BUILDING YOUR OWN
'DEER FACTORY'

Do Your Food Plots Make The Grade?

by Dr.James C. Kroll & Ben H. Koerth

If you're not sure how to evaluate your forage program, it's hard to know if the time and money you're investing are really paying off for your herd. Here's how to find out.

Giving advice on managing deer land is tricky. No two tracts are identical, and at no time are we all at the same point on the learning curve. This makes it a challenge to offer tips that serve all readers equally well.

But for veterans and rookies alike, from one end of the whitetail's range to the other, one common denominator is the need to evaluate results. No matter how much land you manage or where it is, taking an objective look at every aspect of your program is the only way to know what really works in your situation and what doesn't.

Since the late 1980s, our Institute for White-tailed Deer Management and Research has worked hand in hand with ***WHITETAIL*** to conduct nutrition studies at Fort Perry Plantation in Georgia. During that span, the institute and magazine have received countless requests for advice on food plots. Wildlife agency biologists who help landowners and hunters manage land also have been flooded with questions about what to plant and how to do it.

As the hunting public's interest in deer nutrition has increased, so has the variety of food-plot products available. Seed dealers are offering an incredible array of plant varieties, with many of these plants sounding like the perfect deer forage. But are they really better than what you've been using? Is your current forage program making the grade? Here's how to find out.

WHERE IS YOUR LAND?

In deer management, there are two basic geographic divisions: North-South and East-West. The difference between sites in the North and South is mainly due to temperature, while sites in the East versus West differ mainly in precipitation. Thus, we have four basic climates: cool-wet (North-East); cool-dry (North-West); warm-wet (South-East); and warm-dry (South-West).

Temperature translates to growing season, a major factor in growing deer food. At our institute in East Texas, the growing season averages 210 days, which is plenty for forage production. By contrast, managers in the upper Great Lakes, the Northeast and Canada might have to deal with frost as late as June and as early as August, limiting forage selections and annual yields.

In general, forages developed for the cool season in the South (such as some clovers and cereal grains) are good candidates for use in the North during the warm season. However, cowpeas, alyce-clover and other plants that work well during the warm season in the South can't make much headway in areas with short growing seasons.

Generally, to support a year-round food-plot program, a site needs at least 30 inches of annual rainfall. Land that gets less might support single-season food plots, but supplemental feed likely will be needed to augment native deer forage the rest of the year.

We've still not found a forage variety that will grow well without adequate moisture. If precipitation is marginal and you've had trouble with your food plots, the amount and/or timing of rainfall could be at least part of the problem. It takes skill to grow good food plots in marginal conditions.

SURVEYING YOUR SOILS

Walking over any parcel of land, you'll notice that the distribution of native plants is far from uniform. Some are "generalists" that grow in a variety of places, while others are "specialists" that thrive only under fairly specific site conditions. So it is with cultivated forages as well; some can adapt quite easily, while others can't.

For example, though oats are by far the most preferred cool-season deer forage we've found in our many years of testing hundreds of plants, they shouldn't be used everywhere. This plant tends to do best on well-drained, fertile soils. If your food-plot site is in a damp bottomland, wheat likely will be a smarter choice; if the site features deep, droughty sand, you'll probably fare better with rye.

The first step in assessing food-plot options is quick and easy. In the United States, two federal entities — the Natural Resources Conservation Service and the Agricultural Stabilization and Conservation Service — can provide you with a *free* soil-survey document of your entire county. This is full of great information about your property, including the general soils present, the potential for growing crops and various limitations to agriculture. *(Continued)*

Remember, these are "general" soils. This is important, because most soil surveys are developed by mapping out the location of indicator vegetation (plants with specific soil requirements), then refining the maps over time with actual on-site visits and analysis.

The soils on your land might have been mapped only through study of aerial photos and topographic maps, so don't take the lines drawn around each soil type as gospel. Try to get a local NCRS soil scientist to go over the land with you, but if you can't arrange that, simply check out things for yourself. Walk over each of the delineated soil-type locations and dig some holes. Then, compare the soils you find to the descriptions given in the survey.

Sand, *silt* and *clay* are the three basic soil components. Sand is made up of coarse particles and drains well, so such soils tend to be dry. Silt, which holds moisture better, consists of smaller particles and feels like talcum powder when rubbed over the fingers. Clay is made up of even finer particles and is sticky when wet.

Once you've studied the soil survey, you might see why some past food plots have fared poorly. You also might discover that some areas not currently under cultivation have good food-plot potential.

Although often overlooked by deer managers, soil pH is another key to good forage. In general, cultivated forages prefer a pH range of 6-8. The higher the number, the less acidic/more basic the soil. A soil test costing just $8-10 (through your county extension agent) can save you a lot of misery.

Highly acidic soil is often a problem in forage production, but it can be remedied by adding lime. It will take as much as a ton per acre to raise the pH a single point; however, depending on soil type, the treatment generally will last for three to five years.

Next month, we'll talk more about picking actual locations for food plots, including those over which you intend to hunt. For now, we just want to help you "troubleshoot" your current forage program, so you can identify areas in which it might be lacking.

FORAGE SELECTION

Resist the urge to buy a lot of one variety of seed and plant it in every food plot. That's a recipe for disaster.

When we began our research back in the 1970s, we first talked to local dairymen, because they have to know a lot about growing forage for hoofed animals. We learned that they use mixed plantings of cereal grains and legumes. "That way," one explained, "you're assured that *something* will do well." Due to weather, disease, insects, etc., one or more varieties could fail. Mixing crops is good insurance.

Cool-season food plots often are easier to grow. However, if possible, always employ a year-round planting program. Research at ***WHITETAIL***'s Fort Perry Plantation shows that one acre of a good year-round food plot can produce enough food to keep at least three deer in prime condition. But if forage is in low supply for even part of the year, the land's ability to grow healthy deer drops sharply.

For year-round plantings, you either must plant separate plots in spring and fall or plant through an existing crop in order to make seasonal crop changes on the same site. If you use the same plots year 'round, you'll need to learn about no-till or low-till equipment and operations. But this type of agriculture is tricky for novice farmers, and the

Gamehide®... hunting wear designed by hunters!

When our designers aren't working, they're out in their tree stand. They know, first hand, what features are important. Judge for yourself – compare before you buy!



We use Hush•Hide®
Hush•Hide® is the premier soft, quiet burr-proof material. Unlike the alternative, it stays soft in cold weather, won't pill and won't fade.



YKK zippers, premium snaps
We punish our clothing. You do too. That's why we use the very best snaps and YKK zippers!





9 to 11 stitches per inch
Others use 5 to 7 or 7 to 9 stitches per inch. We use 9 to 11 and double stitch for unmatched seam integrity!



SCENT-LOK

Eliminates scent
Our deer hunting garments use Scent-Lok® Odor Eliminating Technology



Bar-tacked pressure points
Go ahead, load the pockets – all pressure points have extra stitching (bartacks).

Lined handwarmer pockets
Heat Tech
Insulated and lined with fleece

Generously cut
There's nothing worse than restrictive clothing. We generously cut every garment



Fully taped waterproof seams
We tape behind the entire length of every seam, not just the most exposed areas like others do.

TECH PLUS Waterproof Breathable

MOSSY OAK BRAND CAMO

Gamehide®

Premium hunting wear at a better price

1503 East Hwy. 13 • Burnsville, MN 55337
(612)895-8740 • 1-888-267-3591 • Fax (612)895-8845
www.gamehide.com

equipment can be expensive.

Due to these challenges, we usually recommend using different sites for warm- and cool-season plantings. You don't want to plow under a good crop in order to plant another one, nor do you want the herd going without prime forage for even the few weeks between turning under one crop and getting the next one up. A seamless progression of cool-season crops to warm-season crops and back again is one of the keys to big gains in antler and body size, as well as high fawn-survival rates.

If a lack of summer moisture limits you to cool-season plots, you still can see significant gains in herd health. By leaving cool-season plots fallow over the warm season, you'll continue to get some nutrition out of the residual crop, as well as from any succulent forbs (weeds) that invade the site.

HOW EFFECTIVE ARE YOUR FOOD PLOTS?

Ultimately, your forage program's impact comes down to two questions: (1) how productive and nutritious are the crops you're growing?; and (2) to what extent are deer utilizing them?

Over its growing period, a cool-season food plot ideally will yield at least 8,000-12,000 pounds of forage per acre, a good warm-season plot at least 6,000-8,000 pounds per acre. The crop also should have a minimum of 18 percent protein and digestibility of 70 percent or higher. Finally, calcium and phosphorus should be present in a 1-to-1 or 1-to-2 ratio. (Forage tests are roughly $12 per sample and are available through your extension agent.)

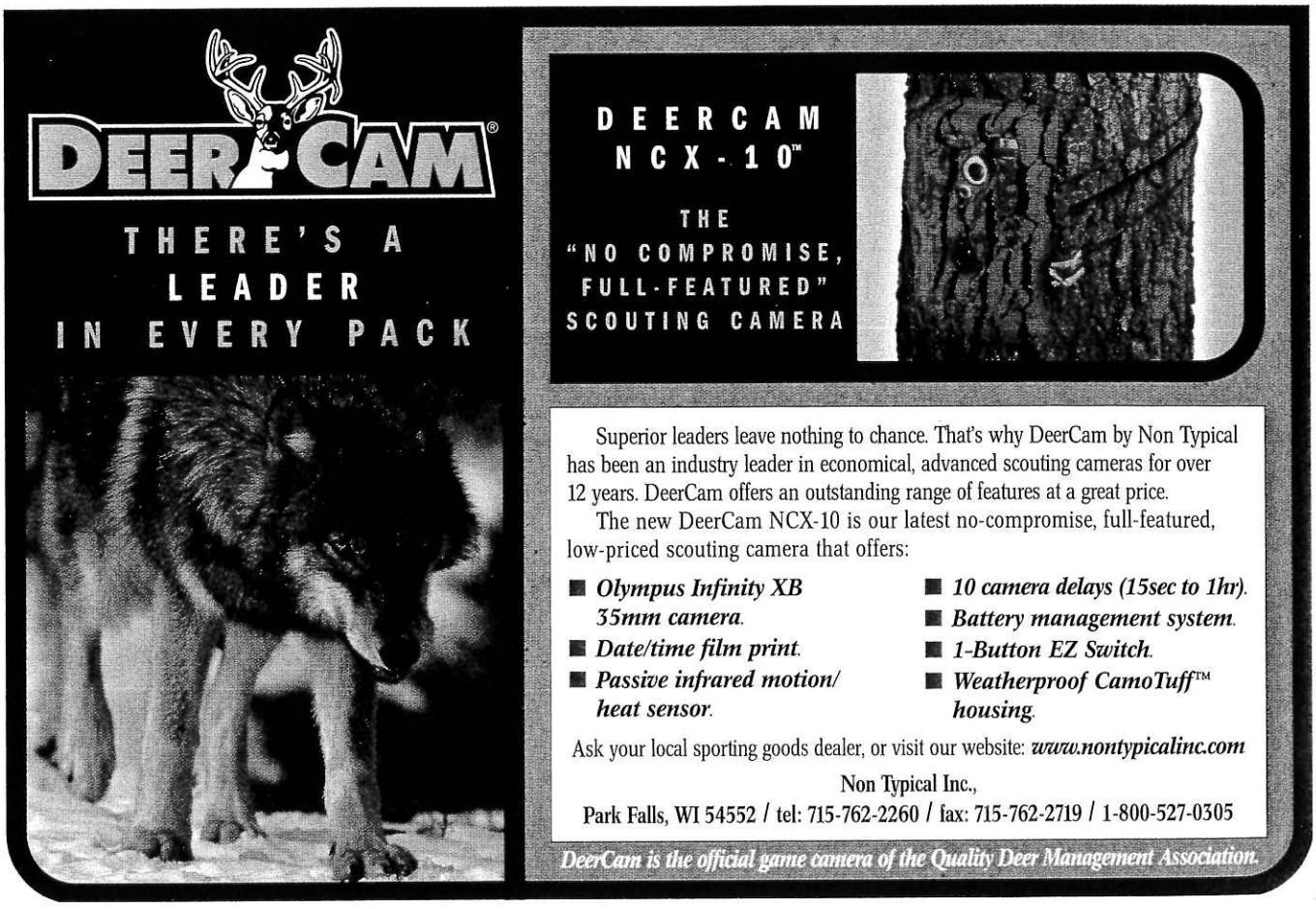
If there isn't enough forage to feed all of the deer using a food plot, they'll eat everything down to the ground, no matter what the preference level.

To determine how much total forage your food plots are yielding, all you need are a few homemade "exclusion cages" and a pair of clippers. An exclusion cage is simply a barrier to keep deer out of a small area, letting you see how much forage actually is being grown. Thus, these cages need to be tall enough and have a sufficiently small mesh to keep deer from reaching over/through them to get to the plants inside. (We make our cages of 2"x4" field-fence wire or metal cattle panels.)

For calculating forage yields, it's also helpful to have cages that are all of the same size. We prefer square cages that are three feet on a side (encompassing 9 square feet, or 1 square yard), as this makes it easier to figure per-acre forage yields.

At any time during the growing season, randomly placed exclusion cages can show you how much of a food plot has been consumed. Simply compare the plants inside the cages to those on the outside; the difference in height shows the relative amount of vegetation that's been eaten. And if you've fenced the perimeter of the food plot to keep livestock out of it, you can assume virtually all of the missing forage was consumed by deer.

By scattering a number of exclusion cages around a food plot, you can calculate how many pounds of forage are being produced. Once per month during the growing season, remove one cage and clip all of the vegetation in it to ground level, using garden clippers or even scissors. Then put the cuttings into a grocery sack and weigh them on



a scale that measures in ounces. (Subtract the weight of an empty sack from that of the filled bag to get the weight of the contents.)

If you're working with a 3x3-foot cage, just multiply the forage weight by 14,520 (the number of square yards in an acre) to get an estimate of total ounces per acre. Then, divide this total by 16 to calculate forage production in pounds per acre.

To obtain an estimate of how much forage deer have removed, repeat the above steps, using a representative 3x3 area immediately *outside* the cage. The difference between the "inside" and "outside" forage weights gives you an idea of how much has been eaten.

Actually, this estimate of utilization often will prove conservative. Regular browsing simulates the effects of mowing: That is, the more a plant is mowed (to a point), the more it grows. Thus, the plants probably have yielded even more forage than it appears.

In our research, we dry, sort and weigh the various contents of a deer's rumen. The layman isn't trained — or inclined, for that matter — to do so. Still, examining the stomach contents of deer harvested on your land can offer some insights into how much they've been using various food plots.

WHICH FORAGES DO YOUR DEER LIKE BEST?

Just as exclusion cages can be used to tell how much deer are feeding in a plot, they also can help you determine forage preferences.

For example, let's say you've found three cool-season forage varieties (or mixtures) you know grow well on your land. All have high nutritional quality, so the one you want to select for future use is the one deer most prefer. How do you determine which variety that is? By planting test strips.

To produce a valid test of forage preference, you must keep several key points in mind. First, to avoid biasing the results, all of the forages in the test must be equally available to the deer. When testing, you can't plant one variety in one plot and another in a second plot down the road; that could make one planting more popular with the deer simply because of the way the herd moves around the habitat.

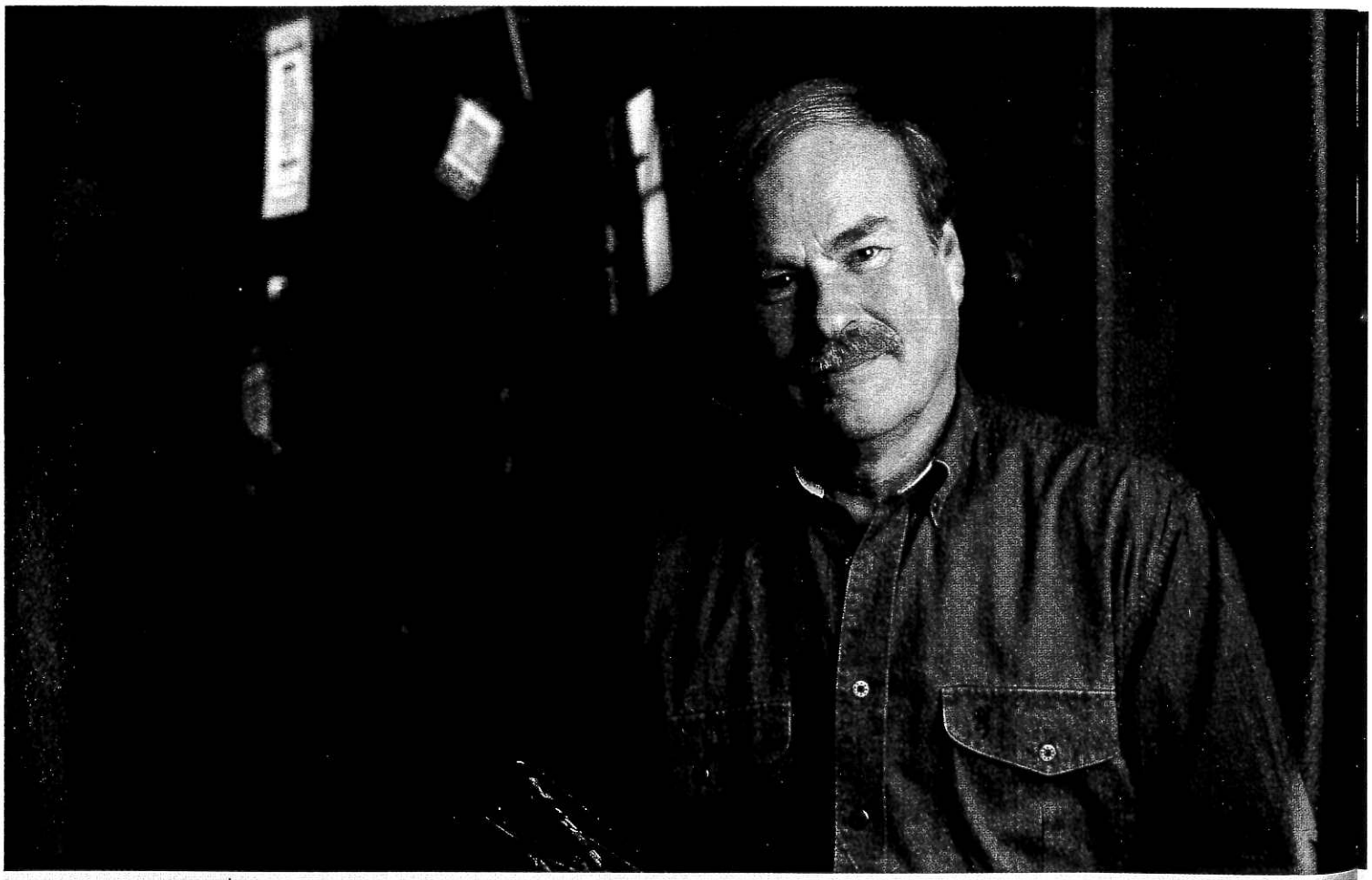
Not only must you plant all of the trial crops in the same plot, as adjacent strips, you also must make sure they're properly distributed within the plot. Planting one forage next to the trail most deer use to enter the plot will bias use in favor of that strip, versus a strip of another variety 100 yards away.

Also, each strip must be big enough to handle all of the deer feeding there at once. This keeps an aggressive deer (buck or doe) from dominating the preferred plot and thus forcing others to feed on second-choice strips.

We typically plant several small areas of each variety in the test. Each strip of each variety is randomly placed in respect to the others. This eliminates possible biases due to location.

Finally, the total planted area in your preference trials must be large enough to allow you to measure differences in use. If there isn't enough forage to feed all of the deer using a food plot, they'll eat everything down to the ground, no matter what the preference level.

Once you've established your trial plantings, exclusion cages will let you measure preference by means of the "clip-and-weigh" procedure detailed above. The forage variety with the greatest difference in weight inside



JOHN'S CHOICES: Eclipse SL Bow • Two-piece quiver in Mossy Oak® Break-Up™ • Ignitor fiber optic sight • Signature bow case

r land can
iow much
food plots.
DO
BEST?
an be used
eeding in a
determine

u've found
arieties (or
ell on your
al quality,
for future
efer. How
ety that is?

of forage
everal key
id biasing
in the test
the deer.
lant one
ther in a
hat could
ular with
e way the
it.
all of the
adjacent

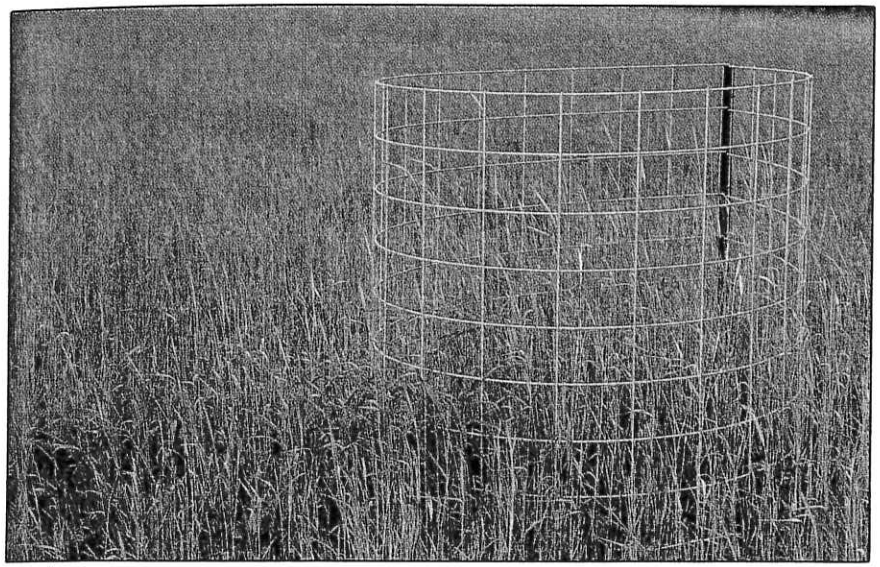
strips, you also must make sure they're properly distributed within the plot. Planting one forage next to the trail most deer use to enter the plot will bias use in favor of that strip, versus a strip of another variety 100 yards away.

Also, each strip must be big enough to handle all of the deer feeding there at once. This keeps an aggressive deer (buck or doe) from dominating the preferred plot and thus forcing others to feed on second-choice strips.

We typically plant several small areas of each variety in the test. Each strip of each variety is randomly placed in respect to the others. This eliminates possible biases due to location.

Finally, the total planted area in your preference trials must be large enough to allow you to measure differences in use. If there isn't enough forage to feed all of the deer using a food plot, they'll eat everything down to the ground, no matter what the preference level.

Once you've established your trial plantings, exclusion cages will let you measure preference by means of the "clip-and-weigh" procedure detailed above. The forage variety with the greatest difference in weight inside



Exclusion cages scattered around a food plot can give you a clear indication of how much forage deer actually are removing. It's even possible to weigh the vegetation inside versus outside a cage to calculate yield. Photo by Michael Skinner.

versus outside the cages obviously is the one receiving the most use. All else being equal, you'd assume this to be the most preferred forage in the test.

Another common-sense way to get a handle on forage preference is to monitor how much time deer spend in each test plot. The more time spent feeding on a particular variety, the more preferred it likely is.

Watching deer feed is educational and fun. The trick is doing so without impacting behavior; if the animals are spooked, they'll reduce their daytime use of those areas. To paraphrase an old axiom, "It's nearly impossible to measure something without changing the thing being measured."

Because of this, perhaps a better way to "observe" use of food plots is with infrared-triggered cameras. Using them on plot edges lets you keep tabs on deer activity with little disturbance.

With cameras or direct observation, the number of deer visits/photos can be considered a reflection of the amount of use a plot is receiving, and thus, a preference for that forage variety.

WHAT DO THE DEER SAY?

A final method for evaluating the effectiveness of a forage program over time is to let the deer themselves "tell" you. Obviously, you can't interview them, but much information about the habitat can be gleaned from data any manager already should be keeping.

For example, if the average field-dressed weight of a given age and sex of deer is rising, fawn survival is increasing and you seldom see spike racks on yearling bucks, the habitat is doing a great job of supporting deer. And in the end, isn't that what counts most in forage management?

