



Types of Lespedeza Used as Forage Crop in the Southern USA

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Annual and perennial lespedezas are the forgotten warm-season legumes that can offer a lot of benefits in forage systems across the southern USA. Acres of production have declined significantly in the last 20 years. Lespedeza is a deep rooted legume that be established successfully in cultivated areas as well as in marginal (eroded and depleted) soils. They are tolerant to drought, low soil pH, non-bloating, and have lower yield potential that other forage legumes. However, lespedeza does respond well to both lime and fertilizer, especially potassium and phosphorus. Lespedeza can be used as forage crop for grazing, hay, or soil stabilization (erosion control and land reclamation). Compared to other popular legumes such clovers, lespedeza is a little-known forage. There are three species of lespedeza: sericea, striate and Korean that are well-suited for production in Mississippi.

Lespedeza is usually established as a pure stand or as a companion legume with cool- and warm-season perennial grasses. The seeding rate varies with the type of lespedeza being used. When seeding into a warm-season perennial pasture, broadcast or drill seed in late summer or early spring. Adjust seeding rates accordingly if germination is less than 85 percent. If the seed is not pre-inoculated, inoculate the seed with the recommended rhizobia strand (*Bradyrhizobium* spp., EL type inoculant). Seed can be broadcast into bermudagrass or bahiagrass pasture in late fall or in mid-April to mid-May. Disturbing the existing sod with a light disking prior to broadcasting can increase seed-to-soil contact and improve stand establishment. It is best recommended to use a no-till drill. During the establishment, it is recommended to minimize spring nitrogen application to reduce grass competition. Lespedezas can make excellent hay. It should be cut when plants reach 30 percent bloom or 12 to 15 inches in height. A 3-5 inches residual height should be left to help with the recovery of the plant because regrowth occurs form the buds in the crown of the plant. Pure stands of lespedeza can produce 1 to 4 tons of dry matter per acre.



Figure 1. Seed size, seedling emergence, biomass production and grazing utilization of sericea lespedeza.

Types of Lespedeza

Annual

Annual lespedezas are fine-stemmed, leafy legumes with a shallow taproot. Both types grow in a pH range of 4.5-7.0. They are short-day legumes that begin flowering in late August and set seed in mid-September and mid-October. When managed properly, annual lespedeza can reseed themselves. Annual lespedeza is more productive in late summer (July to mid-October) and can complement perennial warm-season grasses to improve yield and forage quality. Flowers in annual lespedeza species range from purple to light pink. They can grow to a height of 2 to 3 feet. Pods contain single seed that is blue to black in color and may or may not be mottled. Annual forage production of annual lespedeza in a hay system with low fertility can range from 1 to 2 tons per acre. However, with adequate rainfall and fertility yields can exceed 4 tons per acre. Hay can be harvested once or twice a year with the first cut in mid-late

July when the lower leaves begin to senesce (turn yellow) and then at first-bloom. Crude protein can range from 12 to 15 percent. One advantage of annual lespedezas is that after well-established, they can be used in double cropping system with annual ryegrass or small grains (wheat, oat, cereal rye, or triticale). In this type of system, ryegrass should not be seeded at more than 15 pounds per acre and small grains at no more than 60 pounds per acre.

Table 1. Common characteristics of three types of lespedeza.

Lespedeza Type	Approx. No of Seeds/lb	Seeding Rate (lb/ac)	Seeding Depth (inches)	Emergence Time (days)	Palatability	Drought Tolerance
<i>Annual</i>						
Korean	238,000	25 – 30	¼ - ½	14 – 18	High	Fair
Striate	200,000	30 – 35	¼ - ½	14 – 18	High	Good
<i>Perennial</i>						
Sericea	372,000	12 – 15	¼ - ½	15 – 30	Medium	Excellent

⇒ **Striate Lespedeza** (*Kummerowia striata*) – It also known as common lespedeza or “Jap or Japanese” clover. Seeds are produced where the leaves join the main stem and

seed is blotched in color. Hairs on the stems of striate lespedeza point downward, while hairs on Korean lespedeza point upward. Due to later flowering than Korean, seed production might be reduced by cool temperatures. Some of the varieties include ‘common,’ ‘Kobe,’ ‘Marion,’ and ‘Legend.’ ‘Kobe’ is the most common variety in the market. Varieties of this species are high seed producers and reseed well in pastures. Striate lespedeza has a prostrate growth habit, which makes it better suited for grazing than hay production.

⇒ **Korean Lespedeza** (*Kummerowia stipulacea*) – It tends to have more upright growth with wider indented and heart-shaped leaflets that distinctly veined and flowers earlier than striate. Leaves of Korean are broader and the stipules larger than those of striate. Seeds are produced at the end of the branches. Seed is black and shiny. Korean lespedeza is less tolerant of acid soil and more tolerant of alkaline soil than is striate lespedeza. Adapted to well-drained, clay or loamy soil. It is well-suited for hay production due to the upright growth. Some of the varieties include ‘Climax,’ ‘Harbin,’ ‘Rowan,’ and ‘Sumit’.

Perennial

Sericea Lespedeza (*Lespedeza cuneate*) – The only species of perennial species used for forage production is sericea lespedeza. This is species is drought resistance, can tolerate shade, but it is not well adapted to poorly drained soils. Sericea lespedeza is a shrubby plant that is about 2 to 5 feet tall. The stem is gray-green, coarse, and single or clustered with several branches. Leaves are trifoliolate, club or wedge-shaped, and attached by short petioles. The lower leaf surface has silky hairs. Scale-like stipules are present on the stem. Flowers are yellowish-white with purple to pink markings and appear from mid-July to early October. The flowers occur in clusters of 1 to 3 in the upper leaf axils and are 1/4 inch long and fused at the base.

Sericea lespedeza is slow to establish with rather a week seedling stage and should be planted at a rate of 12 to 15 pounds per acre in a pure stand. It can grow from May to September. Germination and seedling growth are regulated by day length and temperature. Growth increases as day length exceeds 11 hours and with maximum growth with 13 to 15 hours of daylight. The optimum temperature for germination ranges from 68 to 86 °F. It tolerates shade better than the annual species.

To maintain hay quality, sericea should be harvested at 12 to 15 inches in height. Sericea lespedeza is generally high in tannin, which can cause poor acceptance from livestock. Sericea lespedeza recognized for its high levels of crude protein, but quality is offset by high concentrations of tannins that bind with proteins, leaving them unavailable for digestion. Tannins also reduce the palatability and digestibility of forages. The level of tannins in sericea might also increase with maturity of the plant, high air temperature and low rainfall. Livestock readily consume hay containing sericea lespedeza, since field drying decreases the tannin concentration. Some of the most common varieties of sericea lespedeza include ‘Arlington,’ ‘Appalow,’ ‘Cericea,’ ‘Gasyn,’ ‘Interstate,’ ‘Interstate 76,’ ‘Serala,’ ‘Serala 76,’ ‘AU Donnelly,’ ‘UA Lotan’ (low levels of tannin and higher digestibility), and ‘AU Grazer’ (grazing tolerant).

Upcoming Events

February 15, 2018—NMREC Producer Advisory Council Meeting, Verona, MS.

February 20, 2018—Central Producer Advisory Meeting, Raymond, MS.

February 27, 2018—CREC Producer Advisory Meeting, Ellisville, MS.

For upcoming forage related events visit: <http://forages.pss.msstate.edu/events.html>

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