



American Consortium for Small Ruminant Parasite Control

Best Management Practices for Internal Parasite Control in Small Ruminants

SERICA LESPEDeza

INTRODUCTION

Sericea lespedeza (SL; *Lespedeza cuneata*) is a perennial warm season legume, well-adapted to clay and loam soils in the southeastern United States, but it also grows well in other regions, including the Midwestern US. This forage is tolerant of acidic, infertile soil conditions, but also responds well to phosphorus (P) and potassium (K) fertilization. As a legume, it needs no nitrogen (N) fertilization. Once established, SL is very drought-tolerant, and because of a high concentration of condensed tannins in its leaves, SL is also resistant to damage by insects or disease.

Sericea lespedeza has been reported to have excellent bioactivity against digestive parasites of sheep, goats, and other livestock species that consume it, possibly due at least in part to the types of condensed tannins this plant contains. In most, but not all research conducted, SL has reduced signs of parasitism due to the blood-feeding *Haemonchus contortus*, or barber pole worm, the most common and dangerous gastrointestinal nematode (worm) species worldwide, and *Eimeria*, a protozoal species that causes coccidiosis and can have devastating consequences for young animals during times of stress, such as at weaning.

Introduced to the US in 1893, SL became popular for soil conservation and as a low-cost hay and pasture crop during the 1930's and 1940's, but it subsequently fell out of favor as a livestock feed due to low animal performance and poor grazing tolerance. A plant breeding program over the past 60 years has resulted in the release of cultivars with greatly improved feeding value and grazing tolerance, while maintaining the excellent agronomic properties of SL as a soil-building, low-input forage.



Sericea lespedeza

Image by Susan Schoenian

These properties, coupled with the recent discovery of its anti-parasitic bioactivity, have resulted in a resurgence in interest of the use of SL as a nutraceutical (nutritional + pharmaceutical) forage for livestock. In addition to its anti-parasitic properties, SL has also been reported to reduce mastitis-causing bacteria in dairy goats, lower methane emissions from ruminant livestock, and suppress housefly larvae in livestock manure.

Sericea lespedeza can be fed in fresh (grazing or cut-and-carry) or dried (hay, meal, pellets) forms, or as silage without reducing its nutritional value or potential bioactive properties. For establishing the plant for forage, hay or silage production, realize that *Sericea lespedeza* is considered a noxious weed in Kansas and Colorado and is discouraged in Missouri and perhaps other states. The most common variety of SL used in research is AUGrazer[®], however, use of other varieties (such as Interstate 76 or Serala 76) may also provide some parasite management support. If it is legal and desirable to do so, below are some guidelines to follow for growing *Sericea lespedeza*.



Sheep grazing sericea lespedeza

Image by Joan Burke

ESTABLISHMENT

- 1) Fertilize and lime soil according to soil test results (for lespedeza or alfalfa)
- 2) Use pre-plant incorporated herbicide to control weed competition
- 3) If trying to kill bermudagrass, it is best to apply herbicide in the fall and plant SL following spring
- 4) Plant on a well-prepared seed bed, firmed just prior to planting
- 5) Plant certified, scarified SL seed (such as AUGrazer) in the spring after threat of killing frost has passed.
- 6) Add seed inoculant (peanut, cowpea spp.) for insurance.
- 7) Plant 20 to 25 lbs. per acre seed if herbicide used, 30 to 35 lbs. per acre if no herbicide used
- 8) Plant at ¼” planting depth or less using cultipacker seeder (optimal) or drill.
- 9) Re-firm seedbed after planting to achieve good soil-seed contact.
- 10) Use post-emergence herbicide to control competition from grasses and broadleaf weeds .
- 11) Do not graze or cut for hay during year 1 to allow stronger establishment.

MAINTENANCE

- 1) Fertilize with K after year 1 (0-0-60); split into two applications/year

MANAGEMENT FOR GRAZING

- 1) Rotationally graze SL to maintain the stand.
- 2) Begin grazing at 8 to 15 inch stand height; do not graze lower than 4 inches.
- 3) Allow plants to regrow during the fall to build up root reserves for over-wintering.
- 4) SL stand can be grazed off after a killing frost (28 degrees F or lower)



Goats grazing sericea lespedeza

Image by Joan Burke



MANAGEMENT FOR HAY



Sericea lespedeza hay

Image by Tom Terrill

- 1) Cut for hay when 15 to 24 inches tall
- 2) To preserve the maximum leaves, recommend the following cutting regime:
 - a. Day 1 – Cut hay in the afternoon
 - b. Day 2 – Rake hay in the morning before the dew dries off
 - c. Day 3 – Bale (square or round bales) in the morning before dew dries off (60% relative humidity at windrows determined using a hand-held moisture meter)
 - d. Store bales under shelter
 - e. Nutrient test for quality

In determining how to use SL for parasite management, research has shown that a minimum of 25 percent of the total diet would be needed to have an impact on gastrointestinal nematodes and coccidia in small ruminants (sheep and goats), though there have been a few studies in which SL fed at even up to 75 percent of diet was not effective. In addition, some studies indicate that long term use of SL as the primary feed source for young lambs and kids may result in slower growth than that for other feedstuffs, perhaps caused by mineral imbalance. However, sole grazing of SL as a forage has been practiced successfully by some sheep and goat producers with satisfactory results. But, with the

possible issue of slightly lower growth in mind, suggestions for SL might include grazing it in rotation with access only part of the day or every other day, grazing fields with SL planted in only part of a field, feeding pellets, hay (or silage) as only part of the diet, and as always, ensuring that a good loose mineral is available at all times.

The primary manufacturer of SL pellets is Sims Brothers Farm (simsbrothers.com) in Union Springs, Alabama (also a source of seed), though there are some independent feed stores marketing pellets in different states. Following the guidelines for use of the pellets on the feed tag may also be considered as part of an integrated parasite management plan. If animals are housed at night for predator control, SL hay (or pellets) might be used as a night feeding supplement. Some producers use SL hay as a replacement for grass or other legume hays being used or will add it as a supplemental forage.

Because animals under stress such as kids and lambs at weaning and does and ewes around the time of birthing and early lactation are more prone to having problems with gastrointestinal nematodes and coccidia, providing SL two weeks prior to and 4 to 6 weeks following the period of stress may help with parasite management. Just be aware that feeding SL in any form (grazing, dried or pellets) is not a silver bullet for parasite management. It should be combined with other parasite management strategies, including grazing management, use of the FAMACHA© and 5-Point Check systems for determining need for deworming, use of copper oxide wire particle (COWP) boluses, breeding for resistance and resilience to parasite infection, and targeted use of still-effective dewormers.

For more information related to use of sericea lespedeza and other parasite management techniques, see wormx.info or contact your local county extension office.



SELECTED REFERENCES

Littlefield, K.A., J.P. Muir, B.D. Lambert, and J.K. Tomberlin. 2011. Condensed tannins inhibit house fly (Diptera: Muscidae) development in livestock manure. *Environ. Entomol.* 40:1572-1576.

Min, B.R., W.E. Pinchak, R. Merkel, S. Walker, G. Tomita, and R.C. Anderson. 2008. Comparative antimicrobial activity of tannin extracts from perennial plants on mastitis pathogens. *Sci. Res. Essay* 3:66-73.

Puchala, R., B.R. Min, A.L. Goetsch, and T. Sahl. 2005. The effect of a condensed tannin-containing forage on methane emission by goats. *J. Anim. Sci.* 83:182-186.

Beauchemin, K.A., S.M. McGinn, T.F. Martinez, and T.A. McAllister. 2007. Use of condensed tannin extract from quebracho trees to reduce methane emissions from cattle. *J. Anim. Sci.* 85:1990-1996.

Beauchemin, K.A., S.M. McGinn, T.F. Martinez, and T.A. McAllister. 2007. Use of condensed tannin extract from quebracho trees to reduce methane emissions from cattle. *J. Anim. Sci.* 85:1990-1996.

Grainger, C., T. Clarke, M.J. Auld, K.A. Beauchemin, S.M. McGinn, G.C. Waghorn, and R.J. Eckard. 2009. Potential use of *Acacia mearnsii* condensed tannins to reduce methane emissions and nitrogen excretion from grazing dairy cows. *Can. J. Anim. Sci.* 89:241-251.

Woodward, S.L. 2004. Condensed tannins in birds-foot trefoil (*Lotus corniculatus*) reduce methane emissions from dairy cows. *Proc. NZ Soc. Anim. Prod.* 64:160-164).

Woodward, S.L., G.C. Waghorn, M.J. Ulyatt, and K.R. Lassey. 2001. Early indications that feeding Lotus will reduce methane emissions from ruminants. *Proc. NZ Soc. Anim. Prod.* 61:23-26.

AUTHORS:

Thomas Terrill, PhD
Fort Valley State University, Fort Valley, Georgia

Dr. Niki Whitley, PhD
Fort Valley State University, Fort Valley, Georgia

REVIEWERS:

Joan Burke, PhD
USDA ARS, Dale Bumpers Small Farms Research Center, Booneville, Arkansas

Herve Hosté, DVM
INRA: French National Institute for Agricultural Research
Université de Toulouse, Toulouse, France

Susan Schoenian, MS
University of Maryland, Keedysville, Maryland



Written September 2018.
Reviewed December 2023.

Fact sheets in the *Best Management Practices for Internal Parasite Control in Small Ruminant* series were written and reviewed by members of the American Consortium for Small Ruminant Parasite Control. They are for educational and informational purposes only. No practice described in the fact sheets stands alone as a method to control internal parasites. Each producer needs to implement the appropriate combination of practices that will achieve satisfactory control of internal parasites in their flock or herd. The fact sheets are not meant as a substitute for professional advice from a veterinarian or other animal science professionals. Some treatments described in the fact sheets may require extra label drug use, which requires a valid veterinarian-client-patient relationship. For a complete list of fact sheets, go to <https://www.wormx.info/bmps>.