

VORLEX AS A NURSERY SOIL FUMIGANT

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The title of this paper is listed in the program as "Vorlex for Weed Control." Actually, we do not apply Vorlex as a herbicide but as a complete soil fumigant.

Our principal problems are nematodes and black root rot, and weed control is incidental as we can control our weeds cheaper with mineral spirits than with Vorlex, or any other fumigant that we have tried.

Several people have used Vorlex experimentally in nursery practice. I will report on these before I cover our results.

Ruehle, May and Rowan reported in the April 1966 issue of TREE PLANTERS' NOTES that Vorlex applied without a cover at 40 gallons per acre was not as effective as Vorlex at 25 gallons per acre and methyl bromide at 290 pounds per acre under cover. Vorlex injected, 8 inches deep, without cover, and sealed with water at the rate used was ineffective against weed seed and damping-off fungi in the top 1-inch of soil. If Vorlex is used in nurseries, it should be applied under a polyethylene cover.

Mr. Clyde L. Gehron, Nursery Superintendent, Beauregard Nursery, DeRidder, Louisiana, reports his studies with Vorlex as follows.

"A problem area was selected for test purposes. This area had produced chlorotic seedlings the year before and was infested rather heavily with nutgrass (Cyperus rotundas). This consisted of a 9 bed area and 4 different gallon rates per acre. The seedlings are 6 months old now and the following is evident." (See table 1).

"The chemical was injected the middle of February, at an 8-inch depth, into thoroughly worked, debris free soil. The soil surface was sealed with a drag. The soil was aerated after several days by discing. The fourteenth day the soil was again worked and planted.

I have found the nutgrass control erratic or inconclusive. The control on other weeds and grass seemed to be effective. The chlorosis control is very definite. The treated areas have lush, green, very healthy seedlings.

Our soil is a medium sandy loam and the results show the 30 gallon rate to be the most effective."

Table 1.--Appearance of seedlings and weed population after treatment  
with Vorlex

Bed	Treatment (gals./acre)	Weed population	Seedling appearance
1	40	scattered nutgrass	lush, very green, 1 inch taller
2	check	nutgrass	chlorotic
3	20	nutgrass	lush, green
4	check	nutgrass	chlorotic areas
5	10	no nutgrass	green-yellow cast
6	check	nutgrass	chlorotic areas
7	check	nutgrass	chlorotic areas
8	check	nutgrass	chlorotic areas
9	30	scattered nutgrass	lush, very green, 1 inch taller

Mr. Jack Holman, State Forester, Mississippi Forestry Commission reports their experiences as follows.

"This spring, we made two applications of Vorlex at the Winona Nursery. The rates were 30 or 40 pounds per acre (gallons ?). The application was supervised by Mr. Williams with Morton Chemical Company. About a week after the application, a 4-inch rain fell in less than 3 hours. A considerable amount of damage was done to the beds, particularly in the area where the chemical was applied. We have obtained very little grass control. We cannot detect any improvement in any seedling growth in the area treated with Vorlex. Seedlings grown in the area treated with Vorlex do not look as well as seedlings grown in areas treated with methyl bromide.

Due to damage done to the area by heavy rains, it is doubtful that this study indicates full the effectiveness of Vorlex."

In 1965, the Florida Forest Service, cooperating with Morton Chemical Company and Dow Chemical Company, installed a study using various chemicals at Andrews Nursery, Chiefland, Florida. The following is the plot design and rate of application©

SOIL FUMIGATION STUDY - ANDREWS NURSERY, 1965

Methyl bromide 1 lb./100 sq. ft.	
Vorlex ** - no cover	
50 lbs./acre	
Vorlex ** - no cover	
35 lbs./acre	
Bed treated	Solid treated
Trizone *	Trizone *
200 lbs./acre	200 lbs./acre
Bed treated	Solid treated
M-2846 *	M-2846 *
15 gals./acre	25 gals./acre
Bed treated - no cover	Solid treated - no cover
Telone PBC *	Telone PBC *
40 gals./acre	60 gals./acre

\* Dow Chemical Company product.

\*\* Morton Chemical Company product.

The balance of the nursery was treated with methyl bromide under cover at 1 pound per 100 square feet. Vorlex was injected approximately 8 inches deep, with no cover. The results were as follows.

FUMIGATION STUDY - ANDREWS NURSERY, 1965

<u>Treatment</u>	<u>Rate</u>	<u>Seedlings/linear foot</u>
Vorlex	35 gals./acre	115
Vorlex	50 gals./acre	110
Methyl bromide	1 lb./100 sq. ft.	120

<u>Treatment</u>	<u>Rate</u>	<u>Seedlings/linear foot</u>
M-2846	15 gals./acre	124
M-2846	25 gals./acre	123
Telone PBC	60 gals./acre	133
Telone PBC	40 gals./acre	135
Trizone	200 lbs./acre (solid treated)	138
Trizone	200 lbs./acre (bed treated)	133

Seedlings from the Vorlex and methyl bromide treated areas were lifted, graded, and counted using all seedlings on the bed; whereas, the untreated spots on the beds in the other treated areas were deleted. There was some untreated soil bordering each plot. Therefore, knowing how the soil was treated, how seedlings were handled, and results obtained, I do not think there would be much difference in seedling yield where treatment is uniformly applied.

Weed control was best in Vorlex, Trizone, and methyl bromide plots; however, Telone PBC gave good weed control and equal or better control of nematodes and root rot fungi.

This year, we have treated a total of 31 acres at 3 nurseries with Vorlex. The Vorlex was injected about 5 inches, covered with a drag and sealed with about 1/3-inch of water. It was applied during the week of March 6 and seed were sown during the first half of April. Rate of application was 40 gallons per acre. Results are as good, if not better, than methyl bromide at 1 pound per 100 square feet.

We treated approximately 3/4-acre at Andrews Nursery with Telone PBC this spring, Application was exactly as we did the Vorlex, except injected about 8 inches deep. Results are excellent for root rot and nematode control but weed control was not quite as good as Vorlex. However, we were able to control the weeds in the Telone PBC treated areas with the same number of applications of mineral spirits as in the Vorlex or methyl bromide treated areas.

#### COST

Methyl bromide cost us about \$325 per acre applied at 1 pound per 100 square feet. Vorlex costs about 5240 per acre, and Telone PBC is not on the market commercially at this time but I have been informed that it would be competitive with Vorlex. In view of our results with Vorlex we are planning to use it to treat all our nursery seedbed areas next year, except about 5 acres to further test Telone PBC.

#### Discussion

Q. Did you contract the application?

A. (Jordan) No. We did it ourselves.