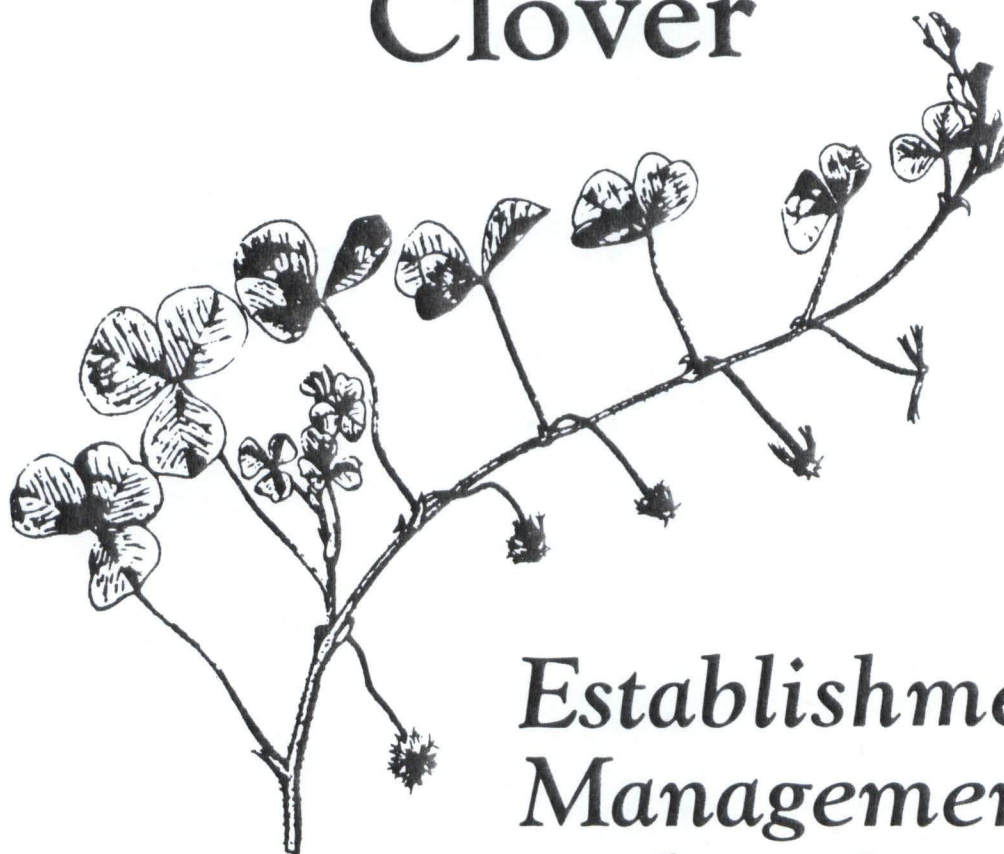


Subterranean Clover



*Establishment,
Management,
and Utilization
in Texas*

Subterranean Clover for Deer

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Nutritional quality of native forages in southern upland forests is low during winter compared with energy and protein needed for maximum growth of white-tailed deer fawns (1). In Louisiana, weights of deer killed in upland habitats are usually less than those of deer maintained on good quality forages. My hypothesis was that use of winter food plots by deer might improve diet quality on mixed hardwood-pine range.

A majority of deer hunters plant food plots with annual ryegrass or wheat. Subclover might be a better alternative because it produces high quality forage without nitrogen fertilization and can reseed even if heavily grazed during the flowering stage. Previously, I had observed that deer use of subclover was high, and it appeared to be more palatable to deer than ryegrass or wheat.

Specifically, our experiments were designed to compare preference of free-ranging deer between subclover and ryegrass, and to determine whether either forage would improve the quality of diets that they obtained. We also performed grazing trials with captive, weaned fawns to compare growth among deer grazing on either subclover, crimson clover, berseem clover, white clover, ryegrass, wheat, or oats.

Methods

Field Study

Free-ranging deer were studied at Blairstown Plantation about 4 miles south of Clinton, Louisiana. The study area is comprised of about 2,000 acres of mixed pine-hardwood forest and about 500 acres of unimproved pasture in 10 to 50 acre tracts that are dispersed about the area. The deer population contained about 75 animals.

Fourteen food plots (0.5 acre each) were established in pasture edges during late September 1983. Seven were planted with gulf ryegrass, fertilized with 300 lbs/A of 13-13-13, and topdressed during early November with 150 lbs/A of ammonium nitrate. The other seven food plots were planted with subclover and fertilized with 200 lbs/A of 8-24-24. All ryegrass plots were replanted and subclover plots regenerated by disking each September. All plots were refertilized each year.

Deer proof enclosures ($\approx 3 \text{ ft}^2$) were placed on each food plot, and forage was clipped both in and out of enclosures monthly. Enclosures were relocated monthly to portions of plots that had been grazed. Monthly use of forage by deer was estimated from the difference in yields between open plots and enclosures.

About 30 deer pellet groups were collected each month and analyzed (2) to determine proportions of the deer population's diet made up by ryegrass and subclover.

Yearling (1-1/2-year-old) bucks were harvested and weighed each fall from 1982 through 1987. By fall 1987, the deer population had grown to about 140 animals.

Captive Deer

During spring and summer 1985 and 1986, captive fawns were obtained from Louisiana Department of Wildlife and Fisheries or from captive does in facilities at LSU. Fawns were bottle-fed evaporated milk, weaned to calf creep feed, and released to forage paddocks for winter grazing trials during November. During winter 1985-86, there were four grazing treatments: ryegrass, wheat, oats, and subclover. During winter 1986-87, the four treatments during winter 1986-87 consisted of subclover, berseem clover, white clover, and crimson clover. Paddocks were each about 1 acre and were stocked with about 800 lbs of deer (6 to 8 animals). Each March deer were tranquilized and weighed to measure gains during the grazing period. Data here are means and standard errors.

Results

Field Study

The proportion of pellet groups that contained forage from the plots was 100 percent both years. Apparently, all deer on the area were using the food plots. Average monthly deer use of the forages was 708 ± 147 lbs ovendry forage per acre ($\approx 2,478$ lbs total) for subclover and about 266 ± 114 lbs per acre (≈ 931 lbs total) for ryegrass. Subclover made up about 25.3 ± 1.5 percent of the diets while ryegrass made up about 12.6 ± 0.9 percent. We concluded that deer preference for subclover was about twice as high as deer preference for ryegrass.

From fall 1982 through fall 1986, liveweights of yearling bucks were: 93 ± 8 lbs, 108 ± 6 lbs, 118 ± 12 lbs, 103 ± 2 lbs, and 119 ± 3 lbs, respectively. Weights of deer from another study area nearby remained similar all 5 years (95 ± 5 lbs). The data support the contention that growth of deer did improve in response to use of the food plots. Increases in diet quality were due to use of subclover rather than use of ryegrass (1).

Captive Deer

During the first year, weight gains of captive fawns were higher for those grazing subterranean clover (35.8 ± 1.9 lbs) or wheat (35.9 ± 1.7 lbs) compared to those grazing ryegrass (30.5 ± 1.1 lbs) or oats (29.1 ± 2.7 lbs). During the second winter, we found no significant differences in gains by captive fawns among any of the four clovers: crimson, berseem, white, and subclover (32.5 ± 2.4 lbs).

Conclusions

The data support the idea that cool-season clovers can produce better gains in deer for less cost than wheat, oats, or ryegrass. However, wheat will produce similar animal performance if fertilized properly. The winter clovers compared here produce similar animal growth. However, captive deer destroyed seed production on crimson, white, and berseem clover. Only subclover can be grazed continuously in spring and still reseed. Furthermore, crimson and white clover often produce bloat in cattle. So they may not be good choices for use in a cattle-deer program. In South Texas subclover can be used to increase range carrying capacity and deer performance where precipitation is adequate for forage production.

Another consideration is that winter clovers require different planting and management practices than grasses. Many persons who are inexperienced forage growers

might be better advised to use wheat. I recommend a subclover (15 lbs/A) and wheat (1.5-2 Bu/A) mixture for deer. This provides greater insurance against plot failure due to drought or poor clover inoculation. Initial fertilization should be for clover crops (i.e., phosphorus and potassium fertilizer, and lime if needed). Nitrogen can be applied to increase wheat performance if the clover crop fails.

Literature Cited

1. Johnson, M. K., B. W. Delany, S. P. Lynch, J. A. Zeno, S. R. Schultz, T. W. Keegan, and B. D. Nelson. 1987. Effects of cool-season agronomic forages on white-tailed deer. *Wildl. Soc. Bull.* 15: In press.
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