Bull Selection and EPDs

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What is an EPD?

- Abbreviation for Expected Progeny Difference
- An indicator of genetic value of one animal as a parent compared to another animal of the same breed.
- Predict differences in performance of offspring when each is mated to animals of the same genetic merit.
- It is a tool for genetic decision making and selection; maximums and minimum may not be optimum choice.
- Reported in the unit of measure for the particular trait.

What EPD Can Not Do?

- Predict actual outcome of calf performance
- Compare animals from different breeds
- Zero does not mean breed average
- Remain constant; as information is added the ability to predict performance improves
- Make up for poor management

Growth and Maternal Traits

- Birth Weight – pounds, higher number = greater birth weight.
- Weaning Weight – pounds, higher number = greater weaning weight at 205 days of age, excludes maternal influence.
- Yearling Weight – pounds, higher number = greater yearling weight at 365 days of age, excludes maternal influence.
- Maternal Milk – pounds, predicts milking ability of bull's daughters expressed as calf WW.
- Calving Ease – index, percentage of unassisted births, higher number = greater ease.
- Scrotal Circumference – centimeters, higher number = daughters that reach puberty earlier and semen quality.
- Stayability – percentage, likelihood that daughters will remain in herd (commonly 6 yrs).

Carcass Traits

- Carcass Weight – pounds, greater number = heavier hot carcass weight
- Marbling – USDA marbling degree, greater number = higher marbling scores
- Ribeye Area – square inches, greater number = larger ribeye area
- Fat Thickness – inches, greater number = greater fat thickness
- Yeild Grade – greater number = less retail product

- Percent Retail Product – percentage, difference in cutability, greater number = higher % of retail cuts.

Indexes

- Multi-trait selection indexes which combine EPDs for multiple traits into a single economic value. Interpreted like EPD in that differences between index value indicated differences dollar value of offspring.
- Calculated some breeds: Angus, Gelbvieh, Hereford, Limousin, Simmental, SimAngus

Determine What Type of Bull is Needed

- What type of cows do you have - breed, age, size, fertility, milk production
- What type of breeding system –rotational vs terminal
- What is your plane of nutrition - this translates to milk production and growth potential
- How and when will calves be marketed – weaning, yearlings, slaughter

Bull Selection Considerations for Maternal and Terminal Bulls

	Maternal Bulls		Terminal Bulls
Trait	For Heifers	For Cows	For Cows
Scrotal Circumference	Large	Large	Med – Large
Pelvic Area	Large	Large	Not important
Calving Ease	High	High	High
Birth Weight	Low	Medium	Medium
Weaning Weight	Match	Match	High
Milk	Match	Match	Not important
Total Maternal	Match	Match	Not important
Yearling Weight	Match	Match	High
Carcass Quality	High	High	High

Matching Bull to Nutritional Resource Availability

		Resource Availability		
Mature Size	Milk Level	Low	Medium	High
Small	Low	~	+	+
Small	Medium	-	+	+
Small	High	-	~	+
Medium	Low	-	+	+
Medium	Medium	-	~	+
Medium	High	-	-	+
Large	Low	-	~	+
Large	Medium	-	-	~
Large	High	-	-	~

"-" avoid this combination, production will suffer

"~" risky, extra feed may be necessary, fertility and production could suffer

"+" matching mature size and milk production with resources