SUMMARY

Legumes used in pastures where frequent environmental stress occurs, such as the southeastern United States, are generally nonpersistent and undependable. Factors responsible for this unreliability are drought, subsoil acidity, nematodes, disease, insects, and competition from rhizomatous warm-season perennial grasses. These environmental effects are a greater problem than the grazing animal in legume persistence. Grazing animals influence legume persistence by selective grazing, treading, and excretion. Breeding efforts on pasture legume improvement in regions of stress have made progress. Birdsfoot trefoil (*Lotus corniculatus* L.) cultivars have been developed that are tolerant of subsoil acidity. Improved sericea lespedeza (*Lespedeza cuneata* (Dum.-Cours.) G. Don) cultivars have higher nutritive quality, greater palatability, and are persistent under good grazing management. Alfalfa (*Medicago sativa* L.) selection under continuous grazing has produced a productive and persistent cultivar that can be used either for hay or pasture. Future research needs to be intensified on screening of species and cultivar improvement for legume persistence in stressful environments.

INTRODUCTION

Legumes are generally considered to be a desirable component in pastures. They provide N, improve nutritive quality, and extend the productive season of warm season grass pastures. Burns and Standaert (1985), in an extensive review of grazing experiments in the United States, reported that steer daily gains from legume-grass were 0.14 kg/d more than from N-fertilized grass and calf daily gains were 0.15 kg/d higher on legume-grass in cow-calf experiments. Generally, 200 kg of N/ha was required for grass to produce the approximately 400 kg/ha gain expected from legume-grass mixtures. The higher animal performance obtained with legumes is attributed to higher crude protein, digestibility, and minerals, resulting in higher intake potential (Marten, 1985).

Perennial temperate legumes such as white clover (*Trifolium repens* L.), red clover (*T. pratense* L.), alfalfa (*Medicago sativa* L.), and birdsfoot trefoil (*Lotus corniculatus* L.) are commonly used in most of the United States. Winter annual clovers such as arrowleaf (*T. vesiculosum* Savi), crimson (*T. incarnatum* L.), subterranean (*T. subterraneum* L.), and rose (*T. hirtum* L.) are grown in the Coastal Plains of...