RIGHT-OF-WAY MANAGEMENT: A KEY TO CONTROLLING THE SPREAD OF COGONGRASS (*IMPERATA CYLINDRICA*). W.H. Faircloth, M.G. Patterson, J.H. Miller, and D.H. Teem. Auburn University, Auburn, AL, and U.S. Forest Service-Southern Research Station, Auburn, AL.

ABSTRACT

Cogongrass [*Imperata cylindrica* (L.) Beauv.] is an undesired species on highway rights-of-way (ROWs) due to its displacement of native and/or more manageable grasses, unsightly growth characteristic, and propensity for fire. Fire not only poses a danger to motorists but could cause property loss to adjoining landowners. Most importantly, ROWs provide corridors to un-infested areas, therefore, expanding the range of this noxious weed. In order to protect natural systems and un-infested areas, ROW management of cogongrass is crucial. Two projects were located on Interstate 10 ROW in Baldwin Co., near the towns of Loxley (est. fall 2000) and Malbis (est. fall 2001). Both projects integrated chemical control with the subsequent revegetation of highly competitive and more desirable species. Herbicides were glyphosate (3.0 lb ai/A) and imazapyr (0.375 and 0.75 lb ai/A). Repacement species were bahiagrass (*Paspalum notatum* var. Pensacola), common bermudagrass *(Cynodon dactylon),* browntop millet *(Panicum ramosum),* crimson clover *(Trifolium incarnatum* var. AU Robin), and annual ryegrass (*Lolium multiflorum* var. Gulf). Treatments were comprised of various combinations of herbicides and replacement species arranged in an RCB design with 4 replications. The initial study located at Loxley had 14 treatments plus an untreated control; the Malbis study consisted of 7 treatments plus an untreated control. Two differences in plot maintenance practices existed between locations:1) plots at Loxley were not mowed during the growing season, and 2) all replacement species were broadcast-seeded. The study at Malbis was designed to more closely follow Alabama Department of Transportation protocols, therefore, plots were mowed 4x during the growing season (May-June, July, Aug.-Sept., and Nov.) and all replacement species were drill-seeded. Plots were 15x30 ft. at both locations. Both studies were designed in triplicate, such that a time factor could be examined. All regimes were treated year one; two of three were re-treated in year two; a third was treated yet again in year three. Thus, all treatments could be evaluated when implemented in one, two, and three successive years. Plot evaluation included visual ratings of cogongrass control and subsequent revegetation, cogongrass stand counts, and cogongrass biomass sampling. Plots were evaluated yearly beginning one year after initial treatment (YAIT).

Loxley Study. The one year treatment regime was ineffective in reducing either the visual control or stand counts of cogongrass. The greatest percent control 2 YAIT on the one year regime was 15%. With a two year regime, all treatments reduced stand counts >60%. Those treatments that included imazapyr either alone or in combination with glyphosate showed the greatest decrease in stand counts (≥80%). All treatments reduced cogongrass stand counts >80% in the three year regime, 3 YAIT. Only after three consecutive years of application did glyphosate alone give control equal to imazapyr either alone or in combination with glyphosate. No treatment or regime resulted in the conversion of cogongrass infested ROW to either bahiagrass or bermudagrass. This is due, in part, to drought conditions which prevailed during the study period and experimental techniques (broadcasting of seeds).

Malbis Study. Reduction in cogongrass stand counts were ≥70% across all regimes and all treatments 1 YAIT. The one year regime began to exhibit regrowth 2 YAIT in plots treated with glyphosate only. Imazapyr in combination with glyphosate reduced stand counts >81%. Both the two and three year regimes gave near 100% control 2 YAIT, regardless of treatment. Conversion to bahiagrass or bermudagrass was greater than the Loxley study, with plots averaging 50% coverage. A three year evaluation will be taken spring 2004.

Summary. At least two years continuous treatment was necessary for adequate visual control and reduction in stand of cogongrass. Glyphosate alone as a treatment was only effective when

applied in the three year regime (Loxley) or in the two year regime (Malbis). Imazapyr consistently provided long-term control regardless of glyphosate. Winter cover crops, especially crimson clover, delayed cogongrass emergence in spring, but made no difference in overall control. Specific treatment combinations were less important than the number of times in which those treatments were applied.