

CHEMICAL WEED CONTROL  
Clyde L. Gehron, Nursery Superintendent  
Louisiana Forestry Commission, DeRidder, La.

Post-emergents

The main chemical used by the Louisiana Forestry Commission is mineral spirits, or light herbicidal oil. The one we use is naptha and it has an aromatic hydrocarbon content of about 15 percent.

No plant is completely resistant to injury from this herbicide, but there is a great tolerance range between plant species. It happens that some of the plants with a high resistance are those cultivated as nursery stock, such as most conifers and sweetgum. Luckily, some of the low resistant plants are those we want to get rid of, such as crowfoot, bermuda, and Johnson grass.

Another important factor in the plant's tolerance is its growing condition. Plants that are young and succulent or in a forced growing condition are highly susceptible and have a tolerance lower than normal. Therefore, early spring applications and treatments right after rains are very important.

The kind of plants and their condition greatly influence the technique for applying mineral spirits. We have found that with normal growing conditions and with no special weed or grass problem, the following was successful. The spray schedule is set up for twice weekly, beginning right after planting. We use 12 gallons per acre applied with a 20 pound pressure. As the seedlings harden off, we gradually increase the rate up to 30 gallons per acre by decreasing the tractor speed.

Results over the past few years have caused a spray change at the Beauregard Nursery. This was caused by a gradual buildup of nutgrass (Cyperus rotundus). Originally it was in a few sparse areas; now it is scattered throughout the nursery and is very dense in some spots.

Last year, we tried hand weeding, but the workers caused such heavy mortality after weeding that we had no seedlings left in the beds. Also, the nutgrass grew so fast we were unable to keep up with it without continuous hand weeding. This control method proved unsatisfactory because the cost was too high and we lost the seedlings in the dense nutgrass areas.

This crop year we began looking for a new solution to the nutgrass problem. We used the same beginning rates of mineral spirits but increased them faster. We gradually increased the rate to 50 to 60

gallons per acre, and increased the pressure to 50 pounds. By the time seedlings were 45 days old, we had reached this rate and it controlled the nutgrass. From the 45-day period until now, we have sprayed the nutgrass areas once a week at this rate and have obtained satisfactory results. For the first time, we will have the proper density and plantable seedlings in these areas.

Pine tree seedlings at this age were able to withstand the heavy applications of mineral spirits. However, they do have a peak where their resistance is gone, so care must be taken not to exceed it. These heavy rates do affect seedling growth and a slight retardation must be expected.

#### Pre-emergents

The chemicals discussed are some of the more promising ones we have tried and tested.

Eptam.--(Ethyl-di-N-propylthiolcarbamate) a Stauffer product costing 816.50 per acre for a 6-pound technical per acre treatment. We inject 1 gallon of this chemical mixed with 50 gallons of water into well-worked, friable soil and drag to seal. This herbicide is effective on most weeds and grasses and also gives about 80 percent nutgrass control. We use this ahead of our cover crop and wait 30 days before planting. Twenty-one days after treatment, we open the soil with a disk to allow aeration.

Vernam.--(S-propyl dipropyl thiocarbamate) another Stauffer product costing \$10 per acre for a 3-pound technical treatment. This treatment is the same as Eptam, except the mixture is 1/2-gallon per 50 gallons of water. This was used ahead of slash pine tree seedlings with the same waiting period as for cover crop with Eptam. The results were very good and little or no weeds were noted for 90 days. Some nutgrass came in, but it seemed to be encroachment from the irrigation lateral line. No detrimental effects to the seedlings were noted the first year.

Vorlex.--(Methyl isothiocyanate 20 percent and Chlorinated C<sub>3</sub>hydrocarbons 80 percent) a Morton chemical product costing \$200 per acre for a 30-gallon per acre treatment. This is a synergistic fumigant having properties other than herbicidal. It also is active against fungi, nematodes, and soil insects.

We have tested this chemical at different rates, varying from 10 to 40 gallons per acre. The results were mostly good. The seedlings in the test beds were denser, larger, and had a darker lush green color than in comparison to the control bed seedlings. We did have some weed problem, but the higher rates were fairly effective. These high rates were supposed to control the sedges (nutgrass), but our variety wasn't affected.

The main change to this type nursery practice was in the injector. Ours is constructed of heavy channel iron with injectors 3 inches apart covering a 6-foot-wide area. Other injectors are staggered 1-foot apart from the other to permit soil passage. The injector and drag are attached to a tractor and trailed by a spray rig. The rig was used for chemical supply and to pressurize the injector. The injector tines place the chemical at a depth of 3 to 6 inches.