Stocker Goats for Controlling Sericea Lespedeza

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Over 300,000 acres of land in Kansas are infested with sericea lespedeza and it is also a serious weed problem in 15 counties in Oklahoma. There are two main reasons for its explosive spread in these two states. The first is that it is extremely well adapted to these areas and the second is that nothing eats very much of it, except goats. Sericea is a deep rooted perennial well able to compete for scarce plant nutrients. It is drought and heat tolerant, tolerant of acid soils, and produces an abundance of hard seed. It is an ideal forage with one exception. It contains high levels of tannin which makes it unpalatable to cattle. Goats tolerate significant levels of dietary tannins as evidenced by their consumption of oak brush, also high in tannin.

When goats are placed on a new pasture, they eat the brush and weeds that they are familiar with, or other plants that are similar. As this herbage disappears, the goats start experimenting with eating new plant species including sericea lespedeza. If goats had grazed sericea earlier in the season, it would have been low in tannin and highly digestible. Once goats become accustomed to sericea lespedeza, they eat it into the ground, including seedling plants. Goats like the stems with seeds which reduces the seeding rate dramatically (from 960 seeds/stem to 2 or 3 seeds/stem when grazed). During the first half of the season, it may look as if you don't have enough goats because they are not eating much of the sericea. However, goats ate as much herbage the last 6 weeks of the summer grazing season as they did the first 10 weeks and most of that consumed was sericea lespedeza.

Sericea lespedeza is such a tough plant that severe grazing the first year only kills one-fourth of the plants, but the growth of surviving plants the next year is depressed relative to ungrazed plants. By the end of the third year of grazing by goats, there are virtually no live perennial sericea plants remaining and very little top growth left on the seedling sericea lespedeza plants. The goat stocking rate can be reduced each year as the lespedeza dies off. The first year requires 6-8 stocker goats per acre of lespedeza in the pasture, 4-6 goats the second year and 3-4 goats the third year. At least a half of a goat per acre is required to keep seedling lespedeza controlled each year thereafter. Goats will start eating significant amounts of grass only when they run out of sericea lespedeza. Goats will eat a bite of nearly any plant. Plant species that they consume include sumac, ironweed, leafy spurge, sunflower, post oak, eastern red cedar, blackberries, multiflora rose, ragweed, buckbrush, green briar and many, many more.

We chose to investigate a stocker goat system to control sericea lespedeza because, like cattle, goat stocker systems are relatively easy to manage. Spanish stocker goats weighing 35 to 65 lbs were purchased from Texas. Both does and wethers less than a year old were used to study the effect of initial weight and sex on stocker gains. Also, data on dietary preference were collected. Internal parasite burdens were monitored using fecal egg counts. We stocked 160 goats on 40 acres that had been grazed with goats the previous year. As they came off the trailer, goats were dewormed with 2 cc of Ivomec, vaccinated for enterotoxemia and tetanus and were turned out to pasture. Goats were observed daily by circling the animals on foot from a distance. They had the usual amount of pink eye and soremouth from shipping, but were not treated due to the difficulty of catching them. After about a month, all goats had recovered and could be observed from a truck driven through the middle of the herd.

The goats gained 7.6 lbs the first month (includes regaining lost fill), 2.7 lbs the second month, 6.7 lbs the third month and 5.1 lbs the fourth month for a total gain of 22 lbs for the summer. The low weight gains during the second month may have been due to high humidity (monthly avg of 91%). Neither starting weight nor sex affected stocker gains. Only two goats were lost out of 160 hd, but we never found a carcass or skeleton.

Attached is a sample budget for a stocker goat enterprise using data collected in this study

(Table 1). Line A shows the purchase price of a 50 pound goat at 75¢ per pound. Transportation from a sale in Texas to Kansas costs $2.00 per head (line B). Lines C and D are for dewormer and vaccination, respectively. In our study we took fecal samples for worm egg determination. It was not necessary to deworm the goats again during the summer. Trace mineralized salt cost is shown in line E. The cost for a guard dogs (spread over 3 years) and dog food was estimated at $1.00 per head. Fencing costs were based on the use of two strands of electric fence on the inside of a five-wire barbed wire fence around a section of land spread over a 4-year period. Included also is a high quality fence charger. Fencing is very important because goats can get out a ten inch hole and, unlike cattle, all 500 head will follow the first one out as well as back in. However, if goats have plenty to eat and someone checks on them, they pretty much stay put. Electric fencing can also help with predator problems. Interest on capital for the enterprise was $1.80 per head. Transporting the animals to the sale (in Texas) cost $2.00 per head although if animals are sold on private contract, the buyer often provides trucking. We calculated a 2 percent death loss (ours was 1.25 percent) on what we sold at 74¢ per pound. There is little roll-back on goats and, if kept until December, there can be a price roll-up. The net profit was nearly $5.00 per head. While the profit was not large, we produced a saleable product from the lespedeza and cleaned weeds and brush out of a pasture, which increased the carrying capacity for cattle.

Goats can control serecia lespedeza very effectively. The number of goats needed declined over the 3-year period as the lespedeza lost vigor and died. Thereafter, a smaller number of goats should be maintained to eat seedlings and prevent lespedeza from reseeding. However, one of the best opportunities to use goats for lespedeza control is when the lespedeza is just becoming established in a few spots. A pasture can be fenced for goats as cheaply as spraying the pasture once ($12 to 18 per acre), which you would have to spray in several years to control the lespedeza if you did nothing. The goats will seek out the patches of sericea lespedeza and eat it into the ground, preventing it from spreading by seed. They will also eat the seedlings that come up from seed produced the previous year or dropped by wildlife. In 3 years they will have killed all the perennial lespedeza plants and the native grasses will not have been damaged by the sericea lespedeza. In addition, the amount of other weeds and brush will be greatly reduced.

Table 1. A sample budget for a stocker goat enterprise based on data collected in this study.

Stocker Goat Budget	Each	500 hd
A. Purchase spring kids in June - 50 lb kid at 75¢lb	$37.50	18,750.
B. Transportation TX to KS	2.00	1,000.
C. Deworming 1.5 cc. Ivomec	.40	200.
D. Vaccination enterotoxemia and tetanus	.40	200.
E. T-M salt 5 lbs, 8¢/lb	.40	200.
F. Guard dogs (3 yr working life) including dogfood	1.00	500.
G. Electric fence, 2 strands, 4 mi. standoffs, charger, 4 yr life	1.60	800.
H. Interest 10% on $43.30 for 5 mos.	1.80	900.
I. Transportation to sale (KS to TX)	2.00	1,000.
J. Total Expense	47.10	23,550.
K. Sell Kids in October 72 lb less 2% death loss = 70.5 lb 74¢ lb	52.00	26,000.
L. Net Profit	4.90	2,450.