Introduction

- Rhizoma peanut (Arachis glabrata Benth; RP) is an ideal candidate for sustainable forage-livestock systems in the southeastern USA. Nevertheless, high establishment costs have limited its use to hay production systems.
- The current experiment is one of a series designed 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.

Objectives

Using a strip-planting approach for establishing RP in existing bahiagrass 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.
2. The effect of N application on RP establishment and the interaction with management practices.

Materials and Methods

- The experiment was conducted for 2 years at Gainesville, FL.
- Treatments were the factorial combinations of:
  - Two N rates: 0 and 45 lb/ac/yr
  - Single application using NH4NO3 fertilizer after all herbicides were applied
  - Six competition-control strategies:
    - Chemical (4): Pendimethalin (1 qt/ac), Clethodim (12 fl oz/ac), Imazapic (4 fl oz/ac) and a mix of Imazapic (4 fl oz/ac) + 2,4-D amine (8 fl oz/ac)
    - Cultural (1): mowing every 28 d simulating a hay production system
    - Control (1): untreated

Results and Discussion

- Imazapic and Imazapic + 2,4-D provided superior control of competition to establishing RP resulting in greater incident PAR (photosynthetic active radiation) reaching the RP canopy and greater RP cover and frequency.
- Application of 45 lb N/ac/yr following herbicide treatment resulted in greater RP cover and frequency in treatments where weeds were controlled effectively (Imazapic and Imazapic + 2,4-D treatments).
- Strip planting RP in existing bahiagrass pastures is a viable option, but weed management to control competition for nutrients and light is critical to RP establishment success.

Conclusions and Implications

Acknowledgements

The authors would like to express their appreciation to Richard Cone of Cone Family Farms, LLC, Greenville, FL, for providing the RP planting material used in the study and for planting the RP strips.