

Clovers For Stocker Cattle Grazing Bermudagrass



DR. PAUL BECK
HOPE, ARK.

Clovers provide many benefits to pastures for stocker producers. Most people consider the ability of clovers and other legumes to fixate nitrogen from the atmosphere the primary benefit they offer our pastures. Clovers provide additional benefits to grass pastures because they are higher in digestibility, they grow well as a companion crop to grasses and their mineral profiles are naturally complementary to deficiencies in grass pasture and provide early grazing opportunities for warm-season pastures.

There are several options available in planting clovers in the Mid-South with a variety of benefits, growing seasons and maturity dates. White clover is a cool-season perennial that is productive throughout Arkansas, tolerates soils that are not well drained, is cold tolerant and matures in late spring or early summer. Red clover is a cool-season biennial or weak perennial in Northern Arkansas, requires well drained soils, is cold tolerant and matures in mid-summer. In the past few years new varieties of both white and red clover were developed that are more productive and disease resistant in conditions found in the Southeastern United States.

Research conducted in 2009 at the University of Arkansas Livestock and Forestry Branch Station near Batesville compared the gains of stocker calves and carrying capacity of bermudagrass pastures interseeded with a mixture of red and white clovers to bermudagrass pastures fertilized with 0, 50 or 100 lb N/acre (which came from 0, 150 and 300 lb of ammonium nitrate/acre). Bermudagrass pastures were interseeded with 2 lb/acre RegalGraze Ladino white clover and 10 lb/acre Morningstar red clover in October 2008 with a no-till drill. Other bermudagrass pastures were either unfertilized or had 75 or 150 lb/acre ammonium nitrate applied in May and July. Pastures were divided into four paddocks and rotated weekly.

Steers weighing 611 lb grazed these pastures from May 29 to September 9.

Crude protein and energy are essential for growth. A steer gaining 2 lb/d requires a diet that has at least 12 percent crude protein. Throughout the summer, all pastures were in excess of 12 percent crude protein and averaged in excess of 15 percent. Energy is conveniently measured using Total Digestible Nutrients (TDN). Growing steers require TDN content of their diet to be 60 percent and 67 percent for gains of 1.25 lb/d and 2 lb/d, respectively. Total digestible nutrients of the bermudagrass increased with increasing nitrogen fertilizer throughout the summer. In May TDN content of bermudagrass increased from 60 percent to 69 percent with additional fertilizer; this can be compared to 69 percent TDN from forage in clover pastures. While in June, TDN of bermudagrass was 67 percent, 67 percent and 69 percent for 0, 50 and 100 lb/acre nitrogen rates, respectively, while TDN content of clover pastures was 72 percent. Fertilized pastures in July were only 62 percent to 64 percent TDN while clover pastures were 69 percent TDN. In August, clover pastures were 65 percent TDN compared to 62 percent to 67 percent for fertilized pastures.

Average daily gain of steers increased from 1.1 to 1.4 lb/day with increasing nitrogen fertilization. Steers grazing pastures with clover gained 1.6 lb/day. Carrying capacity of the pastures increased with nitrogen fertilizer (265, 286, 298 steer-days/acre for 0, 50 and 100 lb N/acre fertilizer rates, respectively). Clover pastures had as many steer grazing days per acre (295 steer days/acre) as the high nitrogen rate pastures, and total gain per acre was greater for clover pastures (467 lb gain/acre) than with nitrogen fertilization (302, 359, 391 lb gain/acre).

Clovers and other legumes are beneficial additions to pastures through nitrogen fixation, but even more benefits are realized from the added energy in the diet of grazing livestock. Δ

DR. PAUL BECK: Associate Professor, University of Arkansas