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MANAGING COASTAL BERMUDAGRASS IN AUTUMN FOR CRIMSON 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 soil 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, 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 crimson clover production in a Coastal bermudagrass sod.

Research Findings. 'Dixie' crimson clover was overseeded on a Coastal bermudagrass hay meadow at 20 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 influence crimson clover stands or production and is not reported. Cutting bermudagrass to a 1-in. height allowed the most light to reach the soil surface which is critical for clover establishment (Table 1). Applying Roundup or disking further improved light penetration over the control. Crimson clover seedling density was always higher in the sod mowed to 1 in. height compared to the 4 in. height and in the lightly disked sods because of more light reaching the soil surface (Table 2). If the grass sod was mowed to a 1 in. height, applying Roundup or disking lightly did not improve early forage production of crimson clover over the control (Table 3). Crimson clover has a large seed and good seedling vigor which enables it to better compete for light than a smaller seeded clover such as arrowleaf clover. Reducing bermudagrass sod height from 4 to 1 in. in the control and Roundup treatments increased early crimson clover production 56 and 23%, respectively. Total yield differences were due to differences at the first harvest (Table 4).

Application. Mowing the summer perennial grass to a 1-in. height is the only autumn sod treatment necessary for early crimson clover production. If the grass sod height is near 4 in.

or taller, a light disking at clover planting will enhance clover production.

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 crimson clover seedling density.

Sod height	Control	Disk	Roundup
in.	-----seedling/16 in. ² -----		
1	3.2	3.6	3.0
4	1.9	3.2	2.4

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

Sod height	Control	Disk	Roundup
in.	-----dry matter (lb/ac)-----		
1	2107	2241	2080
4	1351	2077	1691

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

Sod height	Control	Disk	Roundup
in.	-----dry matter (lb/ac)-----		
1	4128	4147	4111
4	3209	4227	3734