



OKLAHOMA FORAGES NEWSLETTER



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We welcome contributions and suggestions. Comments about and contributions to the Oklahoma Forages Newsletter and/or our web sites are welcome and should be submitted to

john.caddel@okstate.edu or
daren.redfearn@okstate.edu

Everyone interested in forages is welcome to receive and contribute to the Oklahoma Forages Newsletter.

Spring-planted Oat

The long-term effects of the recent drought on pasture productivity are unknown until appropriate growing conditions return this spring and summer. However, there are two obvious short-term effects: 1) little to no available forage and 2) limited hay supplies. There are currently few opportunities remaining to produce late-winter to early-spring forage if you did not plant wheat pasture, annual ryegrass, or fall-fertilize tall fescue.

One option to consider that may offer some hope for relief is spring-planted oat. Oat can be planted in late winter through early spring for pasture or hay. Even though there is substantial risk involved with this strategy due to weather, insects, and diseases, it may offer some help for increasing a short forage supply. The primary considerations for success are that it must be drill-planted on a prepared seedbed when the opportunity arises and managed accordingly.

SEED SOURCES

There is not a wide selection of oat varieties available, but those varieties for use in the southern USA are preferable to northern USA varieties. Feed oat has been successfully used and can provide excellent nutrition for many classes of livestock. However, many of these have not been tested as seed oat and may contain weed seeds (noxious weed seeds in particular), have unknown seed germination, and foreign material. Feed oat sources are usually relatively cheap, but they are rarely a wise purchase. Oklahoma state seed law requires that seed being sold for planting purposes have a tag with a recent test result for germination, weed seed, and foreign material.

SOWING DATE

The window for spring-planted oat is between February 15 and March 10 with an optimum planting time during the last full week of February. If dry weather and above freezing temperatures occur in late January and early February, the planting date can be shifted closer to February 15. However, if conditions are wet, damp, and cold during late January and early February, then planting may be delayed until early March. Oat should be drill-planted on a conventionally prepared seedbed at a seeding rate of 80 to 100 pounds of seed per acre.

SOWING DEPTH

Seeding depth can be as deep as 1½ inches, but a depth of only ½ to ¾ inch increases the rate of emergence, establishment, and forage production potential. Forage production potential from a spring-planted oat crop averages 1500 to 2000 pounds of forage per acre. Based on the forage production of spring-planted oat, planning should include N fertilizer at a rate of 60 to 75 pounds actual N per acre after establishment.

HARVESTING

Spring-planted oat, harvested for hay, should be cut at early heading. Once the seedheads begin to emerge, there will be no appreciable increase in yield. Likewise, once the seedheads begin to emerge, there will be a substantial decrease in nutritive value due to the accumulation of stem tissue and also leaf loss. If the crop is grazed, plants should be a minimum of 6 inches tall before grazing. Spring-planted oat matures

quite rapidly once the spring temperatures begin warming. Each acre of spring-planted oat should to provide between 35 and 60 days of grazing for a mature beef animal. Growing animals (750 pounds), can be stocked at approximately 1.5 animals per acre for 60 days.

PLANNING, EXECUTION, & LUCK

Do not consider spring-planted oat to be the fool-proof solution to remedy a short forage supply. There are substantial risks involved due to weather, insects, and diseases. With planning and a little luck, a spring-planted oat crop may add some additional forage to an already short or non-existent forage supply.

- Daren Redfearn
Forage & Pasture Management Specialist
Oklahoma State University

Red Clover

With the shortage of hay and pasture along with rising costs of nitrogen fertilizer, this may be a good time to think about trying a little red clover. Forage legumes are a little easier to get established when the amount of thatch is minimal, which is the case in most pastures in Oklahoma due to the conditions last summer and fall.

ESTABLISHMENT

Red clover can be grown as a pure hay stand or as a pasture component. It grows well on a wide variety of soils (from sands to clay loams) and can be successfully established by broadcasting or drilling. Red clover should be sown in late September to early October or during February and March. As little as 3-6 lbs./acre of seed can be broadcast on an existing sod, but it is more reliable to drill 10-12 lbs./acre with a drill that places seed in contact with soil at a depth of ¼-1½ inch.

Soils should be sampled and tested to determine the pH as well as the level of phosphorus and potassium. Soil fertility and pH are critical for successful red clover establishment. It can be productive if the soil pH is 6-6.5; however, agricultural lime should be applied several months before planting if soil pH is

lower than 5.5. Proper fertilizer should be applied if phosphorus or potassium is deficient.

Nitrogen levels as low as 15 lbs./acre are adequate for rapid seedling development. High levels of nitrogen (more than 30 lbs./acre) may stimulate grass growth and increase competition with clover seedlings.

HARVESTING

Grazing should be deferred after sowing to allow good seedling development and to avoid trampling by animals. Short term grazing can be started after the clover is 6 to 8 inches tall. If animals are left on red clover for several weeks, they will graze and re-graze plants, inhibiting development of vigorous plants.

Red clover can produce yields of high-quality forage, comparable to alfalfa, in favorable environments. Hay yields of 5 ton/acre are common, and 6-8 ton/acre are possible when summer rainfall is well-distributed. Red clover does not normally have deep root systems typical of alfalfa, and it should be grown where frequent rainfall events are normal. About 5 to 7 inches of water is required for well-managed stands to produce one ton of dry.

In pure clover stands, protein can be in excess of 20%; however, it is more realistic to expect 11-15% protein-hay in mixed stands of red clover and bermudagrass or fescue without nitrogen fertilizer. Stocker gains of 2 lbs./day for 90 days is a reasonable expectation from well-managed grass/red clover pastures.

For additional information about red clover see the Oklahoma Forages web site (<http://forage.okstate.edu>) or for specific details about red clover see <http://forage.okstate.edu/text/redclov.htm>

- John Caddell
Forage Agronomist
Oklahoma State University

Lespedeza

Another forage legume that should be considered while forage supplies are short is annual lespedeza, especially in the the eastern part of Oklahoma as a part of grass-legume pastures. These legumes are most productive during late summer when production of many other forages are is relatively low and forage quality tends to less than adequate. This allows lespedeza to fill an important niche in the overall forage program.

Annual lespedeza species, commonly called 'striate' and 'Korean', are warm-season legumes used for pasture and hay. The genus of these species was formally Lespedeza. Both species are introductions from eastern Asia. Striate lespedeza (*Kummerowia striata* [Thunb.] Schindler) is also known as common lespedeza or Japan clover. Korean lespedeza became the common name for *K. stipulacea* [Maxim.] Makino because of its country of origin.

DESCRIPTION

Both annual lespedeza species are fine stemmed, leafy, herbaceous legumes with shallow taproot systems. When not cut during the season, plants grow to a height of 2 to 3 feet. Some lespedeza flowers have no petals while others are pink to purple. Pods contain single seeds that is blue-black and may or may not be mottled.

Striate lespedezas are easily distinguished from Korean. Striate cotyledons have an indentation on one edge near the outer end, whereas those of Korean are nearly elliptical. Leaves of Korean are broader and the stipules larger than those of striate. Pods initiate in leaf axils along the entire stem of striate, whereas pods of Korean are borne in clusters at the tips of branches developing from leaf axils. Leaves of Korean turn

forward around the developing pods, giving protection against shattering when the seeds are mature. Leaves of striate do not turn forward after flowering, so this species has a greater potential for seed shattering. Pubescence on stems of Korean points upward, whereas pubescence points downward in striate.

Korean varieties tend to mature earlier than striate lespedeza and are grown in the upper two-thirds of the lespedeza region. Striate matures later and is more important in the southern part of the region; however, a newly released early-maturing striate variety, 'Marion', may move its range farther north.

ESTABLISHMENT

Annual lespedezas are among the easiest of the pasture legumes to establish. They can be sown from midwinter to early spring. Broadcasting without covering in late winter, and allowing frost heaving to bury the seed, normally provides good stands in grass pastures. Korean seed that has not been hulled should be seeded at 20-30 lb./acre, whereas the seeding rate for striate should be somewhat higher. Seed should be inoculated with *Bradyrhizobium* spp. (cowpea miscellany group) the first time it is planted in a new area.

Annual lespedeza should reseed itself in well-managed pastures. Plants should not be grazed heavily or cut from mid September to mid November for adequate seed production. Reseeding or establishment in cool-season grass pastures is improved by grazing or cutting the grass in early spring to reduce shading. High rates of N fertilizer on grass sods will reduce the potential for successful establishment.

Soon after maturity, annual lespedeza seed may have poor germination. The germination percentage of a

seed lot increases with time, a characteristic important for stand persistence in pastures that reseed naturally. Seed with little or no dormancy may germinate during a warm period in fall or winter and be killed by frost. In early spring, germinating seed may be killed by late frosts. Because much seed remains dormant, there is usually sufficient seed left to make a solid stand after the potential for spring frost is past.

SOIL FERTILITY and pH

Annual lespedezas grow relatively well on eroded, acidic soils low in phosphorus (P) that will not support many other forage legumes. Their ability to grow on low fertility soils makes them valuable legumes for low-input pasture systems. However, annual lespedezas do respond to lime and fertilization and grow best on productive, well-drained soils. Korean lespedeza is less tolerant of acid soil and more tolerant of alkaline soil than is striate lespedeza.

YIELD POTENTIAL

Hay yields of annual lespedeza usually range from 1 to 2 tons per acre; however, on soils with good fertility and well distributed rainfall, yields can exceed 6 tons per acre. Hay can be harvested once or twice per year. If harvested once, it should be cut in the early bloom stage for optimum yield and quality. If harvested twice, the first cut should be in mid- to late July when the lower leaves are just beginning to senesce and again at first bloom.

VARIETIES

Four cultivars of striate lespedeza have been produced commercially in the US; however, most striate lespedeza seed sold today is the variety Kobe. Marion was released in 1989. Marion flowered about 3 weeks earlier than 'Summit' (a Korean type) and 4 weeks earlier than Kobe. Marion is resistant to many foliar diseases that affect Korean cultivars, resulting in greater leaf retention and better forage quality.

-- John Caddel

Forage Agronomist

Plant & Soil Sciences Department, OSU

For additional information about lespedeza see the Oklahoma Forages web site at <http://forage.okstate.edu> or see <http://forage.okstate.edu/text/annlespedeza.htm>, specifically for lespedeza .



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CONTRIBUTIONS WANTED

Do you have a comment about some aspect of forage production that you would like to share?
Do you have a question about some aspect of forage production?
Have you read something that helped your forage production and want to share it with the readers of Oklahoma Forages Newsletter?

Send comments, questions, or articles you have seen and want to share to Daren Redfearn daren.redfearn@okstate.edu To remain anonymous, just let us know.

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