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MANAGING COASTAL BERMUDAGRASS IN AUTUMN FOR ARROWLEAF CLOVER PRODUCTION

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Background. Overseeding warm-season perennial grasses such as 'Coastal' bermudagrass with clovers in autumn is a common practice in East Texas. Clover provides spring production of high quality forage, utilizes nitrogen from the air through N_2-fixation, and provides spring weed control. Cool-season annual forages such as clovers are seldom planted in a well-prepared seedbed. Heavy disking of the sloping East Texas soils would result in erosion of the top soil and sedimentation of ponds, creeks, rivers, and lakes which affects water quality and aquatic habitat.

Poor early clover growth is the main disadvantage of overseeding compared to drilling in a prepared seedbed. Reduced early growth is due to a 3- to 6-week later planting date than on prepared seedbed, placing the seed on or near the soil surface, and competition for light, moisture, and nutrients from the grass sod. Various autumn sod management practices were evaluated for improving early arrowleaf clover production in a Coastal bermudagrass sod.

Research Findings. 'Yuchi' arrowleaf clover was overseeded on a Coastal bermudagrass hay meadow at 10 lb/ac on 22 October 1991. Sod treatments were 0, 50, or 100 lb N/ac applied 6 weeks before planting, spraying Roundup (1 qt/ac), disking lightly, or untreated control, and mowing the bermudagrass sod to a 1- or 4-in. height before planting.

Applying N fertilizer 6 weeks before planting did not affect arrowleaf clover stands or production and is not reported. Cutting bermudagrass to a 1-in. height allowed the most light to reach the soil surface (Table 1). Applying Roundup or disking also improved light penetration. Arrowleaf clover seedling density was highest in the disk treatments regardless of sod height (Table 2). Mowing to a 1-in. height improved arrowleaf clover seedling density in the control and Roundup treatments. At the first harvest on 20 March, plots mowed to a 1-in. height and disked lightly were the most productive (Table 3). Mowing to a 1-in. height in the control treatment increased yields 50% over the 4-in. sod. There was no difference between sod treatments after the first harvest. Differences in total yield were the same as those observed at the first harvest (Table 4).

Application. Warm-season perennial grasses should be mowed to a 1-in. height to improve early forage production of arrowleaf clover. Disking the 1-in. and 4-in. sods increased early production 23 and 40%, respectively compared to the untreated control.

Table 1. Percentage of sunlight reaching the soil surface in autumn sod treated Coastal bermudagrass.

Sod height	Control	Disk	Roundup
in.		% light	
1	74	82	88
4	35	60	58

Table 2. Influence of autumn sod treatments on arrowleaf clover seedling density.

Sod height	Control	Disk	Roundup
in.		seedlings/16 in.^{2}	
1	6.6	7.3	6.3
4	5.2	7.4	5.7

Table 3. Influence of autumn sod treatments on early forage production of arrowleaf clover.

Sod height	Control	Disk	Roundup
in.		dry matter (lb/ac)	
1	1293	1588	1196
4	846	1190	1059

Table 4. Influence of autumn sod treatments on total arrowleaf clover production.

Sod height	Control	Disk	Roundup
in.		dry matter (lb/ac)	
1	3129	3451	3455
4	2624	3176	3373