



Figure 1. Regression relationships of August untreated cover between bahia grass and bermuda grass and *vice versa*. The data in these relationships has been linearized with an angular transformation (arc-sine, square-root of cover expressed as a proportion).

WOODY STEM CONTROL USING TANK MIXTURES OF FOSAMINE, IMAZAPYR, GLYPHOSATE AND METSULFURON. L.R. Nelson and A.W. Ezell. Clemson University, Clemson, SC and Mississippi State University, Starkville.

ABSTRACT

Herbicide treatments were installed during the 1999 growing season at two locations to evaluate the performance of fosamine tank mixtures for forest site preparation. Study sites included a piedmont site near Abbeville, SC and an upper coastal plain site near Louisville, MS. Dominant hardwood species were sweetgum, water oak and winged elm in SC and sweetgum, red maple, red oak spp. and winged elm in MS. Herbicide treatments included fosamine @ 4 lb ai/ac + imazapyr (Chopper®) @ 6 oz ai/ac + surfactant (Dynamic®) @ .25 % v/v, fosimine @ 4 lb ai/ac + imazapyr (Chopper) @ 6 oz ai/ac + metsulfuron @ .9 oz ai/ac + surfactant (Dynamic) @ .25 % v/v, fosamine @ 4 lb ai/ac + imazapyr (Chopper) @ 6 oz ai/ac + glyphosate (Accord®) @ 1.5 lb ai/ac + MON 59120 @ .25 % v/v and fosamine @ 4 lb ai/ac + imazapyr (Arsenal Applicators Concentrate®) @ 6 oz ai/ac + surfactant (dynamic) @ .25 % v/v. Treatments were applied with a CO₂ backpack-pole sprayer in mid-August. A randomized complete block experimental design was used at both locations. Plots were 100 ft x 25 ft with 3 replicates. Evaluations were conducted 8 WAT and again at 12 MAT. The 8 WAT measurements included ocular estimates of percent foliar brownout of hardwoods and understory grasses and forbs. The 12 MAT measurements included stem counts of live woody stems by species. These values were compared to initial stem counts to determine percent control.

All treatments provided effective brownout of grasses. Fosimine + imazapyr (Chopper) + Glyphosate + surfactant resulted in 95 % brownout at both locations. Brownout with the other treatments ranged from 63 to 88 %. All treatments were significantly different than the check plots which were rated at 5 and 0 % in MS and SC, respectively.

Herbicide treatments did not differ statistically with respect to percent brownout of broadleaf forbs. Percent brownout ranged from 83 to 100 %. All treatments differed from check plots which were rated at 7 and 0 % in MS and SC, respectively.

Herbicide treatments did not differ statistically with respect to overall percent brownout of hardwood species. Foliar brownout ranged from 70 to 95 %. All treatments differed from the check plots which were rated at 0 % at both locations. Herbicide treatments were particularly effective on sweetgum in SC. Brownout ranged from 95 to 100 %. Low levels of brownout occurred on water oak with a range of 23 to 42 %. Two treatments were effective on winged elm. Applications of Fosamine + imazapyr (Chopper) + metsulfuron and Fosamine + imazapyr (Chopper) + glyphosate resulted in 100 and 95 % brownout, respectively. Remaining treatments provided less than 50 % brownout.

The above three-way mixtures provided effective (90 % or more) control of all species on both sites. Low level control of water oak and winged elm in SC resulted from the Krenite plus Chopper treatment. Krenite mixed with either Chopper or Arsenal provided poor control of red maple and winged elm in MS.

INITIAL BROWNOUT RESPONSE TO MON78015, MON78229, MON 78128, AND OTHER GLYPHOSATE PRODUCTS AND TANK MIXTURES. A.W. Ezell, Department of Forestry, Mississippi State University, Mississippi State, MS 39762, L.R. Nelson, Clemson University, Clemson, SC 29634, and J.L. Yeiser, Stephen F. Austin State University, Nacogdoches, TX 75962.

ABSTRACT

A total of ten herbicide site preparation treatments were applied on recently cutover forest sites in South Carolina, Mississippi, and Texas. All treatments included glyphosate either alone, tank mixed with imazapyr, or in a premix formulation with imazapyr. Applications were completed in late July with a CO₂-powered backpack sprayer using 10 gpa total spray volume to simulate aerial application for site preparation. Each treatment was replicated three times at all locations. A pretreatment inventory of woody stems in plots was completed by species and height class, and an ocular estimate of brownout was completed at 8 WAT.

Overall, all treatments did an excellent job of brownout on grass and broadleaf species. The Texas site had little or no broadleaf coverage in the plots, but Mississippi and South Carolina exhibited greater than 90% brownout on herbaceous competition. Overall brownout of woody species in Mississippi ranged from 83 - 95% with no significant difference between any of the herbicide treatments. In Texas, brownout of woody species ranged from an average of 49% to 89% but the treatments did not vary significantly (statistically) in their performance. In South Carolina, two of the herbicide treatments were statistically significant in their brownout difference from the other 8 treatments on woody species. Average brownout ranged from 64-87% at this site. Considering all species at all study sites, the brownout response to these treatments is considered to be excellent.

HARDWOOD STEM REDUCTION WHEN PREPARING PINE SITES WITH A NEW FORMULATION OF HEXAZINONE. J.L. Yeiser, Stephen F. Austin State University, Nacogdoches, TX 75962 and A.W. Ezell, Mississippi State University, Mississippi State, MS 39762.

ABSTRACT

Site preparation rates of Velpar L and a new Velpar DF formulation were tested alone and in combination with Garlon 4 for unwanted woody stem reduction on pine sites in Texas and Mississippi. In Texas only, Velpar L+Accord and Krenite S+Arsenal AC were also tested. Herbicide treatments were applied in Texas on June 1, 1999 and in Mississippi on June 5, 1999. Both sites were evaluated 16 months following treatment. When the new Velpar DF formulation was compared with Velpar L, percent stem reduction of American beautyberry, sweetgum, yaupon, post oak, water oak, and overall species was similar. In Mississippi, the new Velpar DF alone and in mixture with Garlon 4 reduced red maple and post oak more than Velpar L. In contrast, Texas sweetgum was controlled more with new Velpar DF and Velpar L than with Velpar DF+Garlon, Velpar L+Garlon 4 or Velpar L+Accord mixtures suggesting antagonism. Although differences were detected for specific species, overall stem reduction was similar for the new and current formulations of Velpar both alone and mixed with Garlon 4, illustrating the trade-off in species control that can occur. Rootstocks were effectively controlled by herbicides. Ingrowth was similar for herbicide and check plots. Sixteen months after treatment, competitor levels on herbicide plots were significantly less than on check plots, but perhaps still too high for intensive pine culture. The new hexazinone formulation shows promise as part of an integrated pest management approach to preparing sites for planting.

INTRODUCTION

Herbicides used during the chemical preparation of pine sites include, but are not limited to, Arsenal AC, Accord, Garlon 4, Velpar L and Krenite S. DuPont has developed a new formulation of hexazinone, called Velpar DF, and its potential for woody plant control during the preparation of pine sites is unknown. The objective of this study was to compare woody stem reduction resulting from site preparation applications of Velpar L and Velpar DF, alone and in combination with Garlon 4 for the control of unwanted woody species occupying pine sites.