

Let's Not FOOL with Mother Nature

By Robert D. Brown
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I wish I had a dime for every time I got a call from someone asking about a “silver bullet” deer feed or food item that would grow monster antlers. Actually, I probably do have a dime for every one of those calls, but the money didn’t come from the callers, it came from my employers. I’ve spent much of my career in the field of deer nutrition and antler physiology, and I can say up front that there is no silver bullet! In fact, I wrote my first article on this in

1977 for the *Texas Trophy Hunters* magazine, and the facts haven’t changed in 30 years.

As a wildlife species, deer, and especially white-tailed deer, have been studied *ad nauseam*, but there still is only marginal information on their nutritional requirements. The reason for that is that deer are wild animals, and to really study their nutrition you need to have tame deer. Capturing, taming, and raising a large herd of manageable deer is a very expensive proposition. In fact, if you were to look up the calcium and phosphorus requirements for whitetails, you’d see the research was done over a period of years in the 1950s at Penn State — on only three deer! More elaborate studies on the mineral and other requirements of fawns were completed in Michigan much later on larger groups of deer.

For those of you who are ranchers, you probably know that the USDA-published nutrient requirements for cattle, sheep, hogs, and chickens that involved a study of literally thousands of animals, and they are updated regularly as more information comes in. At best, nutritional studies on deer have been done with a handful of animals.

The nutritional needs of deer

Having said that, what are the requirements of deer, and why don’t we need to supplement them? The protein requirements of weaned fawns have been estimated to be as high as 13–20%, depending on the study. Suckling fawns get their protein from the doe’s milk, which has double the protein of cow’s milk — 8.2% wet or 36.4% on a dry-matter basis. Neither pregnancy in does nor antler growth in bucks adds much to a deer’s protein needs — both require only a pound or so of protein, and both are grown over several months. In fact, studies at the Caesar Kleberg Wildlife Research Institute in Kingsville, Texas, have shown that

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an adult buck's maintenance requirement is only 4% protein, and for antler growth only 10% protein in the diet. Lactation should increase a deer's protein requirements dramatically, but to what amount is not known.

Wildlife nutritionists will generally agree that energy is more often limiting

need more energy in the summer to pant and lose heat. All of these factors can easily double a deer's basic energy requirements. Unfortunately, there is little information about the energy requirements of deer for these many different conditions.

When you think about antlers and nutrition, you naturally think about minerals. Again, the requirements are lower than you might think. The reason is that bucks don't need to consume the minerals for the antlers while they are growing them. That's right! Numerous studies, including those with radioactive minerals, have shown that the mineral for the antlers comes out of the skeleton of the deer. That is, the buck robs calcium and phosphorus from his skeleton, especially his ribs, sternum and skull, and a bit from his legs, to grow the antlers. Later, when the antlers are dropped, the minerals from the diet then replace the minerals lost from the skeleton. That means the deer is bringing in minerals from his diet to grow the antlers over about 10 to 11 months (largely excluding the rut), whereas the antlers are only being grown over about 3 months.

The mineral requirements for deer are not much different than those of domestic livestock,

about 0.1 to 0.6% Calcium and 0.1 to 0.5% Phosphorus. There's some information on the levels of sodium and copper needed, and we know there have been some rare selenium deficiencies in deer, but the specifics of mineral requirements in deer are still pretty vague. Likewise, there isn't much known about vitamin requirements. As ruminants, deer don't need any of the B vitamins, or vitamins K or C. There have been isolated reports of Vitamin A (white muscle disease) and Vitamin D deficiencies. The point is that the buck's needs for all of these minerals and vitamins, like protein

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and energy requirements, vary seasonally, but we don't know by how much.

The right feed versus enough feed

Hunters often confuse the terms of malnutrition and under nutrition. Malnutrition means the animal is missing a single nutrient, as in a copper deficiency, which has been occasionally found in farmed red deer in New Zealand. But these are very rare. More common is under nutrition, or even starvation, which has been said to be the most common cause of death in deer. We've all heard of deer die-offs in northern states when winters were uncommonly severe. But what many hunters don't understand is that deer have evolved to cope with severe nutritional stress.

Both bucks and does in pens will reduce their intake of pelleted feed and lose weight in the winter — even when there is plenty of feed available. Deer commonly lose 15 to 20% of their weight in the winter and recover in the spring, with bucks losing more weight than does. In the 1970s some "starvation studies" were done, and it was found that mule deer could survive 10 to 64 days with no feed at all and then recover fully when feed was offered. A big part of this in bucks is the rut, when the bucks just about quit eating, as they have other things on their minds. That's not to say that things can't get so bad that deer might starve. There have been numerous findings in northern states where corn or hay was put out during a severe winter for starving deer — and the deer were later found dead around the feeders. Remember that deer are ruminants, and their digestion is done by microflora in their rumens. If under nutrition is really severe, those "rumen bugs" die off and can't digest anything. The corn-fed deer most likely died of acidosis from such a high-energy feed, and the hay-fed deer died of compaction, with bellies full of forage they couldn't digest.

Why not feed?

All of this leads to the bottom line question—should we feed the deer? The answer is no. Deer are wild animals and



in the diet of deer than is protein. You can figure that an adult deer, say 120 to 180 pounds, might need about the same amount of energy as a human about that size — about 2,500 to 3,200 calories a day. But browsing, running to avoid predators, pregnancy, growth, lactation, growing antlers and fighting all increase energy demands. In northern climates, deer need a lot more energy to stay warm, but remember that deer are ruminants like cattle, and thus their own digestive processes provide some of the heat. In southern climates they

will forage for what they need. If there are too many deer for the nutritional carrying capacity of the land, then you will have under nutrition, not malnutrition. Deer without enough groceries or with a poor quality diet will be stunted. Body growth takes precedence over antler growth, so a short ration might lead to a normal sized deer with small antlers. Whitetails will also shed those antlers earlier in the year. Interestingly, European red deer will keep their antlers longer if they are underfed. Body growth also takes precedence over lactation, so without enough forage, does will generally continue to produce the same quality of milk, but a lot less of it, leading to starved or stunted fawns.

The answer in these situations is not to put out feed for the deer, but to reduce the herd to, or below, carrying capacity. Feeding deer is a poor substitute for good game and habitat management. Fed deer are essentially domesticated—skittish maybe, but not truly wild.

Feeding them corn is like giving your child a candy bar before dinner and spoiling their appetite for more natural and nutritious foods. Most corn sold as “deer corn” is tested now (and the bags are so labeled), but unscrupulous farmers have been known to sell deer corn as a means of dumping their corn which was rejected from the granary due to its toxic aflatoxin levels. The jury is still out, due to conflicting experimental results, as to whether feeding deer a year-round pelleted ration causes deer to damage their habitat by then eating only the high quality plants and leaving the poorer ones to spread. Associated with feeding programs are the facts that you are artificially concentrating the deer, leading to more fights and injuries; concentrating predators that prey on the deer, turkeys, and other wildlife attracted to the feeder; potentially spreading disease; and, quite frankly, providing a lot of that feed to raccoons, possums, hogs, turkeys, and whatever else might come to that feeder. Think of the tuberculosis and brucellosis problems on the elk and bison feeding grounds near Yellowstone Park, and then throw in some raccoon, turkey, and hog poop.

A well-managed deer habitat will fulfill all of the needs of the herd — for water, food, space, and cover. A herd that is well managed, without supplemental feed, will reach its genetic potential for body size and antler growth. In fact, the larger the deer, the even greater the antlers will be, by a factor of 1.6. Providing nutrients beyond the requirements of the animal will not lead to larger antlers, just like if you eat too much you won't grow more muscle, you'll just get

fat. Supplemental feeding of deer during droughts or severe winters, if done carefully (pelleted feed, high in fiber, put out in limited amounts for a limited period) can save a starving herd. But feeding deer on a regular basis is both nutritionally and ecologically unsound. And — there is no silver bullet. ■

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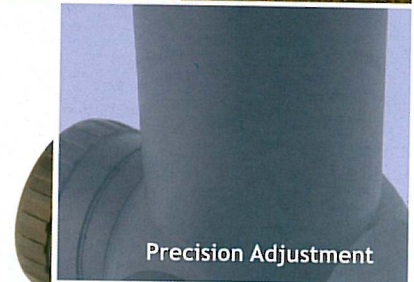


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