

# HOW DO YOU USE EPDS TO SELECT BULLS FOR VARIOUS PRODUCTION SITUATIONS?

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The use of Expected Progeny Differences (EPDs) by seedstock and commercial cattlemen has increased during the past five years. The American Gelbvieh Association surveyed 1000 commercial cow/calf producers that have used Gelbvieh bulls extensively during 1986-89. Fifty-one percent of the cattlemen had 50-200 cows and Forty-four percent had over 200 cows. Ninety percent of the 350 responding cattlemen used EPDs in selecting bulls. There seems to be a lower incidence of use by Florida producers than those from other states, but there is a growing interest among commercial cattlemen in how to use this information. Like adjusted weights, frame size and pedigree, EPDs are not the answer to all management problems. This information is a tool to be used as a part of a management package. EPDs benefit selection by helping identify bulls that best fit your needs. They can help remove some of the risk of selection by giving you the best possible estimates of genetic makeup for growth and maternal productivity. By understanding and using EPDs, you will be better equipped to make well-informed selection decisions.

## What are EPDs?

Expected Progeny Differences may be used to estimate how future progeny of an animal will compare to progeny of other animals within the breed. The key words are **estimate, future, compare** and **within breed**. Information used to calculate EPDs include the individual's own performance, pedigree data (sire, dam, grandparents, etc.), progeny and

grand progeny information. As more of this information becomes available, the more accurate the estimate. In addition, EPDs are more accurate than other indicators of genetic potential because of the following factors.

1. Genetic value of cows to which a bull is bred.
2. Environmental differences affecting contemporary group.
3. Genetic values of other parents in the contemporary group.
4. Genetic trend - graph of a particular trait over time showing what is happening to trait within the breed over a period of years.

EPDs are reported in the unit of measure used for each particular trait (pounds for weight traits, centimeters for scrotal circumference, ratio for calving ease, degrees for marbling score, etc.).

## What EPDs are not

EPDs do not indicate how many pounds will be added to a herd's average by using a particular bull. Values of EPDs are deviations from a base figure, thus allowing comparison among individuals, not predictions of actual performance levels.

EPDs will change on a given bull as new information is collected from his progeny's performance, making the EPDs more accurate.

Even though EPDs were never intended

to be used across breeds, many commercial cattlemen want to use them for interbreed comparisons. Cattlemen should select the breeds used based on all available resources and information, and use EPDs to assist in selecting the best bull within the breed for a given situation. Knowledge of breed differences tells us that Angus are not going to average 2.8 pounds more than Gelbvieh at birth. However, the breed average EPD for birth weight of the cattle born in 1990 is +3.1 pounds for Angus and +.3 pounds for Gelbvieh (Gibb,1992). This point illustrates the confusion that can develop when bull buyers attempt to compare bulls of different breeds.

How can these values vary so much and be accurate? There are several reasons, but the one that is very obvious is that each breed has a different base reference point. In addition, some breeds use a different base for different traits. The EPD values are deviations from the base value. This base value for a breed is set by the breed association. For example, the Polled Hereford base year is 1975. Therefore, values in the 1992 Polled Hereford Sire Summary are compared to cattle born in 1975. The base year for Limousin is 1984 for weight traits and 1983 for milk. It may be observed that Polled Hereford cattle have changed more in growth traits since 1975 than Limousin cattle have changed in growth since 1984. Thus, you find that the average EPD for Yearling Weight is +26.1 for Polled Hereford and +5.8 for Limousin.

### **Accuracy**

Accuracy (ACC) is reported with EPDs and is a measure of the reliability of the EPD. ACC values can range from 0.0 to 1.0. The closer the value is to 1.0, the more reliable the EPD, and the less one would expect the EPD to change as more progeny data are accumulated. The more information available to calculate an EPD, the higher the accuracy. Young bulls with

no progeny information will generally have low ACC values. This has nothing to do with their genetic potential, but suggests the reliability of the estimation of the genetic potential.

### **Determining what type of bull is needed**

After choosing the breed, your next step is developing a job description for the bulls. What do you expect the bulls to do in your program?

1. What type of cows will be use?
  - Breeds
  - Age
  - Size
  - Fertility
  - Milk production
2. What type of breeding system?  
rotational vs terminal
3. What is my plane of nutrition, thus maximum level of milk and growth?
4. How and when will I market cattle?
  - Weaning
  - Yearlings
  - Slaughter cattle (on rail)

Steps in selecting the bull for your situation.

1. Develop a list of criteria that bulls must meet for your use.
2. Find bulls in the Sire Summary that fit the criteria.
3. If purchase of the bull or his semen is not possible, then find a source of bulls with a pedigree closely matching his.
4. Find a producer with these bulls that also matches your own management philosophy and utilizes similar

environmental conditions.

5. Find a breeder that will survive and continue producing the type of bulls that you need.

After finding a group of bulls that have the "right stuff", you can look at individual performance and within herd ratios. The next step is to use visual appraisal to eliminate structural problems, conformation problems and other concerns which would not be exposed by performance records.

A major concern when using EPDs is to remember that the largest numerical value is not always the best for your situation. If your nutrition is limited to supporting a mature cow size and milk production level equal to what exists in your herd, then you should not be using bulls that will increase mature size and milk production.

## REFERENCES

Gibb, J. 1992. Why can't EPDs be compared across breeds? *Gelbvieh World*, February, p 59.

Bertrand, K, L. Benyshek, D. Little, M. Johnson and A. Nelson. 1992. Spring Polled Hereford Sire Summary.

	Birth Weight	Yearling Weight	Milk
Angus	+3.1	+31.4	+6.2
Gelbvieh	+ .3	+ 6.6	+ .9
Hereford	+1.9	+35.0	+7.0
Limousin	+ .5	+ 5.8	+ .2
Polled Hereford	+3.0	+26.1	+1.8
Simmental	+ .04	+18.7	+ .6

Source: Gibb, 1992.

Table 2. Approximate Birth Year Zero Points for EPDs			
	Birth Weight	Yearling Weight	Milk
Angus	1977	1977	1977
Gelbvieh	1982	1982	1982
Hereford	1979	1976	1970
Limousin	1984	1984	1983
Polled Hereford	1975	1975	1975
Simmental	1980	1975	1977

Source: Gibb, 1992.