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## **Annual Pasture Legumes: Are We Realistic?**

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Over the years, the University of Florida has been telling and writing about the excellent nutritional value and improved cattle gains possible when summer-annual legumes like aeschynomene and stylosanthes are in the pasture. With this history, I am a little reserved to question the value of legumes in south-central Florida pastures. It is like going against something you have been taught is good and worthwhile. I am not saying the information has not been accurate. It has been, but I would like to relate recent experience with two legumes, and look at them in a different light.

At the Range Cattle REC, we tested three pasture systems: bahiagrass alone; bahiagrass + evenia; and bahiagrass + stylosanthes (two replicates of each). In late winter of 1996 and 1997, four paddocks were burned and aeschynomene evenia and Savanna stylosanthes seed were each broadcast at 20 lb/acre. We carefully grazed bahiagrass from March to July to encourage the legumes. In 1998 (El Niño) there was no frost and high rainfall in February and March, so there was no burning prior to seeding. In that year, 79% and 100% of the evenia and stylosanthes plants, respectively, were from live-over plants. No fertilizer was applied and no supplement was given to cattle during any year. Yearling steers (525 lb) grazed from 2 July to 24 Sept. 1996, and pregnant heifers grazed from 23 July to 15 Oct. 1997 (710 lb) and from 7 July to 29 Sept. 1998 (720 lb). Cattle were stocked at 1.2 hd/acre in each year.

Over 3 years, neither evenia (0.90 lb/hd/day) nor stylo (0.75 lb/hd/day) improved live-weight gains compared with bahiagrass alone (0.85 lb/hd/day). Our pastures were fair to good with respect to legume stands. Legume forage available under grazing ranged from 225 to 740 lb dry matter/acre between July and October, respectively, and there was an average of 2.5 legume plants/ sq. ft. in the pastures. Hand-plucked samples, which simulated what cattle ate, of evenia averaged 19.7% crude protein compared with 14.6%

for stylosanthes. Digestibility of hand-plucked samples of legumes ranged from 67% in July to 52% in October.

What is troubling to me is the effort that went into managing for the legumes: burning bahiagrass, sowing legumes, controlling grazing during establishment, removing cattle on stylosanthes to allow it to set seed and perpetuate itself. For all the effort there was no enhanced livestock gain in return. This was the second study where I have observed no response from cattle grazing of a high nutritional value legume with bahiagrass. I think there are a lot of animal and environmental factors that have to come together to result in a nutritional need for livestock which the legume fills. For all the criticism bahiagrass has received, it is still a nutritionally good forage for most of its growing season.

Legume seeds are expensive, but not unreasonable if cattlemen are able to maintain stands by natural reseeding thereafter, and if they are rewarded by greater cattle gains. Our experience has been that evenia was more reliable than stylosanthes, but it too needed additional seed each year to maintain the evenia component, probably because we did not build-up a large store of seed in the soil.

Perhaps annual legumes can not economically justify an intensive effort year after year to maintain them in pastures in our environment. If cattlemen can encourage annual legumes as part of their on-going pasture program, that is fine. While cattle prices are high, I encourage cattlemen to sow them in bahiagrass pastures. Realistically, the presence of these annual legumes in bahiagrass pasture does not ensure improved cattle gain.