



Planting Legumes for Wildlife

Written by Ron Brenneman
& Henry Daniel

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Legumes are a group of plants that are members of the *Fabaceae* plant family. Most legumes produce an abundance of high quality forage that is readily used by many species of wildlife. Turkeys utilize legumes by feeding on the leaves and flower heads, and insects and other invertebrates that live on the plants. Clovers are the most common legumes planted for wildlife purposes.

A unique characteristic of legumes is their ability to take nitrogen (N) from the air and fix it into a form that can be used for growth by the plant itself and other crops planted in association with it or after it. The nitrogen is stored in small nodules on the plant root. Clovers and alfalfa, for example, can produce from 50-200 pounds per acre per year of nitrogen, which is available to improve plant growth and quality.

Legumes are able to take nitrogen from the air because of a *Rhizobium* bacteria that is present in their roots. The bacteria does not harm the plant but actually helps it by fixing the nitrogen. This is the reason why legume seed should be inoculated with *Rhizobium* bacteria

before planting to be sure that an adequate number of the bacteria are present on the root of the legume. The procedure for inoculating legume seed is discussed later in this publication.

PLANTING PROCEDURES:

General Considerations

Warm season legumes are usually planted during the spring, February to June, and cool season legumes during the fall, September to November. Planting dates, however, vary with location, weather,



A gobbler strutting in a strip of ryegrass and ladino clover.

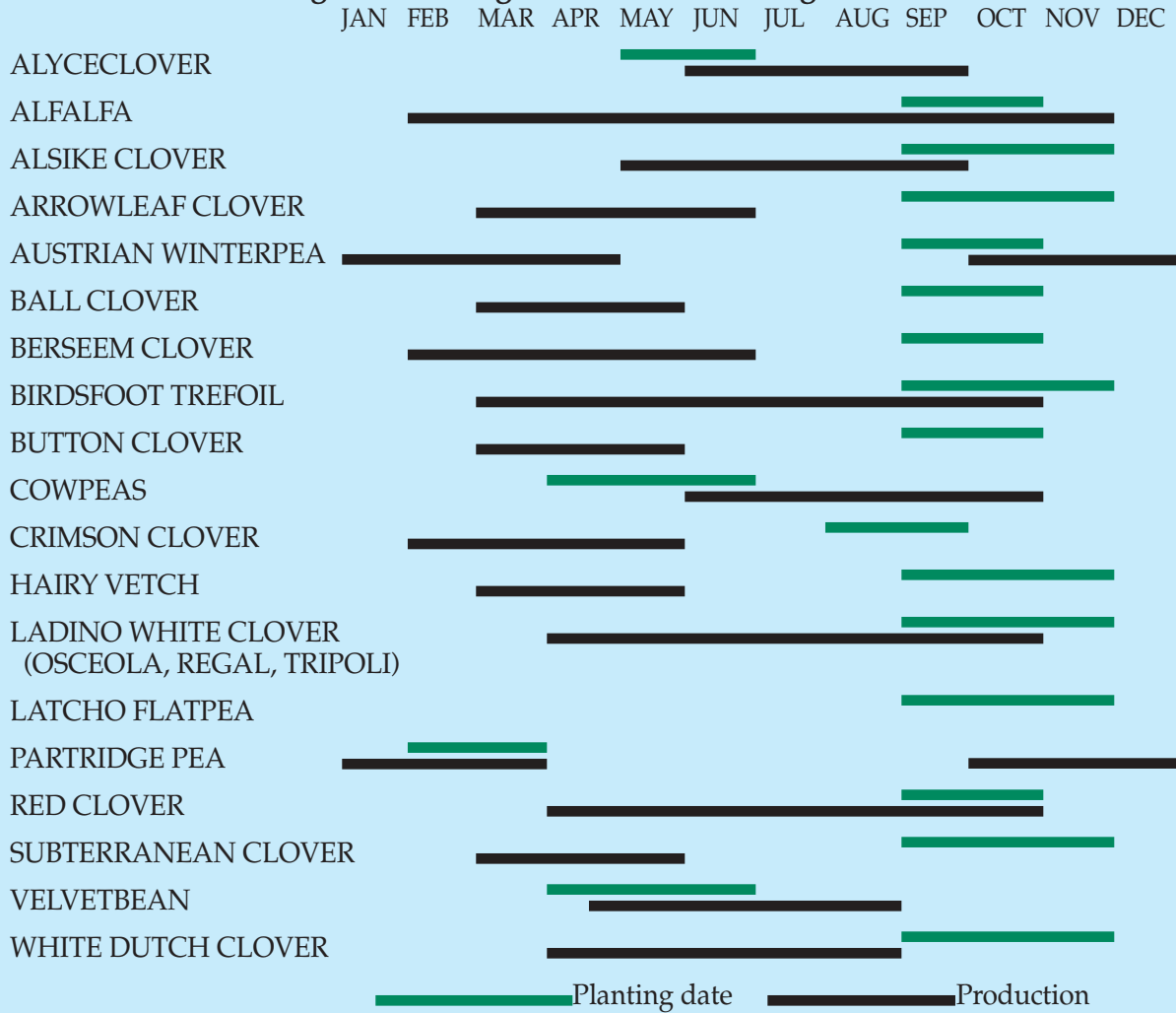
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Partridge pea, a reseeding annual planted for wild turkey and quail.

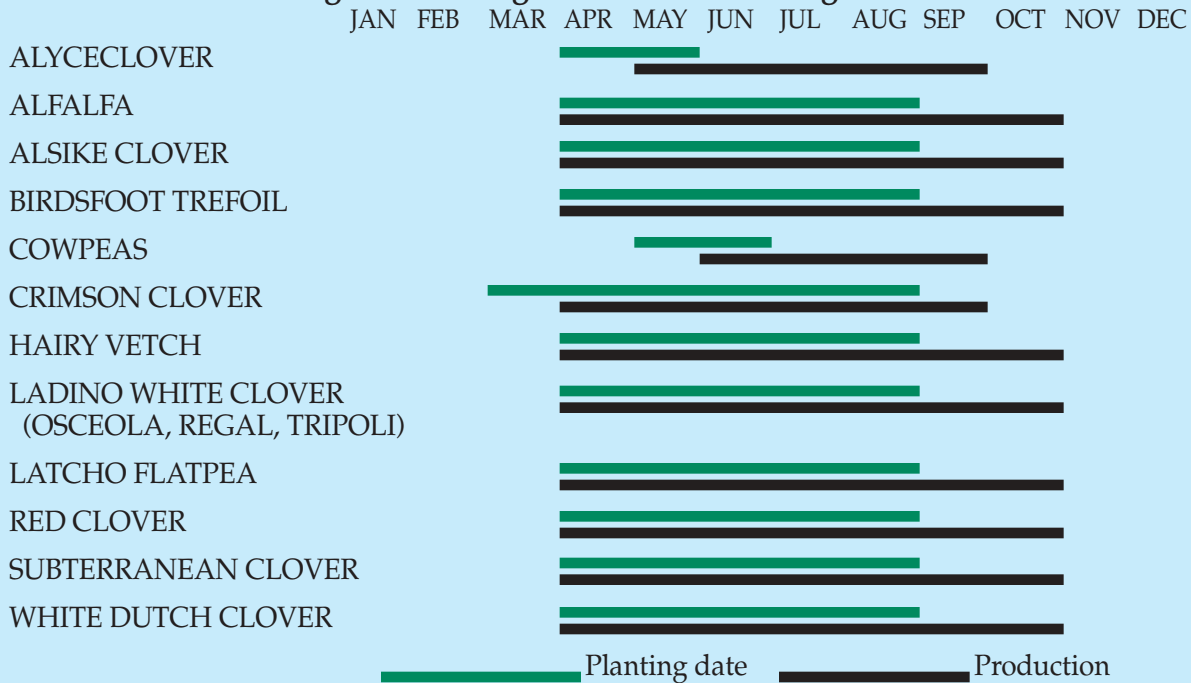
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FIGURE 1 - Legume Planting Dates and Peak Forage Production*/Southern Areas



* Planting dates and peak production periods vary somewhat with location, weather, and other factors. This figure provides general information only.

FIGURE 2 - Legume Planting Dates and Peak Forage Production*/Northern Areas



* Planting dates and peak production periods vary somewhat with location, weather, and other factors. This figure provides general information only.



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Birdsfoot trefoil and dutch white clover do well planted together in cooler areas.

elevation, and other factors. In some of the cooler areas legumes can be planted with success throughout much of the summer months. In this publication we have made two broad classifications, southern areas and northern areas, for planting dates and peak forage production, Figures 1 and 2. Even within these classifications there is much variation.

In northern areas peak forage production occurs during the

spring and summer months. Forage is available, however, throughout much of the fall and into the early winter until snow cover makes it unavailable. Even in these areas, with short growing seasons and cool temperatures, legumes can be available to wildlife for eight months or more.

The timing of legume forage availability in the warmer, southern areas is different than the northern areas, but the length of time it is available is similar.

During the hottest part of the summer many of the legumes are dormant with peak production occurring in the spring and fall.

Some types of legumes are annual and others are perennial. Annual legumes generally produce forage for one year and then must be replanted again. Particularly in warmer areas, however, many of the annuals will reseed and produce an adequate stand in succeeding years. For example, we know of a crimson

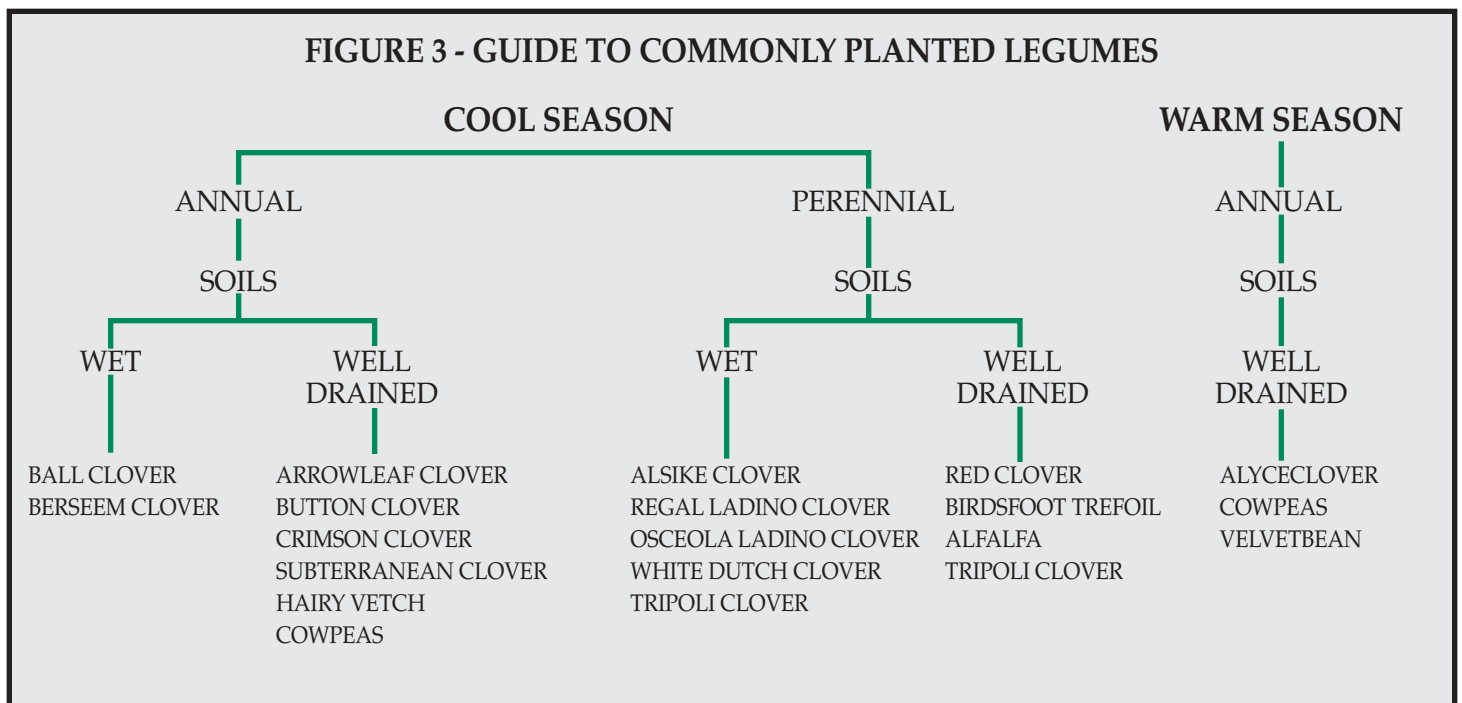




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Preparation of the seedbed is an important step in a successful legume planting.

clover stand in Georgia that is still producing excellent forage six years after the initial planting.

Perennial legumes will persist for more than one year and often for a much longer period of time. We have seen a clover and alfalfa mixture persist for more than seven years in northern Pennsylvania, with only occasional topdressing with lime and fertilizer.

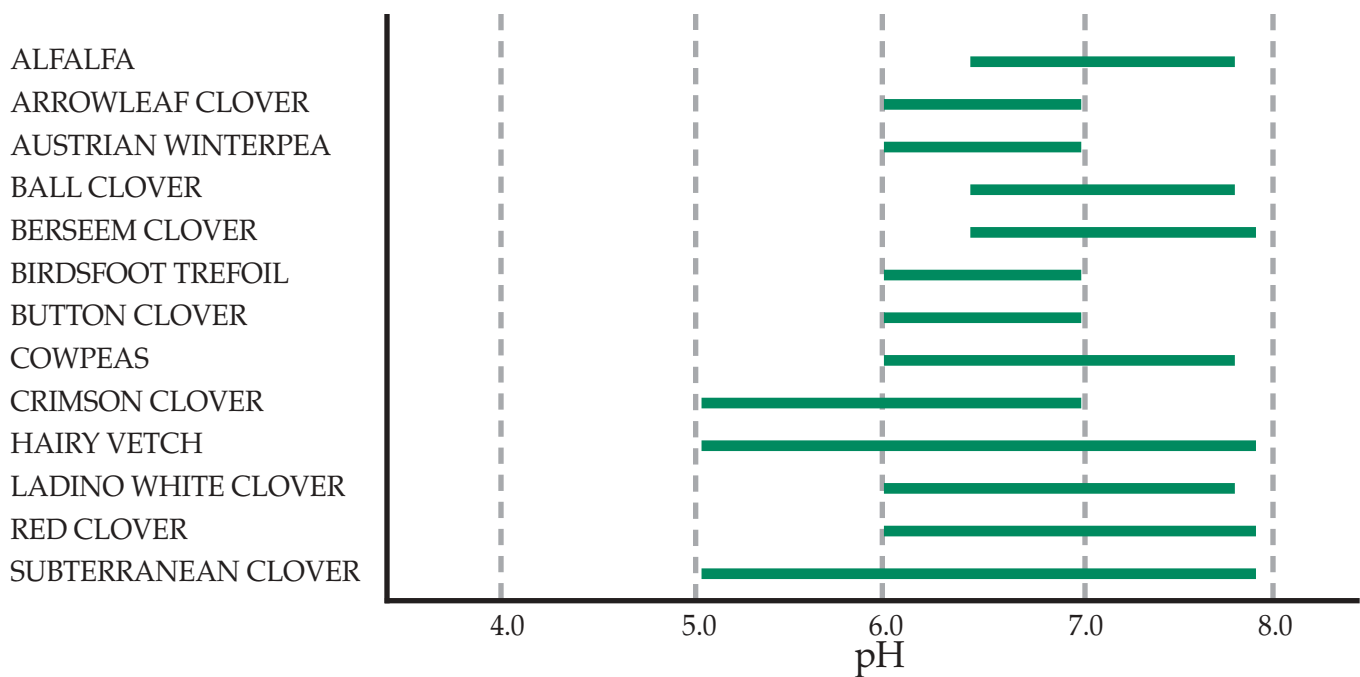
Soil Preparation

When preparing seedbeds two things should be considered, the size of the seed to be planted and moisture conditions.

Seedbeds for small seeded varieties, such as clovers, need to be as smooth and lump free as possible when planted at about 1/8 inch depth. Larger seed varieties like peas do not require as much precaution because they have the vigor to push through adverse soil conditions.

Preparing a seed bed when the soil is too wet will create a hard crust and a rough seed bed. Certain conditions will require tilling when the soil is wet, such as when a heavy weed growth is present and the only way to

FIGURE 4 - OPTIMUM SOIL pH FOR BEST LEGUME GROWTH



harrow it under is after a good rain. In these situations another harrowing a few days later will be required to smooth the soil out and planting can be done at that time.

When minimal soil moisture is present, preparing a seed bed will release the moisture needed to germinate the seed. If this is the case, the smaller seed varieties should be planted very shallow. The larger seed varieties can still be planted, but deeper to reach the existing moisture.

If the seedbed is too loose it will not hold moisture and there will not be good seed-soil contact. Before planting the seed compact the soil. You cannot overly compact a seedbed. Even running a 4-wheeler over the seedbed before planting will help.

Fertilizing and Liming

Legumes require fertilizer and lime for proper growth. For best results have your soil tested to determine the amount of fertilizer and lime needed. The cost of the fertilizer and lime will exceed that of the legume seed so you do not want to use any more than necessary for good growth.

It is not necessary to add nitrogen when planting legumes. If you cannot get the soil tested a general recommendation for fertilizer would be 250 pounds per acre of 5-10-15. Commercial fertilizer without any nitrogen is not readily available. Most forest soils, where many wildlife openings are planted, are acidic so lime is needed to increase the soil pH. In Figure 4 the optimum pH for some of the common

FIGURE 5 - LEGUME PLANTING GUIDE

SHADY AREAS

LADINO WHITE CLOVER
LATCHO FLATPEA
SUBTERRANEAN CLOVER
WHITE DUTCH CLOVER

BEST IN ACID SOILS

ALYCECLOVER
ARROWLEAF CLOVER
BALL CLOVER
BIRDSFOOT TREFOIL
COWPEAS
CRIMSON CLOVER
HAIRY VETCH
LADINO WHITE CLOVER
SUBTERRANEAN CLOVER
VELVETBEANS

TOLERATES WET SOILS

ALSIKE CLOVER
BALL CLOVER
BERSEEM CLOVER
LADINO WHITE CLOVER
RED CLOVER
WHITE DUTCH CLOVER

BEST IN LOW FERTILITY AREAS

COWPEAS
VELVETBEANS

GOOD COLD TOLERANCE

ALFALFA
AUSTRIAN WINTERPEA
BIRDSFOOT TREFOIL
LATCHO FLATPEA
RED CLOVER
REGAL LADINO CLOVER
WHITE DUTCH CLOVER

Applying lime and fertilizer is one of the major costs of establishing a stand of legumes.

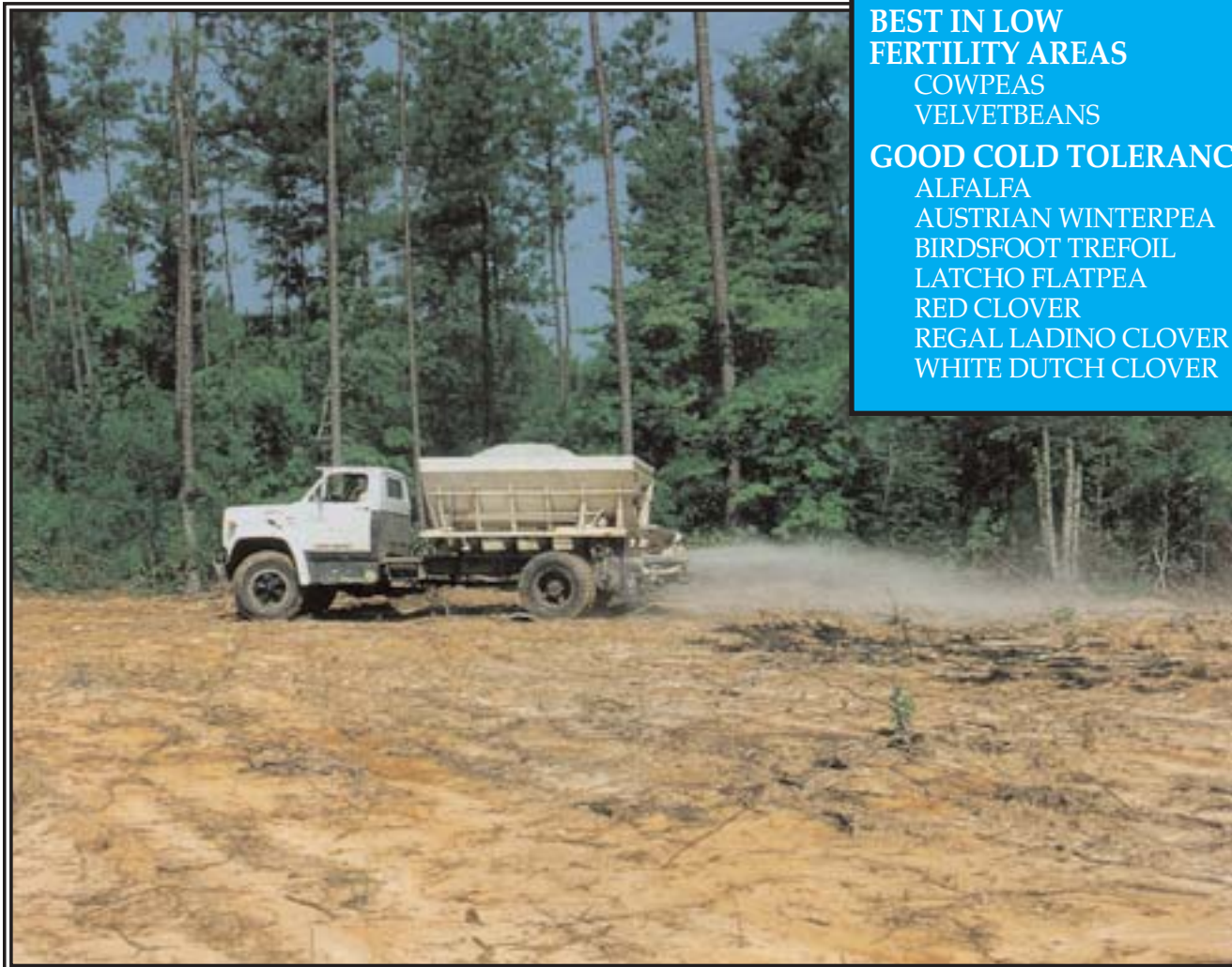


PHOTO BY GENE SMITH

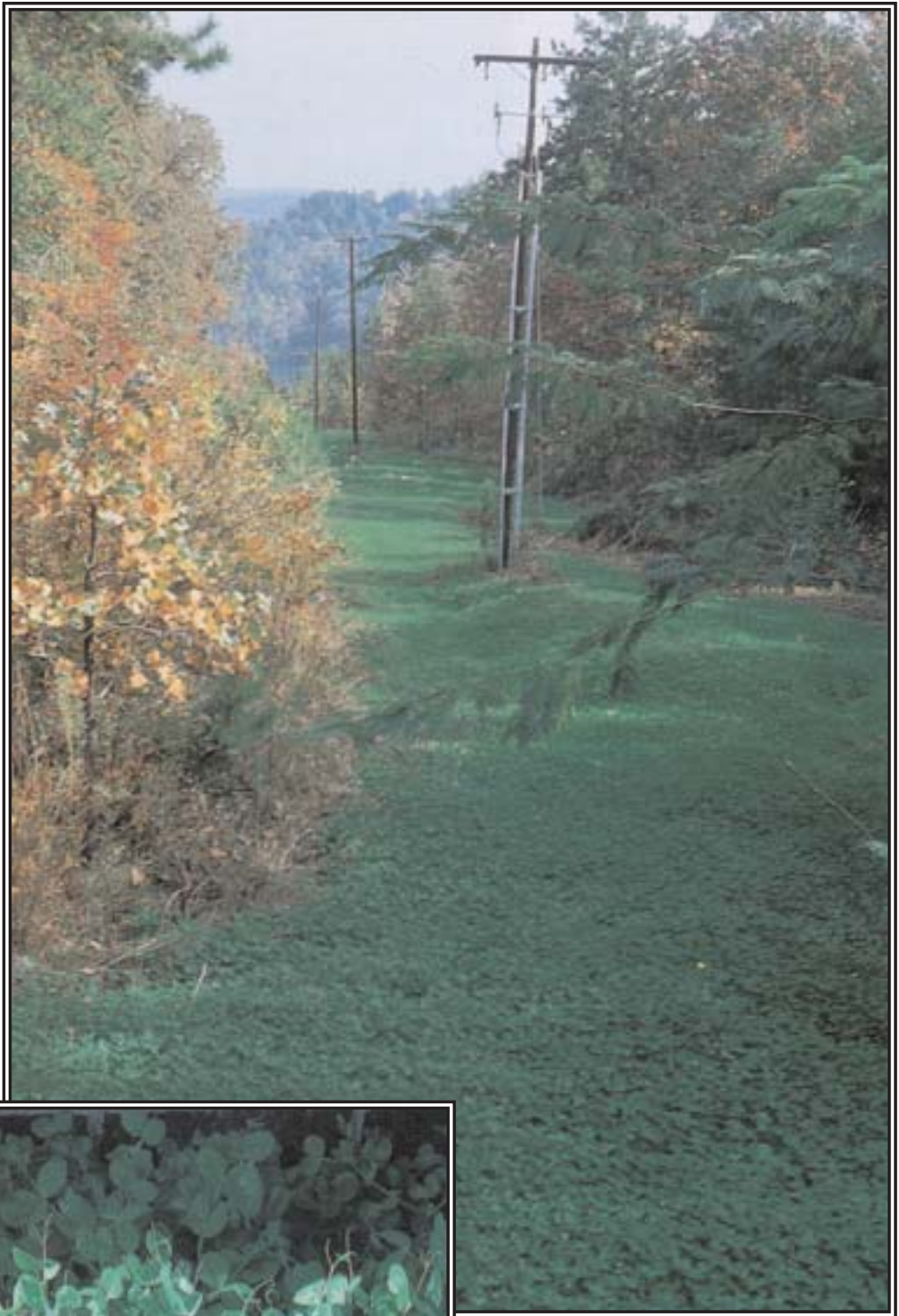


PHOTO BY RON BRENNEMAN

A right-of-way planted with clover makes an excellent wildlife opening.

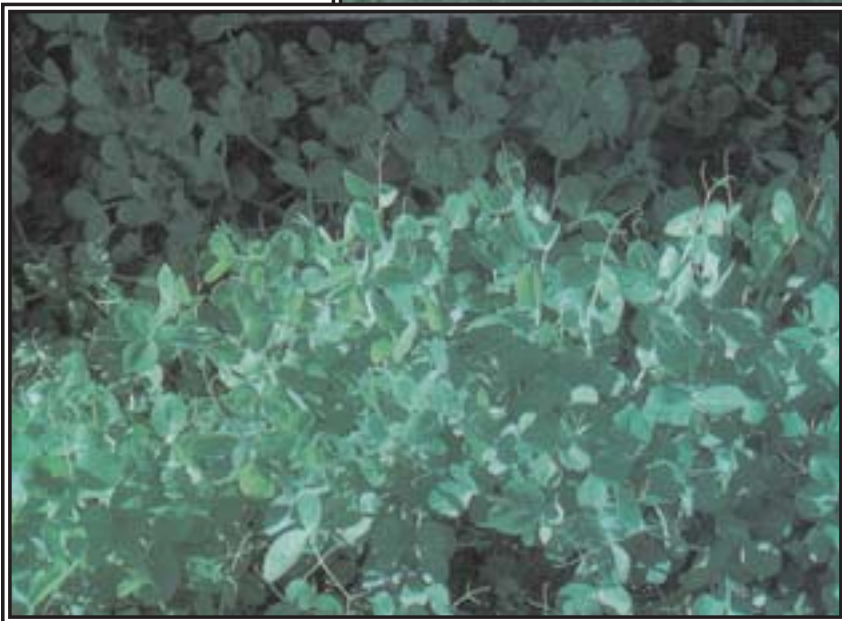


PHOTO BY RON BRENNEMAN

Austrian winterpea, a good soil builder and wildlife food.

legumes is listed. Generally a pH of 6.0 or higher is best for legumes. Again, a soil test is highly recommended, but if one is not taken apply 1-2 tons per acre of lime.

Fertilizer and lime can be applied either before or after the seed bed has been prepared. Ideally it should be applied prior to seed bed preparation and harrowed into the soil. If time, weather conditions, or late arrival of soil test results prevent this, lime and fertilizer can be applied after the seed bed has been prepared and planted.

Seed Inoculation

All legume seed should be mixed with the proper inoculant before it is planted. It is particularly important if the seed is being planted in an area where legumes have not been grown before.

Inoculant is very inexpensive. When buying it check the date on the package to make sure it is fresh. Also use the proper inoculant for the type of legume you are planting. Alfalfa, partridge pea and ladino clover, for example, each require a different type of inoculant.

If you do not use the inoculant immediately after buying it store it in a dry, relatively cool place out of the direct sunlight. Just prior to planting the seed inoculate it as follows:

- Place the seed in a container.
- In another container mix the required amount of water with the inoculant to form a slurry.
- Add a commercially available sticker or sticking agent to this slurry and mix it well.
- Add the slurry to the seed and mix well.
- If you get the seed too wet add a little lime to absorb the water.
- If possible let the seed dry for about an hour before planting.

Plant the seed as soon as possible after it has been inoculated. If it is not planted the day it is inoculated, reinoculate before planting.



A mixture of orchardgrass and subterranean clover.

PHOTO BY RON BRENNEMAN

Do not mix inoculated seed with fertilizer as the salts from the fertilizer can kill the bacteria in the inoculant.

Planting the Seed

Buy high quality legume seed. Make sure the bag has a complete analysis tag attached from a certified seed laboratory. The test date should be within the last 12 months. Legume seed can be planted by broadcasting or drilling. Most individuals who are planting for wildlife do not have drills, therefore, broadcasting is most common.

Because seeding rates for many legumes are relatively low and the seed is small, (Figure 6) care must be used when broadcasting the seed. It is easy to spread an acres worth of seed over a relatively small area.

Two ways of broadcasting legume seed are by using a bucket and your hand or mixing the seed with dry sand and using a hand-held spreader. Avoid dumping the seed alone in a hand held spreader. A few cranks of the handle and your seed will be gone.

FIGURE 6 - LEGUME SEEDING RATES

	BROADCAST LBS. PER ACRE
ALYCECLOVER	15-20
ALFALFA	15-18
ALSIKE CLOVER	4-6
ARROWLEAF CLOVER	5-10
AUSTRIAN WINTERPEA	30-40
BALL CLOVER	2-3
BERSEEM CLOVER	20
BIRDSFOOT TREFOIL	6-12
BUTTON CLOVER	10
COWPEAS	60
CRIMSON CLOVER	20-30
HAIRY VETCH	20-25
LATCHO FLATPEA	20-30
LADINO WHITE CLOVER	6-8
PARTRIDGE PEA	15-20
RED CLOVER	12-15
SUBTERRANEAN CLOVER	15
VELVETBEAN	25-30
WHITE DUTCH CLOVER	4

Covering the Seed

Legume seed should be covered lightly with soil after it has been broadcast. Covering it with too much soil can reduce germination and lead to a poor stand. Most legume seed should be covered to a depth of only 1/8 inch. Use extreme care when covering seed with a harrow, disk or drag to not cover too deep. Running over the seedbed with a 4-wheeler after planting will firm the seedbed and put the seed in good contact with the soil.

Legume/Grass Mixtures

Several species of legumes planted together or with grasses make a good mixture for wild turkeys and other wildlife. Some legume/grass mixtures can provide nearly a year-round source of food in the south. Most of these mixtures would be productive for many years

with a minimum of annual maintenance.

Legume/grass mixtures can be established by planting the seed at the same time or no-till seeding the legumes into an existing stand of grass. Species of grass that are commonly planted in association with legumes include Kentucky bluegrass, orchardgrass, bahiagrass, bermudagrass, timothy and fescue.

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Ordering legumes through the NWTF is easy. Simply click [here](#) to download a Project HELP catalog. In it, you will find a number of legumes available directly from the NWTF.

