Coastal and common bermudagrass remained. In general, at the higher stocking rates the N+ryegrass treatment maintained stand integrity over time better than the no N+clover treatment.

Invading species included other bermudagrass ecotypes which maintained ground cover; thus, soil-exposed areas were minimum to non-existent (**see images**). The primary invading species on non-N fertilized common bermudagrass was bahiagrass (*Paspalum notatum* Flugge). After more than 40 years of stocking bermudagrass pastures, stocking rates of 1 cow-calf pair/A allowed for sufficient forage mass to promote stand maintenance and sustainable pastures. The high stocking rates of 2.5 cow-calf pair/A did not eradicate the invading, persistent bermudagrass ecotypes; however, these higher stocking rates during a 40-yr period practically eliminated the originally-planted, higher yielding and more desirable Coastal and common bermudagrass. The impact of long term continuous high stocking rates on bermudagrass pastures, therefore, is reduction in carrying capacity and animal gains per acre.

Conclusions

Although high stocking rates practically eliminated the original bermudagrass species, bermudagrasses are sustainable for pastures in the southeast U.S. under a wide range of less severe management strategies. This long-term grazing study documented the importance of N-fixation by clovers, which sustained bermudagrass pastures when stocked at low stocking rates of about 1 cow-calf/A. Silveira et al. (2014) summarized that recommendations for pasture fertilization are often based on soil tests; however, N fertilization rates have traditionally been based on management strategies for the desired level of dry matter yield and economic expectations. These management strategies generally do not account for residual soil N when preparing for hay and/or stocking rate. BC

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