

Strategies to Control Weed Competition in Strip-Planted Rhizoma Peanut in Existing Bahiagrass Pastures

Castillo, M.S.¹, L.E. Sollenberger¹, A.R. Blount², J.A. Ferrell¹, M.J. Williams³, and C.L. Mackowiak²

¹Agronomy Department, University of Florida, Gainesville, FL 32611, ²North Florida Research and Education Center, University of Florida, FL 32446, ³USDA-NRCS, Gainesville, FL 32606

Rhizoma peanut (*Arachis glabrata* Benth.; RP) spreads laterally in grass swards and has demonstrated long-term persistence under grazing, making it an ideal candidate for sustainable forage-livestock systems in the southeastern USA. Thus far, RP has been used primarily for hay production systems where high costs of establishment and management for weeds and water may be affordable. Research is critical to develop novel approaches for overcoming the barriers to successful growth of legumes in association with grasses in warm climates and to identify low-cost, long-term solutions to the problem of N limitation in low-input systems. Research was conducted for two years in Gainesville, FL to evaluate planting of RP in clean-tilled strips in established, low-input bahiagrass (*Paspalum notatum* Flügge) pastures. The objectives were to determine: 1) the effect of chemical and cultural management practices to control competition for nutrients and light from weeds growing in the strips planted to RP and 2) the effect of N application on RP establishment and the interaction with management practices. The use of imazapic and imazapic + 2,4-D in strips planted to RP greatly reduced weed competition and allowed greater RP cover and frequency (20 and 19% cover, 50 and 53% frequency, for imazapic and imazapic + 2,4-D, respectively) compared to an untreated control (3 and 24%), frequent mowing (2 and 14%), application of clethodim (6 and 30%) or pendimethalin (3 and 24%) herbicides. Incident light reaching the RP canopy followed the same trend as RP canopy cover and frequency (91% for imazapic and imazapic +2,4-D compared to 71, 81, 66, and 76% for untreated control, frequent mowing, pendimethalin and clethodin, respectively). Application of 50 kg N ha⁻¹ following herbicide treatment resulted in greater RP cover and frequency in treatments where weeds were controlled successfully. Data show that strip planting RP in bahiagrass is a viable option, but weed management to control competition for nutrients and light is critical to RP establishment success.