

Supplemental Forage Management for East Texas White-tailed Deer

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The white-tailed deer is the most popular big game species in Texas. Our large deer population has generated a tremendous sport hunting demand, which has developed into more than a billion-dollar-a-year industry.

Landowners are becoming more interested in intensive deer management strategies in order to conserve deer populations in the face of decreasing deer habitat. Existing habitat is threatened by the growing human population in East Texas, as well as by land use changes, urbanization, highway and road construction, water development and certain cattle management, timber management and farming methods.

The establishment of supplemental food plots is an important deer management strategy which is becoming widely accepted throughout eastern Texas and much of the southeastern U.S. However, most plantings are not aimed at improving the nutrition of whitetails. This is critical since much of the southeastern deer range (including East Texas) provides substandard nutrition for desirable deer production. The use of supplemental food plots as an intensive management tool evolved from hunters' efforts to concentrate deer in one area for harvest. It is just as important to use plots to improve the nutrition of whitetails and add critical minerals (particularly calcium and phosphorus) to the diet of a deer herd.

Description of the region

East Texas is composed of two major ecological regions - the northern part of the Post Oak Savannah and the Pineywoods. The Post Oak Savannah lies northeast to southwest between the Blackland Prairie of Central Texas and the Pineywoods in eastern Texas. The upland soils of East Texas are light-colored sandy loams and sands, while bottomlands are typically light-brown to dark gray sandy loams, clay loams and some clays. Soils throughout East Texas are generally acidic (pH below 7.0). Annual rainfall is usually the highest of any region in the state - 35 inches on the western edge of the region up to 55 inches along the eastern boundary.

Abundant rainfall is a mixed blessing when managing deer habitat. It quickly leaches nutrients from the soil, which lowers the quality of food supplies. It also results in the rapid succession of vegetation, and causes native food supplies to grow beyond the reach of deer. On the other hand, the amount of rainfall East Texas receives annually is generally sufficient to produce consistent crops of

supplemental forages. For these reasons, planting supplemental forage is a sound strategy for managing white-tailed deer in East Texas.

Planning the food plot

Well planned food plots can increase forage availability and at least partially compensate for decreases in suitable deer habitat. However, maximum benefits can be obtained only if forages complement the diet available from native vegetation and if forages are available when native vegetation is lacking or is low in nutritional value. In East Texas these stress periods occur in late summer and late winter.

In addition to timing the availability of supplemental forage properly, landowners also must plant appropriate species in the best available sites, use correct planting techniques and ensure soil fertility.

Site selection and preparation

The area selected for planting will depend on the plant species to be established (warm- versus cool-season) and the goals of the landowner/deer manager. The landowner may want to plant both types to supplement the usual lack of nutritious native forage in both late summer and late winter.

Warm-season species are more reliable when planted in bottomland soils that retain moisture during the drier summer months. However, care should be taken to select a site that is not prone to flooding from nearby streams and rivers. Droughty upland soils are not good sites for warm-season species. Warm-season species should be selected for their ability to grow quickly and compete with native weeds.

Cool-season species are not as susceptible to drought or weed competition as warm-season species. One exception may be legumes, which may require delayed planting if rainfall is deficient in the early fall months (September and October). Cool-season species can be planted on either upland or bottomland sites. Whenever possible, food plots should be planted in existing openings to reduce costs. Examples include fallow fields, pipeline and transmission line rights-of-way, logging roads, fire lanes and interior road rights-of-way. Areas adjacent to public roads or areas of public access are poor planting sites since they may encourage poaching.

With either warm- or cool-season supplemental forages, soil samples should be taken to determine lime and fertilizer requirements. Failure to properly amend the soil may result in drastically reduced yield or excessive weed competition. Your county Extension agent can help with soil testing.

If soil testing is not possible, food plots should be:

- limed every 3 years at the rate of 2 tons per acre;
- fertilized after germination with 200 pounds per acre of 6-24-24 (cool-season plots) or 0-24-24 (warm-season plots); and
- top-dressed with 200 pounds per acre of 34-0-0 fertilizer in mid-December (cool-season small grains).

The site should be shredded and disked to prepare a clean seedbed. Agricultural limestone (if needed to correct pH) should be applied prior to disking and worked into the soil. Planting sites should not be shaded by nearby trees, but should be adjacent to adequate escape cover. Since cool-season plantings are often established in hunting areas, particular care should be given to placing these plots near adequate escape cover, travel corridors and other types of habitat frequented by deer.

All legumes should be inoculated to increase nitrogen fixation. This will lower fertilizer needs and improve soil quality over time. Planting depth is also critical for successful establishment. Failure to plant species (especially legumes) at the recommended depth may result in poor stands.

Food plot size and shape

The sizes and shapes of supplemental food plots vary tremendously. Most plots are from 0.5 to 3.0 acres in size. Since deer are more apt to feed along the edges of plots than in the center, several small plots are more effective than one large plot. Larger food plots can be established, especially if the shape is long and narrow instead of square. Long, narrow food plots maximize the edge available and can cut across more home ranges of deer. However, plots must be wide enough to prevent excessive shading from nearby trees. Properly established food plots are expensive, and this may limit the acreage that can be established. Therefore, it is important to maximize productivity and carefully select planting sites. A good rule of thumb is to plant 1 to 3 percent of the total habitat in both warm- and cool-season forages. For instance, 1 to 3 acres of food plots should be established for every 100 acres of habitat present. Food plots should be distributed at the rate of at least one plot per 160 acres of habitat.

Species selection

Unfortunately, there is no one forage species that can satisfy all the nutritional requirements of the white-tailed deer throughout the year. For this reason, warm- and cool-

season forage combinations are recommended over the establishment of individual species.

In choosing a species or combination, keep in mind that the forage should:

1. increase the nutrition available to deer;
2. be readily accepted by deer;
3. be available at times when native forage is lacking in quality and quantity; and
4. be adapted to both the region (Post Oak Savannah or Pineywoods) and the site (bottomland or upland).

In other words, if a forage species does not improve nutrition, if a deer won't eat it, if it's not available during periods of stress or if it won't yield sufficient quantities to justify establishment, **DON'T PLANT IT!** Furthermore, since most plant species are commercially available in several varieties, care should be taken to plant a variety adapted to a particular area.

Warm-season forages supplement the deer diet throughout the important summer and early fall months when doe lactation, fawn growth and antler development occur. Alyceclover and forage cowpeas has proven to be an excellent combination planting for the warm season, producing 3 to 4 tons of forage per acre in performance trials. "Iron and clay" cowpeas produced higher yields and matured later than other forage cowpea varieties in recent trials in East Texas. Other forage combination recommendations are given in Table 1.

Cool-season forages provide additional nutrition during the hunting season as well as during the critical stress period in January and February prior to spring green-up. Cool season combinations can extend forage availability into early summer, about the time warm-season plots become useable by deer.

Rye is an excellent cereal grain to include in a cool-season forage combination because of its cold hardiness. Grains that can supplement rye in a combination plot include oats and wheat; however, rye should constitute at least two-thirds of the small grain component. Arrowleaf clover, a legume, is also a valuable component of cool-season forage plots. It provides forage through late spring and early summer. Once established, arrowleaf clover should not have to be replanted. An annual program of shredding in late summer, followed by light disking or late summer burning of the clover, will result in sufficient seed to develop a stand the following year. Since the arrowleaf clover component of the stand requires slightly different management than the cereal grains, the clover should be planted in a strip adjacent to the small grains. Ryegrass may be planted with the arrowleaf clover since it will also reseed itself and responds favorably to the same management. Cool-season forage combinations of small grains, arrowleaf clover and

ryegrass have yielded as much as 4 to 5 tons of forage per acre per year.

Other good cool-season forage species include subterranean clover, sweetclover and Austrian winter peas. Subterranean clover and sweetclover varieties should be selected to produce in the spring and early summer months. Austrian winter peas provide some early growth and may be established alone or in combination with cereal grains (Table 2).

Whenever possible, livestock should be excluded from food plots established for deer. Failure to exclude livestock may result in stand failure and certainly will limit the forage available for deer. Fence wires should be spaced to permit deer easy access to plots (i.e., the bottom wire should be 18 inches from the ground).

Supplemental forages versus corn

Hunters commonly use shelled corn as a "supplemental" deer feed. Commercial producers even market "deer corn" or "apple flavored corn" to take advantage of the popularity of this grain. Deer are attracted to corn because its relatively high carbohydrate content makes it sweet. Unfortunately, however, corn is low in crude protein (only 7 to 9 percent) and deficient in certain important amino acids.

Does corn have a place in supplemental feeding? The answer is perhaps. Corn can be used to increase energy availability during extremely cold periods. When offered as a high energy supplement to a well planned forage management or supplemental feeding program, corn can increase the winter survival of white-tailed deer. Corn also can be used as a bait to aid in hunting, especially for antlerless deer.

Conclusions

Supplemental forages are not cure-alls for poor deer management practices. Without proper habitat management and population control, food plot establishment is a waste of time and money for the hunter, landowner and deer manager. However, food plots can be an important part of the overall management of deer in East Texas. Properly established food plots can increase the production capacity of deer habitat by enhancing the nutritional level of whitetails throughout the year.

Table 1. Warm season supplemental forage combinations recommended for East Texas white-tails.*

Species	Region	Site	Seeding rate (lbs./acre) broadcast**	Inoculation required	Planting depth (inches)	Comments
1) Forage cowpeas	Post Oak or Pineywoods	Bottomland	40.0	Yes	1.0	Plant peas, then drag in alyce-clover.
Alyceclover	Post Oak or Pineywoods	Bottomland	10.0	Yes	0.5	
2) Forage cowpeas	Pineywoods only	Bottomland	40.0	Yes	1.0	Plant peas, then drag in alyce-clover and jointvetch.
Alyceclover	Pineywoods only	Bottomland	10.0	Yes	0.5	
American jointvetch	Pineywoods only	Bottomland	5.0	Yes	0.5	

* Plant varieties in combination between May 1 and June 15.
 ** Reduce seeding rate by 20 percent if a seed drill is used for planting.

Table 2. Cool season supplemental forage combinations recommended for East Texas white-tails.*

Species	Region	Site	Seeding rate (lbs./acre) broadcast**	Planting depth (inches)	Comments
Rye	Post Oak or Pineywoods	Upland or Bottomland	75.0	1.0	Combine and plant oats and rye. Combine and plant ryegrass and clover adjacent to small grains on well-drained soil.
Oats	Post Oak or Pineywoods	Upland or Bottomland	25.0	1.0	
Arrowleaf clover	Post Oak or Pineywoods	Upland or Bottomland	10.0	0.5	
Ryegrass	Post Oak or Pineywoods	Upland or Bottomland	10.0	0.5	
Rye	Post Oak or Pineywoods	Upland or Bottomland	60.0	1.0	Combine and plant rye, oats and wheat. Combine and plant ryegrass and clover adjacent to small grains. Plant on well-drained soils.
Oats	Post Oak or Pineywoods	Upland or Bottomland	10.0	1.0	
Wheat	Post Oak or Pineywoods	Upland or Bottomland	20.0	1.0	
Arrowleaf clover	Post Oak or Pineywoods	Upland or Bottomland	10.0	0.5	
Ryegrass	Post Oak or Pineywoods	Upland or Bottomland	10.0	0.5	
Sweetclover	Post Oak or Pineywoods	Bottomland	20.0	0.5	Plant adjacent to other food plot components.
Subterranean clover	Pineywoods	Bottomland	20.0	0.5	Plant adjacent to other food plot components.
Austrian winter peas	Post Oaks or Pineywoods	Upland or Bottomland	60.0	1.0	Plant adjacent to other food plot components or in combination with small grains. Reduce seeding rate by 50 percent if planted in combination with other forages.

* Planting dates for all varieties are September 15 to October 15, depending upon available soil moisture.

**Reduce seeding rate by 20 percent if a seed drill is used for planting.