DRAYSON'S PROPHECY

How a disregard for Testicle Length (and the other fertility indicators in/on the bull) has resulted in the cow herd we have in the USA today.

In 1950, the year my mother and father were married, my father told my mother, *"You don't have to ask a man how many cows he has, just count his bulls and multiply by 50 and you will be pretty close."*

In 2015 we are LUCKY to average one bull to 25 cows.
One website suggested the following: "1 bull to each 15-20 cows AND you can expect 10-20% of your cows to be open each year."

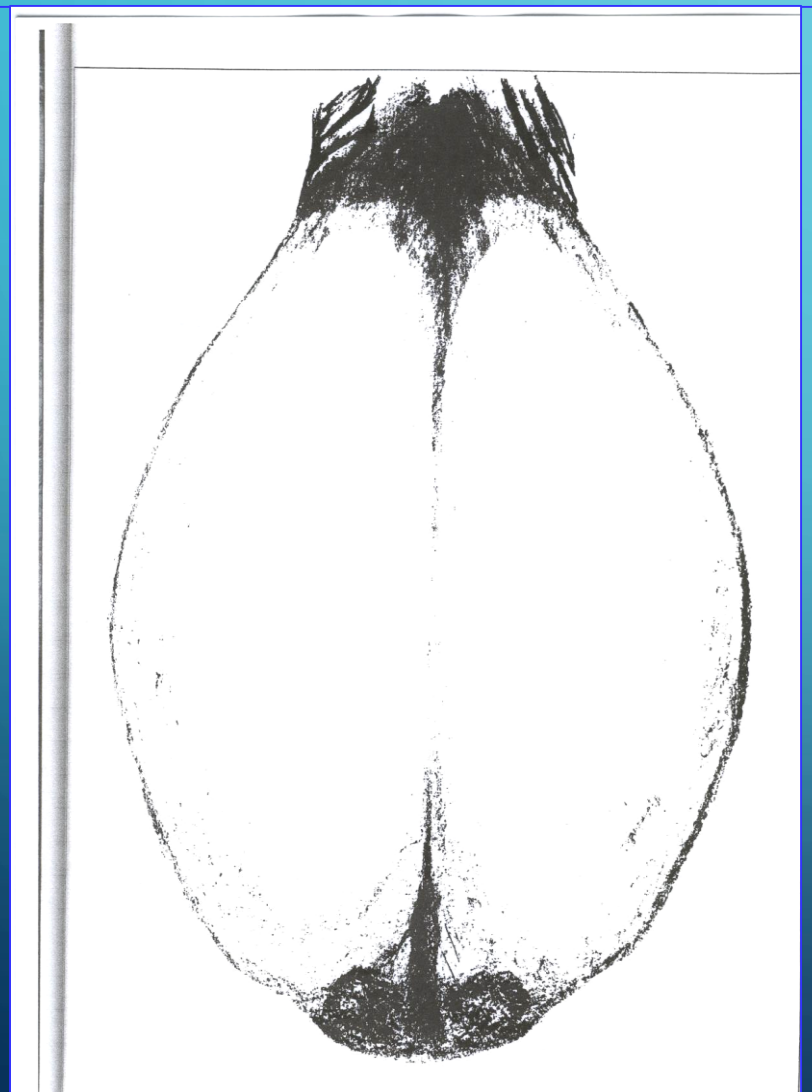
Current suggested bull ratios

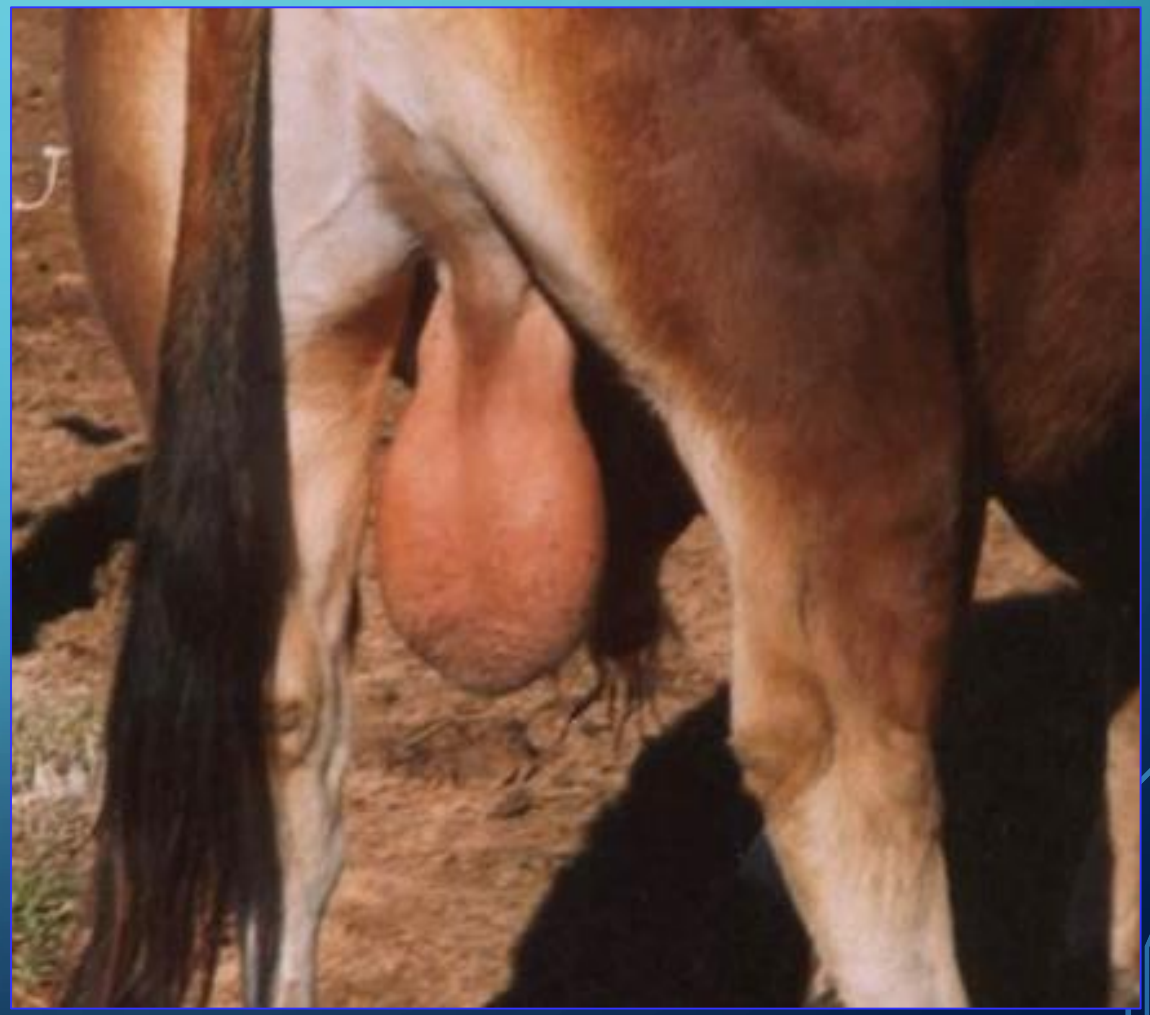
Bull age, months	Number of females exposed to breeding per bull
12 to 15	10 to 12
15 to 18	12 to 18
18 to 24	18 to 24
24 and up	24 to 30

CHILDREN'S TOY

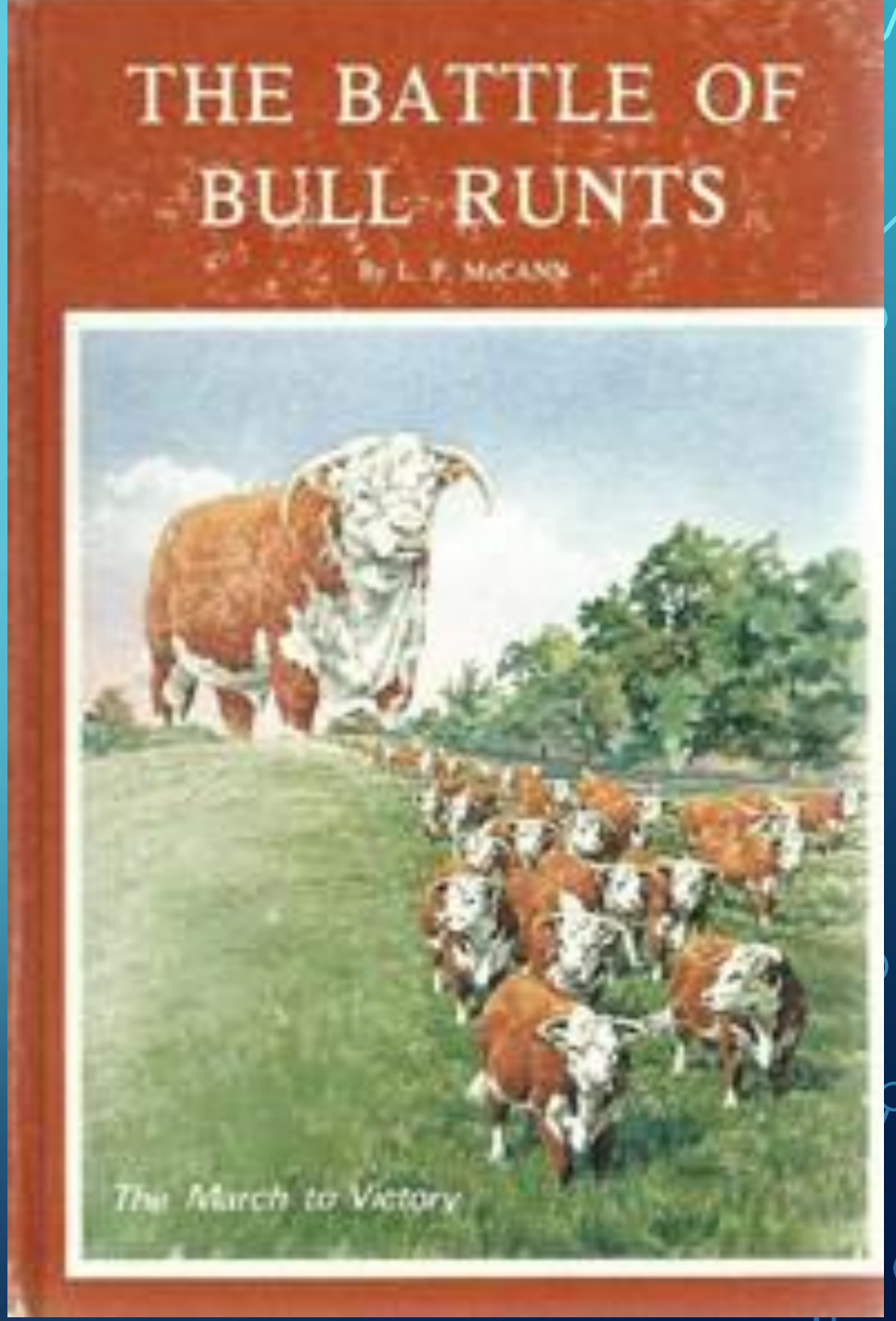
SELECT SIRES BULL

REPRODUCTION
TESTICLE SHAPE AND SIZE ARE ASSOCIATED WITH TESTOSTERONE





HOUSTON, DO WE HAVE A PROBLEM?



JAMES DRAYSON HERD BULL FERTILITY

- In October of 1962 **James Drayson** started his business.
- He could see already that we were headed in the wrong direction in fertility of cows and BULLS with the push for larger cattle for the feedlot system.
- He came up with testicular measurements at various ages that would predict how many cows a bull could get pregnant.
- Coarseness and curliness of hair, hair patterns, colors of hair coat and stature that also predict fertility.
- The horns also show fertility or lack thereof.

HAIRCOAT INDICATORS OF FERTILITY

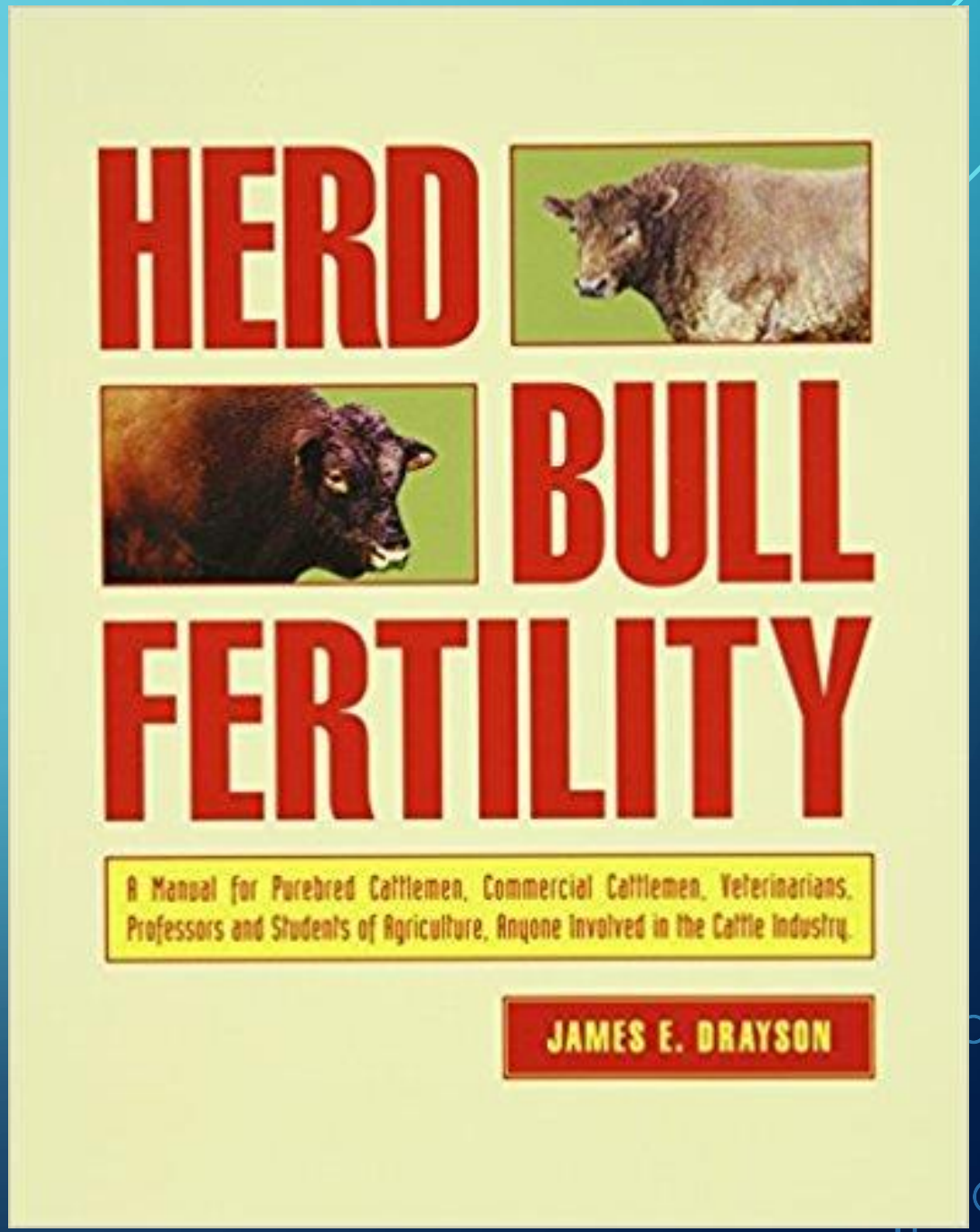
Darker hair on front half and bottom half

Testosterone shuts off long bone growth
On the back end of a fertile bull first

DRAYSON MEASURED TESTICLES ON 15,537 BULLS FROM 19 DIFFERENT BREEDS.

"…ONE OBSERVES ONLY THINGS WHICH ARE ALREADY IN THE MIND."

BERTILLION, FAMOUS FRENCH DETECTIVE



DRAYSON'S FORWARD

- "… this text submits to the reader, be he layman or a professional, such **invaluable information** so that he may benefit from it's use and will enjoy the outcome with pride, pleasure and the **economic assurance** that his investment will bring forth a fruitful return."

- "Remember that any bull is subject to circumstances beyond his control (**epi-genetics**). It is therefore assumed that proper managerial practices are observed, nutritional requirements are supplied (standard or **above standard**)…"

"WINNING THE BATTLE BUT LOSING THE WAR"

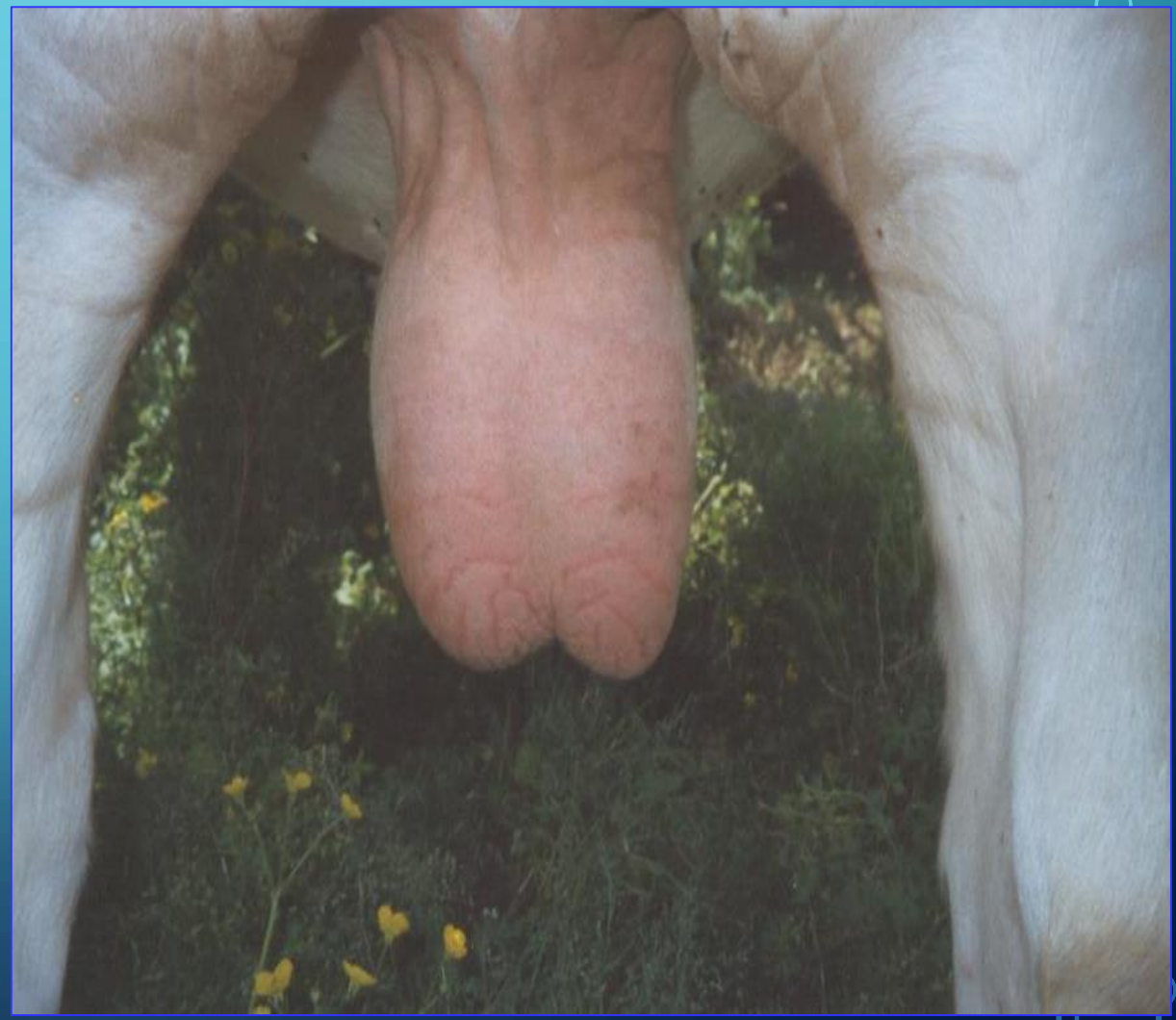
- When we feed a young animal too much energy and protein we are negatively affecting his/her fertility for the rest of his/her life.
- This is done all of the time with a grain diet.
- We won first place **Battle** at the Denver Stock Show, but lost the fertility **WAR** … **<u>for the rest of that animal's life.</u>**
- Yes, they may still have some fertility left, but not to the high extent before overfeeding. (Factors Affecting Calf Crop)
- This can be done on an all forage diet if quantity and quality are sufficiently high and the animal is easy keeping.

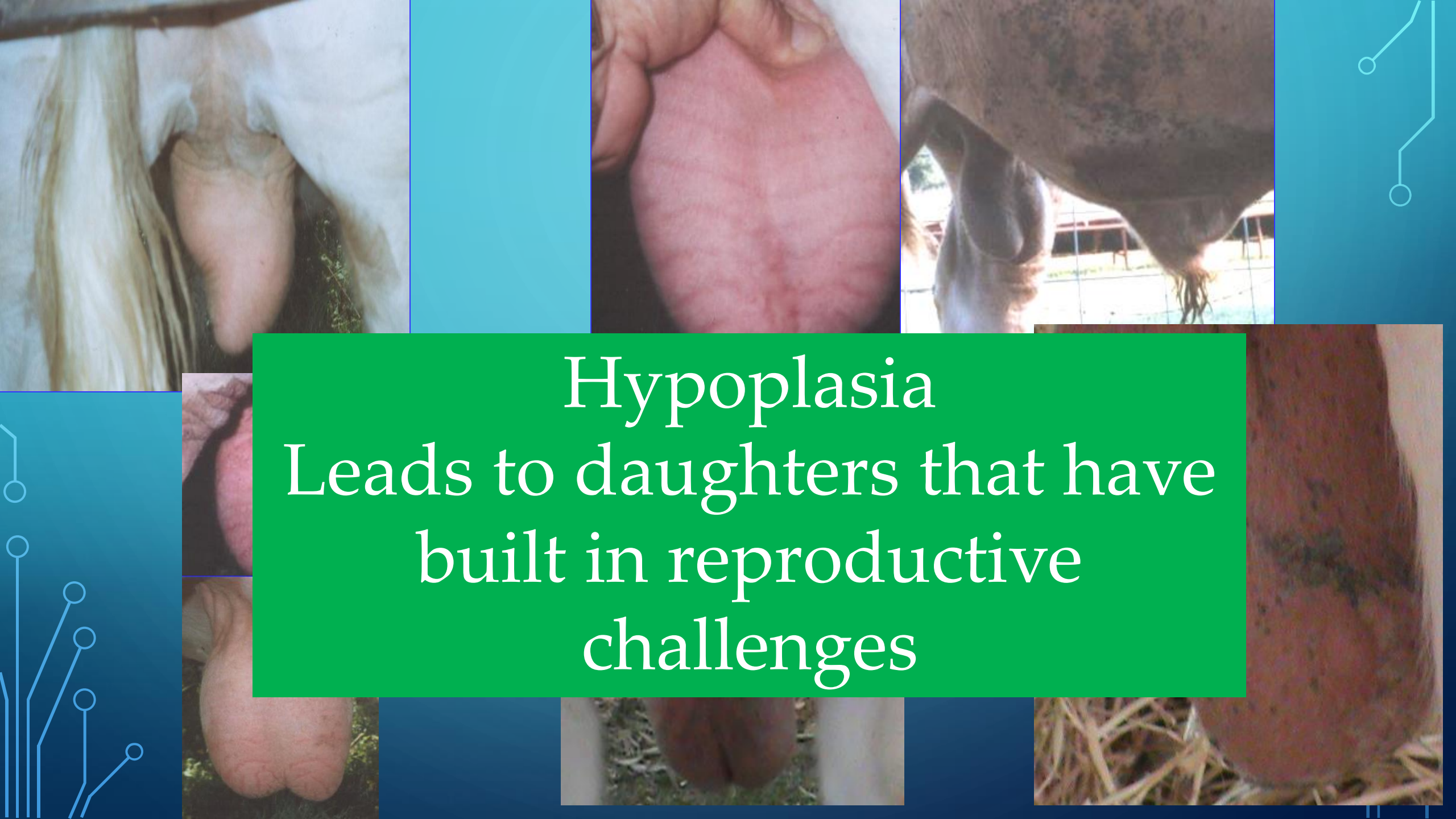
MEANWHILE, BACK TO DRAYSON'S FINDINGS LENGTH TAKES PRECEDENCE OVER CIRCUMFERENCE

- Page 121 – If the length and circumference do not both fall in the same category (*Optimal, Tolerable, Objectionable, Undesirable or Unacceptable*) you need to answer four questions:
- 1) Does the shape of both testicles resemble a football
- 2) Tone resemble that of a firm orange?
- 3) Does the epididymis of each testicle have a well rounded shape and do they adhere closely to the bottom of the testicles?
- 4) Do the epididymis have the same tone as the testicle?

If answer is yes, it is reasonable to assume the circumference will increase as this young sire advances in age. **Pages 120-125**

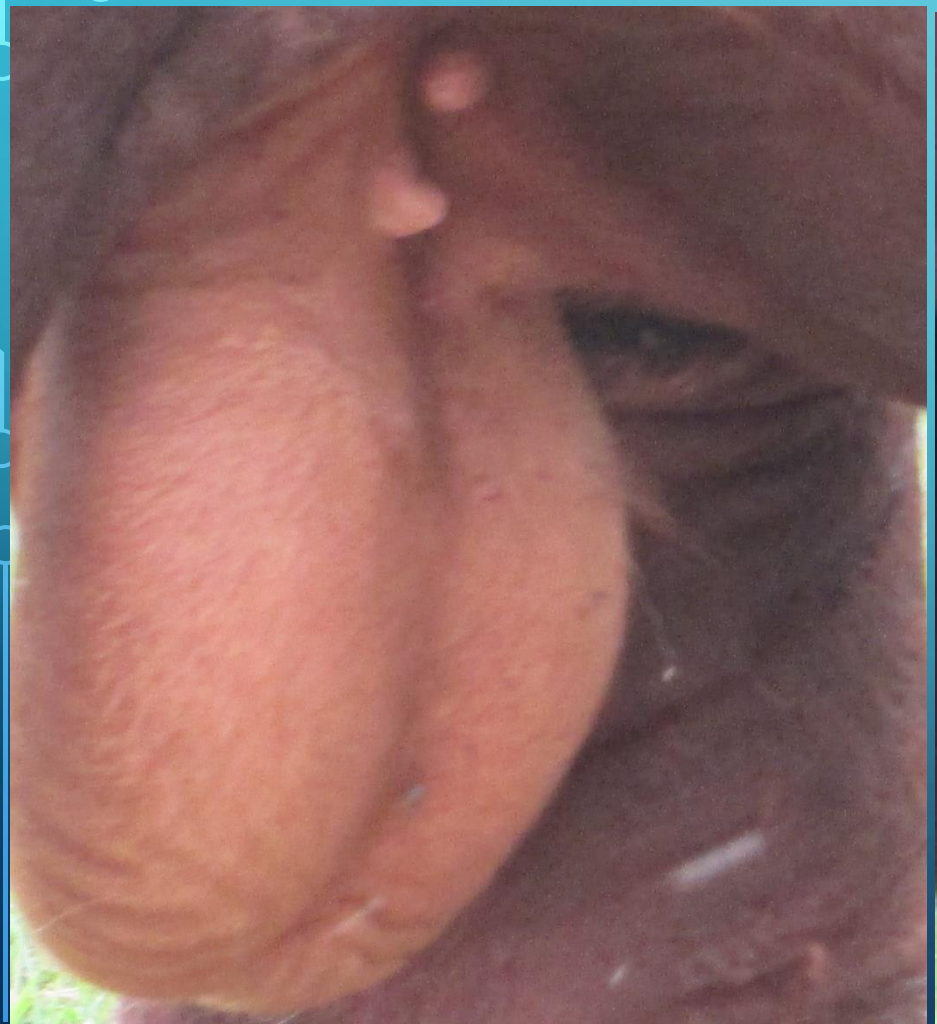
Examples of undersized, mis-shaped, uneven size, etc.

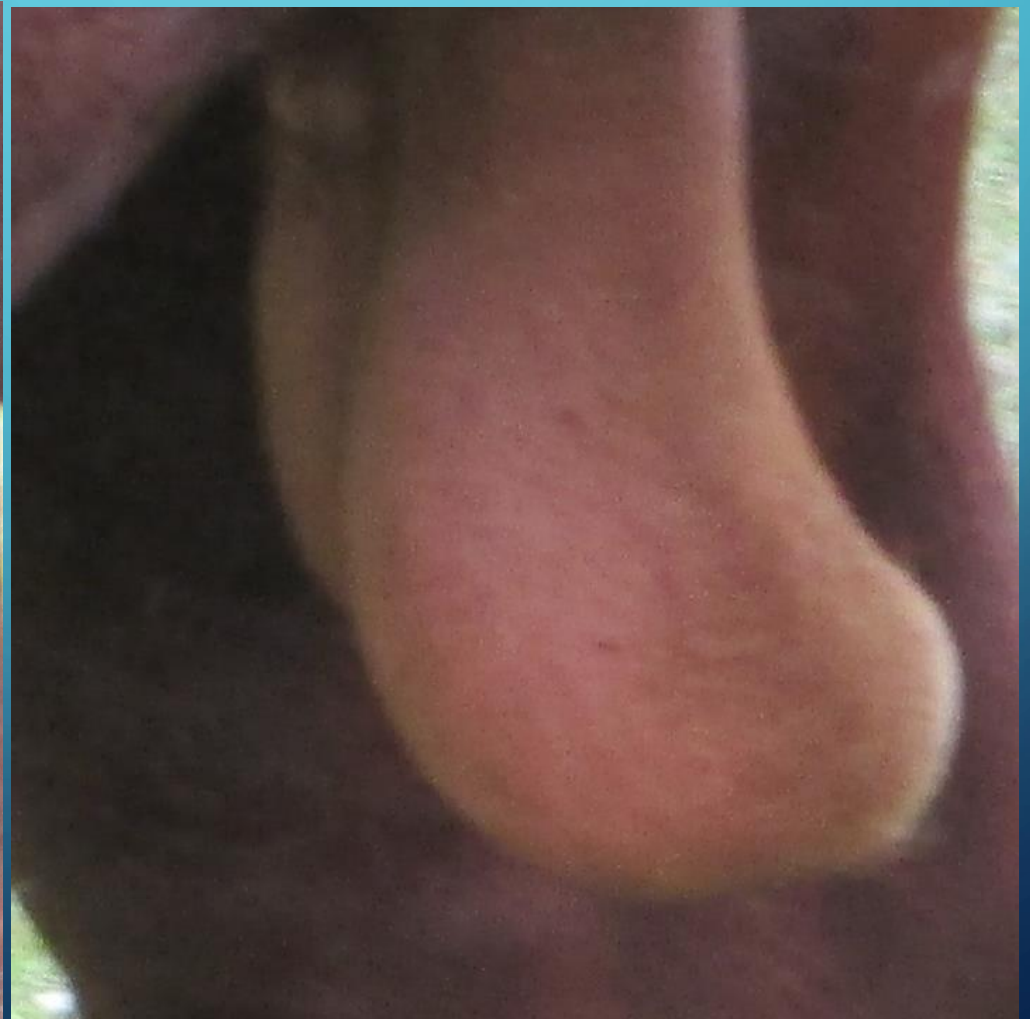


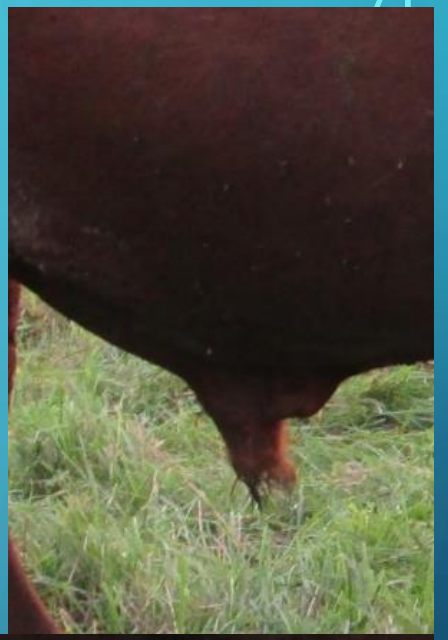


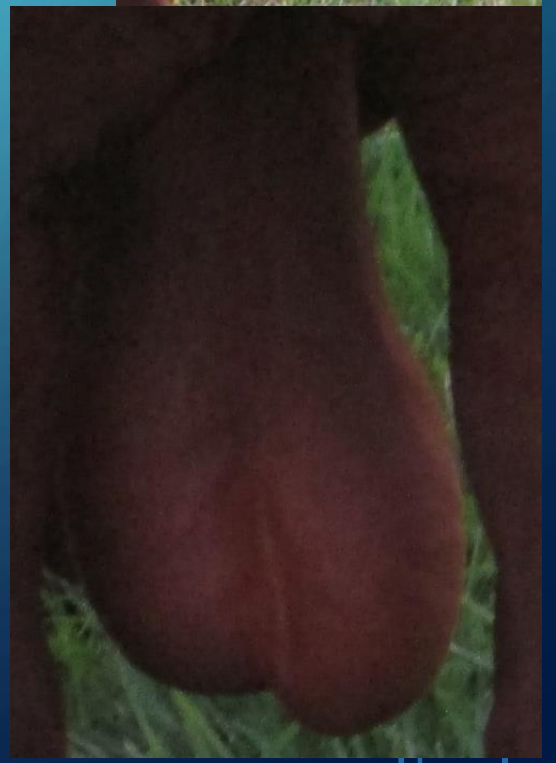
Hypoplasia
Leads to daughters that have built in reproductive challenges

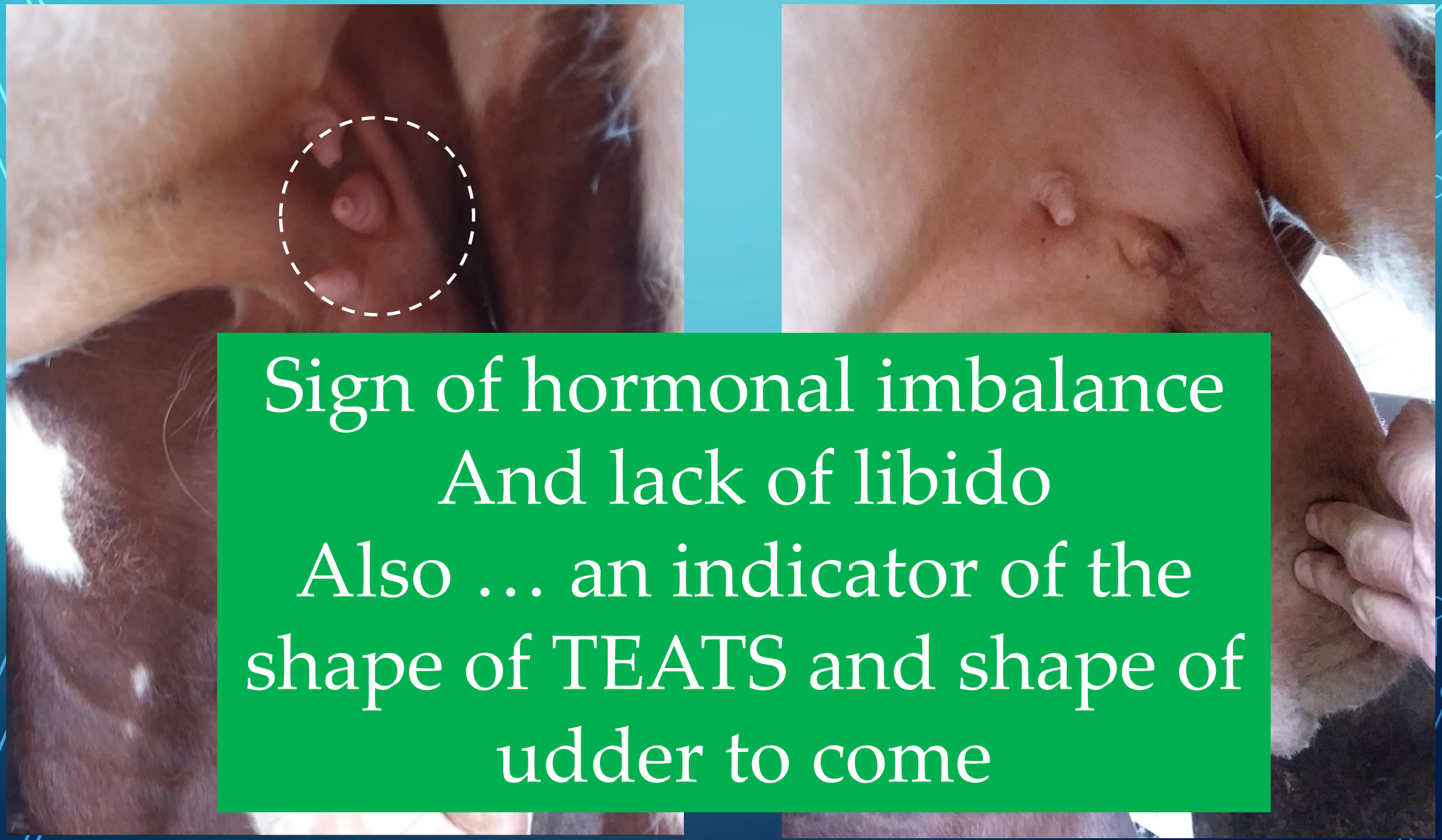
Hypoplasia = defective testicles = defective ovaries & udders, & reproduction decreases with these defects









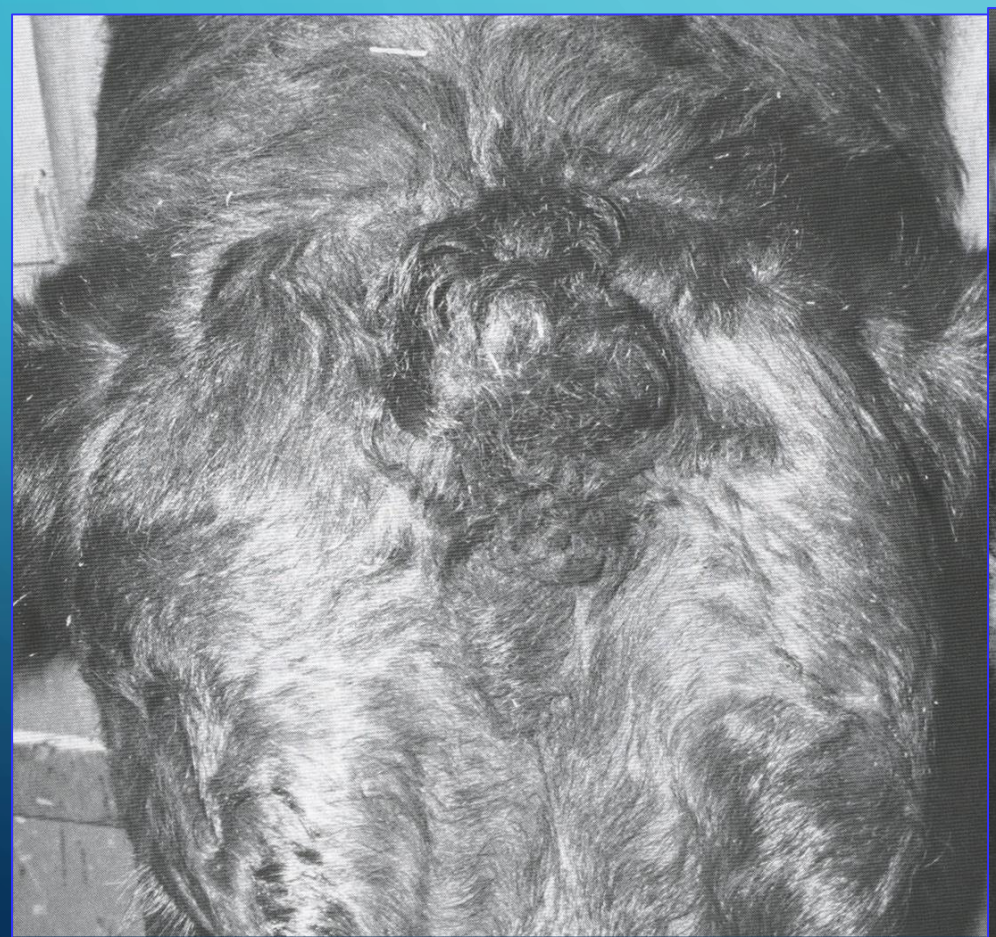


Sign of hormonal imbalance
And lack of libido
Also … an indicator of the shape of TEATS and shape of udder to come

COARSENESS OF HAIR ON NECK

- Coarse and curly … suggests the wearer is in the fertile category.
- Coarse and straight … a characteristic of polled
- Fine and straight hair and standing up… a bull experiencing sub fertility.

REPRODUCTION-HERD-BULL SECONDARY FERTILITY INDICATORS



THE HORNS

Mottled Horns … broken pattern of red = sub fertility

2/3 nearest the head should be rosy red distal 1/3 creamy white

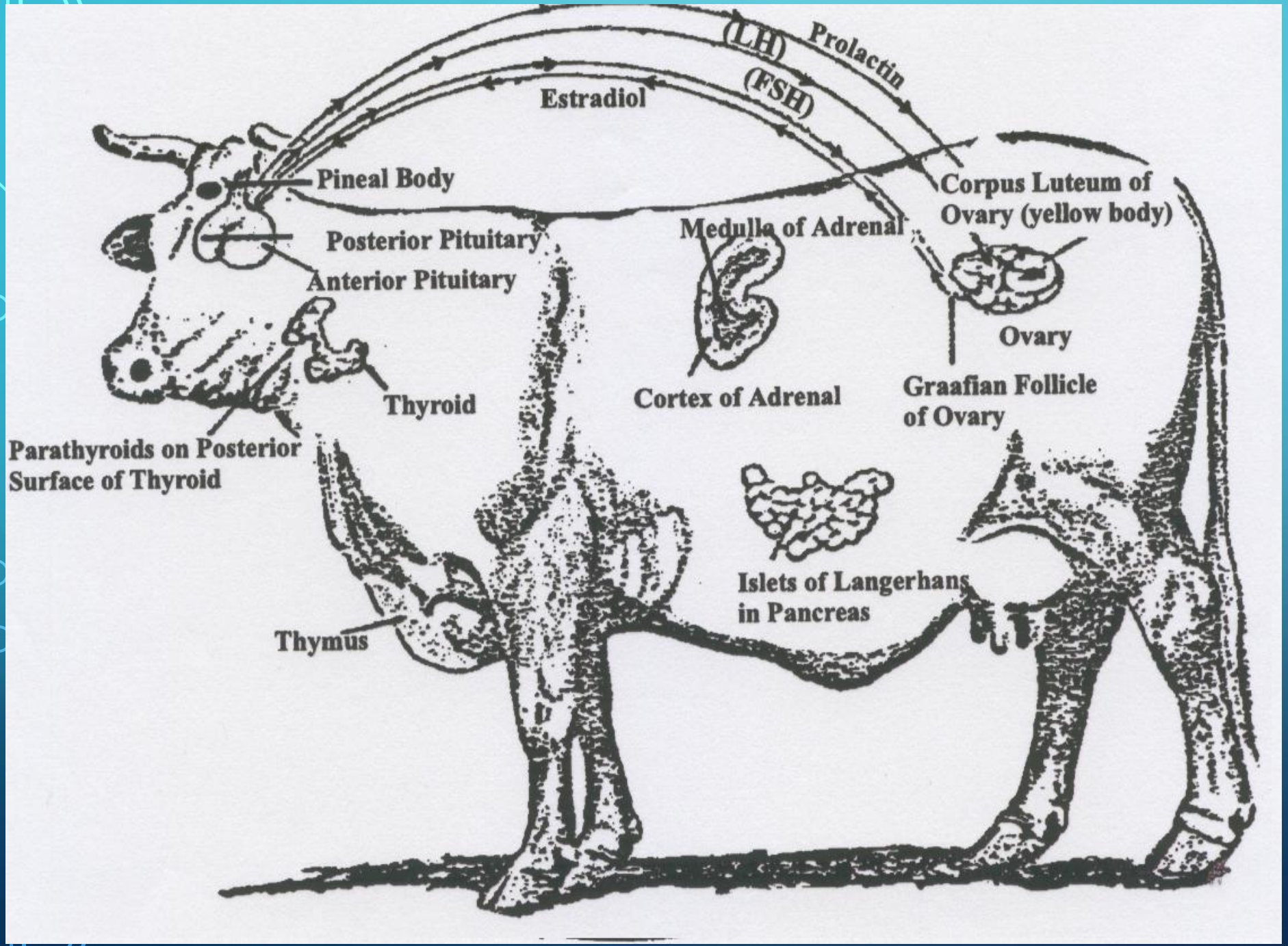
Rings of white in the red area indicate a period of infertility.

If you let fertility slide

it is very difficult to get it back completely

Horn color shows level of fertility

HORN COLOR SHOULD BE SOLID WITH NO “WHITE” RINGS

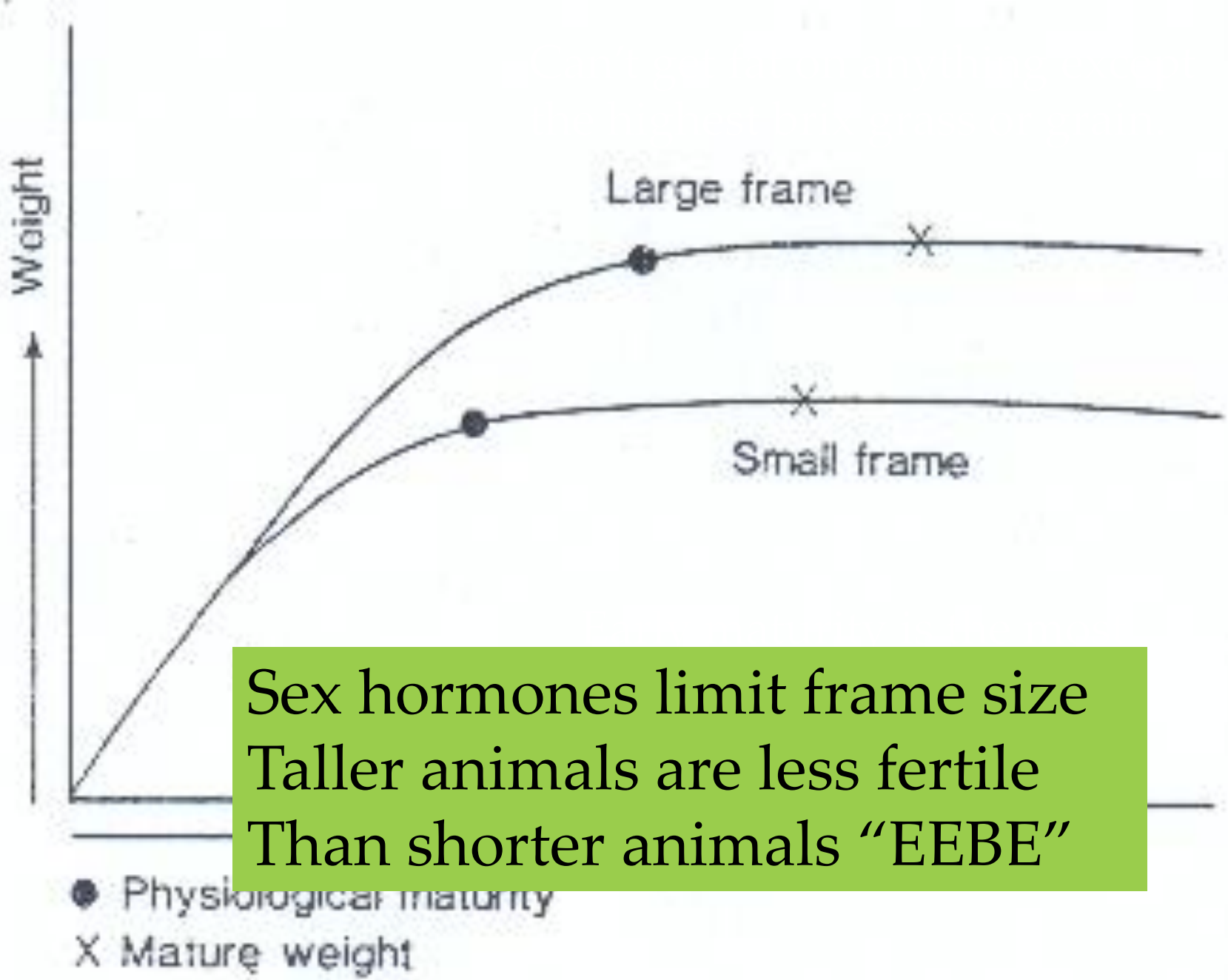


Bonsma And Glandular Function

Gland system does not increase in proportion as weight of cow increases

Growth rate of Small versus Large frame cattle

- Testicles and gland system don't Increase in proportion to frame size



Sex hormones limit frame size
Taller animals are less fertile
Than shorter animals "EEBE"

HOW DO BIGGER COWS AFFECT BREEDING

- Glandular system does not expand by 40% for a 1400 pound cow over a 1000 pound cow.
- Maintenance costs go up with the larger cow. (***Harder to be in a high enough BCS to breed****-Dick Diven word document*). (exceptions to this in three keys talk)

What is causing our cows to get larger…

LARGER BULLS

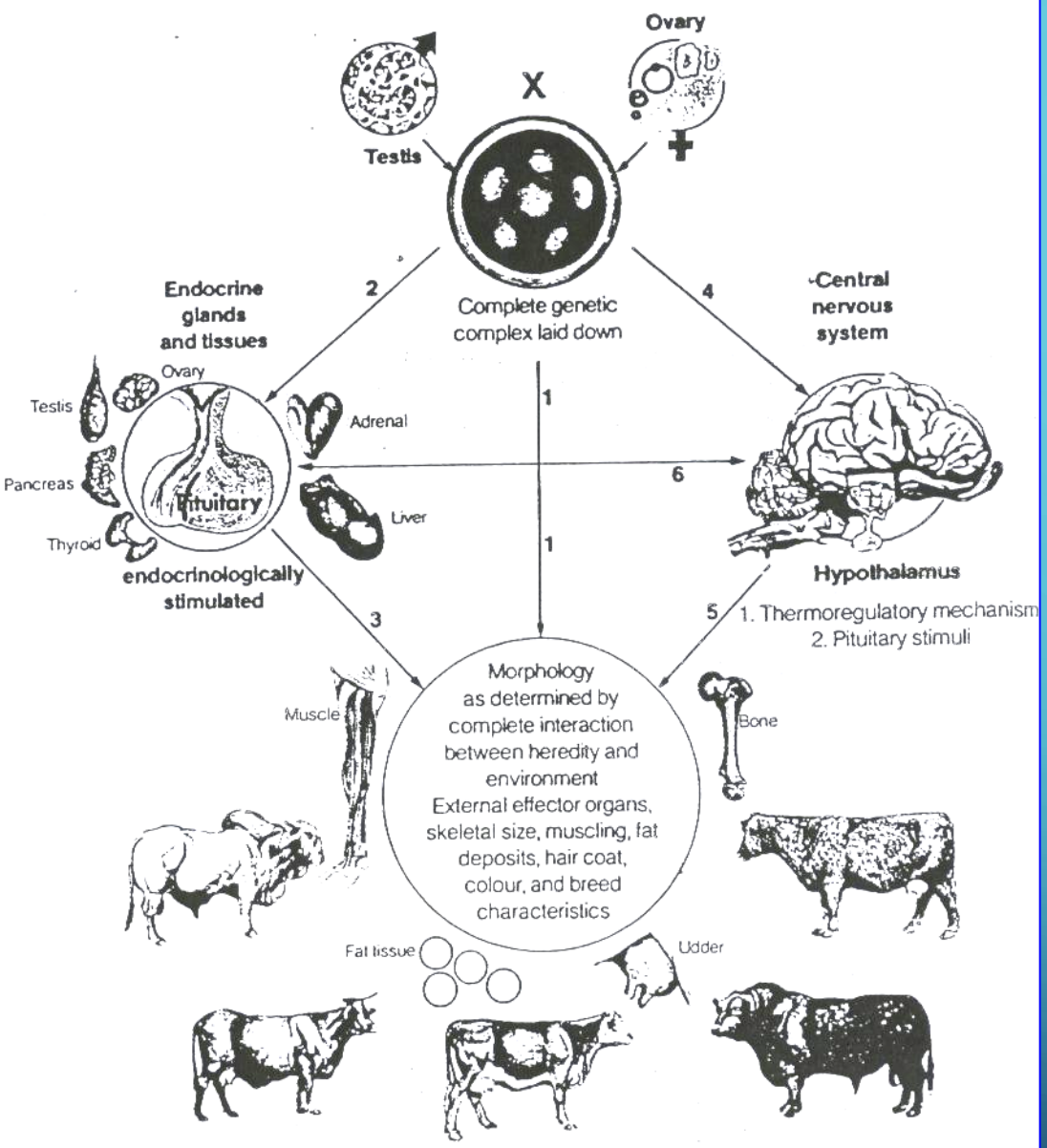
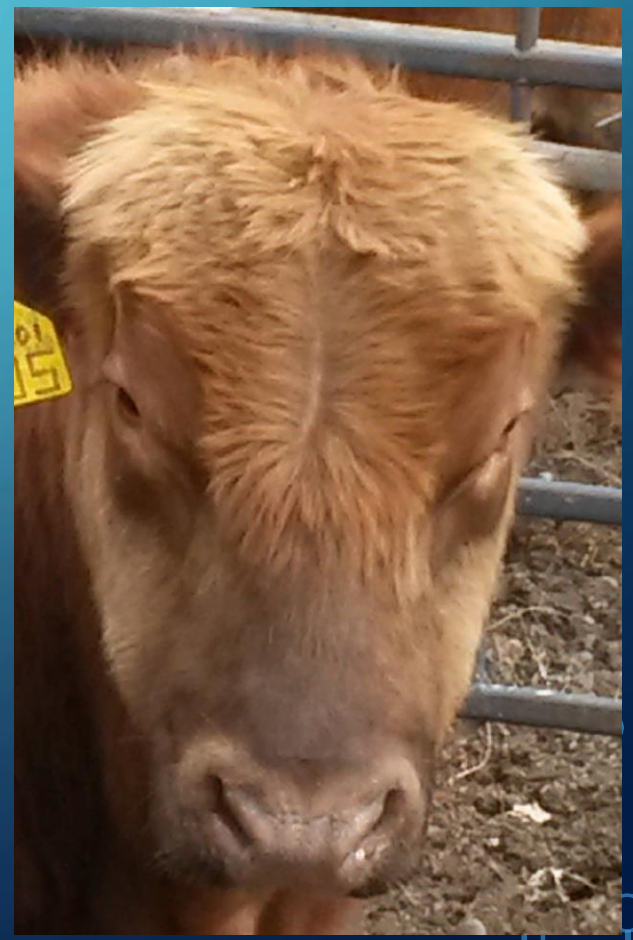


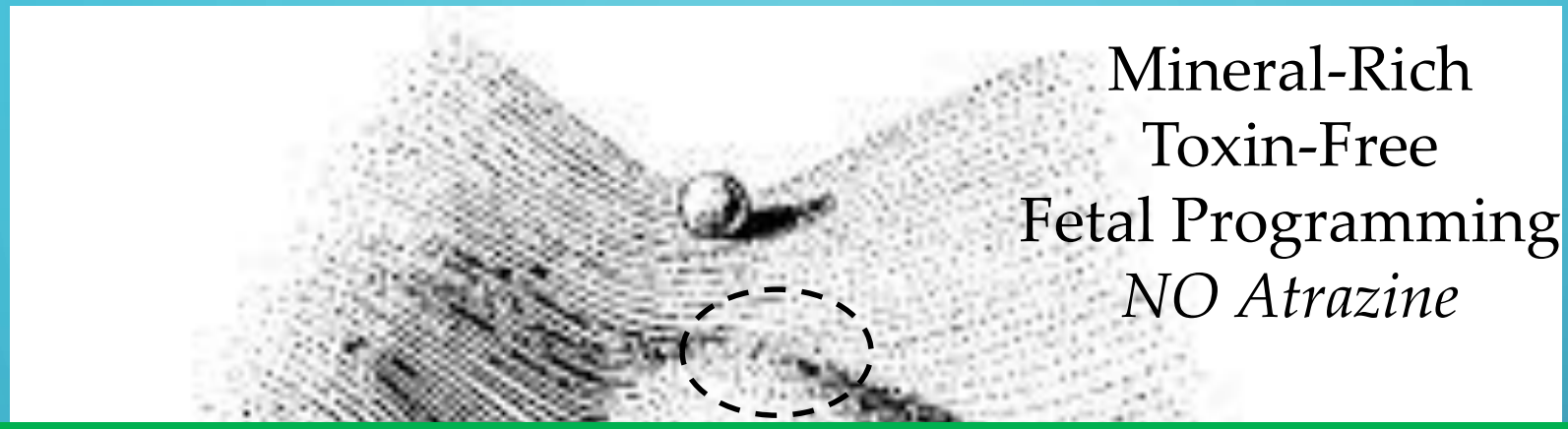
Figure 3.1 The interaction between genes and the phenotype. At the moment of conception the complete genetic potential of the animal is laid down. This determines irrevocably the potential boundaries within which the individual can function, perform or produce during its entire lifetime.

First 3 months * of pregnancy seven (7) major glands are developed to the point they dictate how the remainder of the body is formed. Genetics, selection & nutritional management are the dominating factors in developments of glands & profitability



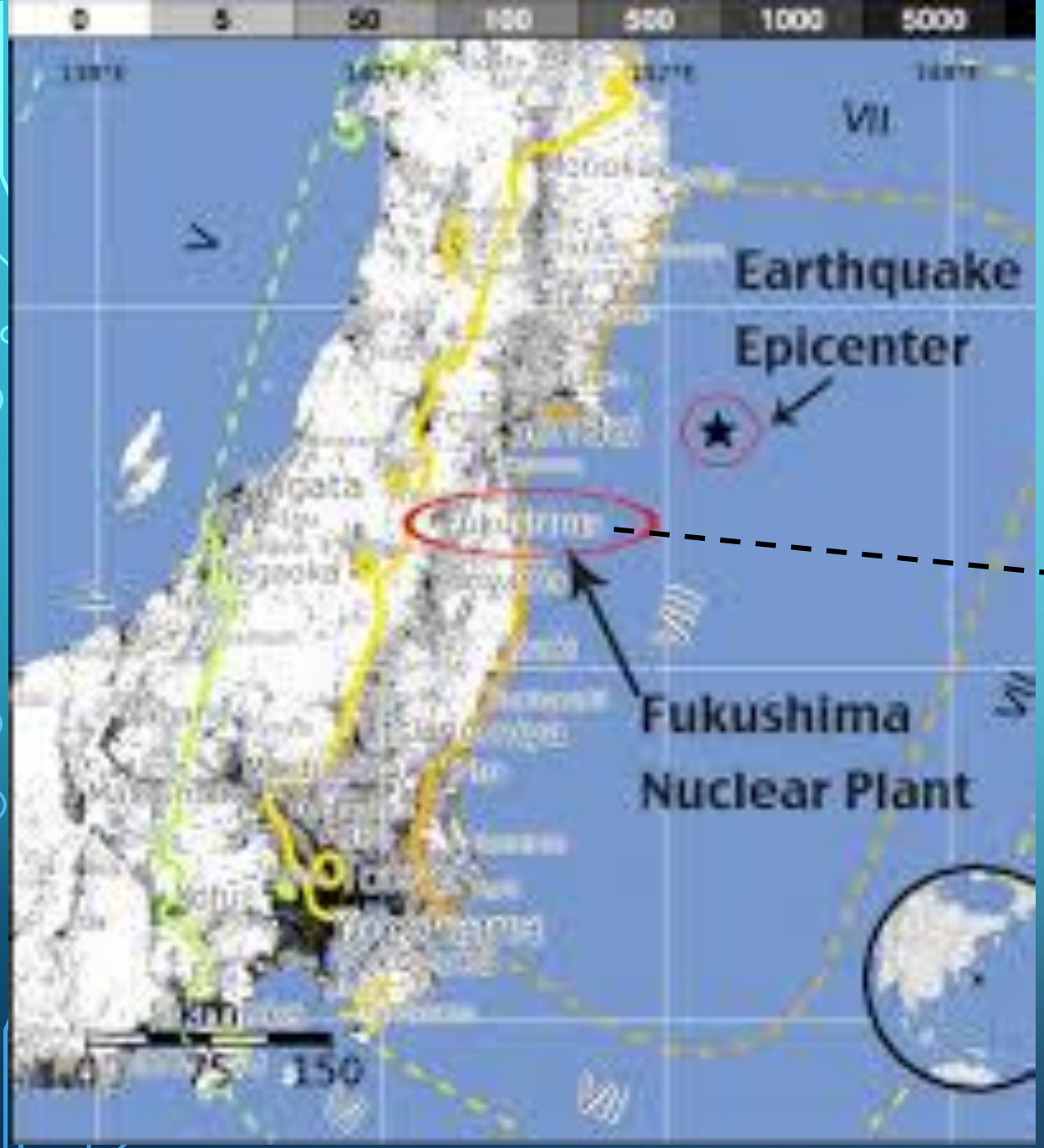
** Lack of minerals or presence of toxins during this period affect the fetus*

WADDINGTON'S EPIGENETIC LANDSCAPE



We all have better genetics on our ranches than are being expressed because of our/their poor EPI-GENETICS

Human miscarriages along this line doubled in the 12 months after the cesium cloud passed over the USA From March 2011-2012



DR. RICHARD SAACKE

- Collected semen from four bulls
- Mixed it all together and then bred a group of cows
- Each cow was receiving semen from all four bulls
- One bull was responsible for 75% of the pregnancies.
- Fertility increases with increasing numbers of quality sperm delivered, up to a threshold, after which, limiting factors in the reproductive capacity of the female population become important.
- The presence of multiple high quality sperm at the ovum at the time of fertilization increases the cows ability to maintain pregnancy

Dimensional Scrotal Measurements

Classification	Length (inches)	Circumference (cm)	Sperm Count per cc (range) x10⁶	Approx. % Live	Approx. % Conception
Age: 7 1/2-9 months					
Optimal	5, 5 1/2	28, 29	N/A	N/A	N/A
Tolerable	4 1/2	26, 26 1/2, 27, 27 1/2	"	"	"
Objectionable	4	24 1/2, 25, 25 1/2	"	"	"
Undesirable	3 1/2	23, 24	"	"	"
Unacceptable	3	20-22	"	"	"
Age: 12-16 months					
Optimal	6, 6 1/2, 7	38, 39, 40	980-1379	75-90	80-90
Tolerable	5 1/2	36, 37	672-1076	65-70	70-75
Objectionable	5	35	527-707	55-60	60-65
Undesirable	4 1/2	34	362-538	50-55	45-55
Unacceptabe	4	30-33	40-372	10-45	5-40
Age: 16-24 months					
Optimal	7, 7 1/2, 8, 8 1/2	40, 41, 42, 43, 44	1093-1790	75-90	80-90
Tolerable	6 1/2	37, 38, 39	1043-1592	65-70	70-75
Objectionable	6	36	796-1541	55-60	60-65
Undesirable	5 1/2	35	381-1093	50-55	45-55
Unacceptable	4 1/2, 5	30-34	309-783	10-45	5-40
Age: 24-36 months					
Optimal	7, 7 1/2, 8, 8 1/2	43, 44, 45, 45 1/2	1379-1853	75-90	80-90
Tolerable	6 1/2	39, 40, 41, 42	920-1469	65-70	70-75
Objectionable	6	37, 38	732-1181	55-60	60-65
Undesirable	5 1/2	35, 36	517-1011	50-55	45-55
Unacceptable	4 1/2, 5	30-34	68-548	10-45	5-40
Age: 36-48 months					
Optimal	7, 7 1/2, 8, 8 1/2	43, 44, 45, 46	1218-1990	75-90	80-90
Tolerable	6 1/2	40, 41, 42	965-1790	65-70	70-75

TOTAL DIMENSION

7.5-9 MONTH

OPTIMAL 140-160 TOLERABLE 117-139 OBJ 98-116

12-16 MONTHS

OPTIMAL 228-280 TOLERABLE 198-227 OBJ 157-197

16-24 MONTHS

OPTIMAL 280-374 TOLERABLE 240-279 OBJ 216-239

24-36 MONTHS

OPTIMAL 301-382 TOLERABLE 253-300 OBJ 222-252

36-48 MONTHS

OPTIMAL 301-391 TOLERABLE 260-300 OBJ 228-259

4-5 YEARS

OPTIMAL 330-395 TOLERABLE 294-329 OBJ 247-293

5-7 YEARS

OPTIMAL 360-432 TOLERABLE 294-359 OBJ 253-293

Standards You Should Demand for semen testing of your herd bull{s}

- Complete count of all sperm cells
- Accurate count of all live cells
- Accurate count of all abnormal, primary (genetic) & secondary (epi-genetic)
- Accurate count of motile cells

High quality semen will be in this range

- Billion+ cells per cc/seminal fluid
- 80-90% of those cells live
- No less than 75% of those cells motile
- Anything less than this leaves cows open
- Above 8% abnormal leaves cows open

WHY IT MATTERS TO NOT DEVELOP ON GRAIN

- Scrotum is a thermo-regulatory system
- Bull's body is 101.5 degrees-Testicles need to be kept at 98 deg
- 1) Fat Deposits within the testicles diminishes volume in the "factory"
- 2) Fat deposits around the scrotum inhibits the effective cooling of the testicles, resulting in elevated abnormals.
- Extra hair on the scrotum, short neck of scrotum, deep crevasses in the scrotum …
- All inhibit the bull's ability to effectively cool the testicles.
- If the testicles are too warm, we get more abnormal sperm cells
- Poor quality (*not necessarily quantity*) feed/minerals gives you lower quality semen than the bull is genetically capable of producing
- On the ranch our goal is to "Win the fertility War … not the Battle"

Ultimate bull

- 1.5 to 3 billion cells first ejaculation 10+ billion each 24 hours
- Copulates 12-14 times each 24 hours
- 60 to 75 cows with 90-95% pregnancy rate

Average bull in use today

- 800 to 900 million cells first ejaculation 5 billion each 24 hours
- Copulates 6 to 8 times each 24 hours
- 25 cow bull, runs out of testosterone & sperm cells with a 75% to 90% pregnancy rate

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Ultimate bull

- MASSIVE fronted (Buffalo look)
- Deeper chest (most cases)
- Curly hair, dark hair
- Bull like activity while at mom's side.
- Box car cow ruins the whole thing
- Ribs need to be straight up and down as a calf which gives width between legs and shoulder blades.

- In 3 generations of retained heifers, 87.5% of the genetic make-up of the females you return to the herd is the result of the last 3 bulls you purchased. When you consider the long term impact of the bull, **you can never buy a bull that is too good**.
- Old rules of thumb are good to reflect on. For instance, "2 times the value of a fat steer" or "4 to 5 times the value of a feeder calf" are both common measures used by old timers to determine the value of a bull.
- Using values from 1996 to 2014 (last 19 years) the average bull price was 4 times the value of a feeder calf and 2.1 times the value of a fat steer. Looks like those old rules of thumb work pretty well.

University of Illinois extension

How much revenue loss would you have from a pasture full of open cows?“

A HERD BULL MUST LOOK LIKE A BULL WHEN A CALF

Does he come from an
Excellent family tree???

6 Months

36 Months

DR. MICHAEL MCDONALD -*VALUE OF LINEAR MEASURE*

40% OF DIFFERENCE IN PROFIT IS

FERTILITY … BULLS SW/RL *RATIO*

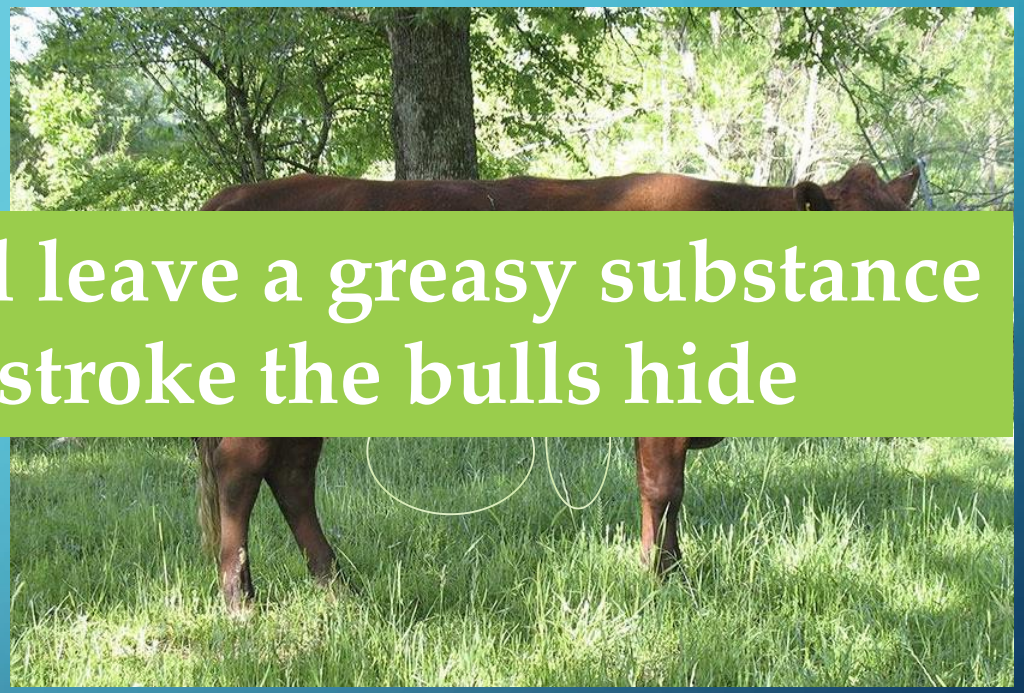
30% OF DIFFERENCE IN PROFIT IS IN MAINTENANCE COST THE COW **FLANK-VS-TL**

20% OF DIFFERENCE IN PROFIT IS IN **GROWTH**

10% OF DIFFERENCE IN PROFIT IS **CARCASS** TRAITS

INDUSTRY PUSHES GROWTH AND CARCASS BECAUSE THOSE MAKE THEM THE MOST MONEY

LINEAR MEASURING THE BULL FOR A SHAPE FOR GRASS & REPRODUCTIVE EFFICIENCY



A bull with a lot of libido will leave a greasy substance On your hand when you stroke the bulls hide

LINEAR MEASUREMENT accurately and objectively evaluates what the animals is.

A tool to know what animals will work in our environment (each zip code is different) and how to use the ratios to select for them.


COW


BULL

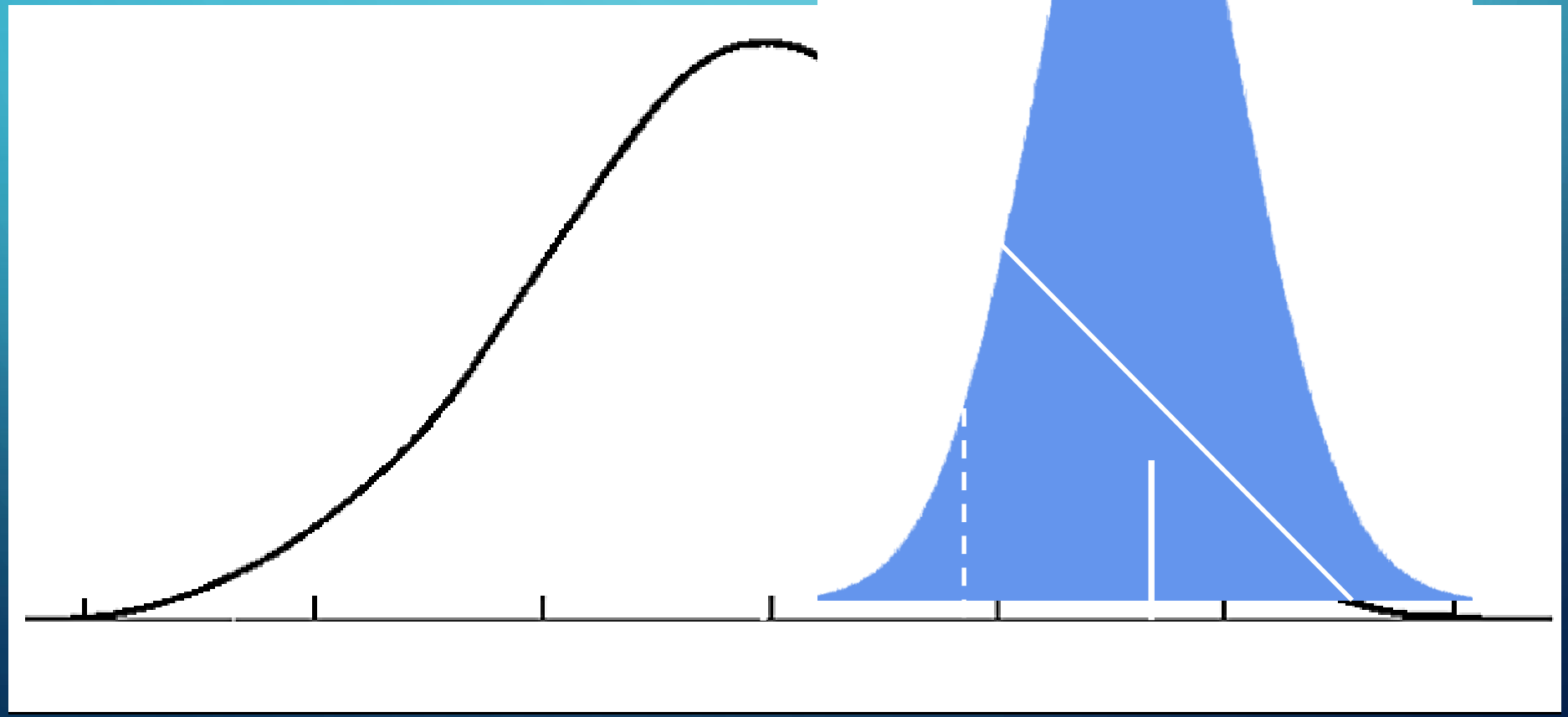
A FEW MORE RANDOM THOUGHTS

- Bulls may need to be culled for failure to pass a BSE, lack of libido, injuries, poor vision, undesirable conformation or inferior calf performance.
- Dr. Fred Provenza … feed animal was developed
- Pick the bull up one-two days before you need him. (120 day Red Blood Cell).

A new bull every year will NOT create a product that will get you repeat customers

What is **possible** with a close bred herd

4.1 KG on the Warner Bratzler Tough Meat on this side



EPIGENETICS - Atrazine and Male/Testicular development

- Atrazine is the most common water contaminant in the U.S., where it was initially approved for use in 1958. It's been banned in Europe since 2005
- Independent research[4] shows atrazine causes hermaphroditism in frogs (**turning males into egg-laying females**) by inducing an enzyme called aromatase, which causes overproduction of estrogen.
- **Chemically castrates wildlife**
- One study linked atrazine exposure in utero to **impaired sexual development in young boys**, causing genital deformations

Dr. Mercola

WHEN TO CALVE - WHEN TO BREED

- Dick Diven (Low Cost Cow calf) The closer we calve to nature in our area, the better things work.
- It takes 120 to change out all of the red blood cells in our bodies (cow or bull). This is the minimum time on the best feed you have before a bull can produce the quality of semen he is genetically able to produce. (Epigenetics/Are you getting all of the bull you bought?) (*Dave Winninger*)
- Manganese is required for reproduction. It is naturally showing up in seed heads 120 days after the grass greens up.
- …and grass is beginning to dry out. Too much sugar in the diet at breeding will lower semen transport in the cow (*Dr. Richard Saccke*).

PEARLS OF WISDOM FROM MICHAEL DAVIS AND JERRY BRUNETTI

- If half of your heifers are not better than your cow herd (their mothers), you are using the wrong bulls.
- When my clean up bull's calves are as good as my AI bull calves…I QUIT AI!!!
- ½ brother to ½ sister is the best mating.
- Jerry Brunetti explains that during pregnancy, the level of **iodine in the placenta is five times the mother's level** and suggests that this is due to iodine's role in apoptosis during fetal growth.

TAILOR MADE CATTLE:

HAVE TAPE…WILL TRAVEL

Steve Campbell Cell: 208-315-4726

2365 Echo Avenue Email: trianglec3@gmail.com

Parma, Idaho 83660 Web: tailormadecattle.com