

BeefTalk 469: Not All Land Is Created Equal

Land mapping process identifies potential forage production for all the individual ecosites to determine the number of acres needed to provide the nutritional requirement for a cow for a month.

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Recent BeefTalk articles focused on bull buying simplicity. An estimate of the expected progeny difference (EPD) of a defined trait between two bulls of the same breed involves simple subtraction of the EPDs for the desired traits.

If a producer wants to compare bulls from a different breed, the EPDs need to be adjusted to a common breed. Then the same process will work. Add or subtract the EPDs from the desired bulls and then look at the EPDs for the bulls you have selected.

Imagine Bull One, with a yearling EPD of plus 113, and Bull Two, with a yearling weight EPD of plus 111. Mathematically, in a random mating, Bull One should sire calves 2 pounds heavier as yearlings, so the calves would be very similar in yearling weight.

Add Bull Three with a yearling EPD of plus 60. We still would expect that there would be an average difference in yearling weight of the progeny of 53 pounds in favor of Bull One.

The question is why this formula doesn't always work. Bull One's calves, as yearlings, probably will not be 2 pounds heavier than Bull Two. Bull Three's calves most likely will not weigh 53 pounds lighter than the yearlings of Bull One.

The simple reason, as noted above, is random mating, which implies no bias or conscious effort to select what cows get bred to each bull. In other words, the larger cows were not bred to Bull One and the smaller cows were not bred selectively to Bull Three.

Most people do not breed their cows randomly, which may be the primary reason the actual results of mating do not match the calculated EPD. The genes for the additional growth were distributed randomly across all the calves produced, but the calculations may not be able to substantiate the end result.

Another reason the calculated EPDs were not observed is the accuracy of the actual EPD value printed for the sire. For example, Bull One's printed EPD for yearling weight is plus 113, but in reality, although unknown, is plus 105.

This is the point where many producers hang up the sheet and go look at the bulls. These numbers are estimates based on the best set of actual data available.

The end result is the printing of a number that is used to predict the EPD. Selection by numbers also may mean that a producer has taken the time to at least attempt to understand the accuracy number that is printed alongside the actual EPD listed.

The accuracy number lists the probability that the EPD number is more likely to happen. Simply put, bulls that have accuracy values closer to one are more accurate than those bulls that have accuracy values closer to zero.

No estimated number is 100 percent accurate because the process intends to predict something that is not known. So, the more information (for example, the more number of offspring a bull has sired or the more ancestral information available) that is utilized in the process, the more accurate the end prediction is.

As end users of the numbers, we can be more comfortable in using bulls with accuracies closer to one because the number is more reliable. At this point, many will have quit reading this BeefTalk. The simple thought is that numbers are something the mind can play with for only so long.

That may or may not be true, but rest assured, even if one does not fully understand all the numbers that are printed in a sire evaluation, the basic principle is still true. Bull selection by the numbers is simple.

Understanding all of the numbers may create some head scratching. The important thing is to try to understand the numbers and don't let the overall lack of understanding get in the way of using EPDs. Good luck. Land mapping of "ecosites" in pastures is helping producers determine stocking rates. This mapping process identifies potential forage production for all the individual ecosites to determine the number of acres needed to provide the nutritional requirement for a cow for a month.

Did you know this process commonly is called acres per animal unit month (AUM) per pasture?

The process seems complicated, but times are changing. The concept of individual ecosites within a pasture and relative productivity is very real, so it is time to listen up and get with the program.

Life is a learning process. If one is not careful, one can spend much of life ducking these processes.

Regardless of how much each of us knows, there always is something else to learn. If our personal library is full, people who are more knowledgeable can be found because no one has a corner on all knowledge.

Those of us involved in beef cattle have more than likely fed beef cattle. We want to make sure we feed our cattle correctly. For those in charge of rations, the National Research Council (NRC) is referred to often.

The NRC publication contains the nutrient requirements of beef cattle through the many stages of development. The publication also is a guide to how those requirements might be met. Most nutritional sources go to great lengths to provide the best estimate of the expected value of the cattle feed.

For example, the NRC estimates the crude protein value of wheat straw at 3.6 percent and oat straw at 4.4 percent. Neither would meet the 7.7 percent daily protein requirement of a 1,300-pound mature cow during the last third of pregnancy. Astute cattle producers know a complete straw diet never will meet the nutritional needs of cows.

On the other hand, crested wheatgrass hay that is cut during full bloom has an estimated 9.8 percent crude protein value and would meet the nutritional requirements of the same 1,300-pound cow. In fact, crested wheat hay generally would meet the protein nutritional requirement for mature cows, except for the high-milking cows. In that case, more protein is needed.

One could go on regarding the nutritional needs of cattle. I prefer to return to the initial point that we can all keep learning.

Learn we shall. Just like the world of nutrition, modern technology has documented the many acres of land we ranch. Through the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), considerable information is available on many parcels of land across the country.

A quick click on the Web at <http://websoilsurvey.nrcs.usda.gov/app/> shows that "Web Soil Survey" provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA's NRCS and provides access to the largest natural resource information system in the world.

The Web site says, "NRCS has soil maps and data available online for more than 95 percent of the nation's counties and anticipates having 100 percent in the near future. The site is updated and maintained online as the single authoritative source of soil survey information."

What a great asset for those who make their living off the land. However, what is more important, by learning new techniques and processes, the land we farm and ranch becomes more like the straw and crested wheatgrass hay we talked about previously.

There are great differences on the productivity of the various ecosites within a farm or ranch. As the Dickinson Research Extension Center jumped on the learning curve, we discovered that native range pasture varies from 4.62 acres per AUM to 2.42 acres.

Keep in mind that one AUM assumes 30 pounds of dry-matter intake being consumed daily by a 1,000-pound cow for 30.5 days. However, just as cows cannot survive on an all-straw diet, they will not survive, nor will the land, on overstocked pasture.

May you find all your ear tags.

Your comments are always welcome at <http://www.BeefTalk.com>.

For more information, contact the NDBCIA Office, 1041 State Ave., Dickinson, ND 58601, or go to <http://www.CHAPS2000.com> on the Internet.

Range Pasture Production Capacity	
Dickinson Research Extension Center	
Pasture 1600	4.62 acres per AUM
Pasture 2805	2.42 acres per AUM

USDA Natural Resources Conservation Service