

Wildlife Food Planting Guide -- For The Southeast

Wildlife species require suitable or healthy habitats to help maintain or increase population numbers. Habitats provide the food, cover, space, and water needs of different animals. Management of native vegetative species, from forbs (weeds) to mature trees, will impact habitat quality to a much greater extent than will any foodplanting or supplemental efforts. Also, for many wildlife species, and particularly the ones mentioned in this publication, habitat management must be incorporated with proper protection and harvest management.

This guide has been designed for the Southeast to help landowners, recreation clubs, and hunters better manage populations of the white-tailed deer, eastern wild turkey, bobwhite quail, mourning dove, and various species of waterfowl. These same techniques also will benefit many non-game wildlife species.

Several wildlife habitat and food-planting management techniques are covered in this guide. These techniques are designed to provide information that can be used to increase natural food production through habitat diversification, to supplement the diets of game species, to improve recreational success through harvest or viewing, and to manage populations to meet user objectives. This guide is based on proven wildlife management techniques and ongoing wildlife research and is written to provide information that will help meet recreational and management objectives.

Soil and Vegetation Disturbances

Soil quality determines wildlife habitat and population potential. Soil disturbances, such as timber harvest, disking, mowing, and prescribed burning, can improve wildlife habitat, and, if done correctly, can reduce the need for food plantings. However, to maximize vegetative habitat diversity and to help in wildlife harvest and viewing, you might want a mixture of both.

Disking can prepare seedbeds for planting and change the natural composition of plants by removing thicker, undesirable grasses and creating space for more desirable legumes and seed producers. Disking also increases insect production. The best method of disking is "strip disking." This technique works best with fields (pastures or agricultural) and rights-of-way but may also be used in stands of open timber. The key is to disk strips that are 30 to 50 feet wide to leave similarly undisked strips in between them. Do this alternately across the length of the field or area. You should disk strips every 3 years or so for quail.

Strip disking is excellent for providing nesting and broodrearing habitat, insect production, and important seed (food) production for quail and turkeys. As an example, blackberries, an important food to deer, turkeys, and quail, grow on an average 3-year rotation and can be promoted on a 3-year disking schedule. Aquatic plants (e.g., maidencane and smartweed), which are important duck foods at certain times, can be encouraged by spring and summer disking in drawdown ponds or marshy areas.

Legumes (e.g., partridge pea, beggarweed, vetches), forbs (e.g., croton, ragweed), and large seeded grasses can be encouraged with winter-to-spring disking of fields and plots. Always disk on the contour to prevent or to minimize soil erosion.

Mowing is used primarily for the bobwhite quail and wild turkey. Late-winter (February) and late-summer (August) mowing of grasses attracts insects that are critical in the diets of juvenile birds. Late-summer mowing of grassy plots and fallow fields can increase nutrient availability of plants by providing fresh, green growth. The highest nutrient availability in grasses is in the first 8 inches of growth. Mowing can also help provide browse for deer.

Prescribed burning is the "skillful application of fire to natural fuels, under conditions that allow confinement and obtain planned benefits to forest or wildlife management efforts." Prescribed burning often is the most economical and beneficial tool used in wildlife management. It is also a controversial issue in forest and wildlife management due to potential for landowner liability and smoke management health concerns. Prescribed burning is often used in pine or upland mixed pine hardwood stands to reduce dry fuel hazards, to control hardwood competition, and to prepare sites for replanting of trees. In addition to those timber management benefits, wildlife benefits encouraged through prescribed burning include ground exposure, seed scarification, legume dispersal, hardwood butt sprouts, and the growth of nutrient-rich forbs, vines, and browse.

Prescribed burning should be conducted by responsible, trained, experienced persons only! Report all unattended fires to state forestry personnel.

Landowners, in order to burn in any state, are required to have a burning permit, which can be obtained by contacting the state forestry agency. Also, several states, including Mississippi, have prescribed burn laws that might require training, certification as a burn applicator, and written plans before burning. Although a 1- to 2-year burning cycle is ideal for quail, an average 3- to 5-year burning schedule is optimal for maintaining habitat diversity for many other game species. A 3- to 5-year burning rotation consists of burning 1/3 to 1/5 of the habitat each year. By doing so, you maintain different plant successional stages in the habitat, ensuring ample food production and good reproductive, escape, and resting cover.

Safe burning conditions that can maximize wildlife benefits include these:

1. Burning in January and February, when temperatures are lower than 40 °F.
2. Burning with wind speeds of 3 to 10 mph.
3. Burning with a relative humidity of 50 to 70 percent.
4. Burning at night when the humidity is higher, for safety reasons. (Note: Smoke management concerns are greatest at night, however.)
5. Burning with a backfire, where possible.

Do not perform any of these practices during the critical March to August nesting periods for bobwhite quail, turkey, and other ground-nesting species of interest.

The objective is to keep fire between ground level and 18 inches high. Limit burning to fields or stands of pine at least 10 years old. Restrict fire from hardwood stands. Unlike southern yellow pines, the cambium layer of most hardwood species can withstand only 120 °F of heat. The most desirable wildlife burn is a patchy or incomplete burn, which will increase habitat diversity.

Professional assistance is available from state or federal agency wildlife biologists and forestry specialists and private consultants. Many state forestry agencies will schedule and conduct burns on private lands for a nominal fee.

Openings

Openings are various-sized areas in the habitat where sunlight reaches the ground. Openings are a critical habitat component for a variety of species. They provide low, herbaceous growth that attracts insects and provides green forage and other foodstuffs near ground level for deer, quail, turkeys, and other species. Openings can vary in size, from a few square feet to many acres. A partial list of different openings might include pastures, agricultural fields, power lines, gas lines, and road rightofways, and timber harvest areas. For example, turkeys can thrive in forested habitats that have anywhere from 15 to 60 acres of opening per 100 acres of habitat.

These areas naturally provide food and cover for wildlife, but can also be manipulated or planted to various crops. For example, these areas can be strip plowed or strip mowed and/or planted to foliage, such as bahiagrass or clover that attracts insects. Bobwhite quail and turkeys often nest in close proximity to these areas, which serve as good sources of food and cover.

Clearcuts (harvest cuts) are openings and, if planned and harvested properly, can provide diverse habitat edges, excellent cover for nesting, brood rearing, and escape, and large quantities of nutrientrich forage/foods. Small, irregularly shaped harvest cuts with streamside management zones (strips of timber left along drains) provide excellent habitat, if these areas are part of a mix of different habitat types. Depending on initial tree spacing and site quality, an area that has been harvest cut might provide good quail habitat for up to 3 to 4 years after replanting. Later in the rotation, if pine is being grown, with proper thinning and burning, these areas can again provide excellent habitat. Maximum deer browse occurs 2 to 4 years following complete timber harvest, and food and cover benefits can continue for years with proper timber/wildlife management.

Group selection, individual tree selection, thinning, seed tree, and other methods of timber harvest can create small to large openings that might be suitable for planting. These harvests, when paired with other practices, such as burning, can magnify benefits to wildlife species.

WhiteTailed Deer Habitat and Food Requirements

The whitetailed deer (doe) has an average home range of at least 1 square mile (640 acres), while mature bucks may range in excess of 3,000 acres annually. When basic biological requirements for whitetailed deer are met on a suitably sized unit of land, deer might be less likely to leave, unless pressured by people, environmental conditions, or other animals. Mature hardwood forests, mixed pine-hardwood forests, pine forests (including managed plantations and natural forest), and open fields are among the habitat types useful in helping meet habitat requirements.

The whitetailed deer is an herbivore and is characterized as a browser. It is also a ruminant (four-stomached animal), which helps with the digestion of various foods, making it versatile in its feeding habits. It consumes a variety of leaves, twigs, bark, and buds of trees and shrubs, plus hard and soft fruits, vines, forbs, lichens, mushrooms, cultivated crops, and some grasses.

Regarding nutrition, the two most critical times for whitetailed deer are (1) late summer, when deer population levels are high and food quality is poor, and (2) late winter, when food quality and quantity are low and mast (fruit) from oaks and other trees is scarce. These are periods when food plots can benefit deer. Research has indicated that, if at least one percent of an area is planted in food plots, the plots can positively affect the nutritional plane and response of whitetails. Exclosures of 3-inch wire formed into a tube 2 to 3 feet in diameter and 6 feet high, then staked to the ground, can be used on selected food plots to estimate deer utilization.

During the spring and early summer, deer browse is high in protein and complex carbohydrates. At this time, weights are increased for winter. Body fat stores are increased during the fall and early winter months with a variety of mast crops, including red and white oak acorns, which are good sources of carbohydrates.

Eastern Wild Turkey Habitat and Food Requirements

The eastern wild turkey has an average home range of about 1,500 to 3,000 plus acres, with hens having smaller home ranges on average than mature gobblers. It is difficult to manage wild turkey populations on small tracts of land, although small landowners can manage habitats successfully and have birds. Protection via gates and other methods of controlling access is critical to management of wild turkey populations. Ideal habitat for turkey production includes a mixture of intensively managed (thinned and burned) pine plantations, natural pine forest, mixed pine-hardwood forest, mature hardwood forest (upland, bottomland, or creek bottom) for travel and mast production, and properly maintained roadsides and openings for reproductive, broodrearing, and feeding areas.

Openings are an important component of wild turkey habitat, and several small and large permanent openings are needed. A range of 25 to 50 percent of the total area to be managed for wild turkeys should be in small to large, permanent, grassy openings. Turkeys can easily be managed even when timber is the landowner's main objective. A streamside management zone (SMZ) can be left when timber harvest operations take

place. SMZ's can include hardwoods and/or pines left along creeks and drains to protect water quality and to provide travel corridors and mast production for wildlife use.

Intensively managed plantations that are thinned and burned are often used by turkeys as production areas (nesting, brood rearing, feeding). Burning can be conducted in pine stands as young as 10 years old. Commercial thinning operations can be conducted early (13 to 17 years) in the rotation. Salvaged pine beetle (bug) spot areas, log loading decks, skid trails, and roadsides provide openings that can be maintained in food plantings.

The eastern wild turkey is a strong scratcher and requires a diet of animal and plant matter. During their first 2 weeks of life, turkey poults feed almost entirely on protein-rich insects. After 4 weeks of age, their diets gradually change to those of adults, which feed primarily on a wide variety of plant matter (seeds, leaves, fruits, tubers, forbs, grasses) and insects. In addition to grassy "bugging" areas, summer and winter food plantings that provide desirable foliage, fruit, and seed production are beneficial. During fall and early winter months, turkeys use mast crops of oaks, pines, and several other fruit-producing trees and shrubs (e.g., dogwoods and huckleberry).

Bobwhite Quail Habitat and Food Requirements

The bobwhite quail has an average home range of about 40 acres, but quail might stray from these areas if habitat requirements are not met. Bobwhites are an easy game bird to manage on smaller tracts of land. However, population numbers have been declining over the last 30 years; this decline has escalated over the last 10 years. Bobwhites are an "edge" and early successional stage species and need a mosaic of open ground and weedy/grassy habitat and/or open (thinned and burned) timber. The optimal basal area (crosssectional square footage of trees on a peracre basis) for quail is a range of 40 to 60 square feet per acre. It is difficult to produce quail long term in shortrotation pine pulpwood stands. However, harvestcut areas can provide good habitat and hunting for quail for up to 3 to 4 years after harvest. With proper management, these areas might provide good numbers of birds for 5 to 6 years. For sawtimber rotations, the practices of thinning, prescribed burning, mowing, and disking are beneficial quail management techniques where timber is the key objective.

The bobwhite quail favors patchy farming techniques where 5-acre and smaller patches of different early successional habitats are maintained to include an abundance of brushy fence rows, ditch banks, and strips of open timber separating fields. Loss of suitable habitat due to clean farming techniques, loss of small farming operations, and other changes in land-use patterns have been the limiting factors in bobwhite quail populations.

The most critical factors regarding quail management include providing the right mix (mosaic) of habitat to meet food, bare ground, and cover needs. Quail will not venture far out into a large, open field to feed, due to lack of cover; neither can they scratch out foods in areas of heavy cover, if the seeds are available. These situations can be alleviated by mixing habitats and by creating transitional zones in the habitat. A transition is an intermediate habitat between two types of habitat.

The following are suggestions whereby transitional zones are used to improve quail habitat:

Construct several long fences (preferably wooden, in a criss-crossed pattern) and allow them to grow up in vegetation. This may be enhanced by fertilizing and planting rows of shrub lespedeza, honeysuckle, or muscadine on both sides of the fence row. Leave a buffer strip of 10 to 30 feet on both sides of the fence. This area can be planted to desirable seed-producing plants or perennial grasses that attract insects and can be mowed in late winter. A good substitute for fences would be to push up windrows where cut slash is available. Other examples of creating transitional zones include the following:

- Allowing field edges to grow up adjacent to wood lines.
- Constructing brush piles in large open fields or harvest cut areas, then allowing a buffer to grow up around the brush pile.
- Planting 6 to 10 rows of pines in open fields, bordered by strips of annual reseeding lespedeza or broom sedge.
- Leaving 30-foot buffer zones between cultivated crops and trees alongside ditch banks, roadsides, or fence rows.

Bobwhite quail, as do wild turkeys, eat animal and plant matter. Quail chick diets consist primarily of insects the first 2 weeks of life. After about 8 weeks, diets more closely resemble those of adults. Adult quail diets, although supplemented by insects, consist of seeds, fruits, acorns, forbs, and grasses/green matter. Food plantings that attract insects and produce green stuff and seeds can be beneficial at all times during the year, especially during the late summer, when nesting and brood rearing are complete. In the Southeast, free water is not generally considered a critical factor for bobwhite quail habitat. Although quail will drink available water, they can retain enough water from fruits, dew on foliage, and insects to meet their needs.

Numerous wild plants, trees, and shrubs provide adequate food sources for bobwhites. Many of these native plants can be produced by seasonal diskings.

Mourning Dove Habitat and Food Requirements

Mourning doves are migratory game birds that usually migrate through the Southeast from early fall through winter. Even so, many will nest in the Southeast and have habitat requirements that must be met. Doves need "grit" (small bits of gravel and larger grains of sand) in their diets to help grind food in the gizzard. Doves are often seen on sand and graveled roadsides and in gravel pits. Also, a water source (such as a farm pond) is needed within approximately one mile of the food source. Doves are herbivores and are characterized as seed eaters. They feed primarily on the seeds of forbs, grasses, and small grains. Doves prefer to light in areas where the ground is bare and then walk to the food source. A large machine-harvested field attracts doves because of the clean ground and scattered seeds. Doves seek food by sight, prefer clean ground, and will not scratch or dig in the ground for food.

Doves are federally regulated migratory birds, and you should place extreme care and attention on federal and state regulations regarding dove field management. Consultation with wildlife biologists or enforcement officers might help avoid illegal field situations. Normal and acceptable agricultural practices typically have been considered legal dove shooting areas.

It is important to plant summer grain crops no later than June 15, if you want to attract doves to fields for dove shoots in September. Doves are easily attracted to prepared grain fields of at least 10 acres, and larger fields will attract proportionately greater numbers of birds. Planting techniques should use small seed and grain crops such as browntop millet, grain sorghum, corn, and sunflower. Crop production will be maximized if drilled, but broadcasting seeds, followed by light disking and dragging, will produce acceptable results. Harvests of portions of the field beginning 6 to 8 weeks in advance of expected shooting dates and continuing weekly until the shooting date might help hold doves on the field. Waste grain and bare ground are critical to the doves using the field.

Dove fields can easily be overharvested but can be retained by using a harvest schedule. Schedules might include shooting only in afternoon hours, regulating all-day shoots (if legal) to one per week, or stopping shoots at least 1 hour before sunset to allow doves time to feed and water before roosting.

Waterfowl Habitat and Food Requirements

The mallard and wood duck are two of the most popular species of waterfowl in the Southeast. Both of these ducks are herbivores, are characterized as grazers and seed eaters, and have diverse diets of grasses, forbs, seeds, fruits, acorns, cultivated crops, and aquatic plants. Mallards and wood ducks are further characterized as dabbling ducks or puddle ducks, and feed in shallow water.

Waterfowl are federally regulated, migratory species, and most nest from the northern tier of the United States into Canada. Wood ducks, however, also nest in the Southeast in great numbers, and, unlike most waterfowl (which are ground nesters), use natural tree or man-made cavities. The number of wood ducks can be increased by providing nest boxes around water sources where there are inadequate numbers of natural cavities.

Cover, food, and shallow water are habitat requirements important for waterfowl impoundment management. Farm/beaver ponds and other impoundments of at least 5 acres can be made attractive to waterfowl. Food plantings of corn, Japanese millet, and other small grains planted around the edges and in these impoundments can provide excellent habitat and good hunting. Those trees not producing small acorns and other duck foods can be removed from the pond's edge to allow seed-producing weeds and grasses to flourish. Water levels where beavers are active can be controlled by using the Clemson drain or similar devices.

One of the best techniques used in waterfowl management is the greentree reservoir. This technique involves constructing a levee in a hardwood drain or bottom (with an adequate

water source such as a creek, sizeable watershed, or well) that contains oaks and other small, hard mast-producing trees and shrubs. Water levels are controlled via a structure such as a weir or flashboard riser. The timber is flooded in the fall to an average depth of about 18 inches and often attracts good numbers of dabbling ducks, depending on mast crops. Do not continue flooding longer than 4 to 5 months, in order to prevent timber damage. Landowners and clubs interested in this technique can receive technical and often material assistance regarding location, permits required, and/or cost estimates from the Natural Resource Conservation Service, Cooperative Extension Service, state wildlife agency, Ducks Unlimited, and U.S. Fish and Wildlife Service. Most of these areas are considered wetlands and might require federal and state approvals before development.

Similar techniques can be used with agricultural production areas, pastureland, and with any impoundment that has a water-control structure. These areas can be drained by March 1, and native food production can be promoted by disking and fertilizing the soil, or they can be planted to crops that will tolerate some flooding.

Some wild plants in wet areas or drawdown ponds are beneficial to ducks and might be enhanced by mechanical soil disturbance.

Supplemental Forages

Research indicates clearly that no one particular supplemental forage variety can meet all the needs of any one wildlife species on a year-round basis. However, combining different forages in food plantings, including warm and coolseason forages, is an excellent way to maximize benefits of food plantings. **Selections of adapted varieties should be based on soil and site characteristics**, as well as cost and the wildlife species managed. Experiment with different varieties and planting combinations. Initially, plant small areas to serve as test plots before establishing large acreages.

Soil Quality and Fertilization

Wildlife seek and consume foods that are high in nutrient content. Since plants and animals are by-products of soil quality, determining soil quality and correcting problems in fertility and pH are the initial steps in food-plot preparation.

To test soil quality, collect soil samples 3 months before planting. Soil testing kits are available from the Cooperative Extension Service or Natural Resource Conservation Service. One way to sample soils is to collect a handful of topsoil from 3 to 5 locations throughout the plot. Mix the soil in a container and remove a small sample (handful) to go in a small bag. Label the container with name and address and include the plant variety to be planted in the plot (s). Soil test results can give different NPK and lime (pH) rates for particular plant varieties. Contact the agencies listed for information on analysis of samples.

Planting food plots without proper fertilization and liming wastes time and money and, in most cases, is of little value to wildlife. In addition to fertilizing food plantings, fertilizing

native vegetation in fallow fields, along roadsides, fence rows, and wooded areas with scattered openings also has benefits. Honeysuckle, for example, is an excellent wild vine to fertilize for deer forage production. If you cannot get a soil test, for most cereal grains, use a good complete fertilizer with equal amounts of nitrogen, phosphorous, and potassium applied at the rate of 200 to 400 pounds per acre. NPK is expressed as a number on the fertilizer sack, i.e., 15-15-15. Most legumes, however, require only low nitrogen levels, i.e., 6-24-24.

Liming involves applying agricultural lime (if needed) to bring up soil pH to the proper level to maximize growth, yield, fertilizer efficiency, and palatability of food plantings. For slightly acidic soils, applying 2 to 4 tons per acre is generally required to adjust pH to the proper level. Many clovers need a pH of 6.5 to 7.0 to promote reseeding.

Food Plot Size, Shape, and Placement

Match food plot size to the animal species being managed. Size of food plots can vary from a few square feet to 20+ acres. Deer, for example, will best use a 1- to 3-acre plot every 100 acres, and quail will best utilize a ¼- to ½-acre plot every 15 to 20 acres. Generally, plans should address a percentage of the total area managed and/or controlled to be planted in food plots. Plant at least one percent of the managed area in food plots for deer.

For maximum plant diversity and cover, plant long, narrow plots between two or more types of timber stands. For example, plant a plot between a stand of hardwoods and a stand of pine, between two separate ages of pine stands, or on the edge of a clear cut near the surrounding timber. Planting fruit- and nut-producing trees and shrubs in plots can add diversity and increase wildlife use of these plantings.

Food-planting locations that might not impact timber production significantly include wide fire lanes, rights-of-way (ROW's) of gas and power lines, logging roads, old log-loading decks, and small, salvaged spots of timber. Permanent roadsides can also be overseeded. Do not plant food plots adjacent to public roads, since these plots are too easily accessible. Access to plots should be controlled via gates and fencing placed at least 100 yards inside property boundaries.

Food plantings located near drains, bottomland, or flatwood sites usually are more productive due to soil fertility and topsoil depth. Unless soil movement can be reduced to insignificant levels, avoid locating food plots on steep slopes that are erodible, and, unless waterfowl is the target species, avoid planting areas that routinely flood. Available sunlight is a major consideration in regard to food-planting placement. Although some plants and shrubs are shade tolerant, most are not.

Preparing Food Plots

A limited assortment of farm equipment is needed to plant and maintain wildlife food plantings. A tractor large enough to pull 5-foot implements is sufficient in most cases.

Useful implements include a heavy-duty mower, disk, broadcaster (seeder), and a planter or drill with at least two rows. Although a row planter or drill is not essential, it can be useful in making productive grain plots and can be used to plant areas that are level, with little soil preparation (low till). A hand seeder is also useful for planting small-seeded crops, such as clovers, or for seeding remote, wet, or steep areas. Direct seeding can be a feasible technique used for small seeded plants and might not require disking or other soil preparation. Direct seeding (no till) can be used on roadsides, fire lanes, or other areas with freshly disturbed soils. Roadside food-planting management will provide edges, openings, and food for wildlife, in addition to helping control erosion of roads and ditches. Disk roadsides only along flat stretches and away from ditches; fertilize and plant in a desirable grass, legume, or seed-producing plant. Cover with wheat straw or other type mulch to help prevent erosion and to hold seeds in place.

Soil-preparation techniques useful for food plots include fallowing and preparing firm seedbeds. Fallowing is a technique used to build and maintain soil before planting legumes and is accomplished by allowing fields or plots to lay out several months before planting. Plots can be disked before planting time. To prepare firm seedbeds, allow disked plots to settle before planting. Usually this can be accomplished with one good rain and several days of sunshine. Lightly cover seeds by dragging a piece of railroad iron or a piece of chain link fence behind the seeder. Five tires chained together in a V will also cover seeds and help level plots.

Wildlife Food-Planting Mixtures/Strip Planting

Food plots planted with two or more crops or mixtures provide diverse food and cover and often are used by more wildlife species than a one-crop field. These "mixed" plots can provide year-round use on smaller acreage. When planted, if one crop does not make, it is more likely that a second or third will produce. The better technique used for mixing crops is strip planting. Plant several long strips about 30 to 40 feet wide to alternating crops.

These plant mixtures work well in a single plot. If planted together rather than in strips, some competition will occur.

Mixes	Planting Dates
Deer and Turkey	
Forage Cowpeas, Alyce Clover, Joint Vetch	May 1 to June 15
Arrowleaf, Red Clover, Crimson Clover, Ryegrass, Wheat	Sept. 1 to Nov. 1
Regal or Osceola (moist area)	Sept. 1 to Nov. 1
Ladino Clover	
Ryegrass, Oats	

Bobwhite Quail and Mourning Dove	
Sunflower, Grain Sorghum, Browntop Millet	April 15 to May 15
Egyptian Wheat, Quailhaven Soybeans	April 15 to June 1
All Species	
Corn, Soybeans	April 1 to June 1

The following mixtures contain at least one excellent soil holder, several perennials, and/or annual reseeder, and several good wildlife food plants. They are designed for minimal site preparation and are small seeded, so they can be distributed with a hand seeder or a broadcaster and tractor. These are excellent for planting on roadsides, disked fire lanes, or log decks. Plantings should be covered with wheat straw and fertilized, if direct seeded, for maximum benefit. Application should be around 60 pounds per acre for the total mix and cost will be in the \$1 to \$1.50 per pound range. Plant large seeded crops first, cut in, then apply small seeded crops (clovers) on top and cover lightly.

These plant mixtures are designed for minimal site preparation and are small seeded, so they can be distributed with a hand seeder or a broadcaster and tractor.

Planting Dates

Late-Winter Mix	February to April
Orchard Grass, Korean Lespedeza, Kobe Lespedeza, Ladino Clover, Red Clover, Ryegrass, Alyce Clover (optional)	
Late-Spring Mix	May to June
Bermudagrass, Browntop Millet, Buckwheat, Korean Lespedeza, Wildflowers (optional)	
Fall Mix	September to November
Orchard Grass, Ladino Clover, Red Clover, Crimson Clover, Ryegrass, Wheat, Nebraska Rye, Meechee Arrowleaf Clover (optional)	

***Note:** Consult a wildlife biologist or local seed dealer before buying prepackaged, high-priced seed mixtures. Check bag contents and prices with several vendors. Seed mixtures can often be customized by a local seed dealer at a much lower price, while maintaining the same or similar contents as prepackaged mixes.*

Plant Applications

Cool-season annuals: These are planted in late summer and early fall to provide forage and seed crops for fall, winter, and spring uses. These often make the best mixtures.

Legumes: Before planting legumes, inoculate the seeds with a plantspecific packet of inoculum-containing bacteria (rhizobium) that fix nitrogen to the nodules of legume roots and allow nitrogen production and intake by plants. Inoculation of legume seeds will increase production of legumes, decrease fertilizer cost, and build soil quality. Mix the packet with a small amount of water or sugar water, then mix thoroughly with the seed just before planting. Avoid fertilizer contact with inoculated seed, if possible.

Perennials: These are plants that will continue to sprout each year after establishment. Some fertilizing and liming are required for continual growth. Periodic competition control (e.g., mowing or disking) is often needed.

Warm-season annuals: These are planted in early to late spring to provide forage and seed crops for summer and fall uses.

Planting Materials Guide

Alfalfa

Companion plants

None; do not mix with other plants.

Description

A cool-season perennial legume, widely used by deer and turkey in the spring, summer, and fall. Provides nesting habitat, seeds, insects, and foliage for turkeys.

Fertilization

Soil tests are necessary; generally requires 150 pounds of phosphorus and 300 pounds of potassium per acre.

Lime requirements

Apply according to soil test or use amounts necessary to bring soil pH to 7.0.

Management

Mowing is required in early spring and late summer to keep shoots green and tender. Apply 75 pounds of (P) and 150 of (K) per acre annually after the first mowing.

Planting dates

September 1 to October 15.

Planting rates

Alfalfa inoculant required. Drill 15 pounds per acre at 1/4 of an inch, or broadcast 18 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Requires fertile, well-drained soils; not suited to heavy clay or wet soils.

Soil preparation

Disk plot in June and leave plot fallow until planting date; redisk and plant in a firm seedbed.

Varieties

Apollo, Vanguard, and Florida 77.

Austrian Winter Peas

Companion plants

Perennial grasses.

Description

A cool-season annual legume. Provides excellent fall, winter, and early spring foliage for deer and turkeys. Seeds mature from May to June.

Fertilization

A soil test is recommended, or use 250 pounds per acre of 0-14-14.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 6.0-7.0.

Planting dates

September 1 to November 1.

Planting rates

Vetch inoculant required. Drill 40 pounds per acre at 1/2 of an inch, or broadcast 40 to 60 pounds per acre; cover 1 inch.

Soil adaptation

Better adapted to heavy clay; moderately fertile to fertile soils.

Soil preparation

Plant in a well-disked seedbed.

Bahiagrass**Companion plants**

Clovers, winter peas, and annual lespedeza.

Description

A warm-season perennial grass. Used heavily by wild turkeys as a source of insects and choice seeds.

Fertilization

A soil test is recommended, or use 400 pounds per acre of 13-13-13 or 15-15-15.

Lime requirements

Apply according to soil test or to maintain a soil pH of 5.5-6.0.

Management

Mow in early spring and late summer. Apply 150 pounds per acre of 34-0-0 annually after first mowing.

Planting dates

March 1 to June 1; September 1 to November 1.

Planting rates

Drill 15 pounds per acre at 1/4 of an inch, or broadcast 18 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Well adapted to most soils; best stands are obtained in sandy soils.

Soil preparation

Plant in a firm seedbed.

Varieties

Argentine, Paraguay, Pensacola, and Wilmington.

Barley

Companion plants

Ryegrass, clover, and vetch.

Description

A cool-season, annual small grain. Provides choice seeds for game and nongame birds and choice foliage for deer in early stages of growth. Barley is tolerant to cold weather.

Fertilization

Soil tests are recommended, or use 60 pounds of (N), 80 pounds of (P), and 80 pounds of (K)/acre.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 5.5 to 6.5.

Management

(Optimal) Apply 120 to 200 pounds per acre of 34-0-0 in February.

Planting dates

September 1 to November 1.

Planting rates

Drill or broadcast 1.5 bushels or 80 pounds of seeds per acre and cover 1 inch.

Soil adaptation

Adapted to well drained, light textured soils. Does not grow well in poorly drained or heavy clay soils.

Soil preparation

Plant in a well disked seedbed.

Bird's-Foot Trefoil

Companion plants

Ryegrass, clover, and vetch.

Description

A cool-season perennial legume. Mostly planted for quail and turkey. Provides a good source of foliage and insects. Grows to heights of 2 feet.

Fertilization

Soil tests are necessary. Generally, 75 pounds of (P) and 150 pounds of (K) are required.

Lime requirements

Apply according to soil test or use amounts necessary to maintain a soil pH of 6.5 to 7.0.

Management

Mow in early spring and late summer.

Planting dates

September 1 to October 15.

Planting rates

Inoculation required. Drill or broadcast 12 pounds per acre and cover seed 1/4 of an inch.

Soil adaptation

Most productive in the mountain and Piedmont regions. Adapted to well-drained soils.

Soil preparation

Disk plot in June and leave fallow until planting date. Redisk and plant seeds in a firm seedbed.

Varieties

Fergus, Empire, and Viking.

Buckwheat**Companion plants**

Sunflower, millets, and grain sorghum.

Description

A warm-season annual grain. Used by deer, turkeys, waterfowl, quail, and doves. Hard to establish when deer populations are high.

Fertilization

Soil tests are recommended, or use 200-300 pounds per acre of 13-13-13 or 15-15-15.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 6.5 to 7.0.

Planting dates

May 1 to June 1.

Planting rates

Drill 30 pounds per acre at 1/4 of an inch, or broadcast 40 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Widely adapted to fertile and infertile soils. Grows best on well-drained sites.

Soil preparation

Plant in a firm seedbed.

Burnett**Companion plants**

Clovers.

Description

A warm-season perennial forb planted mainly for quail. This is a small, creeping, seed-producing plant.

Fertilization

A soil test is recommended, or use 150 pounds per acre of 13-13-13 or 15-15-15.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 6.5 to 7.0.

Planting dates

March 1 to May 1.

Planting rates

Drill 4 pounds per acre at 1/4 of an inch or broadcast 6 pounds per acre and cover 1/4 of an inch.

Soil adaptation

Requires fertile, well-drained upland soils.

Soil preparation

Plant in a firm seedbed.

Puna Chickory**Companion plants**

Oats, Crimson, or Ladino clover

Description

Perennial herb; a member of the lettuce family. Selected for high yields in New Zealand. Planted in the fall, grows slowly until spring, then grows rapidly until it blooms in late summer. May last up to 3 years.

Fertilization

Soil tests are recommended, or use 50 units of nitrogen fertilizer every month.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 6.5 to 7.0.

Management

When stand declines, reseed in fall and cover lightly.

Planting dates

August 15 to October 31.

Planting rates

Plant 5 to 6 pounds per acre, and cover 1/4 of an inch.

Soil adaptation

Prefers well-drained site with good water-holding capacity.

Soil preparation

Plant in a firm, smooth seedbed prepared by plowing and dragging. Broadcast seed and cover lightly.

Chufa**Companion plants**

Grows best alone.

Description

A warm-season sedge. Chufa produces small, underground, nutlike tubers. These are choice foods for turkey, deer, and ducks, and are even tasty to humans. Chufa is also a delicacy to raccoons and can be severely damaged if plots are small and raccoon populations are high.

Fertilization

Soil tests are recommended, or use 300 pounds per acre of 13-13-13 or 15-15-15.

Lime requirements

Apply according to soil test, or use amounts necessary to bring soil pH to 5.5 to 6.5.

Management

Second-year crops can often be obtained by disking in February to March and reapplying 100 to 150 pounds per acre of 13-13-13 or 15-15-15. Rotate crops to avoid nematode infestations.

Planting dates

April to May.

Planting rates

Plant 30 pounds per acre in 24 to 36 inch rows at 9 inch spacings, or broadcast 50 pounds per acre and cover seeds 1 inch.

Soil adaptation

Grows on well-drained to moderately well-drained soils; can be flooded if duck hunting is desired.

Soil preparation

Plant in a well-disked plot.

Clovers

NOTE: Clovers are excellent forages that provide high protein levels in winter for deer. Clover can be mixed with other cool-season annuals. The clovers discussed in this planting guide are best suited for the Southeast. Clover is expensive, ranging from \$1.70 per pound to \$2.50 per pound. Use caution and check clover prices carefully. Mixes packaged and marketed to produce trophy animals carry high price tags and often can be mixed at local seed dealers for half the cost. Clovers are site specific and perform best when lime is used to correct pH problems.

Alyce Clover

Companion plants

Plant with forage cowpeas and/or joint vetch. Reduce seeding rate to 10 pounds per acre when planting combinations.

Description

A warm-season legume that provides forage in the summer and early fall. Especially important to whitetailed deer; one of the few warm-season forages that holds up well to grazing pressure.

Fertilization

Apply according to soil test, or apply 200 pounds per acre of 0-14-14 after planting is established.

Lime requirements

Apply according to soil test or apply amounts necessary to bring pH to 6.5-7.0.

Planting dates

May 1 to June 15.

Planting rates

Inoculate seeds. Broadcast 15 to 20 pounds per acre or drill 16 pounds per acre.

Soil adaptation

Suited to most moderate to well-drained soils, including bottomland sites.

Soil preparation

Disk and plant in a firm seedbed.

Arrowleaf Clover**Companion plants**

Ryegrass, barley, oats, wheat, and rye; although these will often outcompete clovers.

Description

A cool-season, reseeding annual legume. Grows to heights of 40 to 50 inches under fertile conditions. Seeds germinate in the fall, and plants grow slow in winter, then grow rapidly in spring. Flowers are white and pink. Seeds mature from late June to early August. Arrowleaf provides excellent foliage that attracts insects for turkeys and produces choice forage for deer, although palatability might be lower than some other clovers.

Fertilization

Apply according to soil test, or apply 300 pounds per acre of 0-20-20.

Lime requirements

Apply according to soil test, or apply amounts necessary to bring soil pH to 6.5 to 7.0 to ensure reseeding.

Management

Reseeding may be enhanced by bushhogging or light disking and fertilizing at the rate of 200 pounds per acre of 0-20-20 in October the following year.

Planting dates

September 1 to November 15.

Planting rates

Arrowleaf inoculant required. Drill 6 pounds per acre at 1/4 of an inch or broadcast 6 to 8 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Best suited to fertile, well-drained soils. Grows best in sandy loams and light clay soils.

Soil preparation

Disk plot in July and leave fallow until planting date. Redisk and plant seeds in a firm seedbed.

Varieties

Meechee, Yuchi, Amclo, and Chief.

Ball Clover**Companion plants**

Grasses.

Description

A rapid growing, cool-season annual legume that grows on sites not suitable to other clovers. Provides foliage and insects for turkeys and forage for deer.

Fertilization

Apply according to soil test, or use 200 pounds per acre of 0-20-20.

Management

Reseeding can be encouraged by mowing or disking and fertilizing at the rate of 300 pounds per acre of 0-20-20 in September.

Lime requirements

Apply according to soil test, or use amounts necessary to bring soil pH to 6.0.

Planting dates

September 1 to November 15.

Planting rates

White clover inoculant required. Drill 3 pounds per acre at 1/4 of an inch, or broadcast 3 to 4 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Adapted to a wide range of soils. Grows in heavy clays, poorly drained soils, and light-textured soils.

Soil preparation

Plant in a well disked plot, or broadcast over a closely mowed grass.

Crimson Clover**Companion plants**

Ryegrass, small winter grains, other clovers, and vetch.

Description

A cool-season annual legume. Tolerant of acidic soils. Provides insects and foliage for turkeys and forage for deer. Has pink-red blossoms and grows to heights of 3 feet. This is an excellent crop to plant to control erosion and beautify roadsides. Can be used in combination with other clovers, since it initiates growth quicker, but seeds out earlier than most clovers.

Fertilization

A soil test is recommended, or apply 300 pounds per acre of 0-20-20.

Lime requirements

Apply according to soil test, or use amounts necessary to bring soil pH to 6.5 to 7.5.

Management

Reseeding may be enhanced by disking or mowing the following fall. Apply 150 pounds per acre of 0-20-20 after soil disturbance.

Planting dates

September 1 to November 15.

Planting rates

Inoculation required. Drill 15 pounds per acre at 1/4 of an inch, or broadcast 20 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Best adapted to fertile, well-drained soils. Grows in loamy clay and heavy clay soils. Does not grow well in sandy soils.

Soil preparation

Plant in a firm seedbed. Can be planted immediately following summer pea crops with one disking.

Varieties

Autange, Chief, Dixie, and Tibbee.

Red Clover

Companion plants

Red clover grows best alone but can be planted with dallisgrass.

Description

A coolseason legume. Provides insects and foliage for turkeys and forage for deer.

Fertilization

A soil test is recommended. Apply 300 pounds per acre of 0-20-20.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 6.0 to 6.5.

Management

Mow in October and fertilize at the rate of 200 pounds of 0-20-20 per acre.

Planting dates

September 1 to November 15.

Planting rates

Requires a red clover inoculant. Drill 8 pounds per acre at 1/4 of an inch or broadcast 810 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Grows best on fertile, well-drained soils. Does not grow well on sandy soils. Prefers a sandy, clay loam.

Soil preparation

Disk plot in July and leave fallow until planting date; redisk and plant in a firm seedbed.

Varieties

Kenland and Redland II.

Subterranean Clover

Companion plants

Warm-season perennials, ryegrass, cool-season winter grains, and vetch.

Description

A cool-season annual legume; very tolerant to shade; can be planted on temporary food plots, such as logging roads, and in strips of thinned timber. Makes excellent plots in short-rotation pine and provides foliage and insects for quail and turkeys and forage for deer.

Fertilization

Soil test recommended, or apply 250 pounds of 0-20-20 per acre.

Lime requirements

Apply according to soil test, or use amounts required to maintain a soil pH of 6.5 to 7.0.

Management

Reseeding can be enhanced by mowing or fall disking and fertilization of 200 pounds per acre of 0-20-20.

Planting dates

September 1 to October 15.

Planting rates

Requires subterranean inoculant. Drill 8 pounds per acre at 1/4 of an inch, or broadcast 15 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Best adapted to well-drained, sand, loam, or clay soils.

Soil preparation

Plant seeds in a well-prepared, firm seedbed.

Varieties

Mount Barker, Woogenellup, Tallarook, Nangech, and Meterora.

Ladino Clover/White Clover**Companion plants**

Ryegrass, cool-season annual small grains, and vetch.

Description

A cool-season annual legume. A very popular clover for providing deer forage and foliage and insects for quail and turkey.

Fertilization

Soil tests are recommended, or use 400 pounds per acre of 0-20-20.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 6.5 to 7.0.

Management

Reseeding can often be enhanced by fall disking or mowing and fertilizing at the rate of 200 pounds per acre of 0-20-20.

Planting dates

September 1 to November 15.

Planting rates

Requires white clover inoculant. Drill 3 pounds per acre at 1/4 of an inch, or broadcast 4 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Very well adapted to fertile, bottomland, and moist soils.

Soil preparation

Plant in a firm seedbed. In wet areas, seeds and fertilizer can be broadcast and lightly disked in.

Varieties

Osceola, Tillman, Regal, Louisiana S1, and California.

White Dutch Clover**Companion Plants**

Bahiagrass, dallisgrass, ryegrass, and cool-season annual small grains.

Description

A cool-season perennial legume. Grows well in shaded areas and can be planted on logging roads, decks, and in strips of thinned timber. Provides foliage and insects for quail and turkey and forage for deer.

Fertilization

A soil test is recommended, or apply 300 pounds per acre of 0-20-20.

Lime requirements

Apply according to soil test, or use amounts required to bring soil pH to 6.0 to 7.0.

Management

Reseeding can be enhanced by fall mowing and fertilization of 200 pounds per acre of 0-20-20.

Planting dates

September 1 to November 15.

Planting rates

Requires a white clover inoculant. Drill 4 pounds per acre at 1.4 inches, or broadcast 4 to 6 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Well adapted to fertile, bottomland, wet soils.

Varieties

New Zealand.

Corn

Companion Plants

Soybeans, cowpeas, and winter legumes.

Description

A warm-season annual; a very favored and sought-after crop for wildlife. Corn is high in carbohydrate energy.

Fertilization

A soil test is recommended, or use 300 pounds per acre of 15-15-15 on poor sites and 200 to 250 pounds per acre of 6-12-12 on fertile sites.

Lime requirements

Apply according to soil test or use amounts required to bring soil pH to 6.5-7.0.

Management

For ducks, if flooding is desired, do not plant with any winter legumes. Japanese millet and cereal grains can be planted in close proximity to provide height/diet diversity. For deer, leave standing in patches near the wood's edge. For turkey and quail, allow seeds to fall naturally or knock down by hand or with a mower. For doves, mow in strips to provide scattered seeds and clean ground.

Planting dates

Ideally, April 1 to May 1.

Planting rates

Plant 12 pounds per acre in 36 inch rows, no till-in with legumes, or broadcast 12 to 15 pounds per acre and cover 1 inch.

Soil adaptation

Well-drained loam or light clay soils are best. Moderately drained soils may be chosen if flooding is desired for ducks.

Soil preparation

Plant in a well-prepared seedbed.

Varieties

There are numerous varieties. Those that produce low- growing "ears" are best for wildlife.

Cowpeas

Companion plants

Other warm-season annual peas and browntop millet.

Description

A warm-season annual legume. Browsed by deer and rarely eaten by doves, but highly used by turkey and quail.

Fertilization

A soil test is recommended or use 100 pounds per acre of 0-20-20.

Lime requirements

A soil test is recommended, or use amount required to maintain a soil pH of 5.5 to 7.0.

Planting dates

May 1 to July 1.

Planting rates

Plant 15 pounds per acre in 24 to 36 inch rows or broadcast 25 pounds per acre and cover 1 inch. Inoculant required.

Soil Adaptation

Adapted to well-drained soils, from sandy loams to heavy soils.

Soil preparation

Plant in a firm seedbed.

Varieties

Thorsby Cream, Tory, Wilcox, and Cat Jang.

Dallisgrass

Description

A long-lived perennial bunch grass; can be planted in spring and fall with other grasses and clovers. Attracts insects, provides foliage and good nesting habitat for turkeys; also good for erosion control.

Fertilization

A soil test is recommended, or use 400 pounds per acre of 13-13-13.

Management

Early spring and late summer mowing with one annual fertilization of 250 pounds per acre of 13-13-13 after the first mowing.

Lime requirements

Apply according to soil test, or 12 tons per acre in absence of test.

Planting dates

February 15 to May 15 or September 1 to October 15.

Planting rates

Broadcast 10 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Adapted to fertile, moist, well-drained, light- and heavy-clay-textured soils.

Soil preparation

Plant in a well-prepared seedbed.

Egyptian Wheat

Description

Egyptian wheat is actually an annual sorghum that grows to heights of 8 feet. It grows in thick stands, and heads will easily fall to the ground (lodge) at maturity. Makes cover and choice seeds for quail and turkey.

Fertilization

A soil test is recommended, or use 200 pounds per acre of 13-13-13.

Lime requirements

Apply according to soil test, or use amounts required to maintain a soil pH of 5.5 to 6.5.

Planting dates

April 1 to May 15.

Planting rates

Drill 6 pounds per acre at 1/4 of an inch, or broadcast 6 to 10 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Widely adapted to well-drained, light-textured soils.

Soil preparation

Plant in well-disked plots. Best to plant in patches 8 to 12 feet wide and 30 to 50 feet long. Excellent for providing cover in large fields; can be strip planted alternately with other warm-season grasses.

Elbon Rye

Companion plants

Other cool-season, annual small grains, ryegrass, vetch, and clover.

Description

An annual, cool-season, small grain (similar to wheat). Choice food of doves, ducks, quail, turkeys; browsed heavily by deer in early stages of growth. Rye grows very fast and loses its protein level early. Rye is a cold-tolerant small grain; provides forage for deer in fall and winter, if kept mowed. Rye provides nesting, bugging areas, and seed for quail and turkey; usually dies back in early summer.

Fertilization

A soil test is recommended, or apply 200 pounds of 13-13-13 per acre.

Lime requirements

Apply according to soil test, or use amounts required to maintain a soil pH of 5.5 to 6.5.

Management

Apply 200 pounds of 34-0-0 per acre in February.

Planting dates

September 1 to November 15.

Planting rates

Drill or broadcast 1.5 bushels or 80 pounds of seed per acre and cover 1 inch.

Soil adaptation

Adapted to well-drained, light-textured clay soils. Does not grow well in poorly drained soils.

Soil preparation

Plant in a well-disked seedbed.

Grain Sorghum

Companion plants

Browntop millet, corn, sunflower, and winter legumes.

Description

A very hardy, warm-season annual with tall, medium, and dwarf varieties.

Favorite foods of turkeys, quail, doves, and, less often, ducks.

Fertilization

A soil test is recommended, or use 150 to 250 pounds of 13-13-13 per acre.

Lime requirements

Apply according to soil test or use amounts required to maintain a soil pH of 5.6 to 6.5.

Management Management

If larger varieties are chosen, knock down with mower at maturity; second crops often can be made after pruning heads with mower.

Planting dates

April 15 to June 15.

Planting rates

Plant 8 pounds per acre in 24 to 36 inch rows, or broadcast 12 to 15 pounds per acre and cover 1 inch.

Soil adaptation

Bottomland, well-drained, heavy clay to clay loam soils are best. However, moderately-drained soils are acceptable when flooding is desired.

Soil preparation

Plant in a well-disked seedbed.

Varieties

Choose non-bird resistant, dwarf varieties such as Kafir, Hegair, Milo, and small game food sorghum.

Lespedezas

NOTE: Lespedeza is an excellent crop for the bobwhite quail. Annual lespedezas can be planted with other summer grasses, legumes, and grains. Seeds will also germinate and sprout without soil disturbances, especially on areas overseeded following prescribed burning. These are good plantings for seeding roadsides. Sericea lespedeza is widely planted for soil erosion and hay. However, its seeds

are not palatable to quail and turkeys. Better stands of shrub lespedeza are obtained by transplanting prepared seedlings from a nursery.

Lab Lab

Companion plants

Other drought-resistant warm-season legumes; millet, corn, and sorghum.

Description

Very drought tolerant, fast growing, erect, warm-season legume that is weakly perennial and does not readily reseed. Used widely in south Texas. Highly preferred by deer.

Fertilization

Soil tests are recommended, or use 300 pounds per acre of 0-20-20.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 6.0 to 7.5.

Management

Seedlings are not competitive. Keep seedbed free of weeds and avoid grazing or browsing for the first month following establishment. Must be reseeded each year. Inoculate before lanting.

Planting dates

April 15 to June 15.

Planting rates

Drill 5 to 10 pounds per acre at 1/4 of an inch, or broadcast 10 to 20 pounds per acre and cover 1/2 to 3/4 of an inch.

Soil adaptation

Grows on well-drained, sandy, upland sites. Very drought tolerant; will not tolerate wet soils.

Soil preparation

Plant in a well prepared, firm seedbed.

Annual Lespedeza

Description

Kobe and Korean lespedeza are reseeding annual legumes. Kobe grows about 6 to 10 inches in height, and Korean grows about 12 to 18 inches high. Both produce seeds for quail and turkey.

Fertilization

A soil test is recommended or use 200 to 300 pounds of 0-20-20 per acre.

Lime requirements

Apply according to soil test, or use amounts required to maintain a soil pH of 5.0 to 6.5.

Management

Reseeding can be enhanced by disking and fertilizing with 100 pounds of 0-20-20 per acre.

Planting dates

March 1 (Kobe) to May 1 (Korean)

Planting rates

Broadcast 10 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Adapted to well drained soils, primarily sandy loams to clay loams.

Soil preparation

Plant in a well-disked seedbed or direct seed along fire lanes and roadsides.

Shrub Lespedeza

Description

Two types of shrub lespedeza are commonly planted in this region. Bicolor is the number-one planted lespedeza and is a sought-after plant of the bobwhite quail. Bicolor produces choice seeds for quail and turkeys and provides suitable nesting cover. Deer will also heavily browse these plants. The other is Thunbergii. It also provides choice seeds for quail and turkey but supposedly is more deer resistant than other lespedezas. Both of these species are perennial legumes that grow to heights of 5 to 8 feet.

Fertilization

A soil test is recommended, or apply 400 pounds of 0-20-20 per acre in fields (depleted areas), or 250 pounds per acre in woods.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 6.0.

Management

Shrub lespedeza should be bushhogged and refertilized with 200 pounds of 0-20-20 per acre just before spring green-up.

Method of establishment

Direct seeding or seedling transplants.

Planting dates

November 15 to March 1.

Planting rates

Broadcast 15 pounds per acre or plant seedlings in rows 2 to 3 feet apart with 18- to 24-inch spacings between plants. A long and narrow plot 4 to 5 rows wide and at least 200 feet long (1,000 to 2,000 plants) is recommended. Plant along fence rows and at edge of woods for transition zones and through thinned timber of fields to break up contiguous, single vegetative layer areas.

Soil adaptation

Well-drained sandy loam to clay loam sites.

Soil preparation

If lespedeza is to be seeded, plant in a well-prepared, firm seedbed. Although not necessary, disking would help hand-planting tremendously. A tractor with three-point hitch planter is essential when planting considerable numbers/plots of bush lespedeza seedlings.

Varieties

Bicolor Strain 101; Thunbergii Amquail and Attaway.

Browntop Millet

Companion plants

Winter legumes, grain sorghum, and sunflower.

Description

A summer annual grass that grows to heights of 3 feet and matures in 60 days. Seeds are choice foods of quail, turkeys, doves, waterfowl, and non-game birds.

Fertilization

A soil test is recommended, or use 300 pounds of 6-12-12 per acre. Additional use of nitrogen may cause less seed production and more grass production, which is not desirable, unless planted for hay.

Lime requirements

Apply according to soil test, or use amounts required to maintain a soil pH of 5.5 to 7.0.

Planting dates

For doves, plant 80 days before the season. For ducks, plant in late July to early August and flood several weeks before desired hunting date.

Planting rates

Drill 8 pounds per acre at 1/4 of an inch, or broadcast 10 pounds per acre and cover 1/2 of an inch; can be planted in 2 to 3-foot rows at 8 pounds per acre.

Soil adaptation

Well adapted to all upland soils and well-drained bottomland soils.

Soil preparation

Plant in a well disked seedbed.

Dove Proso Millet

Companion plants

Grows best alone.

Description

A warm-season annual grass that grows to heights of 6 feet. Seeds mature in 80 days; choice seeds of doves, quail, and turkeys.

Fertilization

A soil test is recommended, or use 300 pounds of 6-12-12 per acre.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 5.5 to 6.5.

Planting dates

May 15 to June 15.

Planting rates

Drill 15 pounds per acre at 1/4 of an inch, or broadcast 15 to 20 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Adapted to well-drained fertile soils.

Soil preparation

Plant in a well-disked seedbed.

Foxtail Millet

Companion plants

Usually outcompetes other grasses.

Description

A warm-season annual grass that varies in height according to variety. Seeds mature in 90 days; choice seeds of doves, quail, and turkeys.

Fertilization

A soil test is recommended, or apply 300 pounds per acre of 6-12-12.

Lime requirements

Apply according to soil test, or use amounts required to maintain a soil pH of 5.5 to 6.5.

Planting dates

May 15 to June 1.

Planting rates

Drill 15 pounds per acre at 1/4 of an inch, or broadcast 15 to 20 pounds per acre and cover 1/2 of an inch.

Soil adaptation

Adapted to well-drained upland soils.

Soil preparation

Plant in a well-disked seedbed.

Varieties

Common, German, and Hungarian.

Japanese Millet

Companion Plants

Grows best alone.

Description

A warm-season, annual reseeding grass that grows to heights of 2 to 4 feet. Seeds mature in 50 to 60 days. Japanese millet is the most popular planting used for ducks. This plant can withstand shallow flooding during growth. It produces choice seeds for ducks, doves, quail, and turkeys and provides forage for deer.

Fertilization

Apply 200 pounds per acre of 13-13-13. Fertilization is not required when direct seeding on mud flats.

Lime requirements

Use amounts required to maintain a soil pH of 6.0.

Management

Flood 2 weeks before duck season. It is prone to lay over and sprout if flooded for extended periods.

Planting dates

As near August 1 as possible for waterfowl.

Planting rates

Broadcast 20 pounds per acre and cover 1/4 of an nch.

Soil adaptation

Grows best on wet soils.

Soil preparation

Plant in a well-disked seedbed or direct seed onto mud flats.

Oats

Companion plants

Ryegrass, clover, vetch.

Description

A cool-season annual small grain that is a choice food of doves, ducks, quail, turkeys, and browsed by deer in early stages of growth. Oats are not as cold hardy as are wheat, barley, and rye.

Fertilization

A soil test is recommended, or use 200 pounds per acre of 13-13-13.

Lime requirements

Apply according to soil test, or use amounts required to maintain a soil pH of 5.5 to 6.5.

Management

Apply an additional 200 pounds per acre of 34-0-0 in February.

Planting dates

September 1 to November 1.

Planting rates

Broadcast or drill 1.5 bushels or 80 pounds of seed per acre and cover 1 inch.

Soil adaptation

Adapted to well-drained, light-textured soils.

Soil preparation

Plant in a well-disked seedbed.

Partridge Pea

Description

A reseeding, warm-season annual legume with small fern-like leaves, yellow flowers, and short pods containing black seeds. Grows naturally along roadsides, fence rows, ditch banks, and fallow fields. Seeds are a staple of the bobwhite quail.

Fertilization

Not required on fertile sites; infertile sites require 200 pounds per acre of 0-20-20.

Management

Partridge pea needs to be disked in February, every third year to ensure proper reseeding

Planting dates

February 1 to March 15.

Planting rates

Drill or broadcast 15 pounds of scarified seed per acre.

Soil adaptation

Grows naturally on all soils in this region.

Soil preparation

Can be planted on closely mowed grasses and lightly disked in, or can be planted in a well-disked seedbed.

Rape**Companion plants**

Wheat, rye, turnips.

Description

An erect, warm-season perennial that resembles turnips. Highly preferred by deer.

Fertilization

Soil tests are recommended, or use 50 to 75 pounds per acre of 10-10-10.

Lime requirements

Apply according to soil tests, or use amounts necessary to maintain a soil pH of 6.5 to 7.0.

Planting dates

August 1 to September 15.

Planting rates

Plant 8 to 10 pounds per acre and cover 1/4 of an inch.

Soil adaptation

Well suited for damp soils.

Soil preparation

Plant in a firm seedbed. A good plant for no-till seed combinations.

Varieties

Dwarf essex

Ryegrass**Companion plants**

All cool-season small grains, clover, and vetch.

Description

A cool-season annual grass heavily browsed by deer; provides forage and insect habitat for turkeys and quail.

Fertilization

A soil test is recommended or apply 250 pounds per acre of 13-13-13.

Management

In December, apply 150 pounds per acre of 34-0-0.

Lime requirements

Apply according to soil test or use amounts necessary to maintain a soil pH of 6.0.

Planting dates

September 1 to November 1

Planting rates

Drill or broadcast 20 to 30 pounds of seed per acre and cover inch.

Soil adaptation

Adapted to all textured, well-drained soils, except sandy soils.

Soil preparation

Plant in a well-disked seedbed.

Varieties

Gulf Coast, Marshall (cold tolerant), and Jackson (rust resistant).

Sawtooth Oak

Description

An oak introduced from Asia that can produce mast crops of acorns in 5 to 6 years. It has long, shallow, lobed leaves like Chestnut Oak and produces acorns about 5/8 of an inch to 1 1/4 inches long. Deer, turkeys, and squirrels are attracted to these acorns. Sawtooth oak is in the white oak group.

Fertilization

Not recommended until second year. At that time, apply 4 to 6 ounces of 15-15-15 per tree in a circular fashion around the tree.

Lime requirements

While research is still being conducted on exact rates, a pH of 5.5 to 6.0 is desirable for other white oaks.

Management

After the second year, continue to fertilize with 4 to 6 ounces of 13-13-13 until mast crops appear. Control weed competition by mowing or disking. Thinning is required when limbs start to touch.

Planting date

January.

Planting rates

Obtain 1 year old seedlings. Plant in a 10 by 8 foot spacing, with trees 8 feet apart and rows 10 feet apart.

Soil adaptation

Adapted to fertile, well-drained sites and can withstand flooding in the dormant season. Sawtooth oaks are difficult to establish on many Southeastern sites.

Soil preparation

Plant in an area that can be mowed.

Soybeans

Companion plants

Corn.

Description

A warm-season annual legume. Provides food and cover for rabbits, turkeys, quail, doves, and ducks. Browsed heavily by deer in early stages of growth.

Fertilization

A soil test is recommended, or use 300 pounds per acre of 0-20-20.

Management

If planted for waterfowl, remember that non-reseeding variety seeds will spoil in 30 days after flooding. Also, waterfowl do not use the protein in soybeans

efficiently, even though they readily consume them. Plant large plots in areas with high deer densities, or plots will be overgrazed quickly.

Lime requirements

Apply according to soil test, or use amounts required to maintain a soil pH of 5.8 to 7.0.

Planting dates

May 1 to June 1.

Planting rates

Plant 30 pounds per acre in 24 to 36 inch rows or drill 30 pounds per acre at 10 inch row spacing or broadcast 50 pounds per acre and cover 1/2 of an inch; inoculant required.

Soil adaptation

Adapted to well-drained, medium-textured soils such as sandy loams and clay loams.

Soil preparation

Plant in a well-disked, firm seedbed.

Varieties

There are hundreds of varieties; reseeding varieties, such as Bobwhite and Quailhaven, are being studied at the SCS Plant Materials Center in Coffeetown. Select "forage-type" varieties for best performance.

Sunflower

Companion plants

Browntop millet, grain sorghum.

Description

A warm-season annual that is a highly favored food source for mourning doves. Seeds are also used by turkeys, quail, and non-game birds. Plant the dwarf varieties where possible.

Fertilization

A soil test is recommended, or use 300 pounds per acre of 13-13-13.

Lime requirements

Apply according to soil test, or apply amounts necessary to maintain a soil pH of 5.5 to 6.5.

Management

Mow several strips randomly through plot to clean the ground and scatter the seeds; should be done at least 14 days before dove season.

Planting dates

April 15 to June 15. If planted for doves, plant before May 15 to ensure seed maturity for dove shoots in September.

Planting rates

Drill or broadcast 10 to 15 pounds per acre at 1/4 to 1/2 of an inch. For best results, plant 15 pounds of seed per acre in 36 inch rows.

Soil adaptation

Best adapted to fertile, well-drained soils.

Soil preparation

Plant in a well-disked seedbed.

Vetch

Companion plants

Cool-season small grains, ryegrass, clover.

Description

A cool-season annual legume. Grows rapidly in late winter and early spring. Provides choice seeds and foliage for turkey and bobwhite quail, browsed heavily by deer.

Fertilization

A soil test is recommended, or use 300 pounds per acre of 0-20-20.

Lime requirements

Apply according to soil test, or use amounts required to maintain a pH of 5.5 to 6.5.

Management

To enhance reseeding, disk plot every third year in February, and apply 100 pounds per acre of 0-20-20.

Planting dates

September 1 to November 1.

Planting rates

Drill 20 pounds per acre at 1/4 of an inch, or broadcast 25 to 30 pounds per acre and cover 1/2 of an inch; inoculant required.

Soil adaptation

Adapted to well-drained, medium textured soils.

Soil preparation

Plant in a well-disked seedbed.

Varieties

Hairy vetch, the most hardy and widely planted; smooth vetch, same as hairy, without hairs on stem; grandiflora, the best reseeded of the three and can be encouraged naturally by winter diskings.

Joint Vetch (Deer Vetch)

Companion plants

Warm-season perennial grasses.

Description

A warm-season annual, reseeding legume. Provides excellent forage for deer and succulent foliage and seeds for dove, quail, and turkeys. Will grow on wet sites and can be flooded 18-24 inches for ducks.

Fertilization

A soil test is recommended, or use 300 pounds per acre of 0-10-20.

Lime requirements

Apply according to soil test, or apply amounts necessary to maintain a soil pH of 5.5 to 6.5.

Management

Reseeding can be enhanced by spring disking; reapply 300 pounds per acre of 0-10-20. Not competitive -- might require preplanting herbicide application.

Planting dates

March 1 to June 1.

Planting rates

Broadcast 8 to 10 pounds per acre and cover 1/2 of an inch; inoculation required.

Soil adaptation

Adapted to moist, and wet, light textured soils. Do not plant in sandy soils.

Soil preparation

Plant in a well-disked, firm seedbed.

Wheat

Companion plants

Ryegrass, clover, vetches.

Description

A cool-season, annual small grain, widely planted; highly favored by ducks, doves, quail, and turkey as a source of seed; also, heavily browsed by deer in early stages of growth.

Fertilization

A soil test is recommended, or use 200 pounds per acre of 13-13-13.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 5.5 to 6.5.

Management

Apply an additional 200 pounds per acre of 34-0-0 in February.

Planting dates

September 1 to November 1.

Planting rates

Broadcast 80 pounds (1.5 bushels) per acre and cover 1 inch.

Soil adaptation

Adapted to well-drained, lightly textured soils; does not grow well in poorly drained soils or heavy clays.

Soil preparation

Plant in a well-disked seedbed.

Wild Winter Peas

Companion plants

Bahiagrass and dallisgrass.

Description

A cool-season, annual reseeding legume. Grows to heights of 3 feet and makes rapid growth in spring. Seeds mature in June. These peas are also known as rough winter peas, singletary peas, and caley peas. These peas are choice food of quail and turkeys and heavily used by deer.

Fertilization

A soil test is recommended, or use 300 pounds per acre of 0-20-20.

Lime requirements

Apply according to soil test, or use amounts necessary to maintain a soil pH of 6.0 to 7.0.

Management

Reseeding can be enhanced by early fall disking and reapplication of fertilizer at the rate of 200 pounds per acre of 0-20-20.

Planting dates

September 1 to November 15.

Planting rate

Broadcast 30 pounds per acre and cover 1 inch. Must use scarified seed. Vetch inoculant required.

Soil adaptation

Better adapted to heavy clay, fertile to moderately fertile soils.

Soil preparation

Plant in a well-disked seedbed.

Adapted by **Dean Stewart**, Extension Wildlife Specialist, from *Wildlife Food Planting Guide for PCA Recreation Users*, David McArthur, Wildlife Manager, Tenneco Packaging