Dr Deer's™ PRESCRIPTION

What *Is* Nutrition?

By Dr. James C. Kroll, Ph.D.

I recently presented a talk to the West Texas Deer Study Group meeting in Albany. Although my assigned topic was genetics, I focused much of my talk on nutrition. In doing so I pointed out—not to brag, but to make a point—that I have produced more free-ranging Boone and Crockett (B&C) bucks than anyone, and the three keys to my success have been nutrition, nutrition, and nutrition.

The next morning I decided to stop in to have breakfast at one of the most popular cafés in Albany. Also enjoying the local cuisine was Mitch Lockwood, who's in charge of the whitetail program for the Texas Parks & Wildlife Department.

"I enjoyed your talk last night," Mitch said to me, "but I wish you would have made clear what you meant by 'nutrition.'"

You know, Mitch was right! We often talk about nutrition, but what is it?

Deer nutrition is made of a host of elements, any one about which I could write about and fill this entire issue. But after talking to Mitch, I learned he was alluding to the confusion between supplemental feeding and native range. Not a single one of the B&C bucks I have produced were grown solely on deer pellets or food plots. Whether you're in the Pineywoods or the brush country, the first step in any deer management program should hinge on producing a sustained yield of quality native forages.

The place to start is to walk around your property, stopping periodically to ask yourself this question: "What is there for my deer to eat in this spot 365 days a year?" More often than not, the answer is, "Not much," so the next step is to determine what exactly you can do about that.

The whitetail deer is only about three to four feet tall at the shoulder, much smaller than the average guy

In an experiment conducted by Dr. Kroll, students cleared away all but the most desirable, high-nutrition plants from an area of typical deer habitat. When they saw what was left—about 12 pounds of usable forage—they concluded that, with a deer needing about a ton of forage a year, and knowing that you should never let your deer consume more than half of the available forage plants, you need 30 acres of woods to sustain a single whitetail in unmanaged habitat.



thinks. Allowing for normal reach, that means that "deer height" on your land is no more than about five feet. Yes, a deer can stand up on its hind legs and reach higher, but that's not a good situation. So hold your hand out at about waist height, and that marks the "deer zone." As far as a deer is concerned, anything above this height is not relevant (and yes, deer do care about acorns that fall, but they, of course, fall into the deer zone).

The average mature deer eats about a ton per year. Good deer foraging habitat has a good mix of browse and forbs (weeds). Grasses are not all that important—and Bermuda grass, in particular, is *not* a deer food. Yet if we examine the plants on the average acre, less than half are eaten by deer.

I once conducted an experiment in which I photographed a typical spot in the woods. Then I had my students cut away all the plants a deer would not eat unless it was starving. When they were done, we were down to about a third of the plant volume. Next I had them cut away the plants that a deer will eat, but are just "so-so" nutritionally. The result was less than 12 pounds of high-quality forage. Since common wisdom says we shouldn't let deer eat more than half the available forage plants, and even if we include the second choice plants, that means it will take as many as 30 acres of woods to support a single deer under unmanaged conditions.

Whitetails are "disturbance" animals, meaning they take advantage of lush plant growth after a disturbance. Hurricanes, wildfires, and tornados for eons have produced the kind of natural disturbances that benefit deer, and deer populations boom after a broad-scale disaster. But can anyone predict where the next natural disturbance will be? That's where the manager comes into the picture. The good deer manager can determine exactly where the land has already been disturbed, and how much land needs to be treated.

Beyond land maintenance, there is no better nutrition management tool than the .22-250, i.e., the proper culling of excess deer will produce a positive increase in available nutrition.

Whitetails need only about 30% cover, so the remaining land can be divided into natural forage production areas, the size and distribution of which is dictated by how long it takes for vegetation to grow above the deer zone. In East Texas, for example, forage plants grow above five feet in three or four years, dictating a disturbance rotation of every five to seven years. In South Texas, on the other hand, there are places where the positive effects of disturbance may last for 10 or more years.

While "disturbance" can be natural in origin, it can also certainly be man-made. Timber clearing, thinning, brush roller-chopping, herbicides, and fire all are management tools that benefit deer. The intensity of management is regulated by how much of your time and money you want to spend, plus the production goals for deer on your land. We learned long ago that the basic management unit for whitetails is 80 acres. Using that unit size we need only 24 acres of cover. This leaves 56 acres for native forage. In South Texas, I normally burn or roller-chop five to six acres per unit per year (56/10 years). If the forage grows faster, I use a different divider. This is called "forage management rotation."

If you desire to manage less intensively, you can increase the management unit size to 160 or 320 acres, using the same proportions. Obviously, though, this is just a rule of thumb, since all land is different and features such as streamside management zones may not allow you to do this on every management unit. In other words, a little common sense is in order. It is all part of what I call "landscaping for whitetails."

I often overlay a recent aerial photograph with an 80-acre grid and lay out the forage and cover management plan so that what takes place in each grid relates to what is going on in the adjacent grids. This truly is deer habitat management—the smaller the property, the greater the need to intensively manage; folks with thousands of acres have the luxury to manage less intensively.

Beyond land maintenance, there is no better nutrition management tool than the .22-250, i.e., the proper culling of excess deer will produce a positive increase in available nutrition. Clearly, the forage management activities I just talked about will increase the productive capacity of your range, allowing for more deer to live in a healthy state. But by moni-

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toring the reproductive and health indicator responses of your herd, you can fine-tune your harvest to develop an optimum sustained yield of bucks from your property. Remember, though, that optimum is much different than maximum. The former takes into account the quality of bucks produced, requiring older age class bucks, while the latter is just managing to kill a lot of deer from the land on a sustained basis.

So is there a place for supplemental feeding and food plots in such a program? The answer certainly is "Yes." Studies on both feeding and food plots have shown they have a positive impact on recruitment and antler quality, primarily by smoothing out the vagaries of varying climatic conditions. Once you have a good natural forage management program established, you should develop a sound supplemental feeding strategy.

If you have at least 25 inches of annual rainfall per year, you can develop food plots. The closer you get to 25 inches, however, the fewer options you'll have in food plot varieties. Cereal grains are the most useful food plot plants at the lower end of the spectrum (providing three to four months of food), while wetter climates that can support mixtures of cereal grains, chicory, and legumes provide as much as 10 months of added nutrition. Food plot forages cost you two to three cents per pound to produce, while pelleted rations cost 20 cents—10 times as much! Still, every pound of native forage you produce will reduce your cost, whether you have food plots, feed, or both. My experience has been that you need feeders, even where food plots are feasible, because even in such regions there are dry times of the year.

A great deal has been made of the negative impacts of feeding deer, and some of it is justified. Some of the opinions expressed by biologists, however, are based often on "junk science." A study that shows ground-nesting birds have lower nesting success in close proximity to deer feeders, for example, does not take into account the small area affect, nor the possible positive effects of reducing predator abundance away from the feeders. Further beliefs say deer tend to eat more first-choice browse plants under supplementation. Our research, on the contrary, has shown browsing pressure on properties with adequate food plot acreage (2%-plus of the land base) tends to focus on lower-choice plants. Keep in mind that studies using confined deer are confounded by the tendency of deer to "patch graze" and move about the landscape; confining deer in a small area creates an unnatural situation that produces little in the way of reliable results.

Supplemental feeding is neither all bad nor all good. A complete, balanced nutrition program develops a native forage base, supplemented by cultivated forages and/or feeding. The key word here in relation to feeding is *supplemental*, not *replacement*. So Mitch was right. We need to make it very clear that, when I say the three keys to growing high-quality deer are nutrition, nutrition, and nutrition, I'm talking about a comprehensive, year-round program that produces a sustained yield of quality foods, both natural and man-provided.

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