

Table 4. Woody stem control (percent change) in 1998 Monsanto site preparation study – SC.

Treatment	Species		
	Black Cherry	Red Oaks	Total
	-----percent-----		
Untreated	- 40 ab	0 d	0 d
M 7 + AR (6+2)	-100 a <sup>1</sup>	-83 ab	-91 ab
M 7 + AR (6+4)	-100 a	-95 a	-91 ab
M 7 + AR (6+6)	- 58 ab	-92 ab	-96 a
M 7 (4)	-100 a	-55 abc	-70 b
M 7 (6)	-100 a	0 d	-98 a
M 7 (8)	-100 a	-83 ab	-90 ab
AC + M 5 (4+2.5)	- 7 b	- 8 cd	-52 c
AC + M 5 (6+2.5)	- 58 ab	-45 bcd	-75 abc
AC + M 5 (8+2.5)	- 92 ab	-75 ab	-90 ab
M 7 + AR (4+12)	- 93 ab	-80 ab	-89 ab
M 7 + ES (4+1)	-100 a	-49 abc	-93 ab

<sup>1</sup> Negative values indicate a decrease in stems and values followed by the same letter in a column do not differ at P = 0.05

**ADDITION OF SULFOMETURON METHYL TO FALL SITE PREP APPLICATIONS INCREASES HERBACEOUS WEED CONTROL DURING THE FOLLOWING GROWING SEASON.** A.W. Ezell, Mississippi State University, Starkville.

#### ABSTRACT

A total of 12 herbicide treatments were applied to a recently cutover site to evaluate their efficacy for site preparation. In four of the treatments, Oust® was added to evaluate the ability to control herbaceous vegetation the following growing season. Ten of the twelve treatments resulted in very good control of the woody species on the study site. The addition of Oust gave excellent herbaceous weed control during the following growing season, with control evident 11.5 months following application.

#### INTRODUCTION

For years, sulfometuron methyl has been a principal product for herbaceous weed control in pines or hardwoods. The vast majority of this work has been done as a post-plant application, and took the form of a release operation. However, interest in adding Oust® to the site preparation treatment has increased in recent years.

#### OBJECTIVE

The objective of this study was to evaluate the efficacy of (1) fall Oust® applications during site prep in control of herbaceous competition the following growing season and (2) woody stem control, by the tank mixes utilized.

#### METHODS

A total of 13 treatments (Table 1) were utilized in the study with three replications of each treatment. Plot installation was in a CRD layout. Each plot consisted of a 25 ft. x 100 ft. rectangular spray area marked with metal rebar center posts and nylon string stretched between the rebar. The sample area of 10 ft. x 80 ft. was centered in the treatment plot

The study was installed on land owned by The Timber Company in Noxubee Co., Mississippi. The soils were Wilcox-Faulkner silty clay loam with pH=5.7. The site had been harvested in December 1997, and the treatments were applied early September 1998.

All woody stems in the sample area were tallied by species and height class prior to spray application. Plots were evaluated ocularly for percent brownout by vegetation class at 6 WAT. Woody stems were tallied again in November 1999 to assess control and herbaceous vegetation coverage was evaluated ocularly in June, July, and August 1999.

#### RESULTS

The addition of Oust to the treatments resulted in excellent herbaceous control during the following growing season (Table 2). By June 1999, the site had been invaded and colonized by fireweed (*Erechtites heiracifolia*) and a number of lesser species scattered across the area. *Panicum* spp. were also present in the area. The treatments which contained Oust generally had 50-60% more clear ground than the other treatments. This effect continued through July, and even though control was breaking down by mid-August, three of the four Oust treatments still had 40% clear ground.

In woody species, red maple, sweetgum, red oaks, and persimmon were all present in sufficient numbers for statistical comparison (Table 3). Nine of the 12 treatments gave good control of red maple with only the Krenite/Escort combinations and one Chopper/Accord mix having less than 80% control. For sweetgum, only the Krenite/Escort combinations failed to give excellent control. The red oaks (water, cherrybark, and Shumard) were controlled very well by all treatments.

In summary, the addition of Oust in fall site prep applications can be very effective for herbaceous weed control 9-11 months later. The woody species in this study were controlled by all treatments except the Krenite/Escort combinations.

Table 1. List of treatments in 1998 DuPont site prep study – Mississippi

Treatment No.	Amount of Product per Acre
1	4 qts. Krenite + 20 oz Chopper + 1 qt. TL 90
2	4 qts. Krenite + 24 oz Chopper + 1 qt. TL 90
3	4 qts. Krenite + 32 oz Chopper + 1 qt. TL 90
4	4 qts. Krenite + 20 oz Chopper + 3 oz Oust + 1 qt. TL 90
5	4 qts. Krenite + 1.5 oz Escort + 1 qt. TL 90
6	4 qts. Krenite + 1.5 oz Escort + 3 oz Oust + 1 qt. TL 90
7	1 oz Escort + 24 oz Chopper + 1 qt. Accord + 1 qt. TL 90
8	1 oz Escort + 40 oz Chopper + 1 qt. TL 90
9	48 oz Chopper + 1 qt. Accord + 1 qt. TL 90
10	48 oz Chopper + 1 qt. Accord + 3 oz Oust + 1 qt. TL 90
11	16 oz Chopper + 5 qt. Accord + 1 qt. TL 90
12	16 oz Chopper + 5 qt. Accord + 3 oz Oust + 1 qt. TL 90
13	Untreated Check

Table 2. Herbaceous coverage in 1998 DuPont site preparation study

Trt. No.	1999 Observations		
	June	July	August
	-----percent-----		
1	76.7	80.0	80.0
2	83.3	86.7	90.0
3	70.0	75.0	86.7
4 *	21.7 **	26.7	56.7
5	68.3	73.3	83.3
6 *	18.3	26.7	70.0
7	78.3	80.0	86.7
8	70.0	76.7	86.7
9	78.3	83.3	91.7
10 *	16.7	20.0	56.7
11	78.3	83.3	91.7
12 *	11.6	18.3	53.3
13	91.7	98.3	100.0

\* Treatments with Oust

\*\* One replication invaded by *Sereca lezpedeza*

Table 3. Woody stem control (percent reduction) in 1998 DuPont site preparation study – MS

Treatment	Species				
	R. Map.	S. Gum	R. Oaks	Per	Total
	----- percent -----				
K + C (4+20)	-100 a <sup>1</sup>	- 94 a <sup>2</sup>	-100 a	- 87 ab	- 91 a
K + C (4+24)	-100 a	-100 a	-100 a	- 95 a	- 94 a
K + C (4+32)	-100 a	-100 a	-100 a	-100 a	-100 a
K + C + O (4+20+3)	- 91 a	-100 a	-100 a	-100 a	- 97 a
K + E (4+1.5)	- 67 c	- 55 b	- 88 a	- 23 d	- 65 b
K + E + O (4+1.5+3)	- 56 c	- 20 c	-100 a	- 50 c	- 74 b
K + C + A (1+24+1)	- 94 a	-100 a	-100 a	-100 a	- 95 a
E + C (1+32)	- 80 b	- 88 a	-100 a	-100 a	- 91 a
C + A (48+1)	- 72 c	-100 a	-100 a	*	- 92 a
C + A + O (48+1+3)	-100 a	- 91 a	-100 a	*	- 95 a
C + A (16+5)	- 87 ab	-100 a	-100 a	- 87 ab	- 94 a
C + A + O (16+5+3)	- 80 b	- 93 a	- 87 a	- 83 b	- 89 a
Untreated	+ 60 d	+ 72 d	0 b	- 26 d	+ 57 c

K = Krenite (qts.), C = Chopper (oz), O = Oust (oz), E = Escort (oz), A = Accord (qts)

\* insufficient stems for comparison

<sup>1</sup> Negative values indicate reduction in stems

<sup>2</sup> Values followed by the same letter in a column do not differ at P = 0.05

## NEW FORMULATIONS OF OUST, VELPAR AND ESCORT FOR HERBACEOUS WEED CONTROL. J. Jones and J.L. Yeiser. Stephen F. Austin State University, Nacogdoches, TX 75962.

### ABSTRACT

New extruded formulations of Oust, Velpar and Escort in selected combination and with Arsenal were tested in three studies for pine tolerance and weed control. When new formulations were tested alone and mixed with traditional tank partners, weed control and seedling performance were at least as good as that of conventional mixtures at comparable rates. Oustar, a new premix containing new Velpar DF and Oust XP, provided similar control as conventional formulations at comparable rates.

### INTRODUCTION

Competing vegetation in newly planted loblolly pine (*Pinus taeda* L.) plantations has long been a concern of southern foresters. In studies where the effects of various components of competition (woody and herbaceous) have been examined, competition from herbaceous species has contributed more to lost pine growth through age three than woody species (1,2). Reducing competing vegetation positively impacts seedling survival and growth for a variety of species and growing conditions (1,2,3,4,5,6,7). Because of the number of studies documenting enhanced pine seedling performance, herbaceous vegetation control after planting has gained rapid acceptance as a means of increasing pine survival and growth.

Oust, Velpar, Escort and Arsenal are among the herbicides commonly used for control of early herbaceous competitors in pine plantations (8,9,10,11). Therefore, the objectives of this project were to compare the weed control and pine tolerance of (1) current and new extruded formulations of Oust, Velpar and Escort in selected combinations and with Arsenal AC and (2) a premix formulation of the new Velpar DF+Oust XP with the conventional Velpar L+Oust mixture.

### METHODS

The site chosen for the study was a moderately well to well-drained sandy loam soil (12) in East Texas near Woden (Nacogdoches County). Previously, the site had supported a mixed pine-hardwood stand. This stand was clearcut in June 1997 and treated chemically on July 1, 1998 with 16 oz of Arsenal, 0.75 oz of Escort, and two qt of Accord. In late October, a fixed Piedmont plow was used to subsoil and bed the site. Genetically improved loblolly pine seedlings were hand planted on January 5, 1999 on an 8-ft by 10-ft spacing.

For all three studies, treatment plots consisting of 16-planted seedlings were staked with a plot marker. Each seedling in a plot was marked with a stake flag and the seedling measured for total height and ground line diameter prior to the application of herbicides. The internal 12 seedlings composed the measurement plot, leaving two seedlings on each end as buffers.

A CO<sub>2</sub> backpack sprayer connected to a "T" boom supporting four, 8002 nozzles was used to apply herbicides in a 6-ft. band centered over-the-top of seedlings. All treatments were early post-emergence when dominant species were less than 2-in. tall. The Oust treatments were applied on March 25 to 80% bare ground, the Velpar treatments on March 31 to 70% bare ground and the Escort treatments on April 6 to 60% bare ground. Primary competitors for all three studies were *Rubus* spp, ragweed (*Ambrosia artemisiifolia* L.), woolly croton (*Croton capitatus* Michx.) and poorjoe (*Diodia teres*