

MANAGING WHITETAIL NUTRITION

The Secret Of Growing More & Bigger Bucks

Your hunting land has the potential to produce far more deer than you've been told — while buck size actually improves! Here's what it takes to make this seemingly impossible dream come true.

by David Morris

Want bigger bucks on your land? How about more bucks of *all* ages, as well as a higher overall number of deer to enjoy year 'round, while actually *improving* the condition of your habitat?

It sounds like a dream, and for too long, that's just what it was. But no longer — because today, you really *can* have more and bigger deer on the land you control. And we at ***WHITETAIL*** are about to tell you how.

Over the past four issues, we've laid out pieces of our bold new strategy for improving deer herds all across North America. In October, we noted that better management of deer on private lands is the key to a brighter hunting future, and we promised to give you the knowledge to make that happen. Then, in November, we explained the basic concept of food-source management, which is at the very heart of this revolutionary strategy. In December, we showed how a basic population model works, following that up in January by demonstrating how the harvest strategy you use shapes both your herd and your hunting future.

Now, let's get down to some nuts and bolts of the nutritional side of food-source management. We'll explain how and why it works, lay out the seasonal nutritional needs of the whitetail and then outline a nutritional strategy to meet those needs.

But we won't stop there — we'll then be going to the field to look at a real-life example of how this

Planting legumes is one of the most effective ways to boost antler and body size, as well as fawn survival rates. Clovers, cowpeas (shown here) and soybeans are among the legumes most commonly used in warm-season food plots. Photo by Barron Brittingham.

strategy has been executed at ***WHITETAIL***'s own field-research facility, Fort Perry Plantation. We've got a lot of ground to cover, so we'll be speaking in plain English and get right to the point.

HOW & WHY FOOD-SOURCE MANAGEMENT WORKS

We need to begin with some fundamentals. First, on average, a deer eats about 8 to 10 pounds of food a day. We'll use an average of 9 pounds. Thus, if you multiply nine times the 365 days in a year, you get the annual average food consumption for one deer: 3,285 pounds. (We'll round that off to 3,000 pounds.)

Last month, in illustrating how harvest strategy affects the size and composition of a whitetail herd, we examined a fictitious eight-member hunting club that's managing a 1,600-acre tract. We'll use that same property again this month, to make it easier to see how the supply of good nutrition dictates the number and size of deer that can be produced.

We'll assume the natural habitat on this property can grow about 300 pounds of *good* deer food per acre over the course of a year. (That's a realistic number for much of the South and East.) Studies have shown that deer can consume approximately half of the available food without seriously damaging the habitat, meaning there's only around 150 pounds of good deer food available per acre.

To determine how many acres thus are necessary to support one deer, we simply divide the annual poundage of food eaten by one deer (3,000) by the poundage of food an acre of natural habitat can produce without suffering damage (150). In this case, then, the carrying capacity would be a deer per 20 acres. (That's the same number we used in our original population models in the December and January issues; we assumed a maximum herd size of 80 adult deer on those 1,600 acres.)

As we saw last month, even with a carrying capacity of only 80 deer, through sound management it's quite possible for each of the eight club members to take a 2 1/2-plus buck every year without overharvesting that segment of the herd. But what if that level of carrying capacity isn't sufficient to meet the goals of the club members? What if these hunters decide they all want to shoot bucks of at least age *3 1/2* every season?

In that case, they'd have four basic management options: (1) lower their goals; (2) reduce the number of hunters; (3) continue on frustrated; or (4) elevate the land's carrying capacity. That last option is the one we'll focus on, for it's the only one that promises a win-win situation.

There's more than one way to increase carrying capacity. The traditional method is to improve the natural habitat, and there's not a thing wrong with that; in fact, all reasonable steps to improve natural habitat should be taken. However, this strategy has some limitations.

For starters, it takes time — perhaps several years — to effect wholesale habitat improvement. And the landowners might not be willing to allow what it would take. The key is to get more sunlight to the forest floor, which will result in increased growth of low vegetation. But this often takes fairly drastic mechanical measures, such as prescribed burning, thinning timber, creating edge through clearing, etc., and the landowner might not want such major habitat alterations.

Also, the degree to which the carrying capacity can be increased through manipulating natural habitat



*At Fort Perry Plantation, **WHITETAIL** has spent years testing a wide variety of forage plants, including iron-clay cowpeas (shown here). The right food plots can provide tons of high-protein deer food per acre. Photo by Steve Vaughn.*

is somewhat limited, short of practically clearcutting the land. And finally, natural habitat improvement won't deliver two key advantages of concentrated food sources associated with the strategy we're discussing here: (1) increased deer visibility and huntability, and (2) the ability to hold deer in a relatively small area.

Increasing the land's carrying capacity with enhanced nutrition all year long lies at the very heart of food-source management. This is accomplished by providing nutritious agricultural crops and/or direct feeding. Our focus here will be on agriculture, by far the more desirable of the two options.

In places with tillable land, a year-round food-plot program can produce up to 10,000 pounds of deer food per acre, all of which might be as nutritious as the very best of what nature provides. That's more high-quality deer food than 70 acres of most natural habitat normally produces! (Note that while we want to avoid removing more than half of the available forage from natural habitat, *all* of the agricultural crop theoretically could be consumed by deer without hurting a thing.)

Put another way, one acre of year-round food plot can meet all the annual nutritional needs of 3 1/2 deer! That's production! Compare this to 20 acres of natural habitat to support one deer. And remember, all of the agricultural food can be top-rate. The huge advantages of food-source management now should be abundantly apparent

By way of illustration, let's take the above hunting club and apply these numbers. The club wants twice as many big bucks as it now has, so that each member can harvest at least one 3 1/2-plus buck annually without cutting too deeply into the supply. The solution is to move the carrying capacity from 80 adult deer (a deer per 20 acres) to 160 deer (a deer per 10 acres), while maintaining the good buck:doe ratio and age structure already achieved.

Let's assume the members want their deer to reach the greatest size possible, so they design a year-round agricultural program to provide 100 percent of the herd's nutritional requirements. (Deer still will browse the native vegetation some, even with their "table" full of delicacies, but crops will meet their needs.)

It's an easy exercise to determine how many acres of food plots are needed in this case. Simply divide the number of deer (160) by the number of deer an acre of food plot will carry (3 1/2) and you get the required acreage of agriculture: 46.

So, the club can plant about 50 acres of year-round food plots (assuming the right crops are planted with the right farming techniques) and meet all of the nutritional requirements of 160 deer. That's a program they can get started right away, quite cost-effectively and with minimum startup hassles.

And does it ever work! That number — 3 1/2 deer per acre of food plot — is exactly what we're supporting at *WHITETAIL*'s Fort Perry Plantation, and have been for years! If you want to carry more deer on your land, it's almost as simple as doing the math and adding the necessary acres of food plots. Of course, there's a practical limit to how high you might want to push deer numbers, but it's well up there if nutritious food is abundant.

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SEASONAL NUTRITIONAL NEEDS OF THE WHITETAIL

In order to formulate a year-round nutritional strategy, it's necessary to know the whitetail's seasonal needs. Scientists can go into tedious detail on this subject, but from the private game manager's standpoint, it's really quite simple.

The nutritional needs of bucks and does are similar throughout the year, but for very different reasons. Basically, each sex has two distinct periods with specific nutritional requirements. During one period, they require protein; during the other, carbohydrates. Generally, when the bucks have their greatest need for protein, so do the does, and the same is true for carbohydrates.

That's convenient, but no accident. The needs of deer are adapted to when nature supplies the appropriate nutrition in greatest abundance. During spring and summer, plant growth is under way and protein production is at its peak. During fall and winter, plant growth is largely complete, and plants have produced carbohydrate-rich mast and seeds. (Even the leaves of many plants are high in energy-yielding sugars and carbohydrates at that time of year.) Fortunately, a deer's need for protein is highest in spring and summer, while it's greatest for carbohydrates in fall and winter.

Let's divide the year into two parts, based on the whitetail's nutritional needs. We'll call one the "cool season," meaning fall and winter, the other the "warm season," meaning spring and summer.

During the warm season, bucks have either just begun or are about to begin the annual antler growth cycle. Not only that, they've just come through a difficult period and need to rebuild the muscle and body mass lost during the rigors of the rut and winter.

From early spring all the way through summer, protein is of utmost importance in both growing antlers and rebuilding muscle and body mass. If protein is in short supply, the body gets first dibs on what's available, and any antler growth lost while the body recovers is lost for good, at the cost of antler size the next fall. For bucks, the rule of thumb is that they need a high-protein diet from the time they lose their antlers in late winter/early spring until they shed their velvet in late summer/early fall.

During this same warm season, does also need a high-protein diet. Like bucks, they must regain muscle and body mass lost during the winter — and, also like bucks, they need to nourish something growing very rapidly: in their case, unborn fawns. Nature's worked it out so that fetuses don't grow much from conception until the onset of spring, but from then on, fetuses rapidly develop into the fawns that will be born in late spring or early summer.

And of course, the demands on does don't end with the birth of their fawns. Nursing continues all summer and places great demands on does, requiring that they essentially have to eat for two (or even three). Protein is the primary requirement for does from the beginning of spring until weaning time in early fall, about the same time bucks shed their velvet. And the fawns themselves also need

to get off to a strong start after weaning.

The cool season places similar demands on bucks and does. The name of the game now isn't building muscle or body mass, but trying not to lose what they already have. Between the heightened activity of the rut and the caloric demands of cold weather, deer need an outside energy source to burn, rather than burning their precious muscle and fat reserves.

This is especially true with bucks during the rut. Growth is not the issue during the cool period — energy and maintenance are. Thus, protein requirements are much lower, but carbohydrates are now needed in greater supply. The better shape in which deer come through the winter, the more of the following spring's early protein can go toward antler growth in bucks and fetal development in does, ultimately contributing to rack size and fawn survival, respectively.

A NUTRITIONAL STRATEGY

Once you understand how a deer's needs vary with the seasons, it's relatively easy to develop a nutritional plan. The basic strategy is to provide high-protein feed starting in spring (corresponding to the time of antler drop) and continuing on through summer (up to the time of velvet shedding). Then, from the start of fall through winter, you want to provide a carbohydrate-rich food source.

Ideally, all or most of this strategy can be carried out by employing agriculture. If not, direct feeding is an option, at least as a supplement. It's a simple strategy, really.

Because the preferred way to meet the herd's nutritional needs is with agriculture, let's look specifically at such a strategy. The warm-season protein requirements are best met by planting some type of legume. These are typically warm-season plants characterized by having seeds that grow in pods. Peas, clovers and beans, including soybeans, are all types of legumes.

Many types of legumes are suitable for deer, and one or another will grow practically anywhere whitetails are found. Some legumes are annuals, meaning they grow for one season and then die; others are perennials, living for years. But the most attractive trait that legumes have in common is that they're typically very high in protein. So, some type of clover, pea or bean, either annual or perennial, is likely the best source of agricultural protein for deer in the vast majority of places.

What about carbohydrates? In warmer climes, where cool-season agriculture is an option, small grains that grow in winter (such as rye, wheat and oats) are excellent sources of carbohydrates. Some warm-season crops harvested in the fall, such as corn or small grains, also can continue to be a valuable source of carbohydrates well into winter. However, agriculture might not be a total solution in colder regions, in which case direct feeding is probably the best alternative.

Will a nutritional program for deer work if cool-season feeds aren't included? For instance, will planting a warm-season high-protein crop do any good if a winter carbohydrate source isn't also made available? The answer is yes! In fact, the warm-season nutritional boost corresponds with the antler-growth period. Cool-weather carbohydrate feeding alone helps some, but not to the same degree as a warm-season high-protein food source.

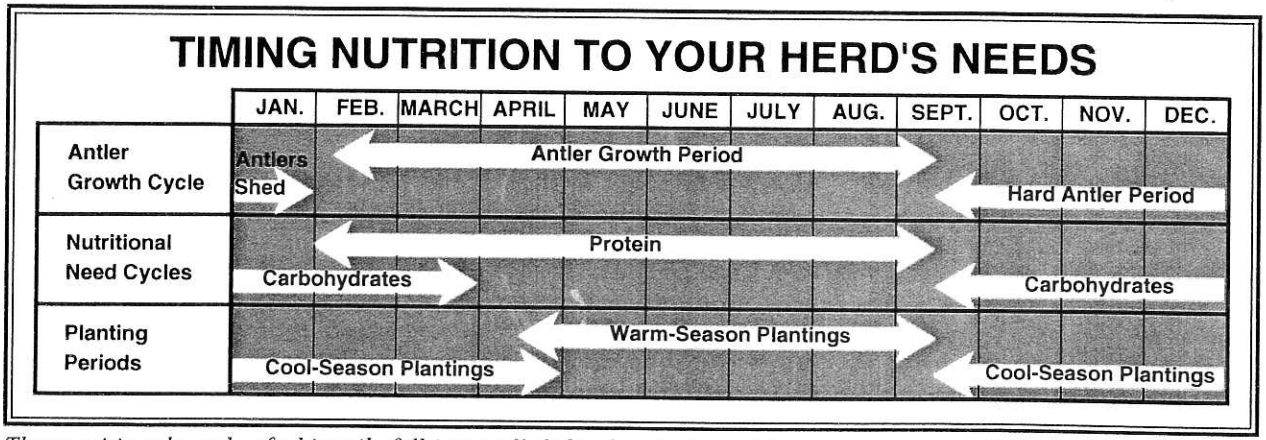
Deer — especially those in cold climates — are adapted to survive the winter with minimal nutrition. Their strategy is to bulk up as much as possible in summer and fall, in preparation of having to burn body reserves of fat and eventually muscle to carry them through winter. Plus, they adopt an energy-conserving lifestyle during cold periods.

THE FORT PERRY NUTRITION PLAN

The basic nutritional strategy for whitetails is essentially the same everywhere, but how that strategy is carried out can vary greatly, whether by choice of the manager or due to the dictates of climate, soils, resources, regulations and/or other factors.

In future issues, we'll get deeper into the choices dictated by place and circumstances, but for now, we want to show you a sample program that works — big time! It's the program we at *WHITETAIL* have developed over the years at Fort Perry Plantation, our 2,000-acre management research facility in southwest Georgia.

This program is an example showing what we've actually tested and done, but note that it might not be the exact one for your land or your circumstances. In fact, testing continues at Fort Perry, and we look forward to bringing you more information on better ways to elevate the nutritional plane for our deer herd. But for now, we offer this program in its most basic form as an example of a plan that brings nothing short of astounding results



The nutritional needs of whitetails fall into well-defined periods, and the manager must set up a plan to meet these needs. Food plots and/or direct feeding will do the job on a year-round basis. Graphic by Polly Dean.

MORE & BETTER NUTRITION FOR MORE & BIGGER DEER

Last month, we saw how a harvest plan alone could help a deer manager increase the number and average age of bucks on a piece of land. Simply by eliminating 1½-year-old bucks from the harvest and shifting some of the emphasis to doe hunting, in three short years the buck:doe ratio and buck age structure would improve dramatically. And this can be done without exceeding the land's carrying capacity.

But what if the land still won't produce enough older bucks to satisfy the hunters on that property? In that case, the answer is to raise the carrying capacity, through food-source management. If the manager adopts this nutritional strategy and continues to avoid harvesting younger bucks, in only four years he not only can double the number of deer on the land, but also tighten the buck:doe ratio even more. In short, the manager can have more and bigger deer to hunt.

Let's use the following numbers to see exactly how this could be done. We'll begin where last month's example ended, with a herd of 80 adult deer (32 bucks, 48 does) and a 50 percent fawn crop (half as many fawns as does in the fall population). Our goal will be to harvest at least eight 3½-plus bucks off the property each year, with an overall annual buck harvest goal of 16 bucks that are at least 2½ years old.

We'll assume that with food-source management we can double the carrying capacity from 80 adult deer to 160. And in the process of providing more and better nutrition, we'll assume that the fawn crop will improve noticeably (to 80 percent), due to the improved milk production and body condition of the does. This will help the herd approach its new, higher carrying capacity as quickly as possible.

As in our example last month, we'll assume 10 percent natural mortality for both sexes and all age-classes.

	Bucks By Age-Class						
	Fawns	1½	2½	3½+	Total Bucks	Does	Total
Present fall adult deer		**12**	**11**	**9**	**32**	**48**	**80**
Fawns added	19				19	19	38
Natural mortality	-2	-1	-1	-1	-5	-7	-12
Hunter harvest				-8	-8	-0	-8
1st fall adult deer		**17**	**11**	**10**	**38**	**60**	**98**
Fawns added	24				24	24	48
Natural mortality	-2	-2	-2	-1	-6	-9	-15
Hunter harvest				-8	-8	-0	-8
2nd fall adult deer		**22**	**15**	**11**	**48**	**75**	**123**
Fawns added	30				30	30	60
Natural mortality	-3	-2	-2	-1	-8	-10	-18
Hunter harvest				-8	-8	-0	-8
3rd fall adult deer		**27**	**20**	**15**	**62**	**95**	**157**
Fawns added	38				38	38	76
Natural mortality	-4	-3	-2	-1	-10	-13	-23
Hunter harvest			-4	-12	-16	-34	-50
4th fall adult deer		**34**	**24**	**16**	**74**	**86**	**160**

From this example, it's easy to see why food-source management, in conjunction with the right harvest plan, holds so much promise for private-land deer management. When the food supply is greatly improved, the manager no longer has to keep deer numbers low to avoid exceeding the carrying capacity. He can allow the herd to grow in a healthy manner, with greater numbers of buck fawns coming into the population. Sticking with a sound harvest plan ensures that most of these young bucks eventually will enter the older age-classes, thus becoming potential trophies for the hunters on that property.

And with the proper nutritional strategy, bucks and does on the property will tend to remain in the vicinity, rather than wandering onto neighboring lands. This is an important benefit of food-source management, especially on tracts of limited acreage. Producing more deer, growing them to larger size and holding them in the hunting area makes food-source management a "win-win" proposition.

— both in deer numbers and size.

First, a word about soil and planting preparation. Fort Perry has deep, sandy soils for the most part. If we can grow good crops there, almost any other soil can as well. We're able to do it because we regularly conduct soil tests, then apply the recommended treatments of fertilizer and lime; subsequent to that, we employ sound farming techniques, including weed-control practices. All of these steps are important for maximum efficiency. Farming for the purpose of growing deer feed doesn't require the same level of sophistication demanded by commercial farming, but the better job you do, the more returns you'll see.

Now, let's look at Fort Perry's warm-season nutritional program. Although we've experimented with various clovers and soybeans, the legume we've settled on as our staple is the iron-clay cowpea. It's a high-yielding, high-protein annual legume our deer really find to their liking.

We plant about a bushel of peas per acre. (We no-till them through our winter small grain and clover after mowing very low, but it certainly doesn't have to be done that way.) Planting usually begins in early May, when the soil temperature in that area reaches 70 degrees.

As soon as the tender peas come out of the ground, deer take to them. These plants are vulnerable to overbrowsing at this time on small plots, so we like to overwhelm the deer with acreage. Most of Fort Perry's cowpea plots are at least 5 acres for this reason.

Once you understand how a deer's needs vary with the seasons, it's relatively easy to develop a nutritional plan.

Our cool-weather planting is actually designed not only to provide fall and winter carbohydrates, but also to carry over into the warm season and kick in some early protein. We accomplish this by planting a mixture of rye (the carbohydrate producer) and two varieties of clover: crimson and arrowleaf. Crimson's growth takes off in early spring, at about the time bucks drop their antlers. Arrowleaf comes on a little later and produces valuable protein until the cowpeas are growing.

The clovers provide a critical source of protein early in the spring, when both does and bucks have a very high demand for it. Many varieties meet this critical need, but timing and soil conditions should govern your choice. We plant our rye (no-tilled behind the "scalped" cowpeas) around the first of October at a rate of a bushel an acre, in combination with about 10 to 20 pounds per acre of the two clovers.

To ensure a constant source of protein and carbohydrates, we back up our agricultural crops with year-round free-choice supplemental feed. Basically, it's a safety net for the agriculture. From the time bucks drop their antlers in late winter/early spring, we feed high-protein pellets. Once bucks begin shedding velvet in early fall, we shift over to corn, which is high in carbohydrates. However, overall supplemental feed use comes in a very distant second to agriculture, which supplies the bulk of the year-round nutritional needs of Fort Perry deer.

The program's surprisingly simple, isn't it? But what it's done for that deer herd would have been thought impossible just a few years ago. It's safe to say that for both size and numbers, the Fort Perry herd will rival any other in North America! And it was all made possible because of a management plan that's greatly increased the amount and quality of food available to the deer . . . while the natural habitat has actually *improved!* That's progress any way you look at it.

* * *

The beauty of ***WHITETAIL***'s deer-management program is that the land manager can pick from a wide menu of management options and take as much off the table as he chooses, based on his particular goals and resources. No, on second thought, perhaps the *real* beauty of the program is that anyone with a sizable chunk of deer country, a desire to improve his hunting, and a commitment to improving the health of the herd has within his power the ability to control his own deer-hunting future! The club we've looked at here has decided to do just that. You can, too!

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