BUILDING YOUR OWN
'DEER FACTORY'

Supplemental Feeding For Fall & Winter

Sometimes, the best way to provide proper nutrition for your deer herd during the cool season is with direct feeding. Should you start doing it on your land?

by Dr. James C. Kroll & Ben Koerth

Last month, our discussion of deer nutrition focused on strategies for growing good forage during the fall and winter stress period. Providing high-quality food all year long is a key to sound deer management, and food plots are a great way to do it.

Unfortunately, in some places — particularly where winters are long, cold and snowy or where drought is a chronic problem — it's hard to grow forage dependably during this stress period. Also, for a variety of reasons, some managers can't devote much land to food plots. If one or more of these problems has kept you from greatly improving your herd's cool-season nutrition, supplemental feeding might be the answer.

Our years of research in a number of settings, including ***WHITETAIL***'s own Fort Perry Plantation, have proved that a sound feeding program can be of great benefit to a deer herd. Fort Perry's location (Georgia) allows us to grow highly productive cool-season food plots there, but we also use direct feeding as part of our overall food-source management program. This has helped ensure consistently good nutrition for the herd. It will work for you, too!

Let's look at the general concept of supplemental feeding, then examine the details of a cool-season program that can help you have more and bigger whitetails on your land.

FEED vs. BAIT

Deer feed and deer bait serve very different purposes; however, many hunters and landowners apparently are unclear on what the difference is. A *feed* is designed to meet all or most of a deer's daily nutritional needs, while a *bait* is used primarily to lure animals for harvest. (Hunting over bait is both legal and popular in many states and provinces.)

THE ELEMENTS OF FEED

Deer feed comes in many forms, from kernels of corn to scientifically formulated pellets. What you need to use depends on the time of year and other variables. Here's an overview of the primary nutrients and why they're important to your herd:

Protein

This is a general term describing diverse groupings of compounds called amino acids, the building blocks of animal tissue. On a feed bag, the protein content generally is listed as "percentage crude protein."

Pick up any brochure advertising deer feed, and you'll see that the sole focus seems to be on how high this percentage is. However, there's no evidence that protein levels greater than 20 percent offer an advantage in the body or antler growth of adult deer.

Deer don't have high protein demands in the cool season, because protein largely is used for growth, not maintenance. But in late winter, as bucks prepare to begin antler development and fawns start growing rapidly in does, protein intake should increase. Depending on location, this can be done with food plots, supplemental feed or a combination of the two.

Carbohydrates

Soluble carbohydrates, in the form of starches and sugars, are major energy sources. Each food item provides a certain amount of energy, in the form of calories.

But not all foods provide equal amounts of energy. Corn is a high-energy carbohydrate source, which makes it a good winter deer feed. However, it lacks the protein content needed for body and antler growth.

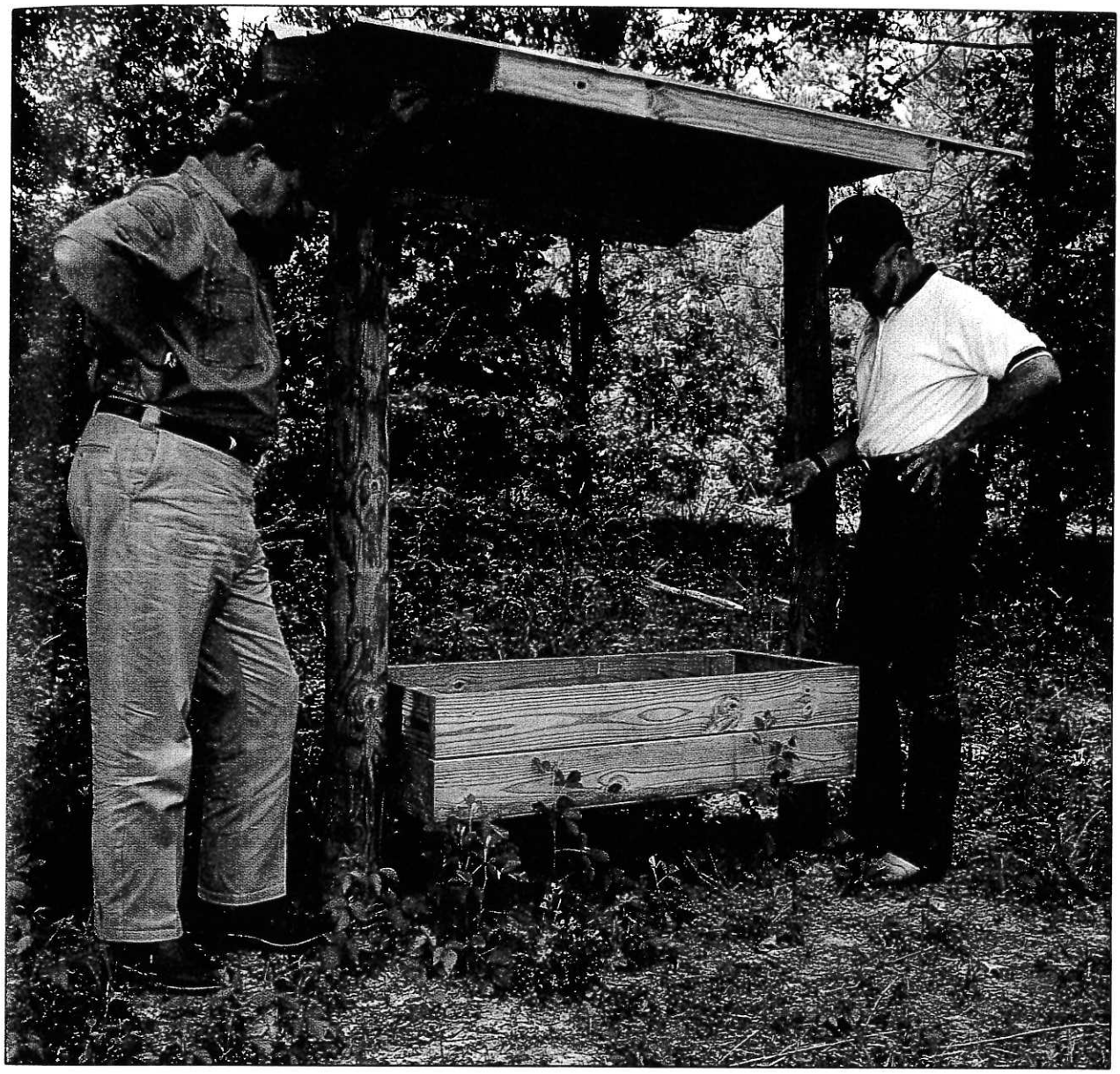
Minerals

Mineral requirements vary with a deer's age, sex and reproductive status, as well as the time of year. Those required in relatively large amounts are called *macroelements*, a group which includes calcium, phosphorus, sodium, potassium, magnesium, chlorine and sulfur. Other needed minerals fall into the category of *trace elements*: iron, copper, selenium, manganese, zinc, molybdenum, iodine, cobalt, fluoride and chromium.

Both calcium and phosphorus are associated with skeletal formation (including antler growth), nursing and other bodily functions. Dietary phosphorus requirements of adult deer have been estimated at .12 to .16 percent, depending on the season. During the cool season, the need generally runs toward the lower end of this range. The one exception is in late summer and early fall, when bucks have a need to replenish minerals used during antler growth.

For fawns, .45 percent calcium and .30 percent phosphorus are considered optimal. As long as these needs are met, a dietary calcium:phosphorus (Ca:P) ratio of 1:1 or 2:1 is best for the absorption and metabolism of phosphorus.

There is as yet little information



WHITETAIL *publisher Steve Vaughn (left) and Dr. James C. Kroll examine one of the many supplemental feeders at Fort Perry Plantation, our research facility in Georgia. Such feeders give deer access to feed anytime they want it and are a failsafe against problems with food plots or native forage. Photo by Michael Skinner.*

on the whitetail's minimum needs for trace minerals. However, selenium recently has been suggested to be in high demand for antler growth. The tips of growing antlers contain high concentrations of this element.

Vitamins

In a broad sense, vitamins are classified as *fat soluble* (vitamins A, D, E and K) or *water soluble* (B and C complexes). Fat-soluble vitamins can be stored by the body and mobilized during times when the diet might be deficient in them. With the exception of vitamins B_{12} and riboflavin (B_2), water-soluble vitamins are not stored and must be replenished on a continuing basis.

Vitamin supplements commonly are added to eliminate deficiencies. (Vitamin A is the one most likely to be limited in deer habitat.) Excesses of water-soluble vitamins are readily excreted in the urine, so overdoses aren't considered a risk.

WHAT'S IN THAT BAG?

All commercially prepared feeds are legally required to carry a label containing a guaranteed analysis of contents. (Other information can be included as well.) The *minimum* required label information includes:

(1) name of the manufacturer;

(2) net weight of the product;

(3) minimum crude protein content;

(4) minimum fat content;

(5) maximum crude fiber content;

(6) name and concentration of any medication in the feed;

(7) information on nutrients other than those supplied in the guaranteed analysis;

(8) range of concentrations of nutrients;

(9) specific ingredients;

(10) directions for use; and

(11) efficacy claims or warnings.

Checking the label, or "feed tag," is the first step in determining if a feed is appropriate for your situation. Knowing what to look for will save you a lot of frustration and probably money as well.

The crude protein level usually will be listed first. Check to be sure the feed contains at least 15 percent crude protein, to meet the needs of

growing deer. Also, for deer feed this protein level should be made up of *natural* protein (sometimes shown as NP.) This protein will be from plant products. Non-protein nitrogen (usually designated as NPN or urea) is *not* a good protein source for deer.

Fiber is important to good deer health, so check the crude fiber content. The appropriate range in feed is 10 percent to 20 percent. Feed with more than 20 percent fiber is safe for deer, but it must be consumed in relatively large amounts to be effective. A fiber content of less than 10 percent usually signifies a high-energy, low-protein feed that is inappropriate for use as a deer supplement. But even if the protein level is adequate, use of feed with less than 10 percent crude fiber should be controlled so that each deer eats only a small amount; otherwise, diarrhea can result.

If mineral concentrations are given on the label, check them as well. Look for a phosphorus content of around .50 percent to 1 percent, with the calcium content being no more than twice that of phosphorus. Salt should represent no more than 2 percent of the total contents. It often is added as a filler or to limit feed intake, either of which is counterproductive.

Other common feed additives include vitamin packages and odor attractants. Vitamins A, D and E are most often added. Odor attractants are used to lure deer to the feed and get them accustomed to eating it. (Many must be trained to accept pellets.) Molasses is a widely used attractant and provides a lot of energy; however, excessive molasses can lead to sticky feed that spoils quickly and attracts insects.

Apple flavoring has little, if any, nutritional value, but it is highly attractive to deer. Even those that never have been exposed to apples find the scent and taste irresistible. Some feed manufacturers also have begun adding acorn flavoring with good success.

USING A FEEDER

One of the complaints we often hear about feeding involves the apparent unwillingness of whitetails to accept a handout. The hunter or landowner will start a feeding program, only to find that his deer won't even come near the feeders.

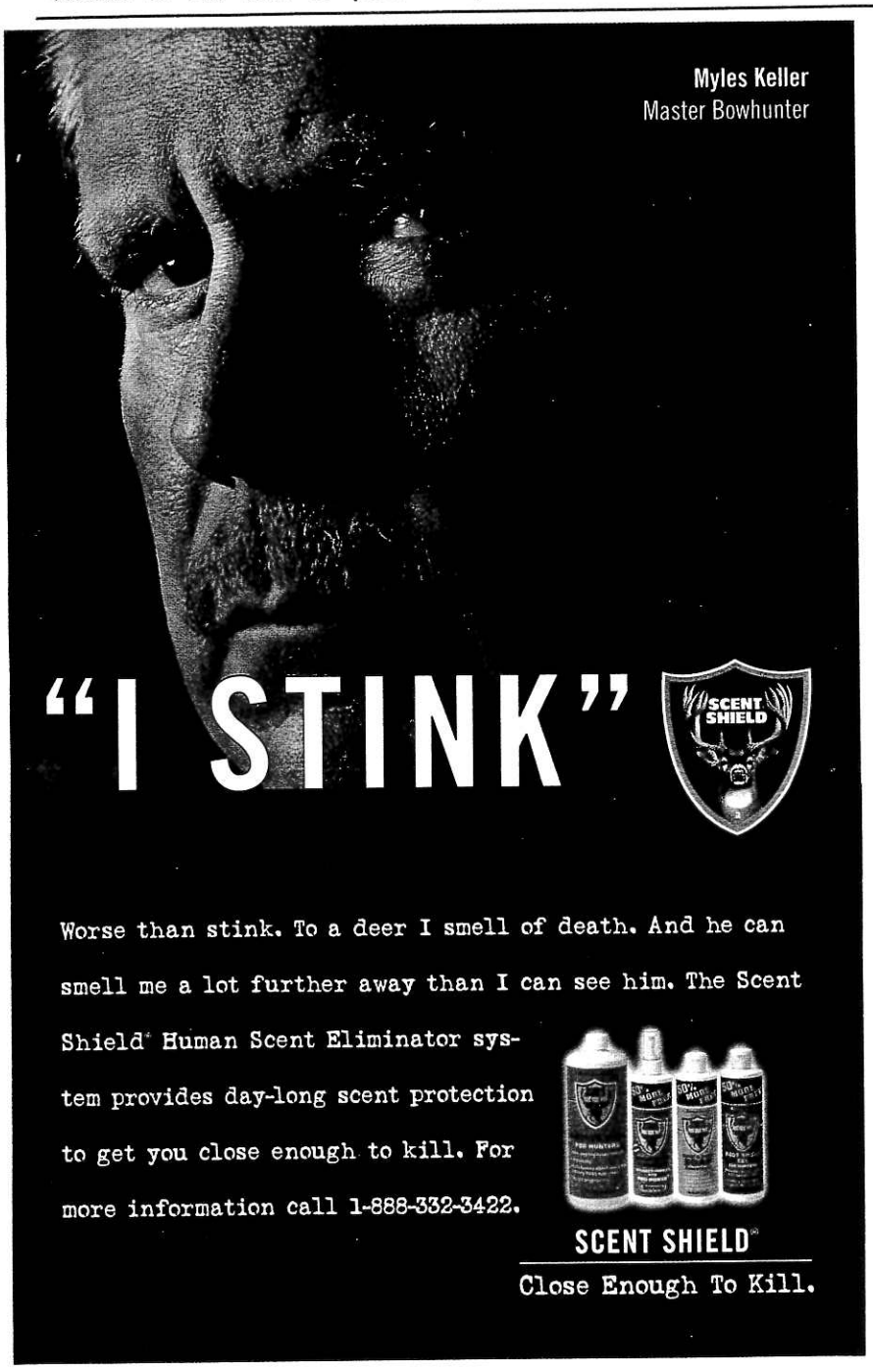
In most cases, deer must be trained to accept the feed provided. Despite the lure of odor attractants, eating from a metal, wooden or fiberglass feeder isn't normal deer behavior. However, most will accept feeders once they determine their purpose and learn there's no danger involved. Fawns readily accept feeders if they see adult deer using them.

Getting whitetails to accept feed often starts with using a highly attractive lure. Corn or some other attractive "bait" is used in a spin-type feeder or put out daily by hand to get the deer accustomed to approaching the feeder. Once they have begun to use the feeder consistently, the contents gradually can be changed to a more nutritious pelleted ration.

It's difficult for feed to compete with Mother Nature. Good forage plants are simply more attractive to deer. That's why it's easier to train deer to use feeders during times of nutritional stress; when vegetation is lush, feeder use often is minimal. But remember, your goal in feeding is to provide high-quality feed when forage is lacking in quality and/or quantity.

FEEDER DESIGN

Supplemental feeders are available

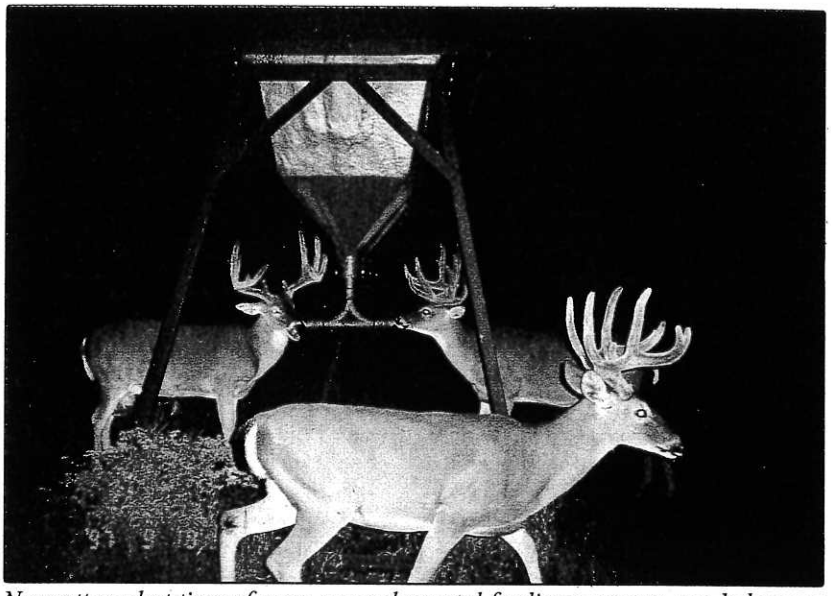


in a variety of designs, each with its advantages and disadvantages. But the best feeders all share three traits: (1) a design that allows free-choice feeding with easy access by the deer; (2) resistance to weather, both for storage and presentation of feed; and (3) a design that limits losses of feed to non-target species, such as crows, raccoons, squirrels, porcupines, etc.

Free choice is an important aspect. Remember, your feeders are there to provide supplemental feed when the deer need it most. Limiting the amount of feed available to the herd can limit your results. So go with a design that lets deer eat all they want, when they want.

As much as 70 percent of normal whitetail feeding activity occurs at night. Thus, if you make the feed available only during the day, deer visiting feeders at night might find them already emptied out by other animals and/or birds. Make feed available 24 hours a day and put feeders close to cover, so deer will feel comfortable using them at any time of day.

Protecting feed from inclement weather is crucial. Always take care to keep it dry and fresh; moldy feed carries toxins that actually can kill deer. Providing bad feed can be worse than providing no feed at all.



No matter what time of year, a supplemental feeding program can help your herd get enough of the right nutrition. Setting up an infrared-triggered camera at a feeder can give you a good look at individual bucks using it. Photo courtesy of the Institute for White-tailed Deer Management & Research.

FEEDING STRATEGIES

Supplemental feeding as part of a sound food-source management program involves far more than keeping a spin-type feeder full of corn during the fall and then shutting it off just as times get tough for the herd. The goal is to greatly reduce, if not eliminate, nutritional stress on a year-round basis, so that you can hold the maximum number of big,

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healthy deer on your land. This calls for a well-planned approach.

A whitetail's food intake decreases somewhat as the weather cools, and a metabolism shift causes fat to be put on for the lean days of winter ahead. This occurs even if forage conditions are poor. That's why in the fall, a deer can appear "fat" and yet be on a far less than ideal diet.

A feed ration composed largely of corn is appropriate for fall and early winter, because its high carbohydrate content makes it a good source of energy. Corn also stores well, which is important. Other options for cool-season foods include oats, barley, alfalfa hay and specially formulated feeds (pellets) that are high in digestible energy.

On many of our managed areas, during the cool season we now feed a mixture composed of alfalfa, corn and baking soda. You always run a risk of a deer overeating a highly digestible, high-energy feed such as grain, but the baking soda helps to maintain the pH balance in the animal's digestive system. Since we began feeding such a mixture, we've seen no digestive disorders.

What about other foods commonly used in the cool season, such as carrots, sugar beets or potatoes? They're high in carbohydrates but aren't as good overall as a grain-roughage mixture is. Also, fruits and vegetables can spoil rapidly if the weather turns warm.

HOW MANY FEEDERS?

You can expect a feeder to provide for up to 30 deer on a consistent basis. Thus, determining the number of feeders you need obviously requires that you know the minimum number of deer in the area. That's one of the questions you answer by conducting a herd census. (See the September issue.)

At a density of a deer per 20 acres, one feeder theoretically could cover right at a square mile (640 acres); a density of a deer per 10 acres would require two feeders per square mile, and so on. If you doubt you have enough feeders in operation, you should add more.

In an intensive deer-management program, one feeder per 160 acres usually is considered the minimum. For Fort Perry's super-intensive program, we use one feeder per *80* acres. You shouldn't expect a feeder to serve more than 640 acres.

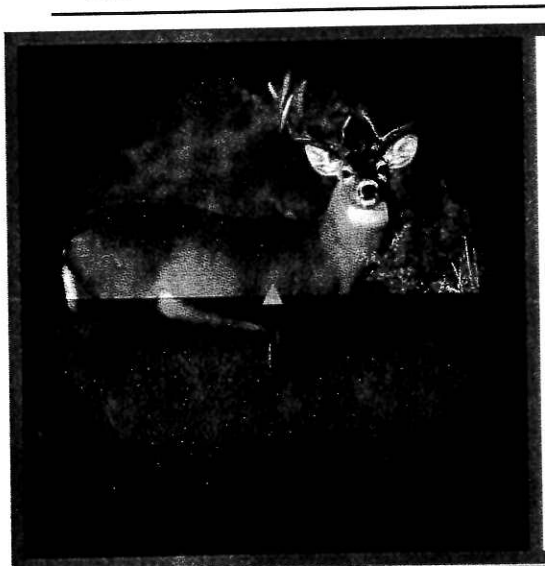
The amount of feed available is just one factor in determining feeder density, though. Deer are aggressive, and social interaction at a feeder can result in some deer being prevented from eating much. Dominant deer (both bucks and does) often keep other deer away, so it can be a good idea to use multiple feeders.

Even if you have food plots, we suggest you provide supplemental feed; it's insurance against poor forage production resulting from bad weather or other factors. Should you have some problem providing good forage, you want the deer to be able to find the feeders easily and to be accustomed to eating from them. That's why we put feeders adjacent to our food plots. But never hunt near your feeders, even if it's legal to do so. You want deer to feel totally safe in feeding, so they'll get every benefit from the supplement.

If it's cost-prohibitive to establish all of the needed feeders at once, start with the areas in which you feel that feeding will have the most impact, then add more as you can.

ESTIMATING COSTS

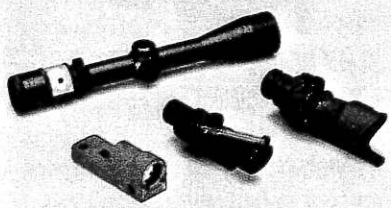
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Some cost more on the front end, while others require more labor.

Most free-choice feeders on the market cost at least $400, with high-volume models priced at around $800. Of course, this doesn't include the cost of feed or that of servicing the feeder(s).

If you prefer to feed your deer "by hand," you might opt to make your own covered trough-type feeders. We have done so at Fort Perry (see the photo on Page 47), because of our ongoing research on deer nutrition. These feeders must be serviced far more frequently, but this allows us to see how much feed is being eaten daily at each location. If you use new materials, the cost of one of these feeders will be around $150.

Feed not eaten in a timely manner can lose quality. Of course, exactly how long it will stay fresh depends on feed type and weather conditions. Corn generally will last for up to 120 days or so in good shape, and pellets should remain nutritious for a similar amount of time after they're made at the feed mill. Don't dump into your feeder more material than the deer will consume before it deteriorates. This, along with cost, dictates how big a feeder you need.

Among the most common questions is, "How much feed will my deer eat?" There's no precise answer, but we have developed some pretty good data. Under good range conditions, an adult deer generally will consume around 2 pounds of feed daily. But the amount jumps way up during stress periods, to as much as 8 pounds daily.

Among the most common questions is, "How much feed will my deer eat?"

Put a pencil to this, and you'll see what many other managers have learned: It's expensive to give deer all the supplemental feed they want. If you have 60 adult deer on your land, and each eats 2 pounds of feed daily, they'll consume over 21 tons of feed in a year. At an average price of $250 per ton for feed, that translates to a cost of $5,400, over and above the various other costs of management. To look at it another way, you'll be spending around $100 per animal per year, just for feed.

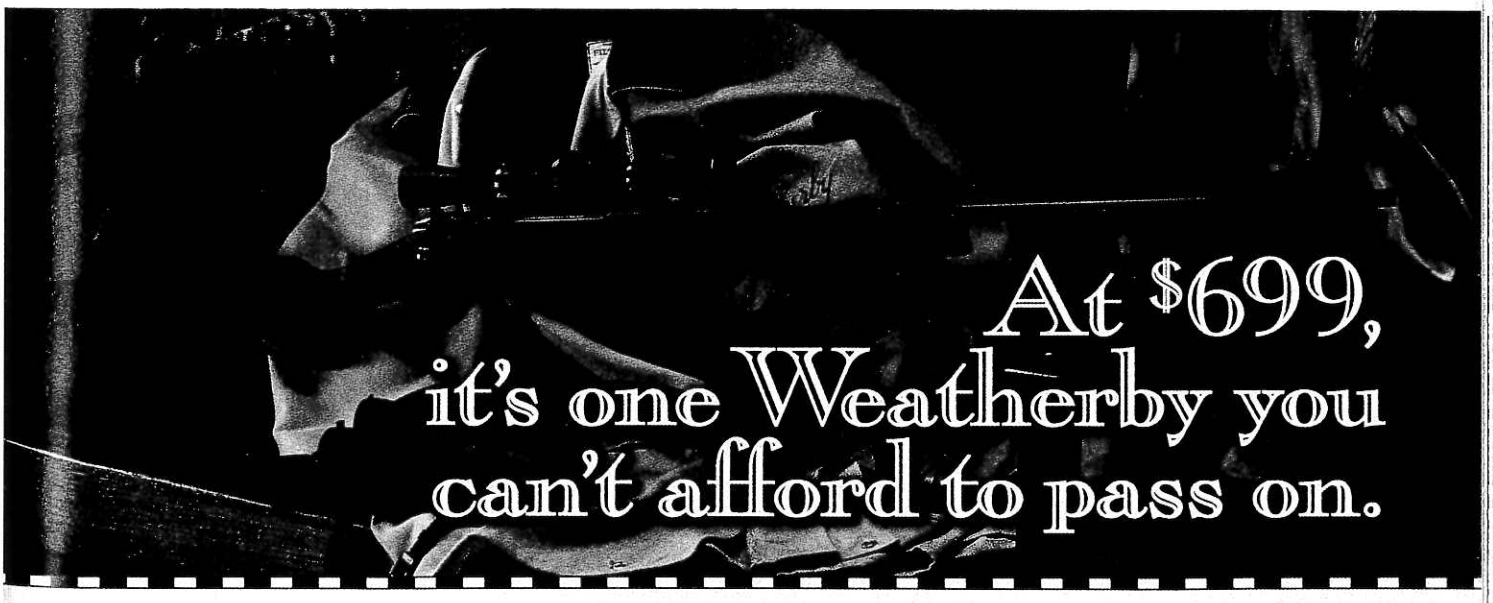
CONCLUSION

Supplemental feeding is much more costly than food plots or other types of habitat management. Still, where it's difficult to provide enough good forage at some times of year, feeding might well be your best option. Even if you have a food-source management program in place, feeding is a failsafe against your herd ever going hungry. That will translate into more big, healthy deer on your land, which is what good management is all about.

Next month, we'll discuss another key area of management: improving the native habitat. Stay tuned!

FOR YOUR INFORMATION

The authors' book, *Food Plots & Supplemental Feeding*, has just been updated and is set for its second printing this month. For information on ordering this book or related materials, contact: The Institute for White-tailed Deer Management & Research, Box 6109, Dept. WT, Nacogdoches, TX 75962; (409) 468-2004. For credit card orders only, call 1-800-403-3793.



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