



Are We Producing A Useful Package?

by Dr. Ron Morrow

Recent reports are indicating the beef industry in the year 2000 will be more dependent on forages and less dependent on grains. Because of increased concern for soil conservation and energy efficiency, the need exists to use marginal land for forage production. Therefore, the beef producer needs to be learning how to utilize forages efficiently. One key point in doing that is to have cattle that perform well on forage programs.

Several months ago we presented some thoughts on maturity patterns of beef cattle (see November 1982 Angus Journal). We

discussed the types of growth curves of cattle and mentioned some implications in selection and in beef management programs. A major point presented was that producers need to match type of cattle to the management system where the cattle will perform most efficiently. Are the cattle presently being selected going to perform well on forages?

We are seeing an increased awareness of and concern for type of beef cattle. Commercial cow-calf producers are aware of the need to move away from the small-framed, early maturing type of cattle. To do this we

have been selecting large-framed, late maturing cattle. In essence we have been practicing single trait selection with frame score, i.e., the taller the better. But what about the rest of the "package?"

Two types

Some people feel, and I agree, that during the past few years in the purebred industry we have sorted cattle into two distinct types. This can be seen by reviewing ads in most breed publications. One type is the stylish, late maturing, tall-framed animals, usually narrow bodied and flat muscled. These animals do not grow fast but grow for a long period of time. They are probably harder to maintain, need a higher level of grain and perform less on high roughage diets. Females are slower to reach puberty, need to be pushed harder to get into production by 2 years of age and need extra nutrition when calving to be bred the second time. Bulls will perform well on high energy rations. Once these animals reach maturity (mature weight with good condition) then maintenance becomes easier on roughage diets.

The other type of cattle is being propagated by performance-minded producers. They are large-bodied, fast growing animals. They also are tall-framed but are faster maturing. These animals are wider and deeper bodied. They are characteristically larger in the heart girth and heavier at all ages until maturity. It appears females are also larger in the flank girth than the heart girth whereas the first type is more equal in those two measurements.

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Now we have two types of animals to move us away from the small, early maturing animal. One has used selection on frame alone and one on frame and weight. One has occurred through emphasis of the show ring, the other by performance testing. What are the implications?

Neither type is necessarily wrong, depending on how the animal is going to be used. The first type of animal (Type I) is best suited for a commercial producer that is in a terminal crossbreeding program or for a producer making the first cross on small, big volumed, heavy-muscled cows. He needs a bull that will add frame size and increase the linearity of the growth pattern. A person with a terminal crossbreeding program does not keep replacement heifers and doesn't need to be concerned about keeping maternal characteristics. A producer that keeps using the Type I bull will move his cow herd in that direction and lose early growth performance, easy-doing ability of cows on forage programs, and overall maternal ability.

The second type (Type II) is important in breeds concerned with maternal characteristics. A producer wanting to raise replacement females should be using the Type II bull. Commercial producers in a rotational crossbreeding program also fit into this category.

Several topics being discussed around the country fit into this discussion on cattle type. These are use of linear measurements, influence of birth weights on calving difficulty, use of scrotal measurements for bull selection and cow efficiency.

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Shape of the package

First, let's discuss the use of linear measurements. A single weight or measurement is not very meaningful. Beef producers have practiced single trait selection with weight and with height. We learned several years ago that selection for weight alone gives us all types of animals. We now see the same results with frame score. Is it time for the purebred producer to ease off on height and be concerned with the shape of the package he is selling? By using linear measurements and weight we can describe the shape of an animal and ultimately know the maturity patterns. People now advocating the use of linear measurements are selecting fast maturing animals to a large weight (this differs considerably from the early maturing, light weight animal). We can probably do the same thing with a combination of performance and frame. Commercial producers need to be aware of what they need from bulls to give them the package that will grow well, give cows that are easy to maintain and keep in good flesh while milking well.

The most confusing issue, and one that needs the most study, is birth weight. It appears on the surface that as we select for bigger, faster maturing cattle we probably are also increasing birth weights. We need a calf big enough at birth to have a good jump on nursing out that udder, but we also need to be careful about selecting cattle that have high birth weights. On the other extreme though, when we use the tall, narrow bulls, what will we be doing to the calving ease of their daughters? This needs research to look at pelvic measurements, birth weights and calving difficulty.

We are seeing increased interest in scrotal measurements of bulls. Research at Colorado State University indicates that selection for scrotal size in bulls leads to daughters that reach puberty earlier. I feel this is a measurement that is equivalent to selection for faster maturing bulls, which in turn gives us females with high maternal ability.

The topic of cow efficiency is receiving considerable attention around the country.

An excellent conference was held in May on this topic. For several years we have heard arguments for and against large and small cows. Recently we have seen evidence presented that some types of cattle have higher maintenance requirements than others. I indicate type of cattle rather than breeds; with the tremendous variation we have within breeds today I question if breed comparisons are valid when using small numbers of animals. The animals need to be described not in terms of mature size but by maturity pattern. I would venture to guess cattle used in the research quoted in advertisements showing the efficiency of Angus and Hereford cattle were not the tall-framed, late maturing type of cattle.

Economics must rule

The question on cow efficiency then becomes a question of economic efficiency. Commercial producers must emphasize selection of cattle with thoughts on reproductive ability, early growth potential to a large size, adequate but not excessive milk production and easy fleshing ability on forages. With continued selection of late maturing cattle we are having an increased number of cattle experiencing problems in the above areas.

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The question of economic efficiency has great importance on the purebred producer. There are three areas of concern. First, because of the popularity of late maturing type animals, producers are having to use much higher levels of grain feeding. Secondly, the producers not migrating to the popular bloodlines yielding the extreme animals do not receive the price for breeding stock needed to stay in business. And third, the cost of performance testing cattle on high grain rations for 160 days is becoming prohibitive.

Several points can be presented to summarize the situation:

- We have to consider economics of beef production in cattle selection.
- We must have cattle that are functionally efficient. Continued selection of large-framed, late maturing, flat-muscled cattle will not accomplish this.
- Producers must match the cattle to the forage and feed resources available.
- Purebred producers need to work on programs to evaluate performance rather than performance test. Defining growth patterns will help do this.
- Purebred producers and breed associations need to emphasize the type of cattle that will make their program or breed strong. Not all breeds should be selected on the same criteria and not all breeds should be selected on the basis of terminal sire traits.

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