



Texas Agricultural Extension Service

People Helping People

Forage Legumes for Texas

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There is renewed interest in growing legumes in pastures because of the price of nitrogen fertilizer. Legumes once were rather widely grown, but their use declined with the availability of cheap nitrogen fertilizer. Also, increased usage of nitrogen fertilizer on introduced grasses such as coastal bermudagrass increased competition and made it more difficult to establish and grow legumes.

Legumes have always been important in pastures, and their potential benefits include more than the nitrogen they may furnish the grass. Some of the benefits are as follows:

1. Increased forage quality and animal performance.
Legumes are high in protein, minerals and other unknown features which give improved animal gains, conception rates and percent calf crops.
2. Extended forage production in pastures.
Much legume growth occurs during periods of little or no warm-season perennial pasture grass growth.
3. Lowered costs of animal maintenance and production.
With good growth and proper utilization, legumes can substitute for more expensive methods of providing forage for increased animal performance.
4. Lowered need for supplemental nitrogen.
With proper inoculation and good growing conditions, a legume will provide its own nitrogen needs plus some for the grass growing with it or which follows it.
5. Improved grass growth on "problem" soils.

Legumes apparently improve the physical condition of shallow clay soils, resulting in improved nitrogen response and grass growth. Grasses such as Coastal often do not respond well to commercial nitrogen applications on such soils.

Although legumes are beneficial and increased interest in them is evident, their successful use in forage programs is dependent on several factors:

1. Availability of adapted species.
2. Willingness of producers to provide the extra management needed for establishment and growth.
 - Graze grass short in early fall or cut hay.
 - Get a soil test for fertilizer need.
 - Disk lightly to retard grass growth and expose soil for seed placement.
 - Broadcast fertilizer and legume seed (it is best to apply these separately as fertilizer may affect inoculant).
 - Drag or cultipack if possible.
 - A better method of establishment is to use a heavy duty combination drill or sod-seeder and place fertilizer in a band just below or to the side of the seed. Small seed such as Arrowleaf clover, Hubam and ryegrass should be planted very shallow.
 - It is usually desirable to seed ryegrass with a legume to increase yields and to reduce the possibility of bloat.
 - It is very important to inoculate legume seed with fresh inoculant at a heavy rate just before planting.
 - Legumes need adequate amounts of phosphorus and potassium. Acid soils may need lime.

Species	Adaptation	Characteristics
Alfalfa (<i>Medicago sativa</i>)	Throughout Texas on deep, well-drained, calcareous soil with pH 6.5 and above.	The "King" of forages. Highest prices and highest quality potential of all forages. Suited for hay; established stands perform acceptably as pasture. Susceptible to cotton root rot disease and poor internal soil drainage.
Sweetclover (<i>Melilotus</i>)	Deep, calcareous soils. Does not tolerate acid soils. Hubam and Madrid.	Drouth tolerant; improves soil condition. High yielding. Has produced 3 tons of hay by May 25. Hubam (<i>M. alba</i>) is an annual, and should be planted in the fall. It is a biennial when planted in the spring. Sourclover (<i>M. idica</i>) grows wild along roadsides and pastures.

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Ladino and White clover (<i>Trifolium repens</i>)	Gulf Coast and bottomland soils in East Texas.	Probably the highest quality pasture in Texas. Seeds are very small; tolerates close grazing.
Arrowleaf clover (<i>Trifolium vestitulosum</i>)	Well-drained soils; neutral pH.	Originally grown in East Texas. Grows satisfactorily in Blackland and Grand Prairie where iron deficiency is not serious. Hay and pasture legume. Seed should be scarified before planting. Grows late into spring.
Crimson clover (<i>Trifolium incarnatum</i>)	East Texas.	Does not tolerate calcareous or poorly drained soils. Makes rapid growth in early spring. Defer grazing for reseeding.
Subterranean clover (<i>Trifolium subteraneum</i>)	Gulf Coast and East Texas.	Grows early in the fall. Pasture should be grazed close. Good reseeding clover.
Persian (<i>Trifolium resupinatum</i>)	Gulf Coast	Grows well on wet soils. Rapid spring growth. Coarse stem when mature. Seed availability.
Vetch (<i>Vicia</i>)	Well-drained soils in East and Central Texas.	Large seed. Establishes well. Production usually less than clovers. Good reseeding characteristics.
Winterpeas (<i>Lathyrus hirsutus</i>)	East Texas.	Grows best in moist soil with good fertility. Grows well in association with vetch. Primarily for pasture. Seed are poisonous to livestock.
Lespedeza (<i>Lespedeza striata</i>)	East Texas.	Summer annual. Grows on sandy upland soils. Competes with bermudagrass. Somewhat stemmy. Hay or pasture legume.
Sainfoin (<i>Onobrychis viciifolia</i>)	High altitudes in West Texas.	Perennial; non-bloating; upright hay and pasture legume. Needs irrigation for optimum growth. Yields 70 to 80% as much as alfalfa.

Miscellaneous species grow under specific conditions and provide good quality hay or pasture. Seed availability may be limited. Some of these species include:

Species	Adaptation	Characteristics
Alysicarpus (<i>Alysicarpus vaginalis</i>)	Deep East Texas and Upper Gulf Coast	Summer annual. Adapted for hay. Poor regrowth after harvest. Somewhat stemmy.
Berseem clover (<i>Trifolium alexandrinum</i>)	Deep East Texas and Upper Gulf Coast	Prefers moist soils. Least winter-hardy of cool season clovers. Good producer if not damaged by low temperatures.
Ball clover (<i>Trifolium nigrescens</i>)	Deep East Texas and Upper Gulf Coast	Closely related to white clover, prefers moist soil. Grows one month later than Crimson. Tolerates grazing. Reseeds well.
Rose clover (<i>Trifolium hirtum</i>)	West Texas.	Adapted to rangelands. Grows in 20 inch annual rainfall area. Does not tolerate wet soils.

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