



To Everything There is a Season:

Understanding the Changing Nutritional Needs of Deer

By Matt Harper

Photos by the Author

Mature bucks are one of the most vulnerable to the harshness of winter which is why nutrition is so important.

My afternoon snack in junior high school included three bologna sandwiches, a big bag of chips and two — sometimes three — Mountain Dew's.

That cornucopia of goodness didn't replace supper but was merely a between-meal survival snack. Amazingly, I didn't weigh 300 pounds but was rather sturdy at 5 feet, 10 inches and 150 pounds. Age contributed to that metabolism phenomenon, but it's important to note that I typically snacked after sports practice. Further, after the last chip and gulp of soda went down my gullet, I tackled whatever Dad wanted me to do on the farm, which typically involved manual labor he didn't want to do.

Fast forward 34 years. If I even smell a pizza, I gain at least 2 pounds. Even salads aren't a safe bet, at least if they contain anything good, such as meat, eggs, cheese or dressing.

Food and nutrient intake are also top concerns for whitetail deer, but not necessarily for the reasons that apply to humans. Deer have a constant intake-versus-activity balance that plays out daily. They must consume enough nutrients to maintain their physical ability to reproduce, avoid predation and withstand adverse environmental conditions. Further, deer need varying levels of nutrients depending on

their stage in the growth cycle and the time of year that coincides with a specific biological or physiological function. For example, the nutrient needs of a fawn differ from those of a yearling, and the yearling's needs differ from those of an adult deer. But nutritional needs are also influenced by breeding, gestation, lactation and antler growth. To maximize a deer's nutritional management, you should consider it from a 365-day perspective and match supplementation to the phase within the annual cycle of the deer herd.

Growth

Before delving into how nutritional requirements change based on yearly cycles, it's important to understand the role nutrition plays in the growth stages of deer. Fawns are the most rapidly growing age class based on skeletal gain versus body weight. A young fawn needs to grow and gain strength quickly to avoid predation. Fawns require extremely nutrient-dense milk to support that rapid growth.

Doe milk is substantially higher in fat and protein than cow milk, and it's also higher in minerals such as calcium and magnesium. Although we can't directly manage a fawn, we can manage the machine that produces that nutrient-rich diet. Making sure a doe has adequate nutrients in her diet, such as protein, minerals and vitamins, ensures she can produce maximum quantities of milk for her fawn(s). In fact, nutrient management for the doe herd is extremely important in lactation and during gestation.



Does in late winter and early spring need proper nutrition not only to maintain their bodies but also for prenatal fawns.

Proper nutrition for a pregnant doe typically results in a higher birth weight, and a stronger and, ultimately, a healthier fawn. Fawns born at lighter body weights have a far greater mortality rate during the first few days of life. Fawns begin eating foods other than milk at a relatively young age. In just a few weeks, you might see them standing next to their mother, picking at a clover leaf or visiting a supplemental mineral site. My trail camera photos in spring and summer often show fawns with their noses buried deep in a mineral site. That additional mineral supplementation can help boost their growth and will likely result in a higher weaning weight.

Yearling deer are akin to me during my teenage years. They don't eat bologna and potato chips, but they put away groceries and seem to remain gangly and thin. Their nutrient demand for body growth exceeds what they can consume, so there's little left for condition or fat stores. Similarly, antler growth is secondary to body growth, health and conditioning, which, combined with the fact that those deer are young, results in many unimpressive racks. But although a yearling buck might not make you shake in your stand, things occurring in its young body are laying the foundation for a future wall-hanger.

From the time of birth to about 3-1/2 years old, bucks grow their skeletal system. Because a genetically maximized skeleton is critical for optimal antler growth at maturity, the nutritional plane of a buck during its first three years can affect its antler growing potential. Bucks will reach full muscle growth maturity at 4-1/2, so until that point, protein, minerals, vitamins and energy are used first to produce muscle. That's why we see dramatic increases in antler growth at 3-1/2 and 4-1/2, when a buck's body can direct more nutrients toward antler growth, with the maturation of the skeletal system and then muscle development, respectively. A buck cannot realize its full antler growth potential until 5-1/2, when body growth has essentially stopped and, aside from maintenance, nutrients can be fully used for



Designed specifically for the cooler months, Thrive can help deer during the critical time frame of fall through late winter

antler growth.

Similarly, young does also develop muscle and skeletal systems, although they will reach maturity up to a year earlier than bucks. The result of a doe reaching maturity is not as obvious because they produce no antlers as evidence. The nutritional plane of does from birth to maturity also affects their productivity as adults, but again, that's more difficult to ascertain. Rather than antlers, successful fawn rearing is the marker which measures nutritional health during a doe's developmental years. Lactation requires high levels of protein, minerals, vitamins and other nutrients. A well-developed skeletal system is one key to maximum milk production. Also, the muscle development of a young doe will lead to a stronger body at maturity, which improves the doe's ability to better withstand fawn rearing. A doe that receives good nutrition during its developmental years will be more likely to produce and raise healthy, productive fawns.

In either case, nutritional demands change as deer grow, with the highest nutritional requirements starting as a fawn and slowing decreasing until maturity, when they level out in terms of growth. That doesn't mean they remain static. Although good nutrition is vital all

year, requirements change depending on the time of year.

Spring and Summer

God's creation is a marvel. Why do you think most animals that rely on vegetation have their young in spring? That's when nutrition is most abundant. Young vegetative plants are at their highest levels of nutrient content and are also far more digestible, especially for small ruminants such as deer. With some geographical variation, a November breeding season results in fawns being born about the middle of May to early June. As mentioned, maximum milk production is critical to fawn survival. A doe's nutrient-dense milk must be supported by a nutrient-rich diet. Protein and energy are vital for optimal lactation, which is why having a high-quality perennial food plot, such as Imperial Whitetail Clover or Fusion, is important.

Imperial Whitetail Clover and Fusion are high in digestible protein and are also one of the first food sources to green up in early spring, providing critical nutrients for does before fawns are born. The protein needs of lactating does are about 18 percent, and because natural food sources are often lower in protein, the extremely high protein levels in Imperial Whitetail Clover and Fusion will supplement protein to help meet those requirements. But minerals and vitamins are also critical for peak milk production. Doe milk is high in minerals, which is sourced by pulling minerals from the skeletal system. Minerals from the diet replenish these supplies, but if dietary mineral levels are low, the doe's health and milk production suffer.

Minerals occur naturally in soil and are used by plants for growth and, in turn, used by deer when they consume the plants. However, almost all soils are deficient in one or more minerals, and some are extremely deficient. Even when minerals are present in forages, digestibility can vary dramatically. Without proper calcium, phosphorus, magnesium and trace mineral levels in a doe's diet, the amount of milk produced by a doe will decrease. Studies have shown that with a nutritive-deficient diet, the nutrient concentration in milk stays the same, but less total volume of milk is produced. In other words, the protein and mineral levels might be the same regardless of diet, but the fawn will receive less milk.

With less milk, fawns become weak and are far more susceptible to predation, disease and mortality. Supplementing with free-choice minerals such as 30-06 and 30-06 Plus Protein is extremely important in spring and summer. These products provide macro and trace minerals, and vitamins A, D and E, which help support milk production. Mineral supplementation has been proven to increase milk production for most herbivores, including deer. Increased milk production means faster-growing fawns with heavier wean weights, which promotes higher mature weights and more productive mature deer.

The effects of supplementation on the buck herd is more phenotypical, as outward results are easier to recognize. Improved nutrition results in higher body weights, better conditioning and increased antler growth. Mature bucks use nutrients first for body maintenance and then for antler growth. Basically, when more nutrients are available, bucks can use more of them for secondary characteristics, such as antler growth. Spring and summer encompass most of the antler-growing process. Like a lactating doe, a buck requires the highest levels of protein and minerals during that time. For protein, that equates to a 16 to 18 percent average of the total diet.

The velvet-growing antler is comprised of a protein matrix that essentially is like the framework of a house. Minerals are deposited on



The first year of life is extremely critical for deer and nutrition obviously plays a big role.

the protein framework, providing hardness and density. This process happens throughout the antler-growing cycle but intensifies in late summer. The minerals used for antler growth are pulled from the skeletal system and transported via the blood stream to the growing antler, much like mineral transport for milk production. Mineral in the diet is then used to replenish the skeletal system.

Because antlers are a secondary sex characteristic, bucks will not jeopardize physical health to transport excess minerals to the antler. If dietary mineral is in short supply, less mineral will be used for antler growth. As mentioned, almost all soils are deficient in one or more minerals, which is why mineral supplementation can produce dramatic results. Providing premium mineral nutrition to bucks can lead to a heavier, denser antler structure and, ultimately, bigger antlers. Also, proper mineral nutrition will result in heavier body weights, as minerals are involved in many parts of metabolism.

Fall and Winter

When summer shifts to fall, and fawns are weaned and bucks shed their velvet, protein and mineral requirements begin to decrease. However, that doesn't mean nutritional supplementation doesn't play a role in deer herd management. It simply means the supplement needs to change to meet the nutritional requirements specific to fall and winter.

In late autumn, the rut takes center stage. Bucks are in constant motion, seeking, chasing, fighting and breeding. A buck's food intake will decrease during the rut, as he has more pressing matters on his mind. The result of increased activity combined with lower nutrient intake results in a massive loss of body weight for most mature breeding bucks. The doe side of the equation is often not considered, however. Successful breeding can be affected by the body condition of a doe, meaning a doe in poor condition is less likely to become pregnant. For bucks and does, minerals, vitamins and protein remain important

in fall and winter, but energy typically becomes the most limiting portion of their diet.

As the rut fades and fall slides into winter, energy becomes increasingly important. Bucks must regain lost body weight before the worst of winter hits, which requires protein, minerals, vitamins and a lot of energy. When winter takes its full grip on the environment, many natural food sources begin to disappear, and those that remain are of lower quality. Cold weather, snow and the need to move to find food require a nutrient-rich diet to maintain body condition.


It's a simple matter of calories burned versus calories (energy) and other nutrients gained. Does are trying to maintain body condition and also need nutrition to support the growing fawns inside them. If a doe is in poor condition through the first two trimesters, she will often absorb or abort one or more fawns. During the final trimester, when most fetal growth occurs, a doe in poor condition might abort her fawns. But often, fetal demands receive most of the nutrients she consumes, which leads to an even sharper decrease in her body condition. If she remains in that state through birth, she will likely lose her fawn or fawns because her body cannot produce adequate milk, or the fawns will be born at a low birth weight.

The highest winter losses in a deer herd tend to be fawns and mature bucks. It's little wonder mature bucks rank as high as they do in that category. Bucks can lose 25 percent or more of their weight during the rut. After the rut, their focus is to regain as much weight as possible. If they do not, they can succumb to the harshness of winter. If they make it through the toughest part of winter but are in poor condition, they must first regain body condition when late winter/early spring arrive before nutrients can be used for early antler growth. Antler growth begins in late winter/early spring, and even at that stage requires quality nutrition for maximum growth. If spring green-up hasn't occurred during that period — and it likely hasn't in many parts of the country — bucks have few, if any, quality food sources, which results in stunted early antler growth. Regardless of spring and summer nutritional abundance later on, this early deficiency will lead to decreased antler size in fall.

To account for the nutritional stresses that occur in fall and winter, it's a good management practice to use a high-quality nutritional supplement. However, as mentioned, a fall and winter supplement should be formulated differently than a spring and summer supplement. 30-06 Thrive is developed specifically for the nutritional demands of fall and winter. It contains the needed levels of protein, minerals and vitamins but is also packed with highly digestible energy, making it an ideal supplement for the colder months.

If you have available acreage, it's also a great idea to have high-quality late-season food plots available. Winter-Greens, Tall Tine Tubers, Beets & Greens, Destination and Ravish are all excellent choices for producing lots of late-season forage.

Conclusion

Often, we only think about deer nutrition during certain periods. We plant plots in spring and maybe before hunting season, and we might put out some mineral. However, deer require good nutrition 365 days a year. Any gap in the plan can affect success for the year. But what deer need throughout the year changes, and to maximize your herd's potential, you should manage and use products that meet those needs. 



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