



The better the soil, the easier it is to produce plenty of healthy forage. But even poor soils can be greatly improved with the right steps. Photo by Gordon Whittington

FIX THE SOIL

Effective food plots literally are built from the ground up. Not surprisingly, then, the No. 1 problem encountered by deer managers is soil quality.

The productive capacity of your deer woods and herd are determined primarily by soil nutrients. These are divided into two categories: macro- and micro-nutrients. The former category includes nitrogen, phosphorus, calcium, potassium and magnesium. Micro-nutrients include a host of elements such as copper, sulfur, boron, selenium, sodium and chlorine. The term “macro” refers not to the size of the nutrient particles but the amount used by plants and animals.

Many food plotters never consider there could be nutrient deficiencies in their soils. Among those who do apply soil amendments, a number simply apply the same amount and type of fertilizer year after year.

For example, I have a friend who for years annually applied 400 pounds per acre of 13-13-13 fertilizer to his food plots without verifying the need to do so. Each year I begged him to conduct a soil analysis before fertilization, but he wouldn't. Finally, I collected soil samples myself and had the soils laboratory here at Stephen F. Austin State University in Texas conduct a proper analysis. The result? His plot had accumulated a near-toxic level of phosphorus! That year he only had to apply 50 pounds of nitrogen fertilizer per acre, amounting to considerable savings and much better crops.

For cool-season plantings, collect soil samples no later than July. The best way to do so is to walk in zig-zag pattern over each plot, sampling the top 8 inches of soil. To do this, first scrape away any litter and plants from the soil surface. Next use a sharpshooter shovel to dig down about 8 inches and lift the “soil plug” out of the hole. Place the sample in a clean plastic (not metal)

GOOD PLOTKEEPING

BY DR. JAMES
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Each year I receive hundreds of emails from folks who are having problems with their cool-season food plots. These emails often include photos and data that clearly substantiate their problems. Because right now is the time to be finalizing your plans for fall plots, I decided to address the most common problems in this issue.

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bucket and repeat the process until you feel the soil variation of the plot has been "captured."

Finally, mix the samples well in the bucket and collect a small sample and place it in either a brown paper sandwich bag or a sample bag supplied by the soil laboratory. Carefully label the sample with the date, the number/name of the food plot and the intended

level (low, moderate, high or very high) of each nutrient. Lastly, there should be a section that makes a recommendation as to the actual amount of each nutrient you need to apply per acre, and when it should be applied.

It's often difficult to obtain an exactly formulated fertilizer in these modern times, as few farm and ranch stores stock a wide variety of fertilizers —

amendments such as lime or sulfur. When soils are extremely acidic (pH below 5) you'll have to add lime to raise the pH. For extremely basic (alkaline) soils, the solution usually is to add sulfur compounds: elemental sulfur, aluminum sulfate, iron sulfate or sulfur-coated urea.

A lime recommendation will be in fractions of a ton per acre; for an acidifier, it will probably be measured in pounds. Because it's growing increasingly difficult to find a supplier who will both deliver and spread lime, you might need to have it delivered to your land, then spread it yourself using a standard PTO-driven spreader on a tractor.

Lime should be spread at least three months prior to planting to allow for full dispersal into the soil. But if you must apply lime closer to when you plant, don't worry — it eventually will take effect, improving later performance of your crops. How often you'll need to apply lime will vary, depending on the acidity of your soil. Most lime applications, though, last from 3-5 years when properly made.

SITE PREPARATION

Even if a food plot has been used for growing summer crops, it likely will be fully populated by weeds and grasses by fall. These unwanted plants might well reach above the height of your head. Dealing with them requires careful attention.

Try to mow the plot at least three weeks prior to planting. Then apply a general herbicide, such as glyphosate, to the emerging regrowth. Wait at least two weeks for the herbicide to take effect before doing further site preparation. Never apply fertilizer prior to herbicide application. If you do, you'll just waste nutrients.

It takes a good disk or harrow to properly prepare your plot. There's some confusion about the difference between the two. A harrow is a highly variable implement you drag across the ground to disturb the soil, while a disk is a type of harrow that has gangs of cutting disks (either toothed or smooth) that turn over the soil. In most cases, we'll use a disk or disk harrow to turn over the soil.

If you don't kill the vegetation in the plot and allow time for it to decay, it's difficult to properly turn the soil



crop (for example, a cool-season cereal grain/legume). Then send it to the soils laboratory.

I've never found a place in the U.S. that didn't have a soil-testing laboratory within reasonable distance. The USDA National Resource Conservation Agency operates laboratories, as do all land grant (agricultural) universities. Cost will run \$15-30, depending on the analysis requested. I prefer to request a complete analysis, including micro-nutrients and fertilization recommendation.

Your report likely will include more information than you care to have, but the critical information will include the amounts or percentages of nitrogen (N), phosphorus (P) and potassium (K) in the sample, plus other macro- and micro-nutrients. There also will be either a table or graph indicating the abundance

The author (left) and Pat Hogan discuss their food plot strategy for a site in northeastern Alabama. The Firminator multi-purpose attachment shown here makes site preparation easy. Photo by Haynes Shelton

particularly those with micro-nutrients. (In agricultural areas, you should be able to have a custom mix made from your soil report.) If you must resort to stock fertilizer, you might be able to mix different formulations to approximate the prescribed formulation. Fertilizers should then be applied just prior to planting and incorporated into the soil by disking. Most fertilizer spreaders come with an instruction manual that provides the proper setting for the correct poundage per acre.

Plants grow best when the soil pH is near neutral (pH 7), but very few soils ever approach this level without soil

and incorporate fertilizer to the proper depth. But some of the new "one pass" machines now sold specifically for food plots can do a perfect job of this, provided vegetation density has been reduced by herbicides.

Unfortunately, some folks think if you broadcast seed over unbroken ground, somehow a perfect food plot will appear! If all you do is spread seed over a weedy field, you might as well scatter your money instead. The only exception I've seen in my career is that some varieties of clover can be top-seeded over the ground, provided the competing vegetation first is killed with herbicide. Even then you run the danger of early germination after a light rain, followed by seedling death if several dry days immediately follow.

VARIETIES & PLANTING

Which cool-season crop should you plant? There are many species and varieties on the market, but in most cases you should plant cereal grains (oats, wheat, rye), legumes (clovers, winter peas) and/or chicory. You can plant these in various combinations or as individual plots.

At Turtle Lake Club in Michigan, we simply plant wheat in first-year plots that are acidic or droughty in nature. This allows us to build up organic matter, which increases moisture-holding capacity and raises soil pH. We then shift to oats, clover and chicory the second or third years, depending on the extent of soil improvement.

The most common cause of poor crop performance, in my experience, is the timing or method of planting. In the South, land managers habitually plant cool-season plots around opening day of dove season (early September). This is a convenient time when family or hunting club members gather to shoot

birds and socialize. Unfortunately, across the South this tends to be the worst time to plant! The first week of September often brings light rain, causing newly sown seed to germinate. The second half of the month often is dry, however, and newly emerged seedlings die from lack of soil moisture. Thus, planting later is better overall.

Across the North, the proper time for planting cool-season crops is from mid-August to mid-October, depending on existing soil moisture as well as latitude. Northern managers tend to give less attention to cool-season crops than do Southern managers. They also tend to avoid planting after September; yet, most cool-season varieties will germinate and establish themselves quite well in October. The key to success is soil moisture. You should plant immediately after there is enough soil moisture to germinate and support your crop.

Next, every type of seed has a critical planting depth. That's why I'm opposed to seed mixtures that include varieties with conflicting planting depths. Cereal grains should be planted at least 1 1/2 inches deep; clovers and chicory should be planted no more than 1/8 inch deep. I've seen landowners broadcast a mixture of cereal grain

and clover over their plot and disk the seed into the ground . . . then complain that the clover never came up! Well, that clover will come up, all right — but it likely will happen the next year, when disking brings the hard, ungerminated seed to the top of the ground.

INTERMEDIATE TREATMENTS

The last factor causing many cool-season plots to underperform involves what you do or don't do after establishment. Commonly called "intermediate" treatments, these processes include

top-dressing with fertilizer and controlling weeds in the spring.

Over at least half of the whitetail's range, winters typically aren't cold enough to kill a cool-season crop. Even in the far North, if you get a blanket of snow over your crop prior to the onset of very cold temperatures, the snow will protect it from freezing. In northern Michigan and Wisconsin, I've dug down beneath snow-covered plots in February to find green food plot vegetation. The deer paw through the snow in late winter to feed on the nutritious food beneath.

Clovers especially will make it through winter and renew growth in early spring. If you apply additional fertilizer right at spring greenup in the North or in February in the South, you can turn your cool-season crop into a 5- to 7-month food source. Depending of course on variety, clover can be grown well into summer in both Northern and Southern zones.

Another intermediate treatment I've found to be effective involves top-seeding additional seed, plus a herbicide application to reduce winter-hardy weeds. There are several herbicides that won't kill clover or chicory, including Fusilade for grasses. We recently discovered, quite by accident, that an application of 18-20 ounces of glyphosate per acre won't kill second-year clover or chicory but will effectively control many weeds and grasses. Intermediate treatments of this type are a great way to get the most performance out of your cool-season plots.

IN CONCLUSION

There are no shortcuts to effective cool-season food plots. If your goal is to provide high-quality supplemental nutrition to your deer for the longest period of time, paying attention to details will mean the difference between success and failure.

Take care of your soil. Plant the right varieties and at the proper time. Employ intermediate treatments that protect and enhance your investment. And finally, keep good records for each of your food plots. Writing down what you did and how it worked will greatly improve your forage program as the years go by. **NAW**

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