

Minor Use Summer Annual Forage Legumes¹

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Hairy Indigo (*Indigofera hirsuta*) is an erect-growing, reseeding, summer annual legume that may grow 4 to 7 feet tall if not grazed. The plant is somewhat shrubby, and stems become very woody as the plant matures. Stems and leaves are covered with short, bristlelike hairs. It is moderately resistant to root-knot nematode. Hairy indigo is adapted to sandy soils that have good drainage and grows on land that may be too dry for other legumes. It does not grow well on soils that flood for an extended period of time. Early-and-late-flowering types have been developed, but all are now marketed as common hairy indigo.

Hairy indigo (Figure 1) is mainly used for grazing, and growth is sometimes accumulated to furnish high-quality grazing in the fall for weaned calves or dry cows. Hairy indigo leaves are also nutritious for goats. Studies at the University of Florida showed that hairy indigo can produce up to 12 tons of dry matter per acre that would contain about 20% crude protein and 50-60% digestibility. The leaves also contain high levels of mineral nutrients.

Cattle may reject hairy indigo when they are first placed in a pasture, but after one or more days they begin grazing. After adapting to hairy indigo, cows and calves readily consume it. Cattle may develop sores on their feet and legs when grazing hairy indigo in the rainy season due to irritation of the wet skin of the cattle by the bristlelike hairs on the stems of the plants.



Figure 1. Hairy Indigo - flowering stage, fall.

Establishment and management procedures are similar to those for other warm-season annual

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legumes. Hairy indigo is easy to establish and requires very little management afterwards. Hairy indigo requires soil pH of up to 6; the plant will not grow well or persist on acid soils. Liming may be required to achieve the optimum pH. Depending on soil test results, it may be better to apply dolomite (which also supplies magnesium) than lime. How much lime will be needed depends on the soil type and original or native pH of the soil. Contact your county Extension agent for help on how you can test your soil and determine your liming needs. For good establishment, 15 lb of seed per acre is recommended. Disking, rolling or packing the soil after broadcasting the seed, will give better establishment. Establishment and production can be enhanced with application of 30 and 60 lb/acre of P_2O_5 and K_2O , respectively. Inorganic nitrogen fertilizer is not required since hairy indigo is a legume and will produce its own nitrogen from the air.

Due to its hardseededness, some seed may lie dormant in the soil for many years after being planted and then germinate when the soil is disturbed. To ensure that the plant reestablishes each year from seed, it is advisable to withdraw animals from the pasture or reduce grazing intensity two weeks before the plants begin to flower or in late summer or early fall. This practice would allow some of the plants to go to seed. Grazing animals will help distribute the seeds in the pastures. The self-seeding nature of the plants is good from the forage standpoint, but it is a negative characteristic in terms of the weed potential of the plant. Consequently, vegetable and other row crop farmers often consider hairy indigo a weed. However, used as a cover crop or green manure crop, hairy indigo can effectively suppress nematodes that might otherwise seriously damage succeeding crops. Besides grazing, hairy indigo has also been used for hay and silage.

Phasey bean (*Macroptilium lathyroides*) is a warm-season, short-lived perennial legume that may persist for two or more years if properly managed but often acts like an annual. It flowers throughout the growing season and its red-to-purple flowers are commonly seen along roadsides in south Florida. It is best adapted to moist flatwood soils and can tolerate some temporary flooding. Phasey bean is not commonly used in Florida, but naturally occurring

stands can occasionally be found on some ranches in south Florida. A commercial supply of seed is available only in certain years, when seed harvesters find stands on ranches that are suitable for harvest.

Phasey bean (Figure 2) emerges and develops faster than carpon desmodium or aeschynomene, and it has been suggested that it could be planted in mixtures with either of these legumes to provide some early summer grazing. Phasey bean can also be used in wildlife-food plantings to provide seed for quail and forage for deer. It is sometimes referred to as "quail bean".



Figure 2. Phasey bean with flowers and seed pods.

Phasey bean can be established and managed in a manner similar to that of other seeded warm-season legumes. Fertilize and lime according to soil-test recommendations. When planting in a pure stand, use 10 to 15 pounds of seed per acre. When overseeding pastures in a mixture with other summer legumes,

reduce the seeding rate by 1/3 to 1/2. Rotationally graze when possible, or under continuous grazing maintain at least 4 to 6 inches of phasey-bean growth in the pasture. After 2 to 3 years, stands of phasey bean usually decrease. To encourage stand persistence, defer grazing for a period during the fall to allow for seed production.

Cowpea (*Vigna unguiculata* [L.] Walp. ssp.) *unguiculata* was once widely grown in North Florida as a hay or green manure crop before Coastal bermudagrass and cheap nitrogen fertilizer were developed. It is well adapted to sandy, acid, low fertility soils. It is now used in mixtures with pearl millet or sorghum-sudangrass for late summer-early fall grazing and for wildlife feed plots.

Velvetbean (*Mucuna pruriens* [L.] DC) is a viny summer legume that has been used for green manure and pasture. It is adapted to well-drained sandy soils. Crude protein and digestibility are high, and it has been used to provide high quality grazing in late summer and fall.

Lespedezas (*Lespedeza* spp.) are warm-season, drought-tolerant legumes that are better adapted to acidic, low fertility soils than most other legumes. There are both annual and perennial types. Two types of annual lespdezas "striate" *Kummerowia striata* and "Korean" *K. stipulacea* have been planted on the heavier, clay soils of North West Florida, but are usually low yielding and are generally not recommended. There has been renewed and growing interest in growing Lespedeza as pastures for small ruminants. Stomach worms, especially *Haemonchus contortus*, are a major constraint to profitable sheep and goat production in Florida. Because of rampant use, there is increasing resistance to popular chemical anthelmintics in the state. Studies have shown that the high tannin content of some lespdezas has direct and indirect biological effects that aid in the control of gastrointestinal parasites in ruminants.

Sericea lespedeza [*Lespedeza cuneata* (Dum. Cours. G. Don)] is a perennial species that is not generally recommended for use in Florida. Because Sericea lespedeza contains higher tannins (~22% total condensed tannin) than the annual types, it has gained popularity as an alternative to chemical anthelmintics. Reports indicate that feeding sericea

lespedeza hay reduces fecal egg count, number of adult worms, and the number of eggs that are shed in the feces of the goats. As a result, goats fed sericea hay had increased pack cell volume in their blood and there is less potential of contamination of the pastures with infective larvae.

Lablab or sweet hyacinth bean (*Lablab purpureus* L.) is a vigorous twining summer annual legume. Lablab cannot tolerate frost but grows well in a wide range of soils and pH (4.5 – 7.5), preferring well-drained soils or short periods of flooding. Whole forage samples of lablab may contain about 14% crude protein with 64% digestibility. Leaves contain higher levels of crude protein (25%) and are more digestible than the stems. Lablab grows well in mixtures with tall-growing grasses such as millet and forage sorghum. In Florida, lablab is not widely used for cattle or small ruminant grazing; it is more popular as wildlife-food plots and as an ornamental. The plants are grown for their purple flower and as a nectar source for butterflies.

Others: Peanuts and soybeans have been used for forage usually when seed harvest is not expected to be economical.