Understanding the New Speckle Park EPD System

EPDs (Expected Progeny Differences) are a valuable tool to help breeders make informed decisions about selecting and breeding cattle with desirable traits. Here's what you need to know to make sense of the new Speckle Park EPD system:

What Are EPDs?

EPDs predict the genetic potential of an animal's offspring for various traits, such as growth, carcass quality, and maternal performance. They are calculated using pedigree data, performance records, and genomics.

Each EPD is expressed in units relevant to the trait it measures (e.g., pounds for weight traits). The **base value** for each EPD is set within the breed population, meaning that an EPD value should always be compared to breed averages, not as an absolute number.

Key EPD Traits & What They Mean

- **Birth Weight (BW)** – Predicts the calf's birth weight. Lower values are generally preferred for heifers to minimize calving difficulties.
- **Weaning Weight (WW)** – Estimates the calf's weight at weaning. Higher values suggest faster growth to weaning.
- **Yearling Weight (YW)** – Predicts an animal's weight at a year old, showing growth potential.
- **Calving Ease Direct (CE)** – Measured in percentages, this indicates the likelihood of unassisted calving. Higher values mean fewer difficulties.
- **Calving Ease Maternal (MCE)** – Similar to CE but evaluates a daughter's ability to calve easily.
- **Milk** – Reflects a cow's genetic ability to provide milk for her calves. Higher values indicate better milk production.
- **Marbling (MARB)** – Predicts intramuscular fat, which affects meat quality. Higher values indicate better marbling.
- **Rib Eye Area (REA)** – Measures the size of the ribeye in square inches. Higher values indicate better muscling.
- **Carcass Weight (CW)** – Predicts the carcass weight of an animal's offspring in pounds.
- **Docility (DOC)** – Expressed in percentages, this indicates the likelihood of an animal being calm and easy to handle.
- **Stayability (STAY)** – Predicts the likelihood of a cow staying productive in the herd beyond a certain age.

How to Read an EPD Table

Each animal's EPD values are listed in a table alongside a measure of accuracy. Here's how to interpret them:

Trait	Animal A EPD	Animal B EPD	Breed Avg	Accuracy (%)
BW	+1.2	-0.5	+0.3	80%
WW	+50	+45	+48	75%
YW	+90	+85	+88	70%

- **Compare to breed average:** If an animal's EPD is higher than the breed average, it indicates genetic superiority for that trait. If lower, it suggests below-average performance.
- **Accuracy (%)**: Ranges from 0 to 100%. Higher values indicate more confidence in the prediction, based on more data.

Indexes: What They Do

Indexes combine multiple traits into a single value to help with decision-making:

- **All Purpose Index ($API)** – Measures an animal's overall genetic value in a maternal-based system, considering calving ease, growth, carcass traits, and maternal ability.
- **Terminal Index ($TI)** – Predicts performance in a terminal system (where all offspring are sold for beef). Focuses on growth and carcass merit.

Genomics & Accuracy

- The IGS system uses **Single-Step Genomics**, integrating DNA data for more precise EPD predictions.
- Adding genomic tests to an animal's profile can be as valuable as having 20+ offspring records.
- EPD accuracy improves when breeders submit actual performance data, such as birth, weaning and carcass weights.

Why This Matters

By understanding and using EPDs effectively, Speckle Park breeders can make informed decisions to improve herd genetics, increase profitability, and meet industry demands more efficiently.