

What Are Those Critters Eating Out There?

The Hill Country has lots of herbivores; livestock, wildlife, and exotics, that are living off the land. What exactly are they all eating? It may not be what you think. Studies some years ago out at the Kerr Wildlife Management Area west of Hunt, have pretty much answered that question. Here is what we know.

There are three broad categories of forage: browse (leaves of trees, shrubs and woody vines), forbs (broad-leaf weeds and wildflowers), and grass. We discussed a few weeks ago how white-tailed deer have plants they really like to eat and others they seldom eat. Well, all other animals have their food preferences too. Some of these preferences are based on the palatability of the plant, others on the biology of the animal. Animals with thin, flexible lips (sheep, goats, deer and most exotics) can nibble off small leaves even between thorns, where those with wide thick lips (cattle, horses) are not very good at that.

It will come as a surprise to no one that cattle eat mostly grass, in fact they can survive on 100% grass.

Sheep, if given the opportunity to choose among all three classes of forage, will eat nearly equal amounts of all three forages, but they can be quite happy living on 80% grass and smaller amounts of browse and forbs.

Given their preference, goats will eat mainly browse and forbs and only a little grass, but they can do quite well on larger amounts of grass.

White-tailed deer will prefer edible forbs if available and browse if not, but will eat only very little grass. Even when deer are malnourished they are unlikely to eat more than about 15% grass, except in the spring when fresh green grass shoots are present. It is not that they are just picky eaters, they just can't digest much grass.

All three forage classes provide primarily carbohydrates for the animals, sugars, starches and cellulose. We humans can only digest sugars and starches. But ruminant animals have a digestive system that allows microorganisms in their four-compartment stomachs to digest cellulose, so they can obtain nutrition from foods that we could not. But some plant materials have a component of the cellulose that is very hard to digest. It is called lignin, and it is partly what makes some plant parts stiff. There is a lot of lignin in tree trunks, less in the leaves of trees and forbs, but a fair amount in grass. So grass is actually harder to digest than forbs or browse.

The reason that cattle can live on grass and deer can't has to do with the structure of their rumens. Cattle have very large, compartmentalized stomachs that allow for a long digestion time, so they can digest the more difficult-to-digest lignin and the cellulose

associated with it. Deer, on the other hand, have relatively smaller, more open rumens that allows for a very short digestion time, and thus they cannot digest grass with lignin very well.

It turns out that most all of the common exotic herbivores in the Hill Country eat like sheep and goats; they can live on all three types of forage. But white-tailed deer, for all practical purposes, can survive on only two types, browse and forbs. The consequence of this is that, in competition with sheep, goats or any of the exotics, white-tailed deer are at a disadvantage. Once browse and forbs are all eaten, all of the other animals can switch to grass and survive, whereas the white-tailed deer cannot. This was dramatically demonstrated at the Kerr Wildlife Management Area where in a direct competition between white-tailed deer and sika deer, sika survived and multiplied and the white-tailed deer died out.

I have left out the fourth food source available to animals at times, mast. Mast is defined as nuts, acorns, beans, berries, etc. that make up the fruits of many range plants. Just about all animals utilize these foods when available, but the problem is that they are very seasonal, usually only available in the fall. While mast helps animals get in good condition for the winter, it is not available for most of the year.

Even within favorite forage classes, some species are readily eaten, some occasionally eaten, and some almost never eaten, but that is a subject for another column. Until next time...

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