MONITOR FARM Scotland

FARMER LED, FARMER DRIVEN

Getting to grips with genetics

Dumfries Summer Open Meeting
2nd July 2025

Getting to grips with genetics

Missed the Meeting? Here's What You Need to Know

We had a brilliant turnout at the recent Monitor Farm Scotland open meeting at Barnbackle, where the focus was on 'getting to grips with genetics'. For those who couldn't make it along, here's a quick roundup of the key takeaways from our speakers, **James Hudson, Breed Secretary of the Charolais Cattle Society** and **Dr Jillian Gordon, researcher at SRUC**

Top Learnings:

1. Genetics Can Drive Profitability

2. Dairy Beef cross animals are a missed opportunity. They are not just by-products but potential breeding stock with high value.

3. EBVs are essential tools understanding and using them effectively is critical to improving herd performance and making informed bull purchases.

4. Not all traits are equal, growth rates and carcass traits are valuable, but producers must also consider maternal qualities, milk production, and calving ease for long-term sustainability, especially if retaining females.

👀 Didn't make it?
We'll be sharing more from the Dumfriesshire Monitor Farm throughout the year. Keep an eye out for events, photos and video snippets on our social media.

@monitorfarmscotland

If you've got questions or want to try similar systems on your own farm, get in touch, we'd love to hear from you.

You can also find out more by visiting our website **www.monitorfarms.co.uk**

Dr Jillian Gordon – Researcher at SRUC

Dr. Jillian Gordon from SRUC conducted her PhD research into the dairy-beef cross (DBX) system—where calves are born to dairy dams and beef sires. Her study explored production trends, breeding motivations, and market challenges using Cattle Tracing System data, industry interviews, and economic assessments.

Key Learnings for Suckler Producers

Strategic breeding can maximise value

Breed Selection: DBX producers most commonly used **British Blue** and **Aberdeen Angus** sires.

- **British Blue**: Prioritised for carcass size.
- **Aberdeen Angus**: Valued for meat quality and premium pricing.

Both breeds were found to be successful across large dams (Holstein Friesian) and small dams (Jersey), indicating suitability across systems.

DBX Animals as Breeding Stock

- DBX calves aren't just surplus animals—they can **increase maternal traits** in beef herds and serve as a **low-cost entry** into suckler farming.

"We had Angus out of dairy cows to start and used them to build our herd… Now we have 240 suckler cows." – Beef Farmer

Genetic tools can drive your efficiency

Breeding Technology	Impact
Artificial Insemination	Rapid genetic improvement
Sexed Semen	~90% chance of female offspring for replacements
EBVs	Predict traits like calving ease, growth, carcass

Challenge	Sector Affected	Quote/Insight from research
Misaligned breeding goals	Dairy & Beef	“Dairy farmers prioritise calving ease, beef sector wants carcass.”
Poor bull calf value	Dairy	"Costing too much money to keep and when we sell them, we are only getting like a tenner (£10).”
Perception of DBX as low value	Both	Needs a mindset shift toward strategic opportunity

Conclusions

Jillian Gordon’s research challenges assumptions about the role of DBX animals. For suckler producers, she believes there is a clear opportunity to:

- Adopt smarter breeding strategies
- Explore DBX genetics for replacement stock
- Collaborate with dairy counterparts
- And ultimately improve profitability and sustainability

By viewing DBX animals not as by-products but as **valuable genetic and economic assets**, both sectors can move toward a more unified, high-performing cattle industry.

James Hudson – Charolais Society Breed Secretary

James Hudson provided an in depth look at using **Charolais EBVs and performance data** to drive better herd genetics. Farmers were taken through how bulls can improve growth, carcass yield, and meat quality, using breed-specific benchmarks and examples from **Elrick Spielberg**, a high-performing Charolais bull.

Estimated Breeding Values (EBVs)

EBVs are predictions of an animal's genetic potential for traits like growth, fertility, calving ease, and carcase quality. For Charolais breeders, EBVs are a key tool to help choose bulls and cows that will pass on desirable traits to their offspring.

Every animal inherits half of its genes from each parent. While we can't see the actual genetic makeup, we can make well-informed estimates — called Estimated Breeding Values (EBVs) — based on performance data.

How EBVs Are Calculated

Animals are grouped and compared based on age, sex, and management conditions — these groups are called contemporary groups. An animal's performance is compared to the average of its group. EBVs also take into account data from relatives and offspring, allowing comparisons across herds.

EBVs are shown as either positive or negative values relative to a breed benchmark. For example, a 400-Day Weight EBV of +30 kg means the animal is expected to produce offspring that are 30 kg heavier than the breed base at that age.

What's important is not the actual number, but how animals compare to each other.

EBV Accuracy and Selection Indexes

Each EBV includes an accuracy percentage, which shows how much information was used to calculate it. Higher accuracy means more confidence in the value.

Young bulls will have lower accuracy unless they have lots of recorded relatives.

Selection Indexes:

- **Terminal Sire Index** – Helps identify bulls that will produce fast-growing, high-yielding offspring for beef production.
- **Self-Replacing Index** – Ideal for breeders who keep their own females. It includes maternal traits like milk and daughters' calving ease.

Key Trait Definitions for Beef Animals

- **EBVs Calving Ease (CE%):**
  - Direct (DIR): How easily a bull's calves are born. Positive values = fewer assisted births.
  - Daughters (DTRS): How easily a bull's daughters calve. Important for breeding replacements.
  - Gestation Length (GL): Shorter pregnancies usually mean easier births and quicker returns to breeding.
  - Birth Weight (BWT): Lower birth weights reduce calving difficulty — especially useful when using bulls on heifers.

- **200, 400, 600-Day Weight (kg):** Predict how quickly calves will grow.

- **Mature Cow Weight (MCW):** Indicates expected adult size of cows. Heavier cows eat more but may wean heavier calves.

- **Milk (kg):** Reflects how much milk a bull's daughters will produce — important for calf growth.

- **Scrotal Size (cm):** Linked to male fertility and earlier puberty in female offspring.

- **Carcase Weight (kg):** Predicts the weight of the animal's carcase at standard slaughter age.

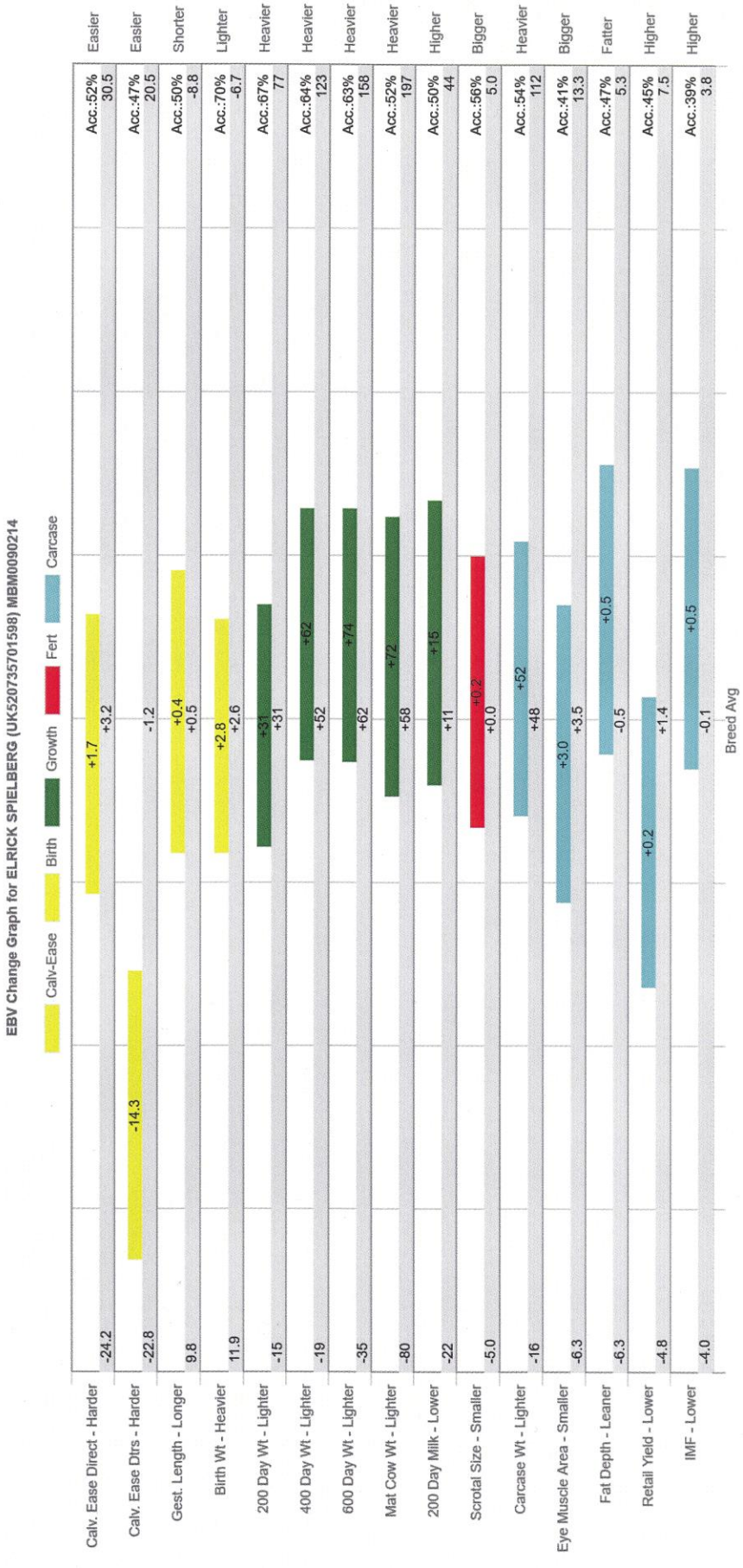
- **Eye Muscle Area (EMA in cm^2):** Bigger EMA means better muscling, a key trait for Charolais beef.

- **Fat Depth (mm):** Indicates leanness. Lower values = leaner carcases, while moderate values may suit certain markets.

- **Retail Beef Yield (RBY%):** Higher values mean more saleable meat from a carcase.

- **Intramuscular Fat (IMF%):** Also known as marbling. Moderate IMF can improve meat quality and flavour.

EBV for Charolais Bull Elrick Spielberg



Elrick Spielberg

- **Direct Calving Ease:** +1.7 – Above average → Easier calvings expected when used on cows.
- **Daughters' Calving Ease:** -14.3 – Well below average → Daughters may have more difficulty calving.
- **Gestation Length:** -1.2 days – Shorter than average → Positive
- **200-Day Weight: +31 kg**
- **400-Day Weight: +62 kg**
- **600-Day Weight: +74 kg**
- **Mature Cow Weight: +72 kg**

All growth traits are significantly above average, showing strong genetic potential for rapid weight gain – an excellent indicator for Charolais performance.

- **200-Day Milk:** +15 kg – Above average → Daughters should raise heavier calves due to better milk production.
- **Scrotal Size:** +0.2 cm – Around breed average → Neutral effect on male fertility and female puberty age.
- **Carcase Weight:** +52 kg – Well above average → Heavier slaughter carcases.
- **Eye Muscle Area:** +3.5 cm^2 – Strongly above average → Excellent muscling
- **Fat Depth:** +0.5 mm – Slightly above average → Moderate fat cover, acceptable for most markets.
- **Retail Yield:** +0.2% – Slightly above average → Slight improvement in saleable meat.
- **Fat:** +0.5% – Above average → Better marbling, contributing to meat quality

Summary

Elrick Spielberg excels in:

- Growth performance (200/400/600-day weights, mature weight)
- Muscling and carcase yield
- Milk production
- Direct calving ease

Considerations:

- Poor daughters calving ease score
- Slightly heavier birth weights- not ideal for first calving heifers

MONITOR FARM Scotland

To find out more or to sign up, please contact:

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