

Wildlife

Planting Chart for Wildlife Food Plots in Tennessee

*Craig A. Harper, Assistant Professor
Forestry, Wildlife and Fisheries*

Planting food plots for wildlife is an excellent way to improve available nutrition, increase the carrying capacity and concentrate wildlife on your property. Food plots do not take the place of habitat management in general, but are intended to augment the quantity and quality of "food" occurring naturally in an area. Whenever habitat improvement is desired, other management practices (e.g., timber management, prescribed burning, disking and fertilizing natural vegetation) should be implemented as well.

Food plot plantings should be determined depending upon which wildlife species you want to attract and the seasonal requirements of those species. Not all wildlife species benefit from all food plot plantings. Certain food plot mixtures provide benefit to different species of wildlife. For example, doves do not get much benefit from a clover patch planted for white-tailed deer.

It is crucial that proper steps be taken when preparing wildlife food plots. Plantings should be matched to the appropriate soil type and moisture regime. Also, successful plantings result when soils are amended with the recommended lime and fertilizer rates from a soil test.

Proper seedbed preparation and seeding depth are critical to success. Drilling or covering seed too deep is a common reason for crop failure. While grains (e.g., corn and milo) can be drilled or disked approximately 1 inch deep, small-seeded species (e.g., clovers and alfalfa)

should be covered no more than 1/4 inch. This is best accomplished by the following:

1. Prepare seedbed by plowing and/or disking or tilling (lime and fertilizer should be incorporated into soil at this time if you have not done so already).
2. Firm the seedbed using a cultipacker or, if you do not have a cultipacker, ride over the plot with your tractor, truck or four-wheeler, covering the entire plot with tire tracks.
3. Sow seed.
4. Run a cultipacker over the field once again (or drive over plot again) to ensure firm seed-to-soil contact and improve germination rate. Note: this is a very important step for a successful planting.

When sowing combination plots of small grains and small-seeded species:

1. Prepare seedbed by plowing and/or disking or tilling (lime and fertilizer should be incorporated into the soil at this time if you have not done so already).
2. Sow grain onto prepared seedbed.
3. Lightly disk seed into plot, covering seeds approximately 1 inch (unless seed is drilled).
4. Run a cultipacker over the field to firm the seedbed.
5. Sow small seed.
6. Cultipack seedbed once again to ensure firm seed-to-soil contact and increase germination.



When planting legumes, be sure to treat seed with the appropriate inoculant prior to sowing (unless you are planting pre-inoculated seed). Information concerning proper inoculation is detailed in SP 550-B, **Inoculating Legume Seed for Wildlife Food Plots**, available at your county Extension office. Proper inoculation helps ensure crop success and can save on fertilizer costs.

Planting success and use of forage plots should be monitored using exclosures. Exclosures (approximately 4 feet in diameter and 5 feet tall) can be made of chicken wire wrapped around four stakes driven into the ground.

Many commercial food plot mixtures are available on the market that produce excellent food plots. Most contain some combination of the plantings provided in this chart. Keep in mind, however, that whether you decide to mix your own planting or buy a commercial mixture, the steps outlined above are critical to success. Do not be misled by advertisements stating all you have to do is spread the seed on the ground — no preparation is necessary. This usually leads to disappointment.

Crop Species*	Seeding Rate (lbs/ac)**	Planting Date	Planting Depth
Cool-Season Legumes***			
Alsike clover (perennial)	6	Sept 1 - Oct 1	1/4"
Arrowleaf clover (annual)	10	Aug 15 - Oct 1	1/4"
Ball clover (annual)	8	Aug 15 - Oct 1	1/4"
Crimson clover (annual)	20	Aug 15 - Oct 1	1/4"
Ladino white clover (perennial)	8	Sept 1 - Oct 1; Feb 15 - Apr 1	1/4"
Red clover (biennial)	15	Sept 1 - Oct 1; Feb 15 - Apr 1	1/4"
Subterranean clover (annual)	20	Aug 15 - Oct 1	1/4"
White-dutch clover (perennial)	5	Sept 1 - Oct 1; Feb 15 - Apr 1	1/4"
Sweetclover, yellow or white (biennial)	20	Sept 1 - Oct 1; Feb 20 - Apr 1	1/4"
Alfalfa (perennial)	20	Aug 15 - Sept 15; Mar 1 - May 1	1/4"
Austrian winter pea (annual)	50	Aug 15 - Oct 1	1 - 2"
Birdsfoot trefoil (perennial)	10	Aug 15 - Oct 1; Feb 20 - Apr 1	1/4"
Cool-Season Grasses			
Oats (annual)	100	Sept 1 - Oct 15; Feb 15 - Mar 15	1/2 - 1"
Rye (annual)	100	Sept 1 - Oct 15	1/2 - 1"
Ryegrass (annual or perennial)	30	Aug 15 - Oct 15; Feb 15 - Apr 1	1/4 - 1/2"
Wheat (annual)	100	Aug 15 - Oct 15	1/2 - 1"
Warm-Season Legumes***			
American jointvetch (annual)	20	Mar 1 - June 1	1/2 - 1"
Alyceclover (annual)	20	Mar 1 - June 1	1/4 - 1/2"
Catjang pea (annual)	25	Apr 1 - June 15	1/2 - 1"
Cowpea (annual)	75	May 1 - June 15	1/2 - 1"
Lablab (annual)	10	May 1 - June 15	1 - 2"
Soybean (annual)	85	May 1 - June 15	1 - 2"
Common (Kobe) lespedeza (annual)	35	Mar 15 - Apr 15	1/2 - 1"
Partridge pea (annual)	10	Mar 1 - June 1	1/2 - 1"
Warm-Season Grasses			
Corn (annual)	13	Apr 1 - May 15	1 - 2"
Grain sorghum (milo; annual)	20	Apr 15 - June 15	1"
Browntop millet (annual)	30	Apr 15 - June 15	1/4 - 1/2"
German (foxtail) millet (annual)	25	Apr 15 - June 15	1/4 - 1/2"
Japanese millet (annual)	30	May 1 - Aug 31	1/4 - 1/2"
Pearl millet (annual)	30	Apr 15 - June 15	1/4 - 1/2"
White proso millet (annual)	35	Apr 15 - June 15	1/4 - 1/2"
Other Plantings			
Buckwheat (annual; warm-season)	50	Apr 15 - June 15	1/2 - 1"
Chicory, puna (perennial)	6	Apr 1 - May 15; Aug 15 - Oct 1	1/4"
Chufa (annual; warm-season)	40	Apr 15 - June 1	1 - 2"
Rape, dwarf essex (perennial; cool-season)	10	Mar 1 - May 15; Aug 15 - Oct 1	1/2 - 1"
Rape, typhon (annual; cool-season)	8	Mar 1 - May 15; Aug 15 - Oct 1	1/2 - 1"
Sunflower (annual; warm-season)	25	Apr 15 - May 15	1 - 2"
Turnip, forage-type (annual; cool-season)	8	Mar 1 - May 15; Aug 15 - Oct 1	1/4"

Before planting your food plots, consider their placement, size, shape and distribution. Although size, shape and distribution may vary somewhat for different species (as described below), food plots should never be placed where they are visible from public roads. This only advertises your work and increases poaching substantially.

The following mixtures (rates are per acre) have produced successful food plots in the **appropriate soil types and moisture regimes** for the wildlife species listed. Although only four species or groups of wildlife are listed, many other species may benefit from these plantings (e.g., rabbits, groundhogs, ruffed grouse, cardinals, blue jays and sparrows).

Crop Species	Optimum pH	Preferred Soil Type
Cool-Season Legumes		
Alsike clover	5.8 - 6.5	Adapted to cool climate; wet, bottomland soils; mildly tolerant of flooding
Arrowleaf clover	6.0 - 6.5	Fertile, well-drained sandy loams and light clay; good reseeder
Ball clover	5.8 - 7.0	Adapted to loam and clay soils; tolerates poor drainage; good reseeder
Crimson clover	6.0 - 6.5	Widely adapted; excellent reseeder
Ladino white clover	6.0 - 6.5	Prefers moist bottomland; sandy loam to clay
Red clover	6.0 - 7.0	Sandy loamy to clay
Subterranean clover	5.5 - 7.0	Well-drained sandy-loam and clay upland sites; mildly tolerant of shade
White-dutch clover	6.0 - 6.5	Widely adapted; best on fertile, moist bottomland
Sweetclover	6.5 - 7.0	Well-drained; drought tolerant
Alfalfa	6.5 - 7.0	Well-drained loams
Austrian winter pea	6.0 - 7.0	Widely adapted
Birdsfoot trefoil	6.0 - 7.0	Well-drained; drought tolerant
Cool-Season Grasses		
Oats	5.8 - 6.5	Well-drained, light-textured
Rye	5.8 - 6.5	Well-drained, light-textured clay or sandy soils; not poorly drained soils
Ryegrass	6.0	Well-drained, most textures; tolerates poorly drained soils
Wheat	5.8 - 6.5	Well-drained, light-textured; not in poorly drained or heavy clay
Warm-Season Legumes		
American jointvetch	5.5 - 6.5	Moist to wet, light-textured loams are best; not droughty soils
Alyceclover	6.5 - 7.0	Moderately to well-drained soils, including bottomland sites
Catjang pea	5.5 - 7.5	Widely adapted, well-drained
Cowpea	5.5 - 7.5	Well-drained soils
Lablab	5.5 - 7.5	Well-drained soils; drought tolerant
Soybean	5.8 - 6.5	Widely adapted, well-drained
Common (kobe) lespedeza	5.8 - 6.5	Widely adapted
Partridge pea	6.0 - 6.5	Widely adapted
Warm-Season Grasses		
Corn	5.8 - 6.5	Widely adapted, well-drained
Grain sorghum (milo)	5.8 - 6.5	Widely adapted, well-drained
Browntop millet	5.5 - 6.5	Well-drained
German (foxtail) millet	5.5 - 6.5	Well-drained
Japanese millet	5.5 - 7.0	Moist soils; tolerates shallow flooding after becoming established
Pearl millet	5.5 - 6.5	Well-drained
White proso millet	6.0 - 6.5	Well-drained; tolerates dry sites
Other Plantings		
Buckwheat	6.5 - 7.0	Widely adapted
Chicory, puna	5.8 - 6.5	Widely adapted
Chufa	5.8 - 6.5	Moderately- to well-drained sandy or loam soils; avoid clay soils
Rape, dwarf essex	5.8 - 6.5	Widely adapted
Rape, typhon	5.8 - 6.5	Widely adapted
Sunflower	5.8 - 6.5	Widely adapted, well-drained
Turnip, forage-type	5.8 - 6.5	Widely adapted
<p>* Most commercial mixes are comprised of three or more of the species included in this list. ** All seeding rates are for single-species planting. Reduce rate by one-half when planting in combination with another single species. Rate may be reduced by two-thirds or more when planting with two or more species, depending upon species composition preferred and growth form of plant(s). *** All legumes should be inoculated with species-specific inoculant prior to planting.</p>		

White-tailed Deer

Ideally, food plots for deer should constitute 3 to 5 percent of a management area (i.e., your property), with a mixture of warm- and cool-season forage plots and grain plots incorporated into your food plot program. Food plots for deer should be between 1/4 and 2 acres, with the larger plots (≥ 1 acre) irregular in shape. Irregularly shaped plots are more attractive to deer because the amount of edge (where two habitats meet) is increased and the distance to cover is relatively short (should never be over 100 yards). Several smaller plots are better than fewer larger plots because several smaller plots can be spread out over the management area, encompassing more deer home ranges, thus benefiting more deer. The determining factor for minimum food plot size is shade effect and deer density. Food plots should be large enough to allow plantings at least 3-4 hours of direct sunlight. If forage plots are overgrazed, additional habitat management and/or increased antlerless harvest is needed (see PB1643, **Quality Deer Management: A New Philosophy for Managing Deer**).

Warm-season forage plots

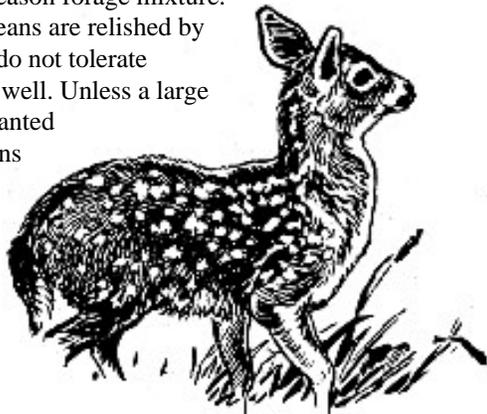
Warm-season forage plots provide nutrients necessary for lactation, fawn growth and antler development. Best results usually are found on bottomland sites where plantings are not as stressed during dry summer conditions. Warm-season plots are excellent areas to hunt near during the early season before mast (e.g., acorns) becomes available.

#1) bottomland sites

- 20 lbs. Buckwheat
- 7 lbs. Alyceclover
- 7 lbs. American jointvetch
- 2 lbs. Rape (dwarf essex or typhon)
- 2 lbs. Forage turnips (e.g., vortex)

Although rape and forage turnips are considered cool-season, they also produce abundant forage when planted in spring. Germination of rape and turnips occurs relatively fast, making these plants an important component in a warm-season forage mixture.

Soybeans are relished by deer, but do not tolerate browsing well. Unless a large field is planted to soybeans



or the deer density is relatively low, soybeans are not recommended for food plots. Usually, deer eat soybean plants soon after germination and there is little forage left in the plot (except for weeds). The species listed above respond much better to browsing. Cowpeas also can be used as a warm-season forage for deer; however, deer usually do not browse cowpeas until late summer/early fall when availability of other forages is low.

#2) upland sites

- 25 lbs. Buckwheat
- 20 lbs. Cowpeas
- 2 lbs. Rape (dwarf essex or typhon)
- 2 lbs. Forage turnips (e.g., vortex)

Cool-season forage plots

Cool-season plots provide forage during the winter stress period when little else is available. A large mast crop (acorns and beechnuts) will influence use by deer. Cool-season forage plots help deer maintain a high nutritional plane through winter, entering spring in good shape. Forage high in protein is needed during March, April and May for antler growth and reproductive demands.

#1) upland sites (annual)

- 12 lbs. Crimson clover
- 15 lbs. Austrian winter pea
- 5 lbs. Ryegrass

#2) upland sites (annual)

- 7 lbs. Arrowleaf clover
- 15 lbs. Austrian winter pea
- 8 lbs. Rye

#3) upland sites (biennial)

- 5 lbs. Red clover
- 5 lbs. Sweetclover (yellow and/or white)
- 2 lbs. Puna chicory
- 2 lbs. Rape (dwarf essex or typhon)
- 8 lbs. Oats, rye or wheat

#4) upland sites (perennial)

- 5 lbs. Ladino clover
- 6 lbs. Red clover
- 2 lbs. Rape (dwarf essex or typhon)
- 8 lbs. Oats, rye or wheat

#5) loamy soils (perennial)

- 5 lbs. Ladino clover
- 6 lbs. Alfalfa
- 2 lbs. Rape (dwarf essex or typhon)
- 8 lbs. Oats, rye or wheat

- #6) loamy soils (perennial)
 10 lbs. Alfalfa
 4 lbs. Birdsfoot Trefoil
 2 lbs. Rape (dwarf essex or typhon)
 8 lbs. Oats, rye, or wheat

- #7) bottomland sites (perennial)
 4 lbs. Alsike clover
 5 lbs. Ladino clover
 2 lbs. Rape (dwarf essex or typhon)
 5 lbs. Ryegrass

Number 1 and 2 are annual mixtures; 3 is primarily a biennial mixture; 4 - 7 are perennial mixtures. All mixtures, however, contain an annual component. Annual plantings complete their life cycle in one growing season and usually do not reseed themselves. Biennials normally require two growing seasons to complete their life cycle. Perennials continue living after flowering and bearing seed and, depending upon management, may be present for several years. Maintaining soil pH at the appropriate level is critical in order to retain perennial legumes (e.g., ladino clover, alfalfa, birdsfoot trefoil).

Clovers are much slower to establish than cool-season grains (oats, rye or wheat), ryegrass or rape. A cool-season grain, ryegrass and/or rape should be planted in any cool-season mixture because they establish quickly, thereby providing forage more quickly. In addition, because establishment is relatively fast, cool-season grains help prevent soil erosion. Since cool-season grains are annuals, they serve as a “nurse crop” for perennial legumes through the first winter after planting, and die the following spring/summer, allowing perennial legumes to establish a good stand before summer.

DO NOT plant tall fescue or orchard grass. These grasses are on the bottom in terms of forage preference by white-tailed deer.

Grain plots

Corn and milo can be planted separately or together as a food plot. Strips of corn and/or milo adjacent to strips of forage plots (listed above for deer) make excellent sources of food and cover for deer, rabbits, wild turkeys, bobwhites and doves. Strips should be at least 50 feet wide. The following mixture will attract deer.

- 7 lbs. Corn
- 8 lbs. Grain sorghum (WGF variety)

Wild Turkeys

Forage plots

All of the forage plots listed for white-tailed deer will produce forage for wild turkeys as well. Expect heavy use by wild turkeys in late winter/early spring as turkeys feed on the green vegetation of cool-season plots. In addition, warm-season forage plots and perennial cool-season plots harbor an abundance of insects and other invertebrates that are critical components in the diet of wild turkey poults. These plots will serve as “bugging grounds” for wild turkey broods during early- to mid-summer.

Grain plots

Wild turkeys readily feed upon available grain in fall and winter. The grain plots listed for deer and doves are excellent choices for wild turkeys, as well as the following mixture.

- 6 lbs. Corn
- 5 lbs. Grain sorghum (WGF variety)
- 7 lbs. Catjang pea

Chufa (a variety of yellow nutsedge) is a popular planting for wild turkeys. Turkeys feed upon the nut-like tubers produced a couple of inches under the ground. Be aware, however, that chufa grows best in sandy soils and turkeys cannot feed upon the tubers unless they can scratch down into the soil far enough to turn over the roots. This is not possible in heavy clays unless the soil is disked once the chufa has matured. For these reasons, chufa plots are most successful in sandy or loamy soils.

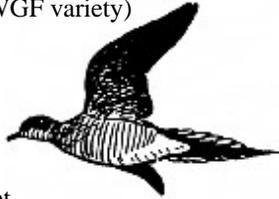


Mourning Doves

Doves are attracted to many different seeds and grains, including corn, milo, millets, sunflower and buckwheat. Freshly cut grain fields are preferred feeding spots for doves. Larger food plots (3-10 acres) are recommended to attract large numbers of doves. Doves also prefer fields with structure (e.g., trees or powerlines) nearby that allow them to perch and loaf near the field. In addition to perching sites, a source of water and grit (e.g., a farm road) will make the area more attractive for doves. The following mixtures attract doves.

- #1) 7 lbs. Corn
8 lbs. Grain sorghum (WGF variety)

- #2) 10 lbs. Buckwheat
5 lbs. Browntop millet
5 lbs. Foxtail millet
5 lbs. Pearl millet
5 lbs. White proso millet
5 lbs. Peredovik sunflower



If you wish to plant mixture #2, but cannot find seed for all of the different species, simply increase the rate of the ones you have appropriately. Several naturally occurring weeds (e.g., ragweed, barnyardgrass, redroot amaranth [pigweed], pokeberry, Carolina geranium, foxtail grass) produce seeds that are favored by doves and actually make a food plot more attractive to these birds. Doves prefer feeding in relatively open sites; bushhogging and light disking can make seeds available and feeding sites more attractive. Do not bushhog an entire field at once, but mow in sections or rows to provide seed throughout the fall and winter.

Bobwhite Quail

Quail use a variety of grain plots and weedy fields for seed. In addition to the mixtures listed for doves, quail benefit from mixtures including soybeans and cowpeas when deer density is low enough to allow these plants to produce seed. Food plots for quail should not be nearly as large as those for doves. Quail require all of their habitat needs in close proximity; therefore, an abundance of “edge” habitat is very important. Food plots for quail should be long and narrow, ideally along a field border situated close to natural cover (e.g., brushy fence rows, hedgerows and gullies; woodlots; and old fields). The best location may be adjacent to the corner of two or more old fields, all separated by brushy hedgerows.

Forage plots and weedy fields are frequented by quail broods, as chicks search for insects and other invertebrates.

Optimally, fields intended for use by quail should be relatively open at ground level with a forbaceous canopy overhead. This type of environment enables quail chicks in search of invertebrates to move about easily while providing overhead cover.

“Weed” species that should be encouraged for quail include ragweed, partridge pea, beggarlice (or beggarweed), Carolina geranium, milk pea, butterfly pea, smartweeds, pokeberry, morning glories, annual Panic grasses and foxtail grass. To stimulate these plants, lightly disk around field borders in late winter. This disturbs the soil surface and allows many seeds in the seed bank to germinate. The “edge” created by light disking not only provides food for quail, but also serves as cover for quail, rabbits and many other small animals. Discing around fields serves as a firebreak as well. Burning old fields every two or three years is one of the best ways to maintain early successional habitat favored by many wildlife species, including quail, wild turkeys, rabbits and deer.

DO NOT plant tall fescue or orchard grass. Fescue and orchard grass are detrimental to bobwhite quail because these grasses displace good nesting habitat (e.g., old fields of broomsedge) and produce a dense tangle at ground level that limits the mobility of quail chicks. Also, consumption of fescue seed by bobwhite quail leads to weight loss, cloacal swelling and, ultimately, increased mortality.

A Word about Native Warm-Season Grasses (NWSG)...

Native warm-season grasses (big bluestem, little bluestem, indiagrass, eastern gamagrass and switchgrass) are planted to provide cover for wildlife, in particular, nesting and escape cover for bobwhite quail and rabbits. NWSG grow in bunches and, when sown and managed for wildlife, contain open ground between bunches. Quail prefer to nest at the base of these bunch grasses and use the open spaces as “runways” for travel and feeding. White-tailed deer also use fields of NWSG as bedding sites. NWSG are **not** planted as food plots for wildlife.



Waterfowl

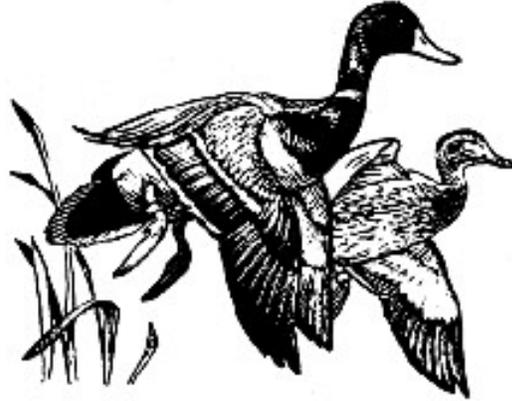
Food plots in areas that can be flooded 2-10 inches are magnets for ducks. A shallow dike along with some type of water-control structure (e.g., flashboard riser) enables the water level to be manipulated over the field. Flooding should be conducted gradually, beginning in September, with full flood occurring by mid November. Drawdowns also should be conducted gradually and completed by late March if another crop is to be grown. Listed below are three options for food plots intended for waterfowl.

- #1) 30 lbs. Japanese millet

- #2) 15 lbs. Browntop millet
17 lbs. White proso millet

- #3) 7 lbs. Corn
8 lbs. Grain sorghum (WGF variety)

Soybeans should not be flooded for ducks because they decompose rapidly and may cause food impaction, which can be fatal. In addition to the above plantings, managing for naturally occurring moist-soil vegetation (e.g., smartweeds, sedges, barnyardgrass, fall panicum and rice cutgrass) also will attract ducks with relatively little expense and effort.



Note:

Most of the seeds listed in this planting chart are available from local farm and garden supply stores. If not, contact:

Southern Wildlife Products Inc.
P.O. Box 429
Eufaula, Alabama 36027

(877) 813-8500 toll free
(334) 312-2464

Adams-Briscoe Seed Co. Inc.
P.O. Box 19
325 East Second Street
Jackson, GA. 30233-0019

(770) 775-7826
(770) 775-7122 FAX

Additional sources of hard-to-find seed are available at your county Extension office.

SP550A-2M-9/00 (Rep)
E12-4915-00-001-01

The Agricultural Extension Service offers its programs to all eligible persons regardless of race, religion, color, national origin, sex, age, disability or veteran status and is an Equal Opportunity Employer.
COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS. The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments
cooperating in furtherance of Acts of May 8 and June 30, 1914. Agricultural Extension Service, Charles L. Norman, Dean