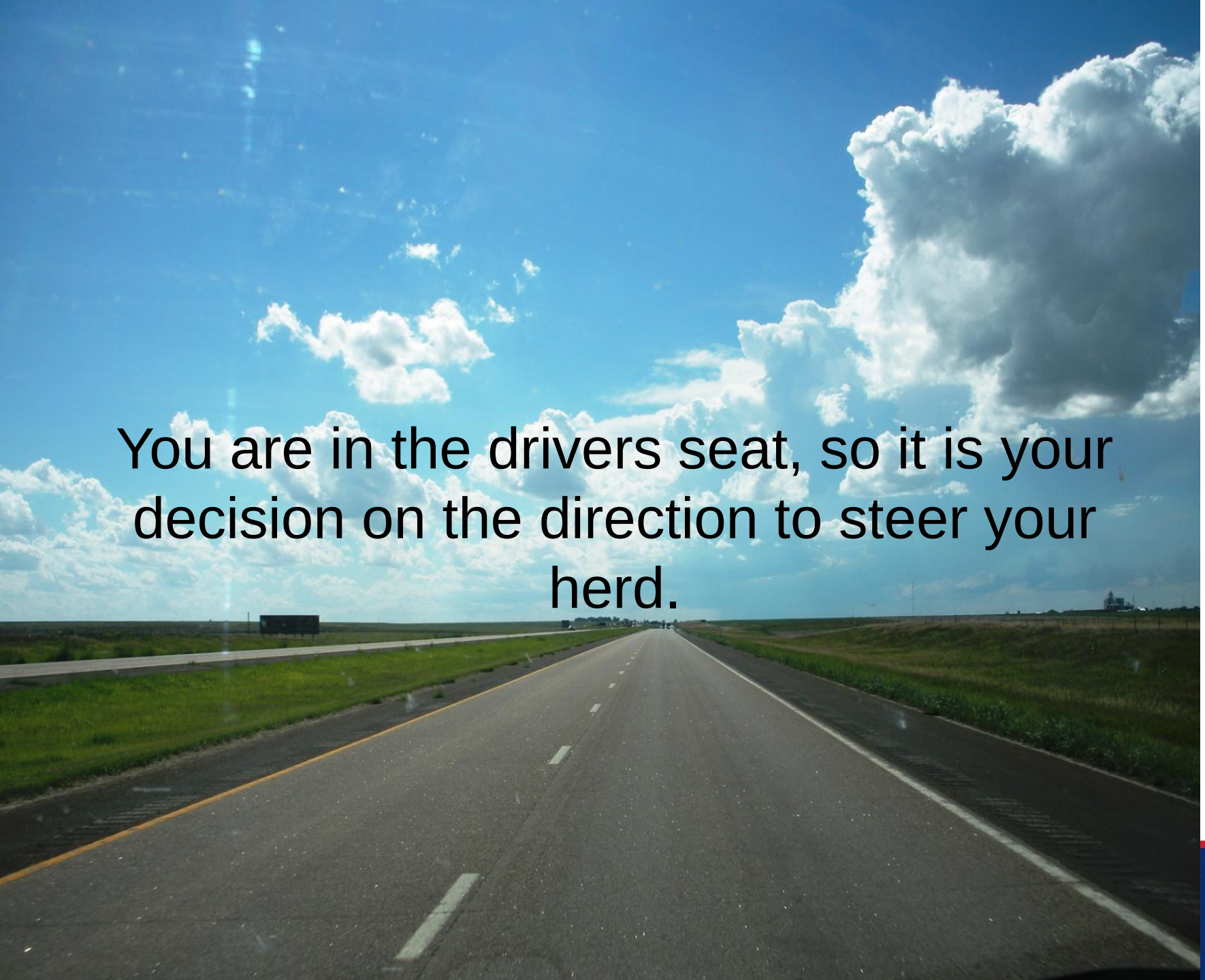
High Production

High type

- Driven by "Show Type"

# “Clearly – we have a Problem…”

# BULLS ARE DANGEROUS




**Bulls have put us on the road to a**

**T A L L E R**

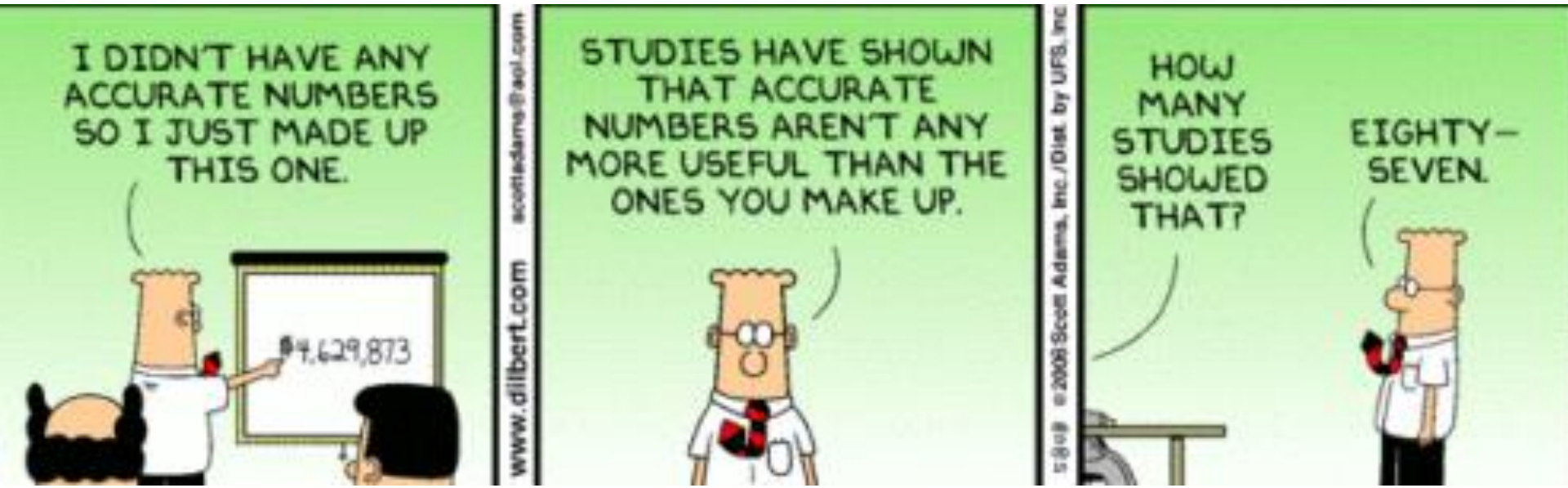
**C O W**

**. . .**

# Following ABS RWD validation Address' the question of what Genetics Do Deliver

- Large commercial herd – 8,000 cows
- Used herd's Real World Data® (20M+ Records, 5 Countries, 1500 Cows/Herd)
- Looked at performance based on genetic levels
  - Milk
  - Longevity
  - Female Fertility
  - Somatic Cell

# Why RWD?


I DIDN'T HAVE ANY ACCURATE NUMBERS SO I JUST MADE UP THIS ONE.
$4,629,873
www.dilbert.com scottadams@aol.com
STUDIES HAVE SHOWN THAT ACCURATE NUMBERS AREN'T ANY MORE USEFUL THAN THE ONES YOU MAKE UP.
©2008 Scott Adams, Inc./Dist. by UFS, Inc.
HOW MANY STUDIES SHOWED THAT?
EIGHTY-SEVEN.

# DATA

- RWD has massive amounts of data
- Quality is much more important than quantity

**GARBAGE IN, GARBAGE OUT**

# Real World Data® for daughters with High, Medium, and Low sire genetic level for PTA Milk

Data are from a commercial herd milking over 8,000 cows

| PTA Milk Category | Sampling of the ABS Sires Included | Sire PTA Milk | No. Dau. | 1st Lactation 305d ME Milk, lb. | Milk Yield Advantage, lb | Extra Milk Sales each lactation, @$10.00/cwt. |
|---|---|---|---|---|---|---|
| High | ALTON<br>PROSPECT<br>WESTMINSTER | **over +1300** | 474 | 36,349 | **+2034** | +$203 |
| Medium | BOLIVER<br>FREDERICK<br>BRADLEY | +700 to +1300 | 1,041 | 34,871 | +556 | +$56 |
| Low | DRAMATIC<br>MALIN<br>DRAKE | under +700 | 719 | 34,315 | -- | -- |

# Milk Yield Economic Impact for each 1,000 cows

| | |
|---|---|
| Extra Milk sales per cow high to low group | **$203** |
| Lifetime Average | 2.5 Lactations |
| Extra Milk Sales Lifetime per cow @ $10.00 cwt | 2.5*$203 = **$508** |
| For each 1,000 cows | **$508,000** |

# Real World Data® daughters of sires High, Medium, and Low for PTA DPR

Data are from a commercial herd milking over 8,000 cows

| PTA DPR Category | Sampling of the ABS Sires Included | Sire PTA DPR | No. Dau. | 1st Service CR% (all lactations) | CR% Advantage | Extra Profit, @$5 per 1 CR%* |
|---|---|---|---|---|---|---|
| High | DIE-HARD<br>DUSTER<br>MANGO | **Above 0.0** | 2546 | 29.2% | **+4.2%** | $21.00 |
| Medium | GORDON<br>PIPPEN<br>GARRISON | 0.0 to -1.5 | 569 | 27.6% | +2.6% | $13.00 |
| Low | CONVINCER<br>LANTZ<br>MODESTO | Below -1.5 | 721 | 25.0% | -- | -- |

* Values approximated from data published by DeVries and coworkers. 2005. AN156. University of Florida

# DPR Economic Impact for each 1,000 cows

| | |
|---|---|
| Overall Days Open Difference high to low group | **-50** |
| Extra repro savings per lactation $1.75/DOPN | **$87.50** |
| Lifetime Average | 2.5 Lactations |
| Savings per cow of decreased Days Open | 2.5*$87.5=**$218.75** |
| For each 1,000 cows | **$218,750**** |

**Economic impact potential is conservative (does not include value of loss for DNB cows)

* Values approximated from data published by DeVries and coworkers. 2005. AN156. University of Florida

# Real World Data® for daughters with High, Medium, and Low sire genetic level for PTA SCS

Data are from a commercial herd milking over 8,000 cows

| PTA SCS Category | Sampling of the ABS Sires Included | Sire PTA SCS | No. Dau. | 1st Lactation SCC x $10^3$ cells | SCC Advantage x $10^3$ cells | Log SCC |
|---|---|---|---|---|---|---|
| High* | MACHOMAN<br>CUMULUS<br>PROSPECT | Above 3.10 | 694 | 162,000 | -- | 2.20 |
| Medium | DIE-HARD<br>TOUCHDOWN<br>PIPPEN | 3.10 to 2.90 | 985 | 136,000 | -26,000 | 1.95 |
| Low | REECE<br>GRANDVIEW<br>MANGO | **Below 2.90** | 511 | 117,000 | **-45,000** | 1.79 |

*Low SCS is favorable

# Real World Data® for sires High and Low for PL

Data are from a commercial herd milking over 8,000 cows

| PTA PL Category | Sampling of the ABS Sires Included | Sire PTA PL | No. Dau. | Lifetime Total Milk | Lifetime Milk Yield Advantage, lb |
|---|---|---|---|---|---|
| High | DUSTER<br>DIE-HARD<br>TABOO<br>MARATHON<br>ZEST | **over +1.0** | 1901 | 60,811* | **+5459** |
| Low | MODESTO<br>MATTIE<br>LANTZ<br>KENRIK<br>ROY | below -2.0 | 1838 | 55,352 | -- |

*Underestimates Lifetime Production in order to show recognizable group of bulls. Many in high group are still living in herd, therefore variance from high to low is a conservative difference.

# PL Economic Impact for each 1,000 cows

| | |
|---|---|
| Lifetime Milk Difference per cow high to low PL group | **5,459 lbs** |
| Lifetime Milk difference 1,000 cows | 5,495,000 lbs |
| Cwts of milk @ $10.00 | 54,950*$10.00 |
| Economic Advantage for each 1,000 cows | **$549,500** |

# What does '*Your*' Efficient, Profitable, Long-Lived Genetics look like?

?

# Holsteins don't 'look' like they used to

## Relationships between traits and Productive Life

| | Birth yr for cows | | Bulls |
|---|---|---|---|
| Trait | <1983 | 1995-97 | 08-2013 |
| Milk (PTAM) | +.43 | .08 | .01 |
| Dairy Form (DF) | +.41 | -.25 | -.36 |
| Stature (ST) | +.05 | -.13 | -.36 |
| Body Depth (BD) | -.07 | -.29 | -.43 |

Tsuruta and co-workers. 2005. J. Dairy Sci. 88:1156.
Weigel and co-workers. 1998. J. Dairy Sci. 81:2040.

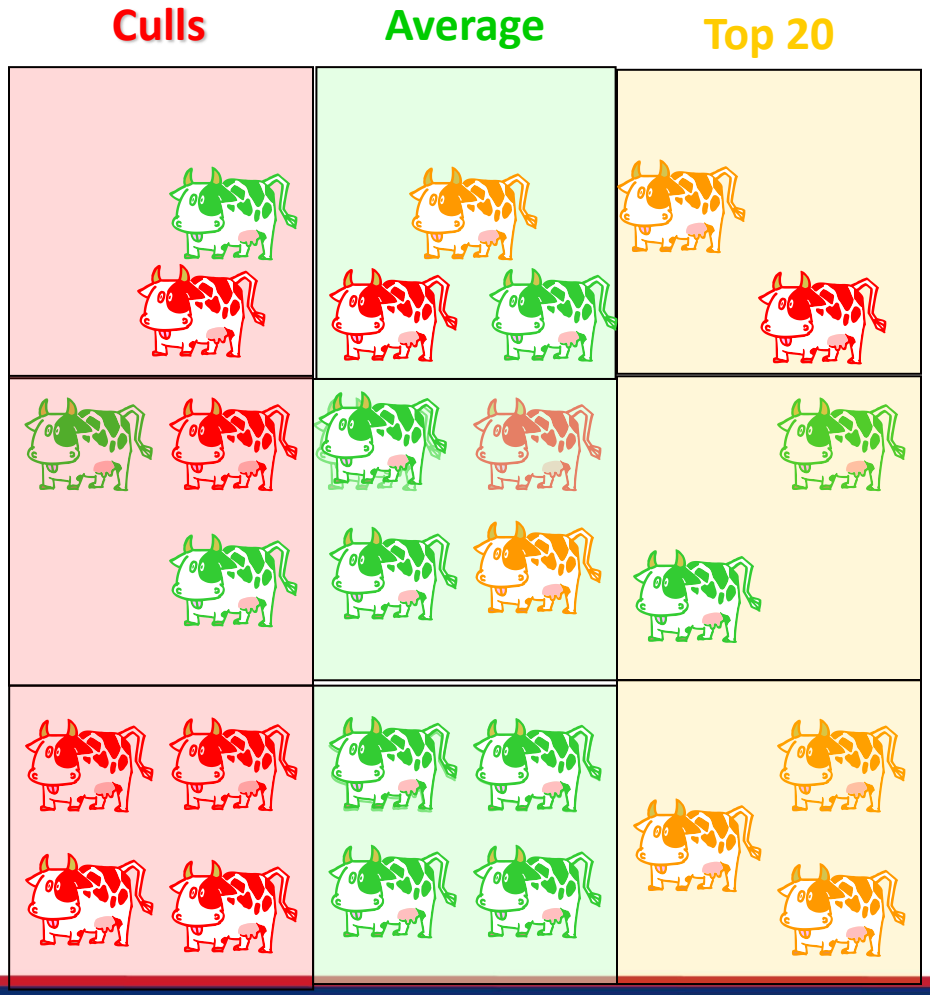
- Over time, we have changed the cow, her environment, and also what we expect from her.

# How do I identify Genetics to drive Total Genetic/Breed Profitability

General Public '**Inbred**' Index Rankings…

General industry Economic Indexes

Personalized Herd Male and Female Rankings



# Some Culling Reasons Seem Obvious

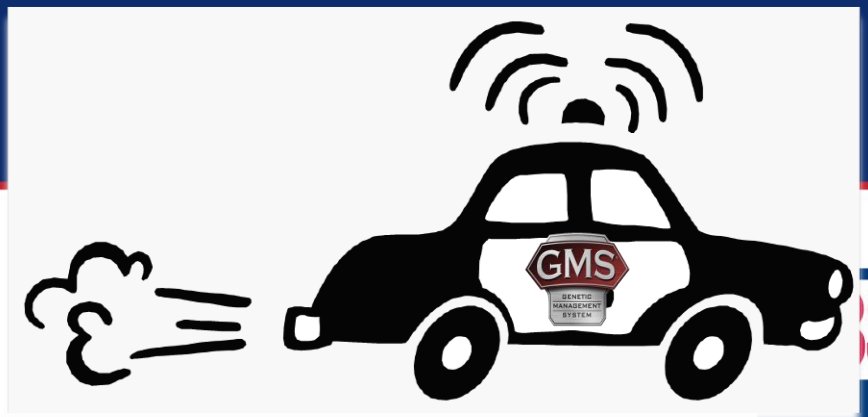
# Inbreeding

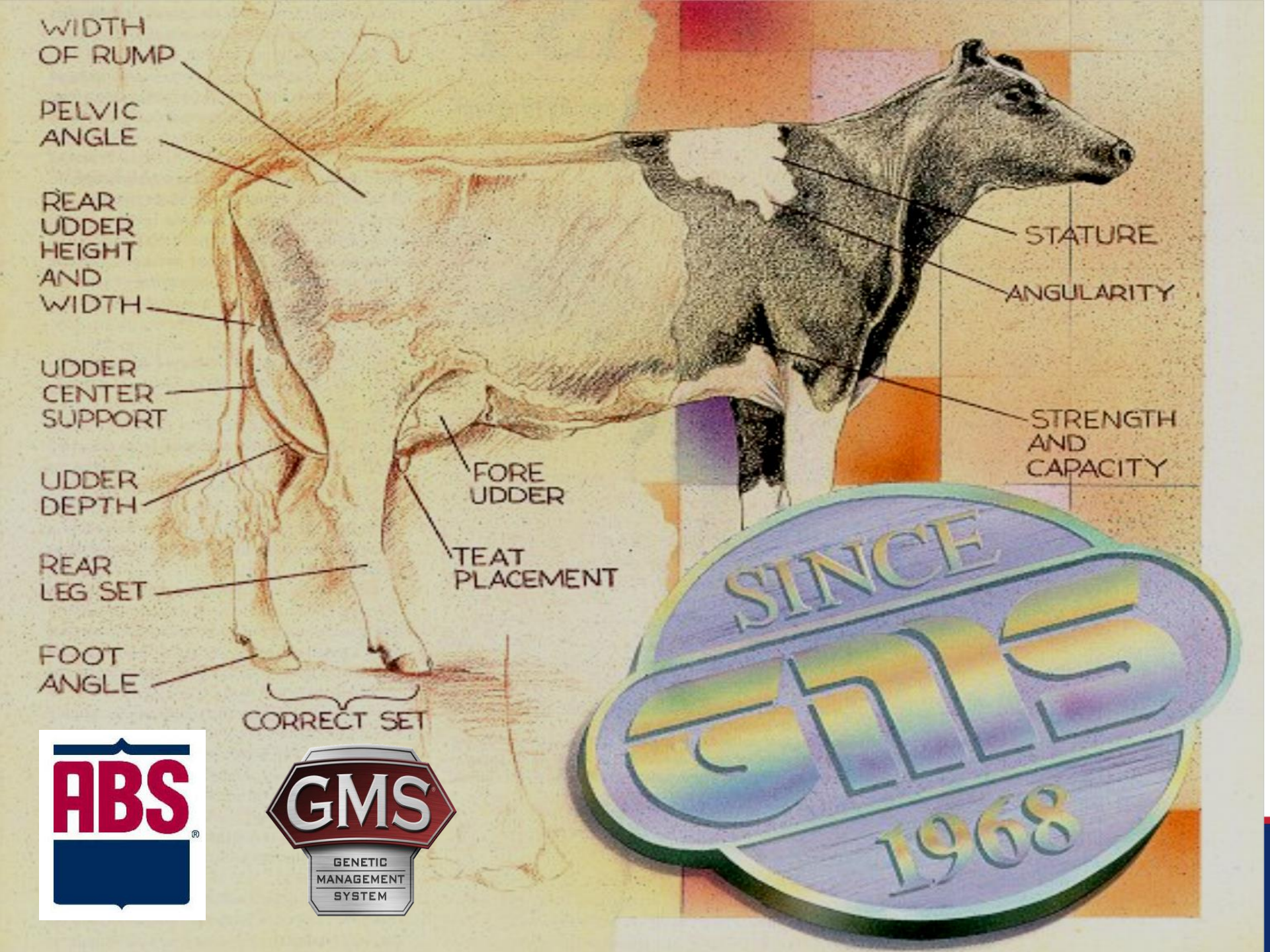
## The Silent Thief

# The Silent Thief

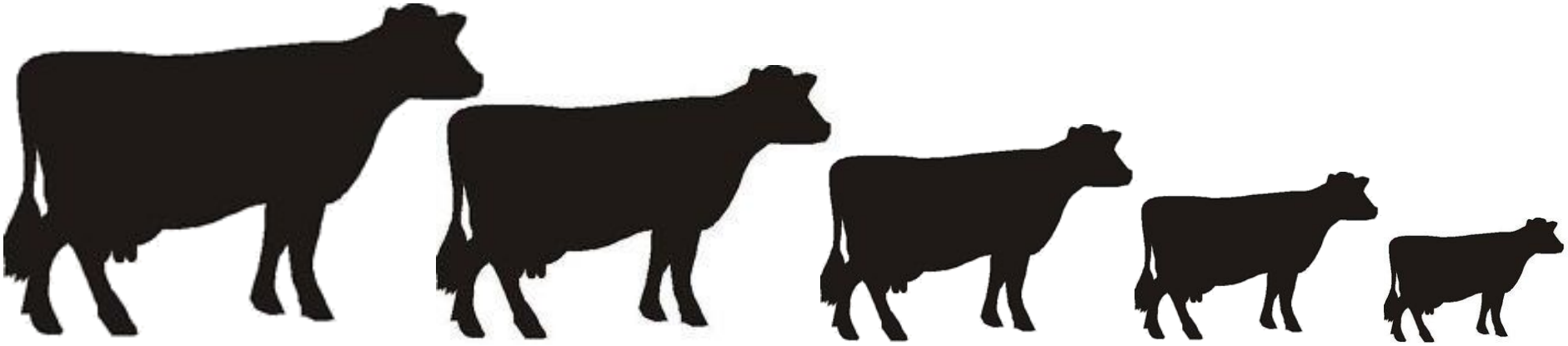
# Oh No…

## *What do we Do*



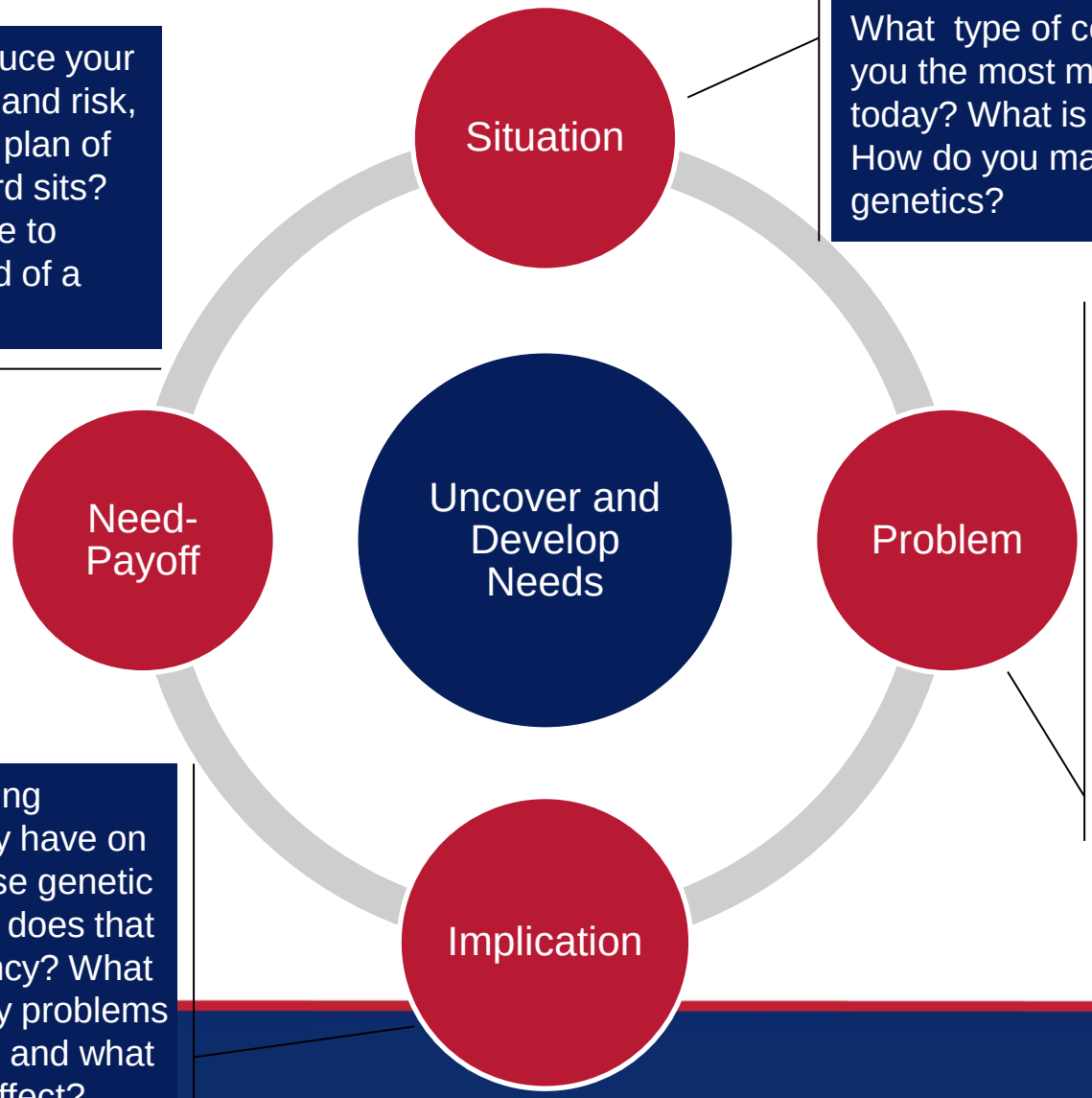

WIDTH OF RUMP
PELVIC ANGLE
REAR UDDER HEIGHT AND WIDTH
UDDER CENTER SUPPORT
UDDER DEPTH
REAR LEG SET
FOOT ANGLE
CORRECT SET
FORE UDDER
TEAT PLACEMENT
STATURE
ANGULARITY
STRENGTH AND CAPACITY
SINCE
CHS
1968
ABS
GMS
GENETIC MANAGEMENT SYSTEM

# Which Cow is the Right Cow for You



Show Type | Intensive Management | Durability | Robot | Grassland

# Genetic Solution Methodology




What if you could reduce your management burden and risk, and have a complete plan of where your whole herd sits? Would that be of value to you? Have you heard of a genetic audit?

What type of cow is going to make you the most money five years from today? What is your genetic criteria? How do you manage and track your genetics?

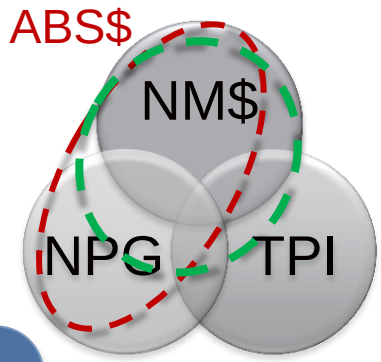
Do you have adequate tools to measure genetic progress? Are you satisfied with the speed you are creating your herd of ideal, profitable cows? What are the 2-3 biggest inefficiencies in your herd?

What effect would going backwards genetically have on your herd? If cows lose genetic ability of fertility, what does that mean for your efficiency? What happens if inefficiency problems continue to get worse and what other areas do they effect?

# ABS Product Development Direction

ABS utilizes our own Sire Selection index we call **ABS$**

- We offer this basic formula in the form of Net Profit Genetics
- Many of our Clients are using our NPG Indexing Formula




Our goal is to deliver strength in Lifetime Net Profit

- One development goal to make personalized genetic progress
- It is economic in nature and fits our customer genetic requirements

Our strong focus on ABS$ will include proprietary product/indices

- Investment in ABS$ will generate real strength in **none** TPI traits
- Proprietary ABS$ will provide product strength thru indices and hybrid embryos, allowing faster generation intervals leading to increased profits

# ABS $ Profitable Cow of the Future


- Moderate Size
  - Efficiency
  - Fits Facility
- Higher Fertility
- Genetics that help control expenses
- Lower maintenance cow that stays in the “System”

- High Production
  - What kind?
- Performance Type
  - Confirmation with a economic purpose

# NET PROFIT™

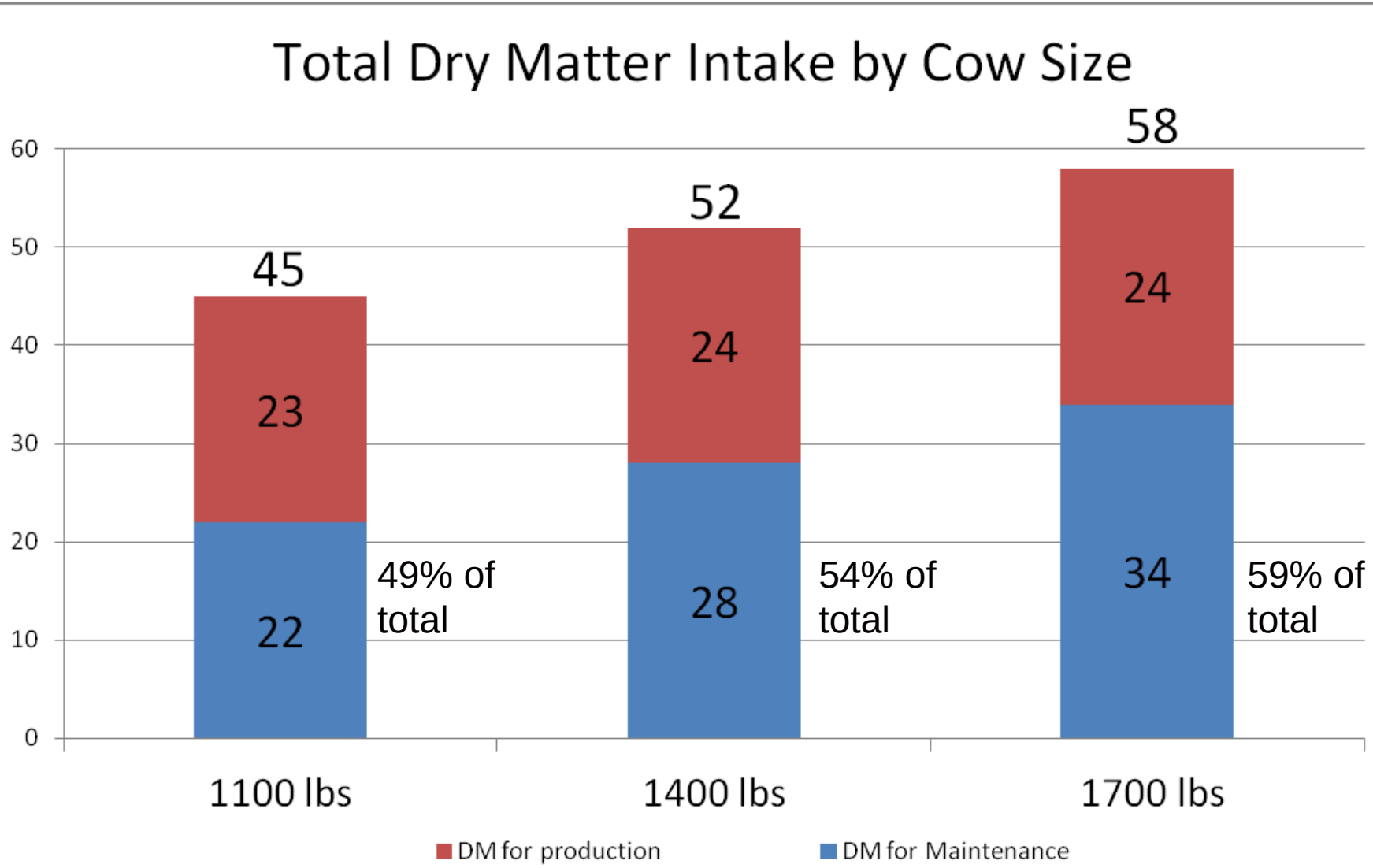
## GENETICS

Profit From Genetic Progress

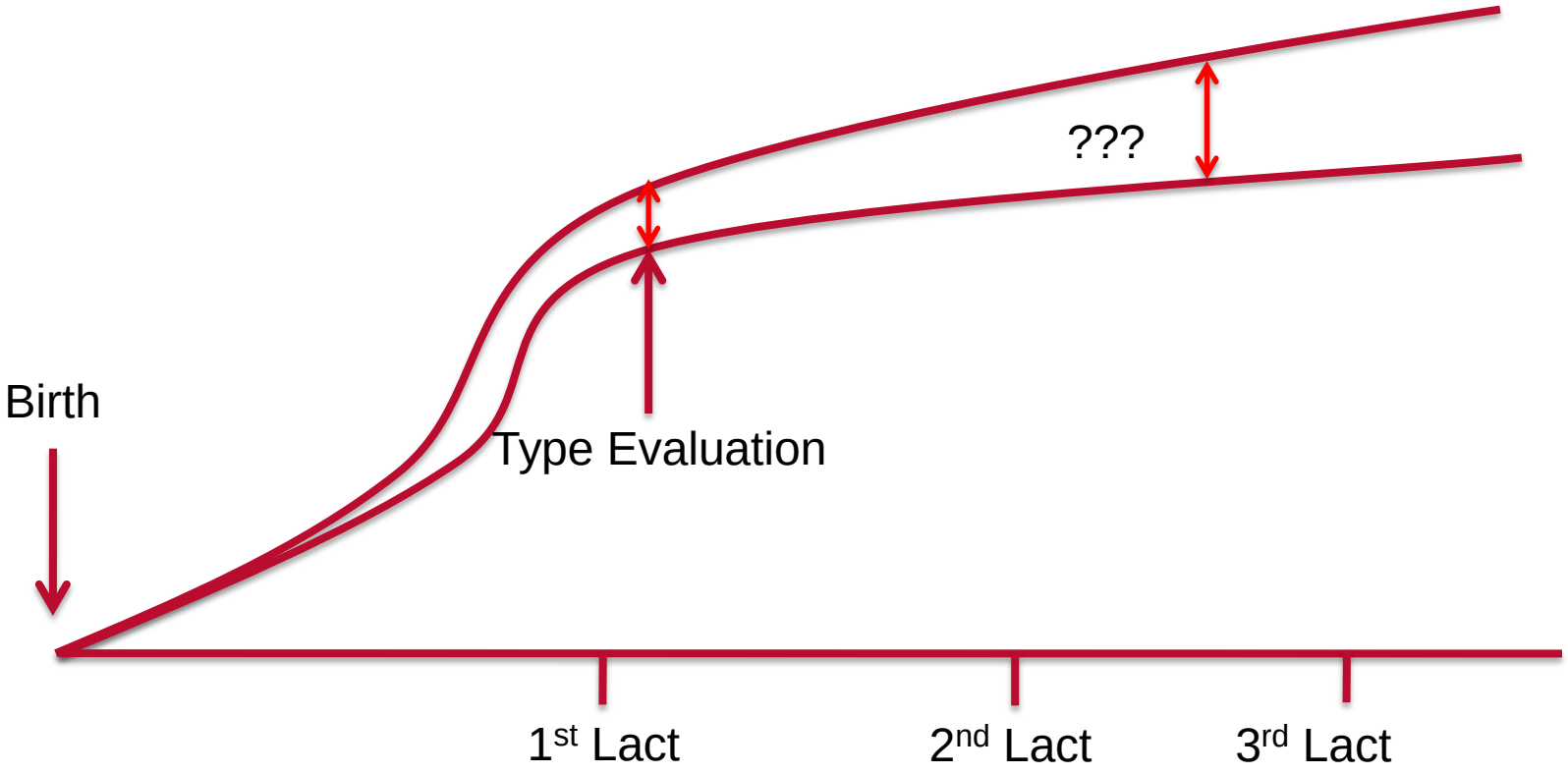
ABS®

# Dry Matter Intake Expenses

- 1100 lb cow  45 lbs DMI consumed daily
- 1400 lb cow  52 lbs DMI consumed daily
- 1700 lb cow  58 lbs DMI consumed daily


Total Dry Matter Intake by Cow Size
60
50
40
30
20
10
0
45
23
22
49% of total
52
24
28
54% of total
58
24
34
59% of total
1100 lbs
1400 lbs
1700 lbs
DM for production
DM for Maintenance

# Growth Curves of Large vs Moderate Size Cows



# What do their daughters tell us about which Genetics are “Right for You”?

| 29HO12209 SHOTTLE | | 29HO10681 ALTON |
|---|---|---|
| 99,999 | Production daughters | 26,530 |
| +1.22 | Type | -0.24 |
| +0.88 | Udder Comp | -0.22 |
| +0.74 | FL Comp | -0.14 |
| +1.48 | Body Comp | -1.28 |

# What do Alton daughters tell us about which Bull is “Right for You”?

- Yield Difference:  +700 lbs More Milk = +**$89**
- 3 Lacts Provides +2100 lbs More Milk = **$267**
- Alton daughters PL = 2 weeks longer = **$129**
- Feed Difference: -2.76 BDC Saved Feed costs = **$57**

- Alton daughters were offering these dairymen **+$453**

NET PROFIT™
GENETICS

# How Can We Turn This Profit Eating Cow Around?

Profit From Genetic Progress

ABS®

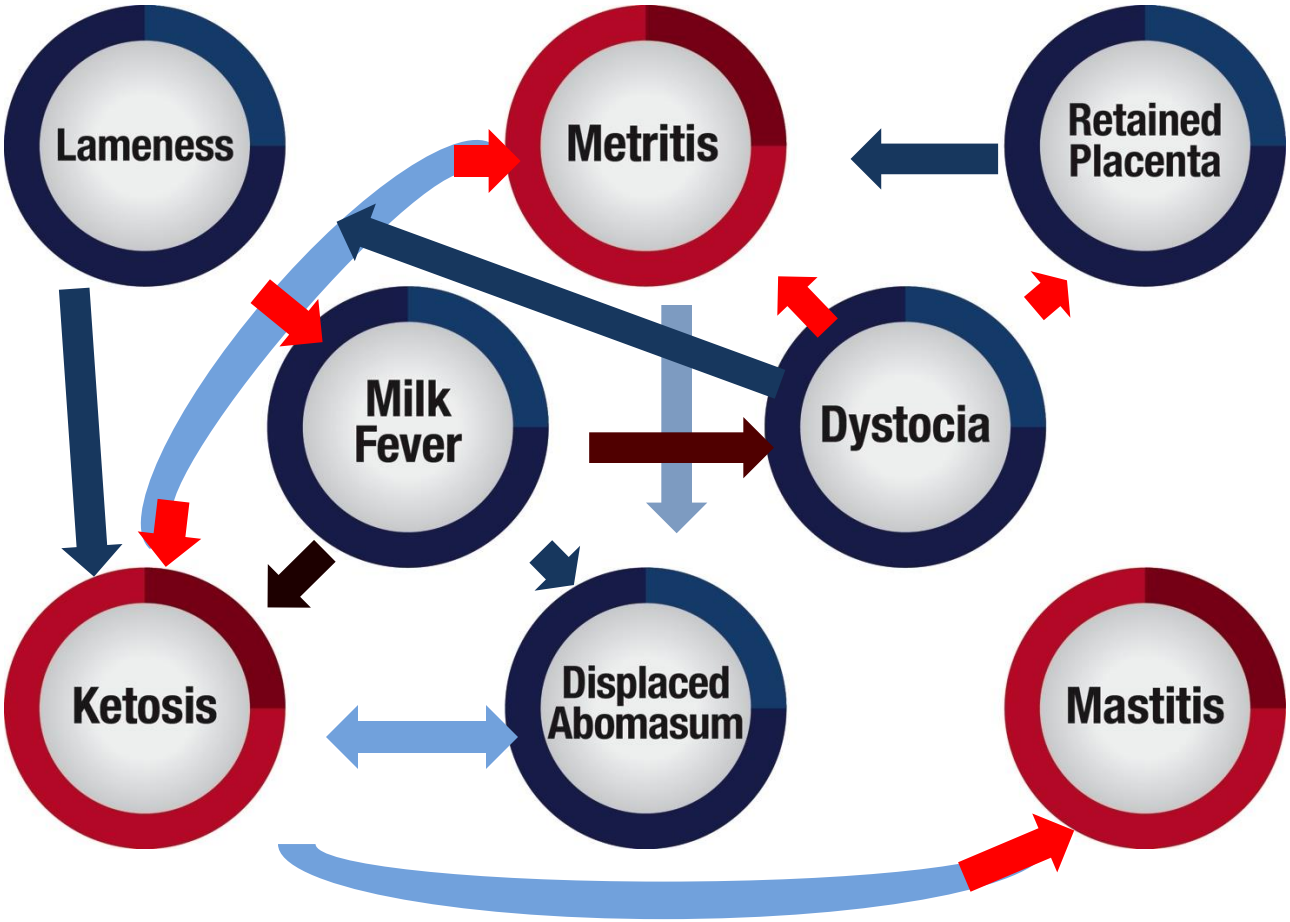
# *"Can you say Health Traits"*

- productive life (PL)
- daughter pregnancy rate (DPR)
- somatic cell score (SCS)
- calving ability (Stillbirth)
- Mastitis
- Metritis
- Ketosis

# Expensive Transition Management –

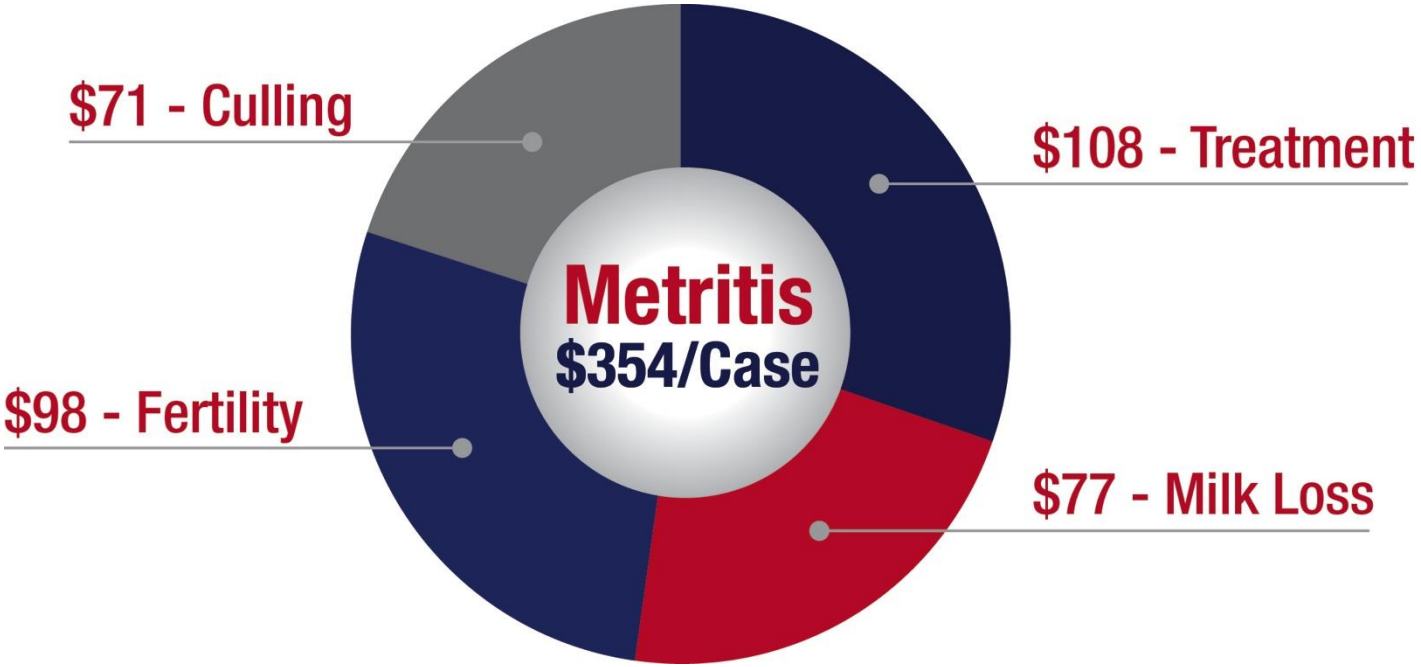
## The Result of our Sire Selection Methods

# Transition Cow Disorders




Adapted from: Correa, M. T., H. Erb, and J. Scarlett. 1993. Path analysis for seven postpartum disorders of holstein cows. J. Dairy Sci. 76:1305-1312.; Goff, J. P. 2006. Major advances in our understanding of nutritional influences on bovine health. J. Dairy Sci. 89:1292-1301;Østergaard, S., and J. Tind Sørensen. 1998. A review of the feeding–health–production complex in a dairy herd. Prev. Vet. Med. 36:109-129.

# Economic Impact of Metritis




For a **1,000 cow dairy** with a typical incidence rate of **15%,** that represents a loss of over **$53,000** a year due to costs associated with **Metritis**.

# How are dairies impacted?

**3 diseases that commonly occur at this time include:**

## Mastitis

- Decreases/Ends milk production (quality and quantity)
- Cost per case is **$200**

(Bar et al., 2008; Hoblet et al., 1991; Kossaibati and Esslemont, 1997; Miller and Dorn, 1990).

## Metritis

- Decreases milk production and reproductive efficiency
- Cost per case is **$350**

## Ketosis

- Decreases milk production and reproductive efficiency
- Cost per case is **$290**

(Hyperketonemia in early lactation dairy cattle: A deterministic estimate of component and total cost per case. McArt, J.A.A. et al. Journal of Dairy Science , Volume 98 , Issue 3 , 2043 – 2054.).

# How are dairies impacted?

**75% of disease in dairy cows**
occurs in the first 30 DIM with as much as 50% of high producing cows affected

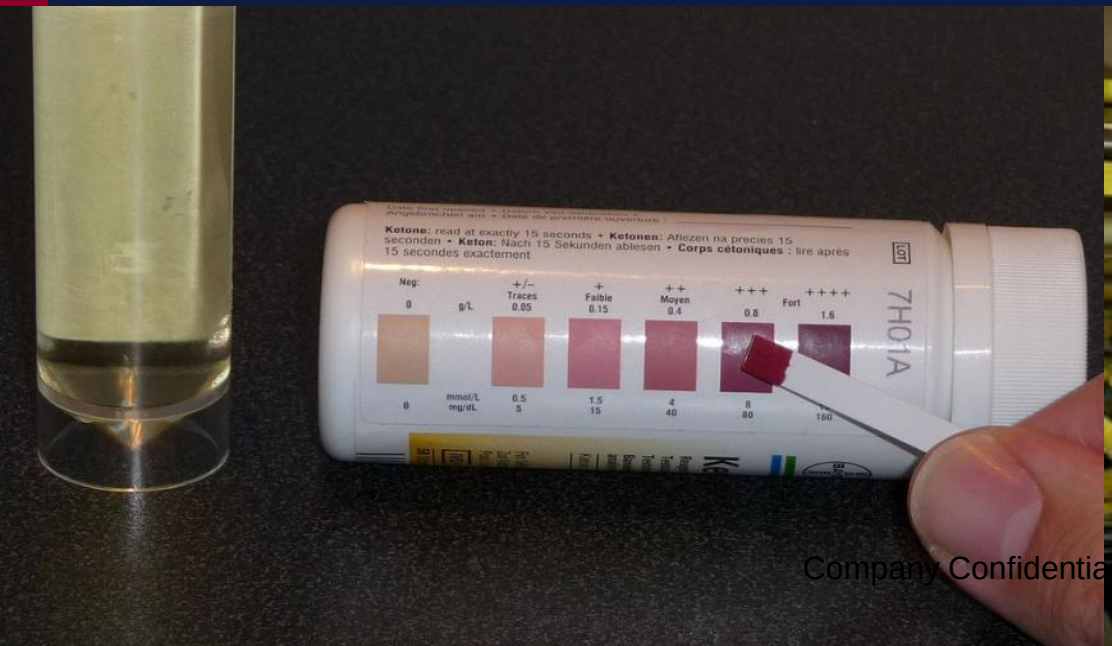
Research on the transition period for dairy cattle has been evolving for more than a decade and involves academia and allied industry

But -Little to no focus on the role of genetics has played into the Prevention of these losses...

Major Advances in Disease Prevention in Dairy Cattle. 2006. LeBlanc, S.J. et al. Journal of Dairy Science , Volume 89 , Issue 4 , 1267 – 1279 and Monitoring metabolic health of dairy cattle in the transition period. 2010. LeBlanc. J Reprod Dev. 2010 Jan;56 Suppl:S29-35.

# Help! What do I do to Prevent Future Losses?

# Short-term Alternatives?




# Our Role


- Build products our costumers want
  - Regardless of the Identified Genetic Opportunities
- Make big data useable
  - Dairy Cattle have Volumes of Data
- **Genetic progress**


# Real World Data

## Data Processing & Recording

Profit From Genetic Progress

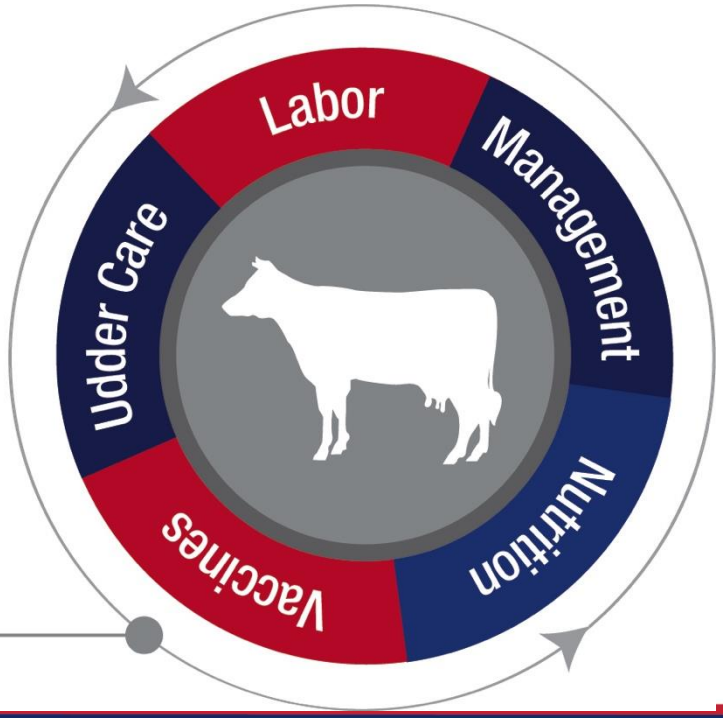
# A NEW Answer to An Old Question

ABS customers can now select genetics for their herds to effectively minimize the need for additional preventive and reactionary measures to transition cow health issues

THE NEW ANSWER

PREVENTION THROUGH GENETICS

Genetics Introduced



# Reduction of Incidence

**How much can we expect to reduce the early metabolic disease traits by using TransitionRight™?**

Expected incidence rate difference between the average 5 Star TransitionRight™ sire and the average 1 star TransitionRight sire

| Disease Trait | Difference in expected incidence rates |
|---|---|
| Mastitis | 7 |
| Metritis | 6 |
| Ketosis | 4 |

We would expect to have about 7 fewer Daughters out of 100 that had a case of Mastitis in first lactation if a five star sire was used in place of a 1 star sire

# Economics of Rankings

## ABS Bull Ranking:

| | | | |
|---|---|---|---|
| ***** | 10% | $100 Lactation Savings | Top |
| **** | 20% | $50 Lactation Savings | |
| *** | 40% | $0 Benefit | Average |
| ** | 20% | - $50 Lactation Cost | |
| * | 10% | - $100 Lactation Cost | Bottom |

## Finally, a genetic solution to help your herd TransitionRight™

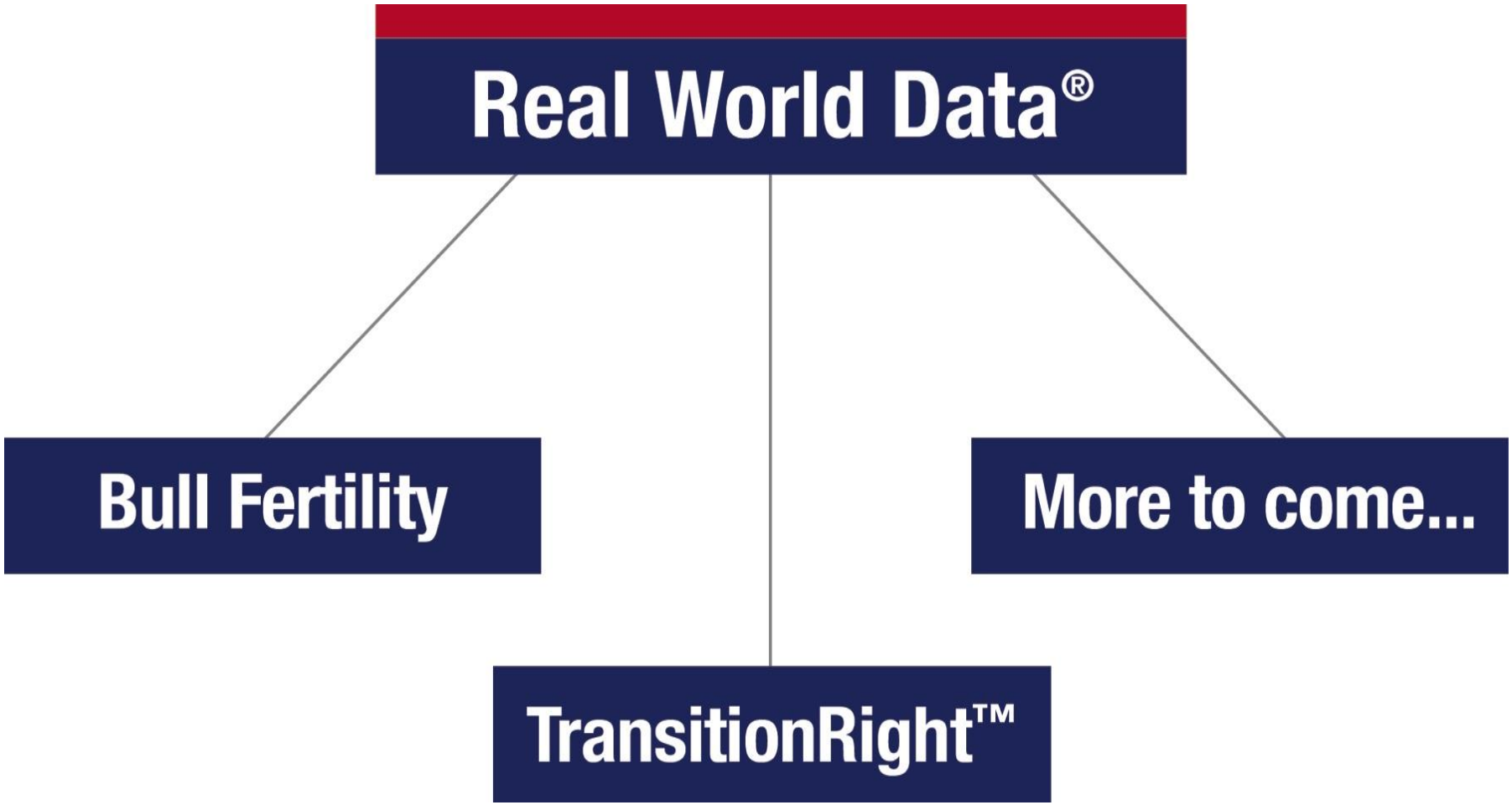
Introducing

# TransitionRight™ Genetics

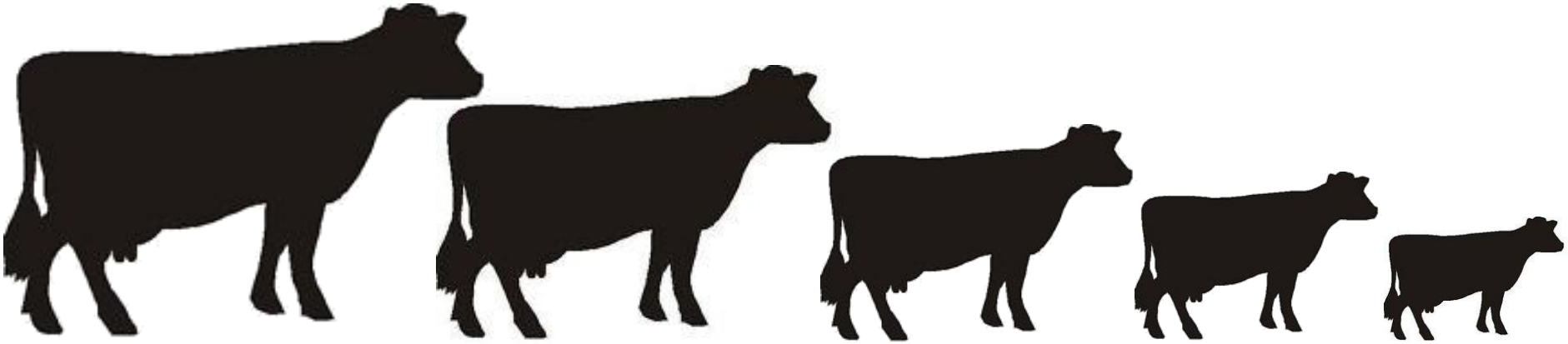
August 2015 Release

Genus

ABS

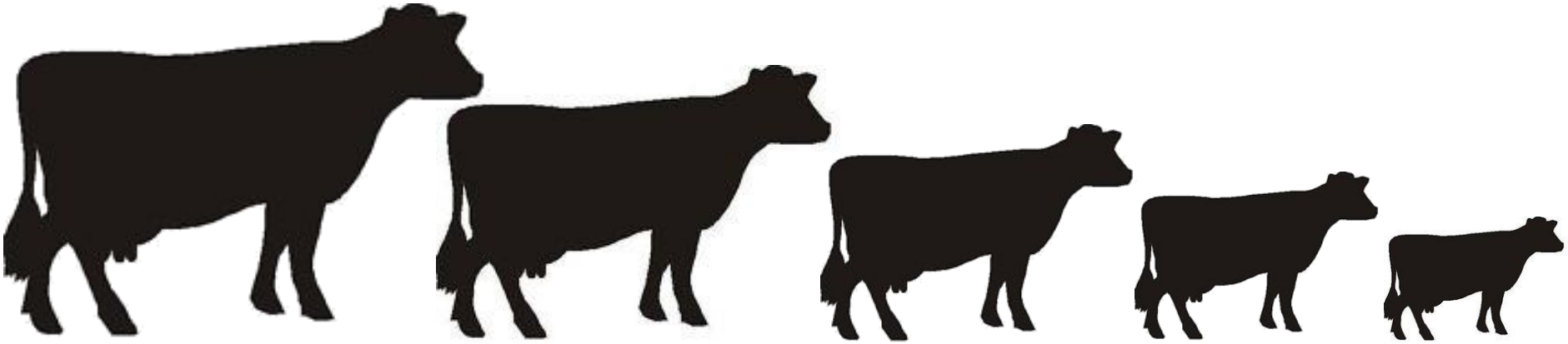

Real World Data®
Bull Fertility
TransitionRight™
More to come...

# Which Breed is the Right Breed for You



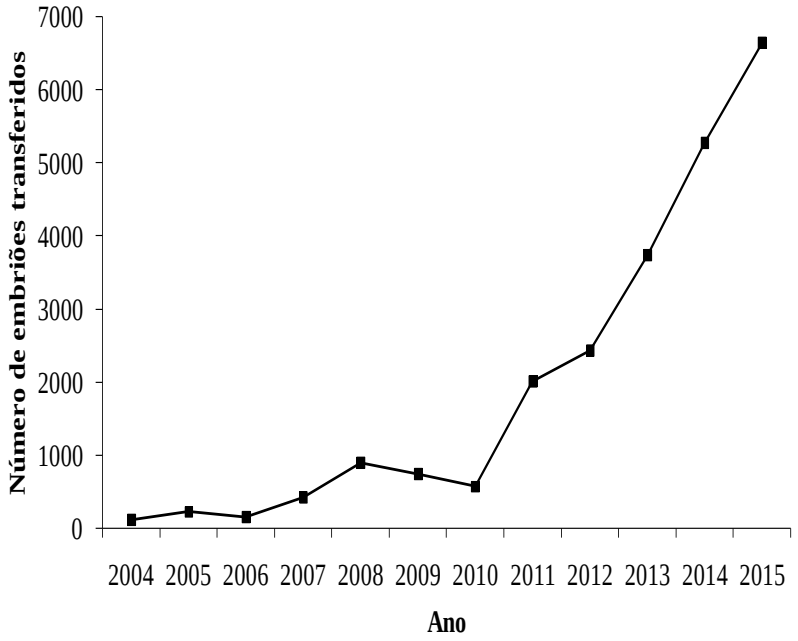
Holstein Ayrshire Norwegian Red Kiwi Cross Jersey

# Which Genes Are Dairymen Looking For?



Confirmation Production Transition Fertility F1

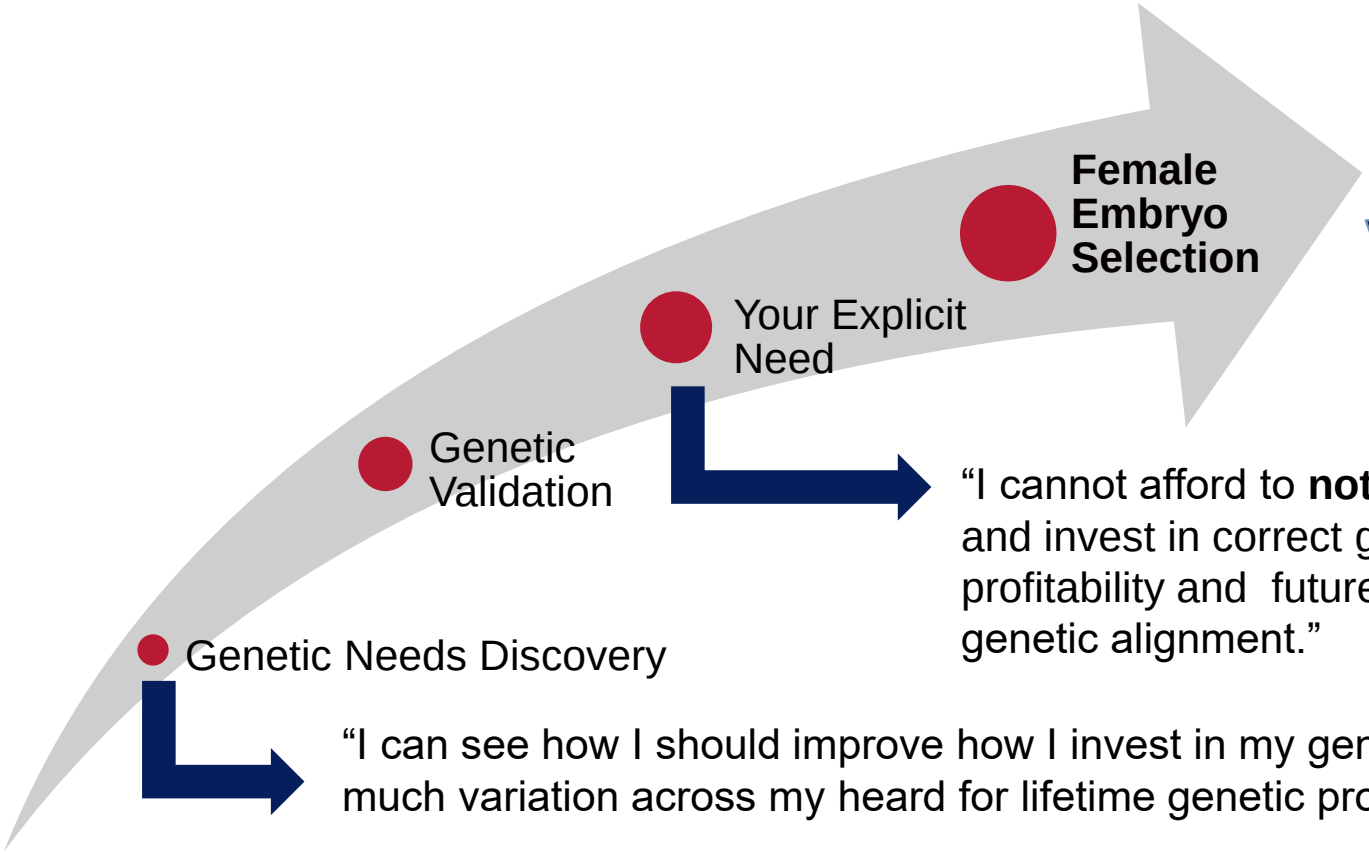
# ABS IVF F1 Projects


✓Currently the Brazilian Santa Luzia Dairy farm uses IVF embryos as the main tool for Reproductive system to maintain the F1 Crossbreed

✓In 2015 they transferred around 7000 embryos with CR of 42% Stillbirth rate is 4%

# Enhance Genetic Process Alignment



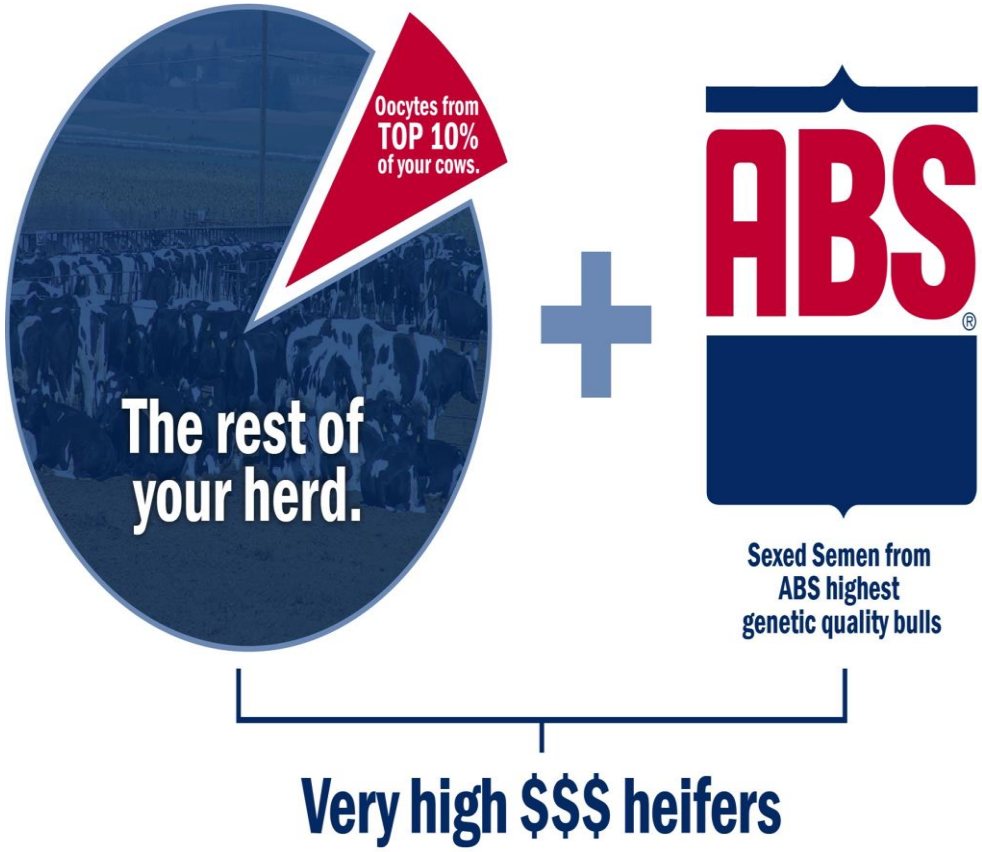

**ABS VALUE**

"I cannot afford to **not** improve my genetics and invest in correct genetic needs. My profitability and future herd depend on correct genetic alignment."

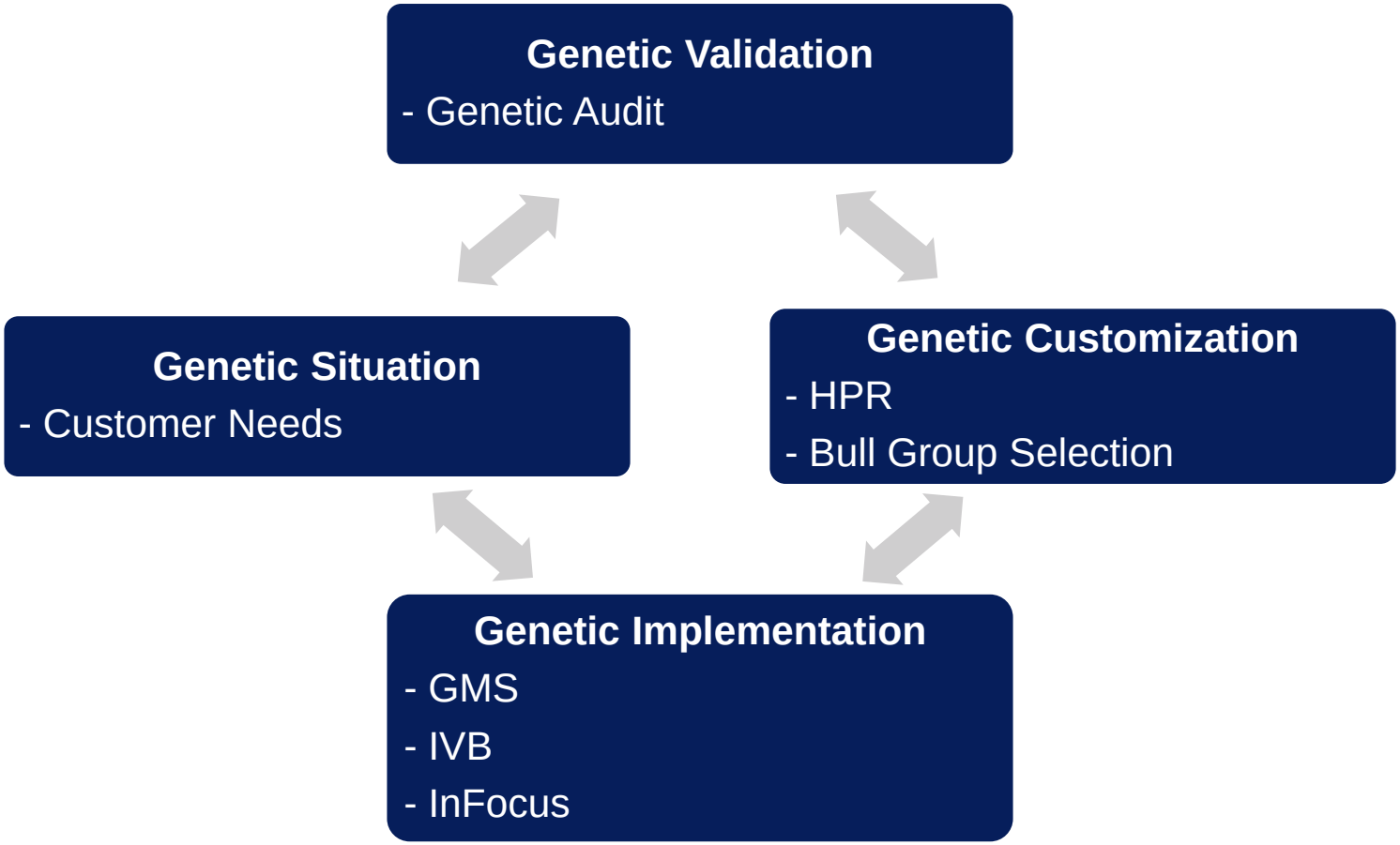
"I can see how I should improve how I invest in my genetics. I can see too much variation across my heard for lifetime genetic profit ."

Genetic

# How the Genetics of IVF Works



# Genetic Audit within Genetic Services Cycle



Milking & dry cows in the herd profile that have sire ID

Ave. 305 ME & Lact. # of each HPR group

Genetic PTAs of the SIRES of the animals in each HPR group

## Current Herd Cows

## **Based on HPR**

| | No. Cows | 305 ME | Lact No. | Sire PTA Information NM$ | Milk | Fat | PTAP | PL | DPR | SCS | UDC | FLC | BSC | MF Rel |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Top 25% | 234 | 33548 | 1.6 | 379 | 815 | 36 | 31 | 2.7 | 0.8 | 2.90 | 0.49 | 0.60 | 0.46 | 98 |
| Middle 50% | 451 | 32970 | 2.0 | 273 | 523 | 24 | 18 | 2.3 | 0.9 | 2.91 | 0.57 | 0.63 | 0.40 | 98 |
| Bottom 25% | 213 | 31421 | 2.5 | 142 | 231 | 9 | 6 | 1.5 | 0.4 | 2.95 | 0.60 | 0.68 | 0.36 | 98 |

Herd segmented into quartile HPR groups

Sire PTA differences of the various segments of the milking herd

## Difference

Sire PTA Information

| | NM$ | Milk | Fat | PTAP | PL | DPR | SCS | UDC | FLC | BSC | MF Rel |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Top to Middle | -106 | -292 | -12 | -13 | -0.40 | 0.10 | 0.01 | 0.08 | 0.03 | -0.06 | 0 |
| Middle to Bottom | -131 | -292 | -15 | -12 | -0.80 | -0.50 | 0.04 | 0.03 | 0.05 | -0.04 | 0 |
| Top to Bottom | -237 | -584 | -27 | -25 | -1.20 | -0.40 | 0.05 | 0.11 | 0.08 | -0.10 | 0 |

**Avg 305 ME = 32760**

Ave. 305 ME of all animals that have one

# Genetic Validation

Breakdown of lactating cows ranked by their SIRE PTA for Protein Lbs and corresponding averages for actual 305 ME protein yield and sire PTA averages for other traits. Cows must be 120 DIM, have a 305 ME, and protein test to qualify

## Cow Performance Information Ranked by Sire PTA Protein

| # Cows | 305ME Protein | PTA Protein | PTA Protein % | PTA DPR | PTA SCS | PTA UDC |
|---|---|---|---|---|---|---|
| 192 | 1052 | 39 | 0.03 | -0.12 | 2.96 | 0.62 |
| 361 | 995 | 17 | | 0.99 | 2.88 | 0.48 |
| 166 | 977 | -3 | | 1.13 | 2.94 | 0.58 |

Breakdown of lactating cows ranked by their SIRE PTA for Protein % and corresponding averages for actual lactation average protein % and sire PTA averages for other traits. Cows must be 120 DIM and have a protein test to qualify

## Cow Performace Information Ranked by Sire PTA Protein %

| # Cows | Protein % | PTA Protein % |
|---|---|---|
| 184 | 3.09 | 0.07 |
| 412 | 2.99 | |
| 123 | 2.93 | -0.05 |

Breakdown of genomic tested lactating cows ranked by their GENOMIC PTA for Protein Lbs and corresponding averages for actual 305 ME protein yield and genomic PTA averages for other traits. Cows must be 120 DIM and have a 305 ME and protein test to qualify

## Cow Genomic PTA Information Ranked by gPTA Protein

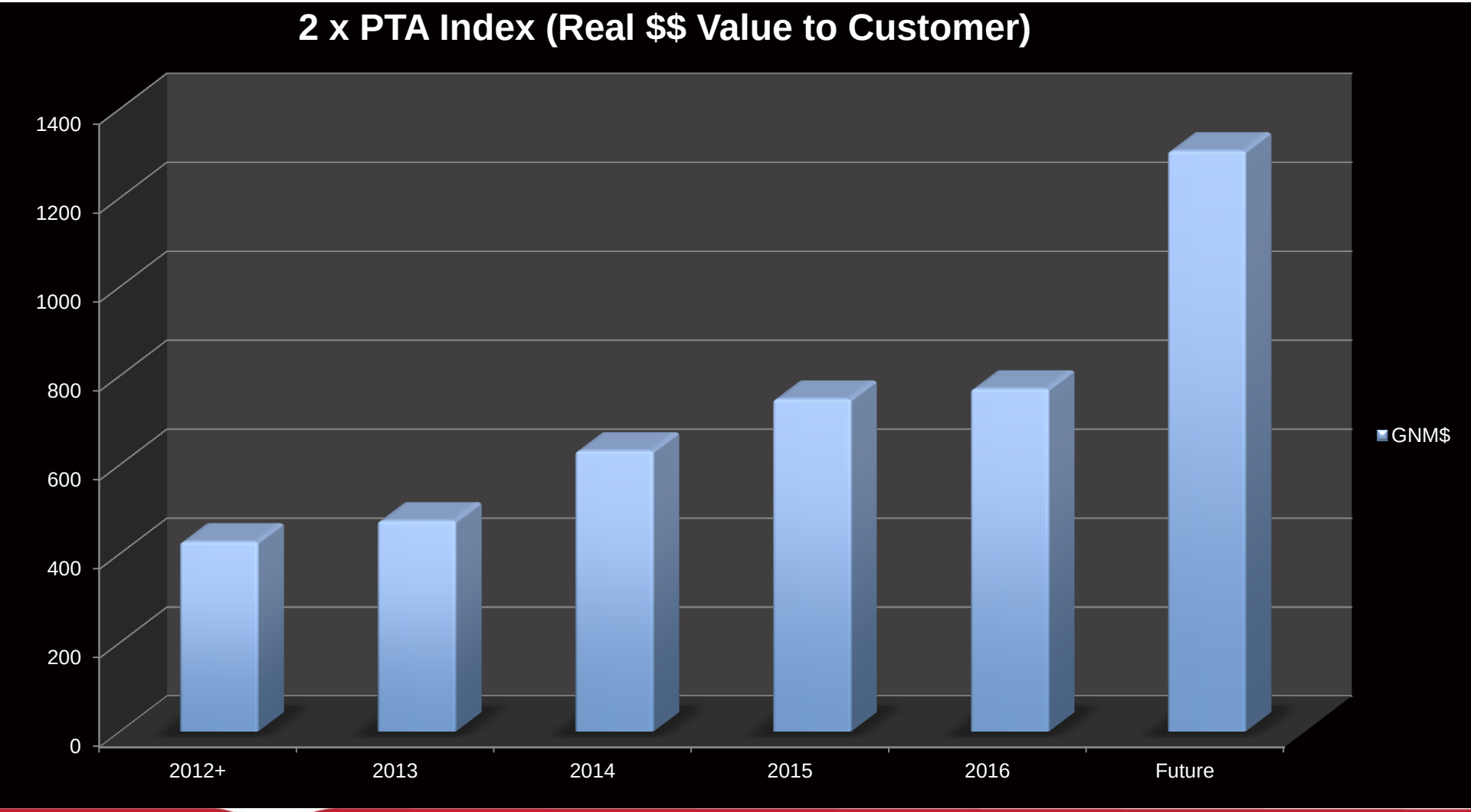
| # Cows | 305ME Protein | gPTA Protein | gPTA Protein % | gPTA DPR | gPTA SCS | gPTA UDC |
|---|---|---|---|---|---|---|
| 74 | 1086 | 30 | 0.01 | 0.13 | 3 | 0.39 |
| 145 | 994 | 13 | | 0.75 | 2.92 | 0.29 |
| 71 | 902 | -3 | | 1.33 | 2.93 | 0.43 |

## Cow Genomic PTA Information Ranked by gPTA Protein %

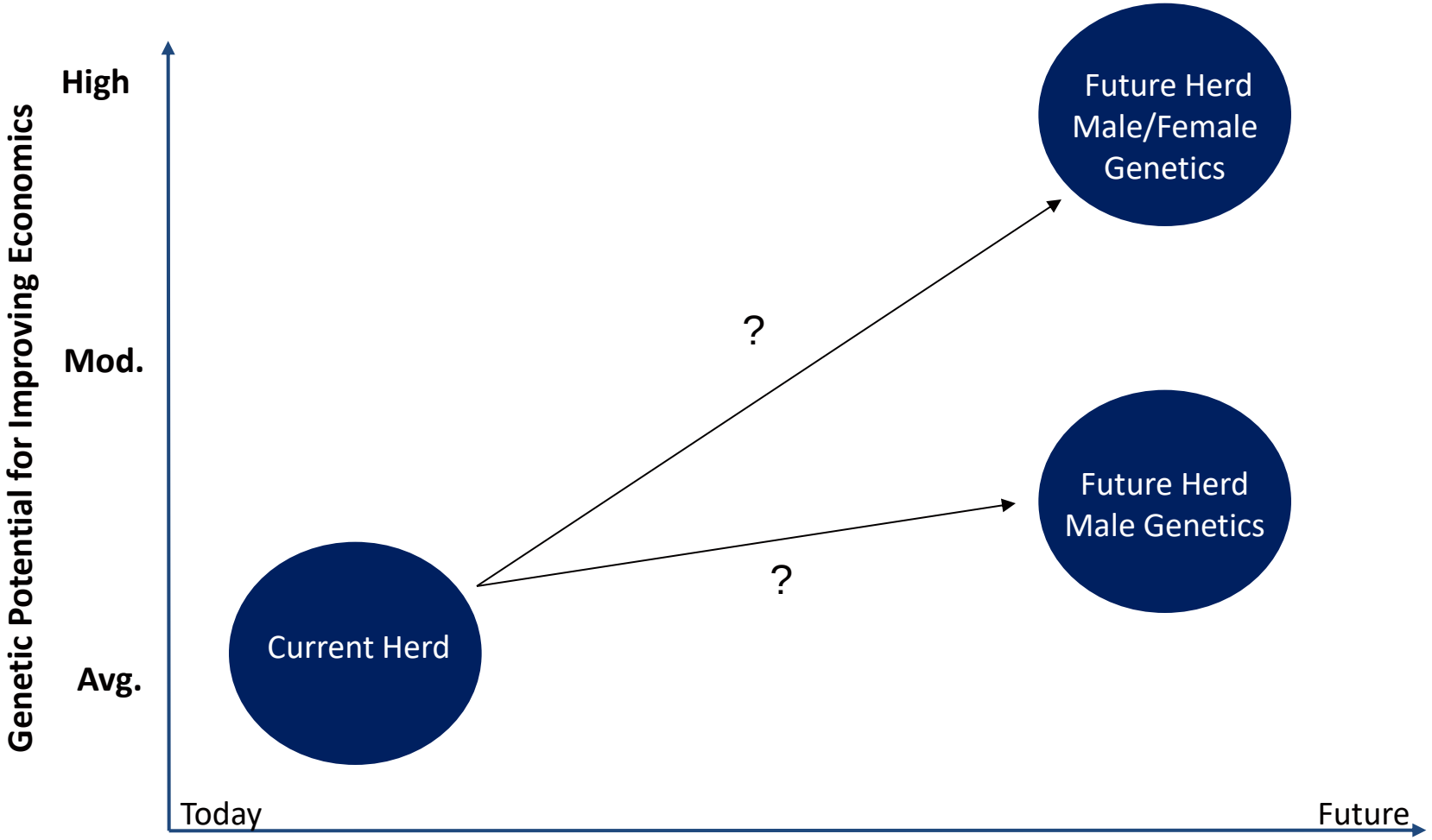
| # Cows | Protein % | gPTA Protein % |
|---|---|---|
| 83 | 3.16 | 0.05 |
| 149 | 2.95 | |
| 58 | 2.83 | -0.05 |

Breakdown of lactating cows ranked by their GENOMIC PTA for Protein% and corresponding averages for actual lactation average protein % and genomic PTA averages for other traits. Cows must be 120 DIM and have a protein test to qualify

# Exponential Improvement Window…



# Genetic Decisions Today Impact Economic Profit of the Future



# Yes – we can Bred Fine Young Cows

# That Are Winners in Our Eyes

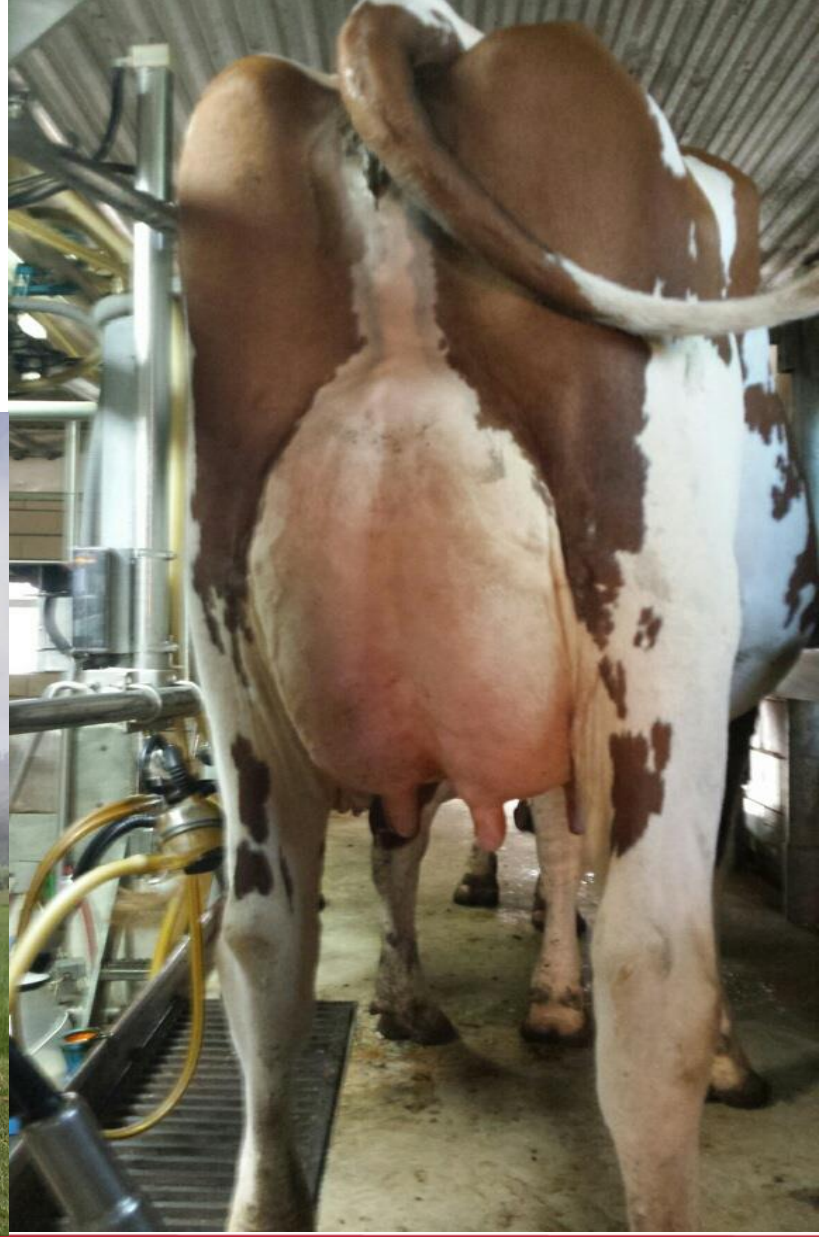
**So While we are Fond of the Success we have had in the Past…**

# The Lonely Old Bull…

Cannot Deliver our Future Alone…

# We must take a New Look at Managing

# our females…


**And find…**

**Who is the ‘Right’ Cow?**