INDIANA DIVISION OF FISH & WILDLIFE

# Legume Food Plots

Habitat Management Fact Sheet

**Alfalfa and red clover seeded into winter wheat stubble**

The establishment of legume food plots, 1/4 to 1 acre in size, can be an effective way of providing food and nesting cover for a wide variety of wildlife, while also improving soil fertility. Legumes are a rich and highly palatable source of protein and green browse. Legumes also tend to harbor a wide variety of insects which are an excellent source of protein for both game and non-game birds. The growth characteristics and structure also provide for a good interspersion of bare ground, beneath a shaded canopy, which allows small mammals and birds to move freely at ground level, to search for seeds, insects, and loafing and roosting cover. Many legumes start growing in early spring when most grasses are still dormant and continue to grow well into the late fall, providing additional food resources after most grain food plots have been depleted. In addition to improving soil fertility through their ability to fix nitrogen, many legumes are also deep rooted and drought tolerant, which provide erosion control benefits. An added food/structure benefit may also be obtained with the addition of a grass component (*See **Legume Inter-Seeding** Wildlife Habitat Management Fact Sheet*).

## Planning

Each legume species will have its own requirements. Wildlife species needs must also be considered. In order to achieve a productive legume food plot, a few questions must be addressed: (1) Where do you want to place your food plot? Legume food plots can provide a transition zone between habitat types. The plot can provide food, cover for nesting, and protection from the weather and predators if placement is considered. Do not expect tremendous wildlife usage to occur by simply seeding a food plot in the center of an open field. Keep in mind the existing habitat types. (2) Consider such soil characteristics as drainage, fertility, and pH. Your best bet in determining soil fertility and pH is to conduct a soil test. By taking random soil samples from the area you wish to seed, an average supplement recommendation can be made. In general, soils that are dark or gray are poorly drained, while soils that are brown, yellow or red are well drained. Your local County Extension or NRCS Office, should have a Soil Survey of the county available for reference. These offices should also have information on soil sampling.

## Legume Selection

Legume selection is dependant on the wildlife species and habitat you desire, as well as soil and light conditions. Legumes vary in drainage needs, pH, soil fertility, height, longevity, hardiness, drought tolerance and whether the growth is warm or cool season. Since soil and site characteristics can sometimes change within the same food plot, seeding more than one variety of legume can increase stand longevity, success, nutrient value, and diversity.

## Site Preparation

Site preparation can be the beginning or the end of a successful legume food plot. Prior to seeding an area to legumes, every effort should be made to insure that competing vegetation has been eliminated or killed and a good, firm seedbed exists. Methods for controlling existing vegetation through the use of herbicides or tillage can be found in the ***Fescue Eradication*** Habitat Management Fact Sheet.

## Fertilizing

Consult your soil test results. Remember, it is not necessary to apply nitrogen when seeding legumes. In general a pH of 6.0 or higher is recommended. Lime can be purchased in two forms, pelletized or dust. If you are seeding small legume plots where using a fertilizer truck would not be possible, try a pull-type, fertilizer buggy. Pelletized lime can be added to the fertilizer and spread all at one time. Also, it is recommended that fertilizer and lime be applied before or during the discing or tilling phase. This will allow for incorporation into the soil prior to seeding.

## Seeding

Legume seed should always be inoculated with a nitrogen fixing bacteria prior to seeding, especially if the legumes you plan to sow have not been grown on the site recently. Sometimes, legume seed is sold with the inoculant already mixed with the seed. If the seed hasn't been pre-inoculated, you should purchase the inoculant and mix it with the seed prior to planting. Inoculants vary depending on the legume. Make sure you use the proper inoculant.

There are basically three methods of seeding legumes: no-till drilling, conventional drilling and broadcasting. No-till drilling is typically used in the fall or spring to plant through areas in which the existing vegetation has been killed with appropriate herbicide applications. This method is most often used when converting a stand of grass to a legume planting or interseeding legumes into an existing stand of wheat. Conventional drilling is typically used in the fall or spring to seed areas of bare ground that have been prepared using some type of tillage. This method is also frequently used in the fall to seed sites that were row-cropped earlier during the growing season. No-till and conventional drilling, especially when

conducted in the fall, allow for good seed to soil contact with minimal moisture loss. In most cases, legume seed should only be planted to a depth of 1/8th of an inch.

Broadcasting is also a good option, however, it typically requires the use of more seed to insure the development of a good stand. It can be done by hand, buggy, or a spreader attached to the back of a pick-up truck Broadcasting is typically used to seed bare ground or areas having a very light cover crop of wheat and is usually carried out from January through early March to take advantage of frost. This frost-seeding technique allows the seed to work its way into the soil through the freezing and thawing action of the ground. Broadcasting may also be used outside the freeze-thaw period, however, the site should be lightly dragged, disked or harrowed after seeding to encourage good seed to soil contact. Use caution and don't bury the seed too deep!

**Selected Warm Season Legume Species**

| Species | Characteristics and Principal Uses | pH | Moisture Tolerance [1] | Drought Tolerance | Winter Hardiness | Seeding Rates [2] | Time of Seeding |
|---|---|---|---|---|---|---|---|
| **Annual Lespedeza** annual | Low shade tolerance. Nesting and roosting cover. Food for rabbits, deer, quail. | 5.5 - 6.2 | WD - SPD | Fair | None | B 15-20<br>D 8 -12<br>M 2 - 6 | 2/1 - 5/1 |
| **Marion Lespedeza** annual | Low shade tolerance. Nesting and roosting cover. Food for rabbits, deer, quail. | 5.3 - 6.0 | WD - SPD | Fair | None | B 15-20<br>D 8 -12<br>M 2 - 6 | 2/1 - 5/1 |
| **Partridge Pea** annual | Moderate shade tolerance. Food for quail. | 5.5 - 7.0 | D - WD | Fair | None | B 20-30<br>D 15-25<br>M 5 - 8 | 5/1 - 7/1 |
| **Soybeans** annual | Low shade tolerance. Food for rabbits, deer, quail, pheasant, turkey, dove. | 6.2 - 6.8 | WD - SPD | Fair | None | B 45-60<br>D 30-45<br>M 15-30 | 5/1 - 7/1 |
| **Cowpeas** annual | Moderate shade tolerance. Food for quail, doves. | 5.8 - 6.5 | WD - SPD | Fair | None | B 15-30<br>D 12-16<br>M 6 - 8 | 5/1 - 7/1 |

[1] D = Dry, WD = Well Drained, SPD = Somewhat Poorly Drained, PD = Poorly Drained, W = Wet.
[2] All rates in .lbs/acre. (B) = rate for Broadcasting; (D) = rate for Drilling; (M) = rate when planted as a Mix with other legumes or grasses.

## Legume Maintenance

Weed problems could occur from poor fertility, or pH problems. If you followed the recommended fertilizer and lime rates, and weeds are a problem, then a high-volume weed seed source could have been present at the time of legume seeding. There are herbicides available for both widespread or spot applications of invasive grasses. If thistles become a problem, spot spraying or spot mowing is an option, however if you elect to use a broadleaf herbicide you will kill legumes. During the establishment year, clipping weeds during the bud to early bloom stage will help eliminate seed production as well as deplete root reserves.

If periodic mowing is part of your management scheme, mow once a year, after August 1st and only after legume seed heads have set. This will allow for seed regeneration as well as seed dispersal by the mower. Depending upon the legume species, mowing to a height of 6-8 inches is desirable. Mowing too low will produce excess plant litter and could possibly smother existing plants.

When should food plot renovation occur? That depends upon your management objectives. In most cases, soil fertility and pH, along with competition from grasses and other weed species, will determines legume food plot longevity.

## Selected Cool Season Legume Species

| Species | Characteristics and Principal Uses | pH | Moisture Tolerance [1] | Drought Tolerance | Winter Hardiness | Seeding Rates [2] | Time of Seeding |
|---|---|---|---|---|---|---|---|
| **Alfalfa** perennial | Moderate shade tolerance. Nesting cover. Food for rabbits, deer. | 6.6 - 7.2 | WD | Good | Good | B 15-20<br>D 12-15<br>M 4 - 6 | 3/1 - 5/1<br>8/1 - 9/1 |
| **Birdsfoot Trefoil** perennial | Low shade tolerance. Nesting cover. Food for rabbits, deer, ruffed grouse. | 6.0 - 6.8 | WD - W | Fair | Good | B 8-12<br>D 4 - 8<br>M 2 - 4 | 3/1 - 5/1<br>8/1 - 9/1 |
| **Alsike Clover** perennial | Low shade tolerance. Nesting cover. Food for rabbits, deer, ruffed grouse, turkey. | 6.0 - 6.5 | WD - PD | Fair | Good | B 6-10<br>D 4 - 8<br>M 2 - 4 | 1/1 - 5/1<br>8/1 - 9/1 |
| **White Dutch Clover** perennial | High shade tolerance. Good choice for woodland openings and trails. Nesting cover. Food for rabbits, deer, ruffed grouse, turkey. | 6.0 - 6.5 | WD - PD | Poor | Good | B 4 - 8<br>D 2 - 6<br>M 1 - 3 | 1/1 - 5/1<br>8/1 - 9/1 |
| **Ladino Clover** perennial | Low shade tolerance. Nesting cover. Food for rabbits, deer, ruffed grouse, turkey, quail. | 6.0 - 6.5 | WD - PD | Poor | Fair | B 4 - 8<br>D 2 - 6<br>M 1 - 3 | 1/1 - 5/1<br>8/1 - 9/1 |
| **Red Clover** perennial | Low shade tolerance. Nesting cover. Food for rabbits, deer, ruffed grouse, turkey, quail. | 6.2 - 6.8 | WD - MD | Fair | Good | B 10-12<br>D 4 - 8<br>M 2 - 4 | 1/1 - 5/1<br>8/1 - 9/1 |
| **Sweetclover** biennial | Low shade tolerance. Nesting and roosting cover. Food for rabbits, deer. | 6.8 - 7.2 | D - WD | Good | Good | B 8-12<br>D 6-10<br>M 3 - 6 | 2/1 - 5/1 |

[1] D = Dry, WD = Well Drained, SPD = Somewhat Poorly Drained, PD = Poorly Drained, W = Wet.
[2] All rates in .lbs/acre. (B) = rate for Broadcasting; (D) = rate for Drilling; (M) = rate when planted as a Mix with other legumes or grasses.

**Related *Habitat Management Fact Sheets*:**

Grain Food Plots
Legume Interseeding
Strip Disking
Fescue Eradication
Strip Spraying
Forest Habitat Improvement
Woodland Edge Enhancement
Forest Openings

Prepared by the Indiana Department of Natural Resources, Division of Fish and Wildlife. For up-to-date information concerning the Indiana Division of Fish and Wildlife, or for information on the location of your District Wildlife Biologist, visit our website at www.wildlife.IN.gov
October 2004