

Pedigree Cattle Breeding & Selection



Introduction...

- Andrew Hughes, born in Wales and started my career working with pedigree Herefords.
- Freelance stockman working with various breeds across the UK.



- Farm Manger for 12 years at Coley Herefords, Halifax, West Yorkshire.
- Grassland Farm producing pedigree cattle for show and sales across the UK.
- Judged major shows throughout the UK, Ireland, France and Denmark.

Know your breeds

Which breed suits your farm or system?

- Native or Continental ???
- Hill Farm or Lowland Farm
- Surrounding farmers/ customers
- Handling facilities/ temperament/ health status
- Goals, what are you wanting to achieve?



Benefits of different breeds.

Native to the UK.

- **Aberdeen Angus**- Versatile, maternal, high growth rates, strong demand, recognised across the world.
- **Beef Shorthorn**- Maternal, sustainable, versatile, easily managed.
- **Galloway**- Hardy, low input, quality beef.
- **Hereford**- Docile, easy calving, maternal, easily managed.
- **Highland**- Hardy, low input, good converters of forage.



Benefits of different breeds.

Continental.



- **British Blue**- Superior carcass improver, terminal sire, improve killing out percentage, carcass quality & meat to bone ratio.
- **Charolais**- Terminal sire, exceptional growth and frame.
- **Limousin**- Early maturing, carcass sire, confirmation & maternal.
- **Saler**- Maternal, fertile, easy calving, ideal cross, hardy.
- **Simmental**- Milky, excellent suckler cows, multipurpose maternal and terminal sires. Great growth and carcass traits.

Phenotype



Breed Character

- First thing you notice when looking at an animal is its head. An animal's head is the preview of what's to come in the rest of the body.
- Bulls want a wide, masculine head, broad muzzle, bold eye, strength of jaw, showing tremendous character.
- Females want a feminine head, big flashy lugs, bold eye, broad muzzle and width between the eye. Neither long or short nosed. Again breed character, style and presence.
- **Look over the gate and not through it!!!**



Skeletal Structure



Head wants to be carried either by a long, feminine neck or a masculine, broad, wide neck on a bull.

Moving into a well set, angular, full, clean shoulder, not slack. Width across the top of the shoulder in a bull.

This then leading into a deep chest, well sprung ribs with plenty heart room. Depth of body but not too much gut.

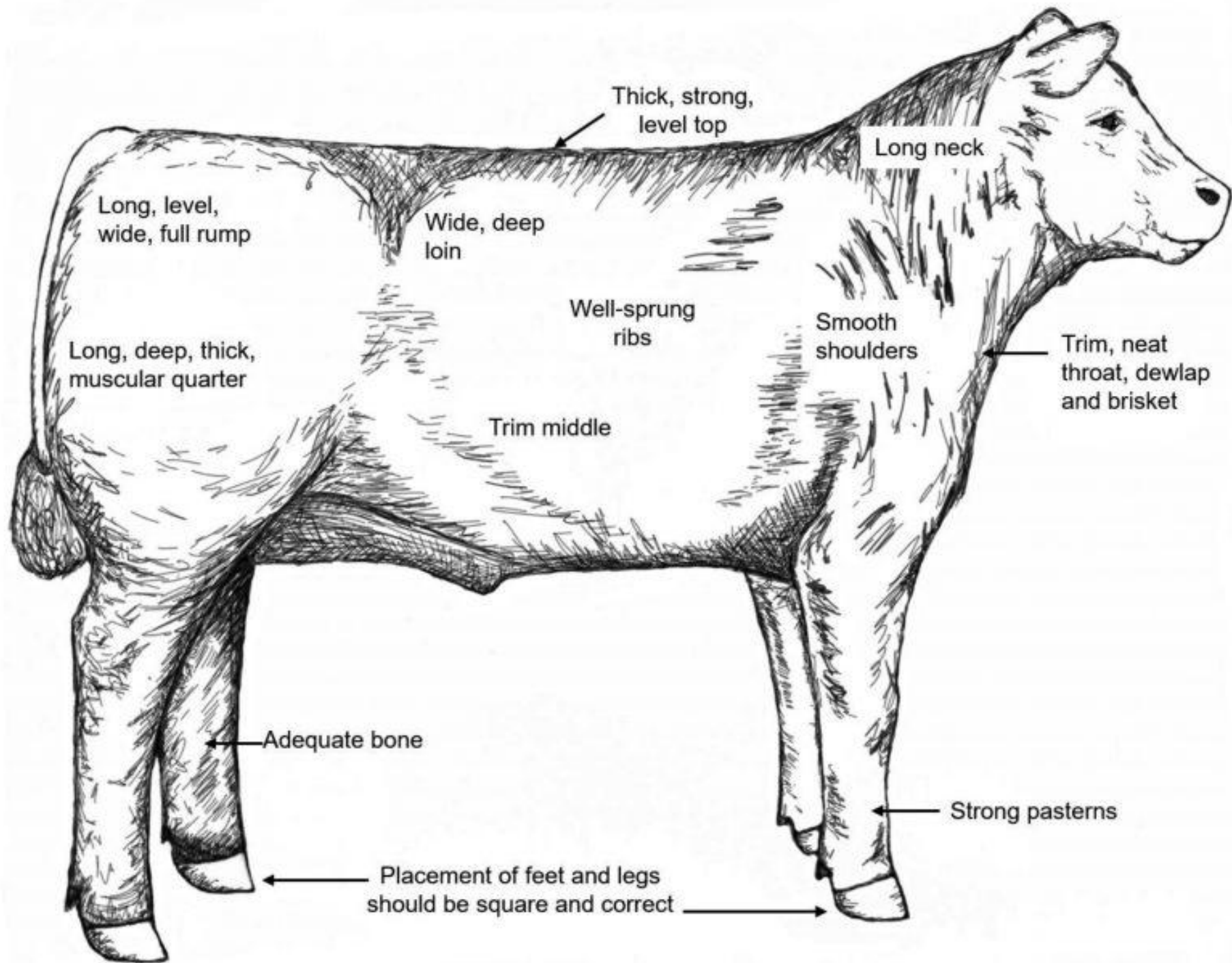
Skeletal Structure



Level topline, wide rump, full of the loin, width and depth throughout. Length from hook to pin. Well set tail head, not high. With this is a good

An animal wants a bit of shape and second thigh. Clean throughout, no waste nor too much brisket.

Bone. Not fine boned decreasing longevity, not too big boned increasing calving difficulty and weight. Enough bone and



Thick, strong,
level top

Long neck

Long, level,
wide, full rump

Wide, deep
loin

Well-sprung
ribs

Smooth
shoulders

Trim, neat
throat, dewlap
and brisket

Long, deep, thick,
muscular quarter

Trim middle

Adequate bone

Strong pasterns

Placement of feet and legs
should be square and correct

Bulls

- Three things a bull needs to do is eat, walk and reproduce.
- A masculine head with a wide muzzle and strong jaw enhances foraging ability.
- Good sized feet, evenly shaped and athleticism on the move
- Testicles



Legs & Feet

- Good sized feet with evenly shaped and sized toes are essential for determining longevity.
- Heel depth and a strong but flexibly cushioned pastern allow for athleticism and foot health.
- Correct feet not splayed or pigeon toed (bow legged).
- Correct legs and not sickle hocked or post legged.



**KNOCK KNEED
OR SPYLAFOOTED**



**BOWLEGGED OR
PIGEON TOED**



CORRECT



CORRECT



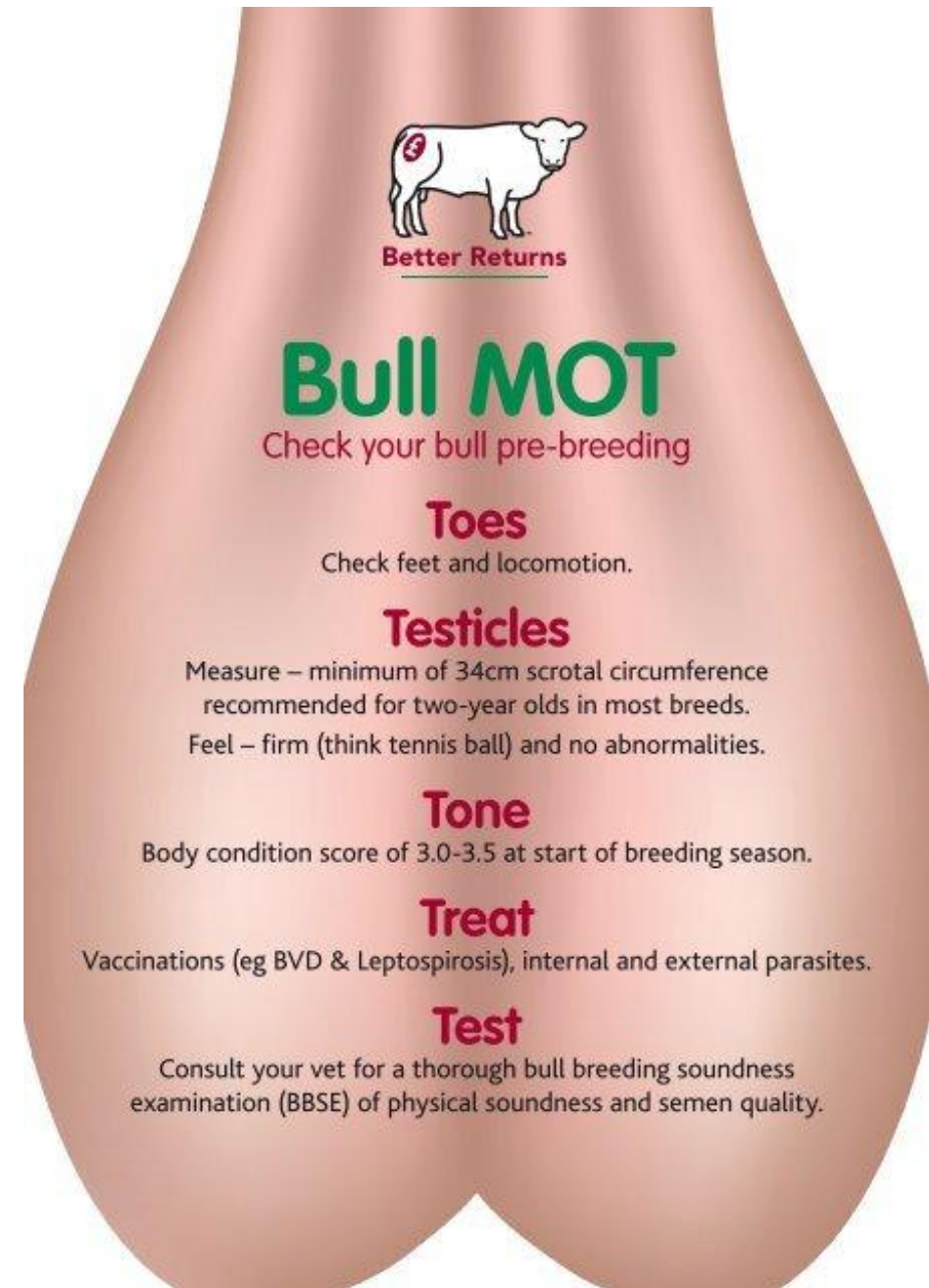
**COW HOCKED
OR SPYLAFOOTED**



**BOWLEGGED OR
PIGEON TOED**

Testicles & Fertility

- Testicle size, shape and suspension is of utmost importance in determining early fertility in bulls.
- In general bulls should have a scrotal circumference of at least 32cm at 18 months of age and 34cm by 24 months of age. Individual breed societies may have different regulations.
- Cows should have a balanced, functional udder, 4 even teats in all four corners.
- Cows should have a calving interval of 365 days. Many factors can effect cows fertility including breeding, body condition score, calving history- bad calving and diet.



Hormonal balance



- Testosterone makes muscle and estrogen makes fat.
- If the bull is hormonally balanced he will have tone and shape to his muscle and evidence of muscling on his neck. The hair will be coarser over the head and neck, tail and sheath tassels. The neck crest will be naturally darker in colour.
- Females should be well fleshed and full bodied, and the hair will be more silky in nature and the tail hair will be much finer.
- You want lady like females with more refinement, faces like princesses and butts like cooks.

EBVS- Estimated Breeding values

Pedigree and performance data is analysed to calculate how much of each animal's performance is due to its breeding merit and how much is due to the environment in which it has been raised. This assessment of breeding potential is expressed as Estimated Breeding Values or EBVs.

How are EBVs calculated?

EBVs are calculated using information from several sources –


- Measurements from the animal itself.
- Measurements from the animal's herd mates.
- Measurements from the animal's relatives and their herd mates.
- The degree to which one trait influences another – is known as correlation.
- The degree to which each trait is passed on to the next generation – is known as heritability.

What do they mean?

EBVs are expressed relative to a common baseline which means comparisons can be made between bulls of the same breed but not of different breeds.

This table shows the different EBVs for a Hereford bull and their accuracy compared with the breed average at the bottom.

It is important to remember that because a calf has two parents, the values get halved so for example, if the cow's birth weight EBV was 0kg and the sire's was +1kg, the calf should end up as +0.5kg.

February 2025 Hereford BREEDPLAN															
	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)	Birth Wt. (kg)	200 Day Wt (kg)	400 Day Wt (kg)	600 Day Wt (kg)	Mat. Cow Wt (kg)	200 Day Milk (kg)	Scrotal Size (cm)	Carcase Wt (kg)	Eye Muscle Area (sq cm)	Rib Fat (mm)	Retail Beef Yield (%)	IMF (%)
EBV	+9.2	+7.1	-5.9	+1.4	+32	+63	+71	+77	+13	+0.7	+51	+1.9	-0.9	+0.9	-0.4
<u>Accuracy</u>	58%	51%	76%	76%	71%	72%	69%	61%	56%	67%	56%	47%	50%	47%	43%
Breed Avg. EBVs for 2023 Born Calves Click for Percentiles															
EBV	-0.1	+0.6	+0.5	+2.5	+29	+54	+67	+63	+8	+0.9	+44	+2.4	+0.0	+0.5	+0.0

EBV	What does this EBV indicate?	Look for...
Direct calving ease (%)	Ease with which a bull's progeny will be born.	High positive EBVs if you want less assisted calvings.
Daughter calving ease (%)	Ease at which the bulls daughters will calve.	High positive EBVs if you are keeping heifers as replacements.
Gestation length (days)	Genetic potential for gestation length,	High negative EBVs if you want short gestation lengths.
Birth weight (kg)	Genetic potential for calf weights.	High negative EBVs if you want low birth weights.
200, 400, 600 day weight (kg)	Genetic potential for growth from birth to 200/400/600 days of age.	High positive EBVs if you want high growth rates to weaning/ finishing
200 day milk (kg)	The maternal component of 200 days growth ie the contribution that the milking and maternal abilities of a bull's daughters make towards their calves' growth at 200 days of age.	High positive EBVs if you want daughters to wean heavier calves.
Scrotal size (cm)	Genetic potential for scrotal circumference size at 400 days of age.	High positive EBVs if you want progeny with larger testicles at yearling age. Larger testicles are linked to increased sperm output.

Carcase Weight

Carcase Weight EBVs are estimates of the genetic differences between animals in hot standard carcass weight (as defined by AUSMEAT) at 650 days of age. Carcass Weight EBVs are expressed in kilograms (kg).

Eye Muscle Area

Eye Muscle Area EBVs are estimates of the genetic differences between animals in eye muscle area at the 12/13th rib site in a standard weight steer carcass. EMA EBVs are expressed in square centimetres (cm²).

Rib Fat Depth

Rib Fat EBVs are estimates of the genetic differences between animals in fat depth at the 12/13th rib site in a standard weight steer carcass. Rib Fat EBVs are expressed in millimetres (mm).

Rump Fat Depth

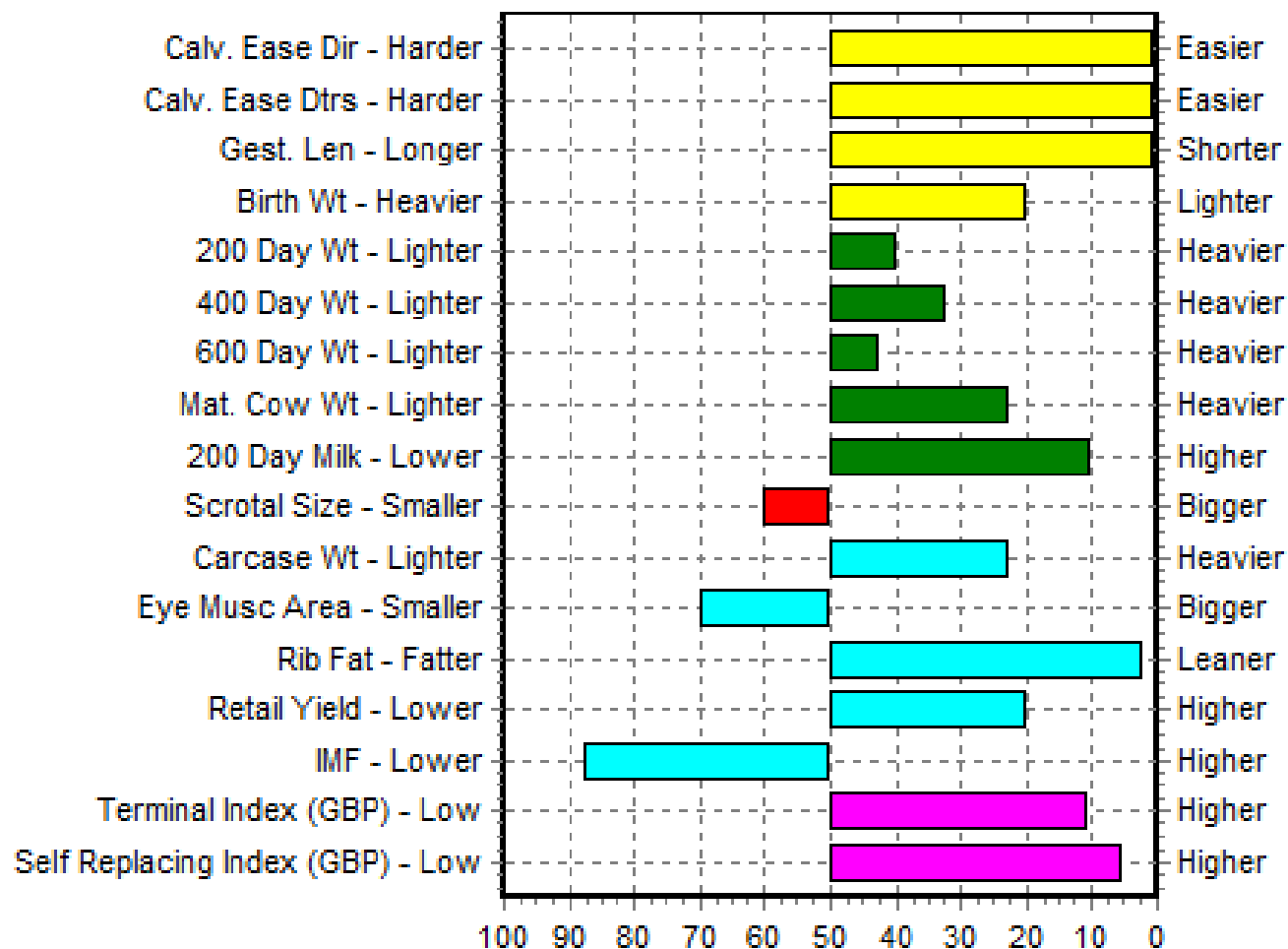
Rump Fat EBVs are estimates of the genetic differences between animals in fat depth at the P8 rump site in a standard weight steer carcase. Rump Fat EBVs are expressed in millimetres (mm).

Retail Beef Yield

Retail Beef Yield (RBY) EBVs are estimates of genetic differences between animals in boned out retail beef yield in a standard weight steer carcase. RBY EBVs are reported as differences in percentage (%) yield.

Intramuscular Fat

Intramuscular Fat (IMF) EBVs are estimates of genetic differences between animals in intramuscular fat (marbling) at the 12/13 rib site in a standard weight steer carcase. IMF EBVs are reported as differences in percentage (%) IMF.



Pedigree

- Cow families are important. Prolific breeders, proven cows with success. An example- when the Hereford herdbook was closed in the 1800s it closed with approximately 250 female names. Within a short time became about 150; so we will say there were 150 possible families. By the late 1980s there had been 800 first prize winners at the royal show. 70% of these came from just 30 of the original families.
- Select bulls that suit YOUR herd and select for traits you need to improve.
- Always look at the dam of whatever it is your buying, any offspring or progeny.



Summary.....

I am of the opinion cattle should be of good confirmation, that they should be balanced and have character. I also believe they should be of breed type and above all have good spinal construction for it is around this that the animal functions. Ebv's can be taken into account however the animal must be appealing to you as you have to look at it every day.

Pick a breed you want to see at home every day and will enjoy working with.

One last thing as farmers, it is in our nature to find the cheapest but I have learnt to buy the best you can afford. It will be cheaper in the long run.

