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Using Performance Data In Beef Judging Classes

Judging contests are an important educational tool. Someday, young cattle producers will be faced with selection decisions that affect the profitability of their operations. They should be prepared to use all information available to them, including performance data. Therefore, to better educate future cattle producers, performance data should be included in livestock judging classes and in all judging competitions. The combination of evaluation through performance records and visual appraisal better prepares students for realistic selection decisions.

Judging contests have long been used to exercise the decision-making abilities of young producers. By presenting contestants with a set of cattle, they make logical decisions as to the relative worth of each animal in the class. Often, the only knowledge about the class comes from visual appraisal. Contestants can visually appraise and estimate general size, weight, and composition (lean to fat ratio), but they could increase their accuracy if they could consider performance information. Factors such as weight, rate of gain, frame score, backfat, and scrotal circumference are easily measured, and contestants can make more accurate decisions by evaluating them. Estimated Breeding Values (EBV), ratios, accuracies, and Expected Progeny Differences (EPD), which are easily obtained from most beef breed associations and progressive breeders, can help determine differences between individuals more accurately than visual appraisals alone.

This fact sheet is for training youth interested in modern beef selection practices. A cattle producer using performance information while making selections is like anyone successful in business who uses the most accurate inputs possible to make economically sound decisions. This fact sheet provides some examples of judging situations that include performance records. The possible types of classes are as numerous as the selection decisions pro-

ducers must face every year. Before any judging exercise, contest or otherwise, one must define the class of cattle, obtain the appropriate performance data, and make and justify decisions to meet the defined needs.

Defining the Class

Any selection exercise involves determining which animal comes closer to fulfilling a defined need. Before a sensible choice can be made, the judge should provide the answers to three questions:

1. How are the selected animals to be used (the **Selection Purpose**)?
2. Under what conditions are the selected animals expected to perform (the **Selection Situation**)?
3. From the selection situation, what are the most important functions the animals must serve (**Selection Priorities or Goals**)?

The class **purpose**, **situation**, and **priorities** can be very simply stated, such as for this class of Shorthorn heifers:

Purpose—Shorthorn replacement heifers.

Situation—Small herd of registered purebreds producing commercial bulls.

Priorities—Growth.

These selection criteria can be stated more elaborately depending upon the advanced level of the student or contestant, or what concepts the instructor wishes to teach. Consider the following description for a class of Angus bulls:

Purpose—Natural service sire in a two-breed rotational crossbreeding system.

Situation—Midwest commercial operation (150 head, Hereford cow base) integrated with corn production. Cows are medium mature weight and moderate in milk production. Cows forage on improved pasture and/or stalks. A percentage of the heifer crop is retained as herd replacement; the remaining heifers and all steers are finished for slaughter on the farm. Labor is a limited resource.

Priorities—Maintain current mature weight. Increase longevity. Improve cutability. Decrease calving difficulty.

A realistic situation is the key to giving the class a real life, applied meaning. It is not necessary to use actual data; hypothetical situations and data can be applied to a class in a realistic manner. The educational value of the exercise is the critical issue.

Other examples of selection situations are:

Angus Heifers

Purpose—Replacements for a seedstock herd that supplies bulls to commercial herds.

Situation—Commercial herds operate with low feed and management resources (western range conditions). Feeders are sold at weaning; all replacement females are produced from calf crop.

Priorities—Prewaning growth. Soundness. Fleshing ability.

Simmental Bulls

Purpose—Herd bull in commercial crossbreeding.

Situation—Small Angus X Hereford cross cows (900-lb. average mature weight) make up the herd and high feed resources are available. Daughters will be retained in the herd. Calving difficulty has been a major problem.

Priorities—Calving ease. Milking ability in replacements. Yearling growth in feeder cattle that are sold.

Polled Hereford Bulls

Purpose—To sire seedstock herd sire prospects and replacement females.

Situation—Progeny from these bulls are sold to or used primarily by other seedstock operations, and by some commercial operations. Average feed resources and high management/labor resources are available in both.

Priorities—Maintain a balanced performance program with progress in all areas, but avoid major set

backs in any one area. Marketing appeal necessary. Longevity.

A statement of selection priorities should not imply that they are the **only** criteria to consider. Certainly, if a bull has a severe structural problem or clearly lacks testicular development, he should not be chosen, even though soundness or fertility were not listed as selection priorities. The instructor may even choose to omit selection priorities from the class description. This would encourage the student or contestant to individually develop priorities based upon the selection situation and then make corresponding selection decisions.

Considering Performance Data

Besides what students can see, what other factors should they consider? Any student wishing to excel in beef cattle judging should be prepared to utilize the following performance information:

1. Birthdate.
2. Birthweight.
3. Birthweight EBV and accuracy.
4. Weaning weight, (actual and adjusted) ratio, and number of contemporaries.
5. Weaning weight EBV and accuracy.
6. Yearling weight, (actual and adjusted) ratio, and number of contemporaries.
7. Yearling weight EBV and accuracy.
8. Weaning or yearling hip height and frame score.
9. Maternal EBV for weaning weight or Dam's MPPA (Most Probable Producing Ability).
10. Post-weaning average daily gain, ratio and number of contemporaries.
11. Fat thickness.
12. Yearling scrotal circumference.
13. Weight per day of age.
14. Birth, weaning, and yearling weight EPDs, (Expected Progeny Differences).
15. Calving ease scores, EPDs and maternal EBVs for calving ease (definitions of terms may be found in the BIF Fact Sheet No. 1).

Table 1. Commercial bull selection criteria.

Trait	Standards	
	Maternal sire	Terminal sire
Function		
Scrotal circumference (cm.) (min. at 1 yr.)	34+	32+
Calving ease score	Unassisted	Minor assist accepted
Birth wt. (lb.)	65 to 85	80 to 110
Birth wt. EBV*	102+	95+
Structural soundness	Excellent	Adequate
Milk production		
Maternal EBV	102+	Not important
Growth		
Weaning wt. EBV	98 to 104	104+
Yearling wt. EBV	98 to 104	104+
Market acceptance		
Frame score (1 yr.)	4 to 6	5 to 7
Hip ht. (1 yr.) (in.)	47.0 to 51.0	49.0 to 53.0
Fat thickness (1,100 lb.)	0.2 to 0.4	<0.2

*In most cases, higher EBVs are associated with lower birth weights. However, for some associations the opposite is true. The instructor should clarify.

Table 2. Example Simmental bull data.

	Bull 1	Bull 2
Birth weight (lb.)	104	87
Birth weight EBV	99	101
Weaning weight EBV	109	100
Yearling weight EBV	105	100
Maternal weaning wt. EBV	100	110
Scrotal circumference (cm)	36	32
Description of class		
	Situation A	Situation B
Purpose	Terminal cross sire	Sire in three breed rotational system
Situation	Midwest cash corn crop and cow/calf operation (15% of herd—first calf heifers)	Low feed resource, in western range conditions
	850 to 1,000 lb. avg. mature wt.	Minimum labor available
	Feeder calves sold at weaning	1,000 to 1,100+ lb. mature wt. avg.
Priorities	Growth	Limit mature cow size
	Fertility	Maternal ability
	Calving ease	

All of these records will not be available for every class. Some classes may have nothing more than birthdates and weaning weights.

Students should be trained to understand each factor, and to use whatever is available in an optimum manner. It is impossible to describe every combination of class description and performance data set. However, many will be related to commercial production. Table 1 provides some guidelines to consider when making bull selections.

When both EBVs and actual data are presented, usually give emphasis to the EBVs, even if the accuracies provided are somewhat low. However, if EBVs are not provided, a minimum of actual weights and within contemporary group ratios should be provided and students should seriously consider them.

Simmental Bulls—Example

Decisions are not always simple, regardless of whether data are provided or not. To illustrate, let's look at a pair of Simmental bulls. The performance data are provided in Table 2. Two different possible class descriptions follow.

For situation A, the judge may decide that Bull 1 is a more logical choice than Bull 2. This decision can be justified (perhaps through oral reasons) by stating that:

1 has greater weaning and yearling weight EBVs than 2. Thus, if 1 and 2 were bred to comparable cow groups, 1 should sire faster growing calves that are heavier at weaning. Furthermore, 1 has a greater scrotal circumference than 2. Although 2 has a smaller actual birth weight than 1, their birth weight EBVs are nearly equal, and so similar incidences of dystocia are expected from either bull on the average.

Situation B presents a different need to be met by the bulls. A judge may prefer Bull 2 over Bull 1 in this case, and would justify this because:

2 is expected to contribute greater maternal ability to the rotational system as he was estimated with a much greater maternal breeding value than 1. Also, 2 has a lower (near average) growth EBV than 1. Thus, with low feed resources available, replacement heifers sired by 2 should be of more moderate

weight than those by 1. Finally, 2 has a slightly superior EBV for birth weight than 1. However 2 is to be faulted for having only a minimum required yearling scrotal circumference.

Remember that there are no clear guidelines on placing classes, even though performance records are included. In fact, including weights and breeding values can create more ways to justify alternate decisions. The records may even be contradictory to the results of visual appraisal alone. However, these contradictions can provide a marvelous opportunity to discuss various producer goals and how alternate selection practices can be used to reach them.

Combining Performance Data with Visual Appraisal

At one time, cattle were selected by visual appraisal alone because nothing better was available. Fortunately, evaluation techniques have improved, and so visual appraisal can now be used as an aid to the more accurate performance selection. Difference in composition, frame size, muscle expression, structure, and abnormalities can be determined visually, after the main decisions have been made on performance data.

It is important, especially in reason classes, that performance information be made available to logically combine visual traits with performance data. The following are a few examples of combined visual and performance traits:

1. Smooth, well laid-in shoulders and a long, narrow head, coupled with low or moderate birthweight should indicate fewer calving problems.

2. Long-bodied, high-volumed heifer with high maternal EBV should indicate more future productivity as a cow.
3. Natural thickness over top, and heavy weaning weight ratio and/or yearling weight EBV indicates the bull should sire thick-made, heavy calves for the commercial market.
4. Structural correctness on feet and legs coupled with moderate to large scrotal circumference in bulls indicates the bull should be a more successful natural breeder.

As in any judging situation, it is impossible to make a clear-cut choice that cannot be argued. Students should not be discouraged if someone else has a different opinion on how two individuals may best fulfill a given need. These decisions are always controversial. The ultimate goal is to make a sound, defensible decision based on fact, and to learn from the judging exercise how to improve cattle production through better selection practices.

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