

# Effects of Supplemental Ryegrass Versus Subterranean Clover on Fawn Weight<sup>1</sup>

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**Abstract:** White-tailed deer (*Odocoileus virginianus*) fawns were fed calf-creep feed (12% crude protein) ad libitum in pens where either ryegrass (*Lolium multiflorum*) or subterranean clover (*Trifolium subterraneum*) was planted for winter feed. During a 143-day period (29 Nov 1984–21 Mar 1985) fawns in the pen with ryegrass gained ( $\bar{x} \pm \text{SE}$ )  $9.65 \pm 2.4$  kg/fawn while those in the pen with subterranean clover gained an average of  $18.8 \pm 2.5$  kg/fawn. Differences were significant ( $P < 0.10$ ) and were not influenced by sex. Use of calf creep feed per deer was not significantly different between the 2 treatments.

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Ryegrass is commonly planted in food plots in the Southeast to attract white-tailed deer during winter to improve hunting success. Webb (1965) concluded that clovers (*T. incarnatum* and *T. repens*) were more preferred by deer than 5 agronomic grasses. However, although substantial evidence suggest that deer in upland forests are often small because of low food quality (Short et al. 1969), there is little proof as to whether winter food plots could significantly improve weights of deer.

In contrast to forage grasses, the nutritional quality of cool season clovers remains high all season, especially from late winter through spring (Render 1984). Crude protein and calcium levels in subterranean clover are significantly greater than those in grasses during spring (Render 1984). Therefore, clover may be more

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likely to improve deer growth than a cool season forage grass. This study compared winter weight gains of white-tailed deer fawns offered standard diets supplemented with ryegrass to gains of fawns offered subterranean clover.

## Methods

Twelve white-tailed deer fawns were turned in by laymen or confiscated by agents of the Louisiana Department of Wildlife and Fisheries during summer 1984. Initially, fawns were bottle-fed a mixture of 50:50 (V:V) condensed milk and water in holding pens at Louisiana State University's Ben Hur Farm. Bottle feeding was done twice daily. All fawns were maintained on calf-starter (18% crude protein) after weaning.

During late September 1984 1 deer pen (0.4 ha) was planted with gulf ryegrass at about 50 kg/ha while another pen (0.4 ha) was planted with subterranean clover (Mt. Barker var.) at about 15 kg/ha. During the last week of October ryegrass was top-dressed with ammonium nitrate at 150 kg/ha. Subterranean clover fixes ample nitrogen and, like most other legumes, requires no nitrogen fertilization. Soil levels of phosphorus and potassium were 190 and 439 ppm, respectively. Therefore, no other fertilizer was needed for either forage (Peevy 1972).

During late October deer were weighed, and 6 deer were randomly released into each pen. The ryegrass pen had 1 male and 5 females; the subterranean clover pen had 2 males and 4 females. Bagged feed was changed to calf-creep (13% crude protein) to simulate the maximum quality diet that deer can possibly obtain during winter from native browse in upland pine forests in Louisiana (Ron Thill, pers. commun.). The amount of calf-creep consumed by each group of deer was recorded. Observations supported the hypothesis that growth of both forages was adequate to provide more forage than either group of fawns desired. However, it was not possible to determine the amounts of each forage used because regrowth following continuous grazing could not be measured. Deer were weighed in late March 1985 to correspond with spring green-up of native forage. Mean body weight changes were compared statistically by analysis of covariance and Student's *t*-test. Data reported here are means  $\pm$  standard errors.

## Results and Discussion

From 29 October through 22 March 1985 fawns in the ryegrass and subterranean clover pens consumed similar amounts of calf-creep feed (about 580 and 600 kg, respectively). Mean body weight of fawns that grazed subterranean clover ( $14.5 \pm 2.4$  kg) was slightly less than the average for fawns that grazed ryegrass ( $18.5 \pm 1.7$  kg) when the test began. After 143 days, however, fawns that used subterranean clover were larger ( $33.3 \pm 2.2$  kg) than fawns that used ryegrass ( $28.3 \pm 1.9$ ). Sex did not significantly influence the analyses because average gains made by females in the subterranean clover ( $19.2 \pm 3.9$  kg) were not significantly different ( $P < 0.05$ ) from the average gain made by the males ( $18.0 \pm 0.7$  kg). There is

no reason to believe that there was any effect from the pens themselves; soils were identical and pens were adjacent to each other.

Fawns that used subterranean clover gained nearly twice as much weight as fawns that used ryegrass and the difference ( $18.8 \pm 2.5$  vs.  $9.6 \pm 2.4$  kg) was highly significant ( $P < 0.01$ ) based on Student's  $t$ -test. However, smaller fawns gained more weight over the study period than larger fawns. Regardless, when analysis of covariance was used to account for compensatory gains, differences between the treatments remained statistically significant considering the small sample size ( $P < 0.10$ ). These results suggest that a cool season forage legume is more likely to benefit free-ranging deer than ryegrass. Subterranean clover was used in this study because its reseeding ability is not destroyed when grazed heavily during flowering (Knight et al. 1982), but any clover or any other cool season forage legume could probably be used as long as it is palatable to deer.

These results suggest that food plots with clover might be superior to ryegrass for improving growth of free-ranging deer on poor quality range. Field studies should be conducted to test this contention.

### Literature Cited

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