

USE OF MINERAL SPIRITS FOR WEED CONTROL IN FOREST SEEDLING NURSERIES

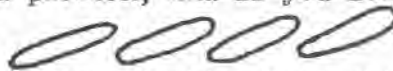
J. K. Jones, Superintendent  
Herty Nursery, Albany, Georgia

There are several factors to consider when we talk about using mineral spirits for weed and grass control in forest nursery seedbeds.

All indications are that the aromatic hydrocarbon content of the solvent is probably the most important factor. Aromatic hydrocarbon content is a chemical term, and if most are like myself, it does not tell us much except that we need at least 17 or 18 percent aromatics. In layman's language, this tells us the weed and grass killing strength.

Use of sprayer

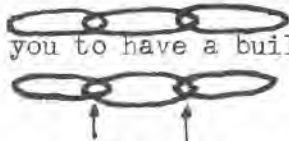
The most effective sprayer used in spraying mineral spirits is the boom type with tee-jet nozzles, spaced 18 inches apart. Sprayer should be equipped with a low pressure manifold to permit low capacity spraying. Nozzles should be 18 inches apart set at a slight angle to each other. The nozzle sprays a fan-shaped pattern, and if you look down on it, the pattern would look like this:



with the patterns of each nozzle interlocking like this:



This gives a more uniform application of material. If the nozzles on the boom are set square to each other, the spray is not uniformly distributed. The spray from the two nozzles coming together like this



would cause you to have a build up of the droplet size in this area,

thus, the effects of the solvent on the weeds and grass as well as the seedlings would be different in this area than in the area applied by the single nozzle.

The working pressure should be in the range of 30 to 45 pounds per square inch or whatever it takes to give maximum performance of the type and size nozzle used.

Mineral spirits should be applied to seedbeds if needed before the seedling emerge. We have found that most any kind of weed or grass can be killed with mineral spirits. In south Georgia, we usually have a crop of grass before the seed begin to germinate. Our seedling crop germinates in about 21 days. Two or three sprayings of about 15 gallons per acre during this period is usually sufficient. After this, the dosage can be increased to whatever number of gallons it takes, up to about 40 to 45 gallons to control the weeds and grass.

### Time of day to apply mineral spirits

The most effective time of day to spray solvent is during the early morning. At Herty, to get the best grass and weed kill, this should be from 5:30 a.m. until 9:00 a.m., or until the dew dries off or the wind begins to blow. My theory is: if the mineral spirits is applied during the cool of the day while the wind is calm and the dew is on the plants, the weeds and grass will absorb or take up more of the chemical, the evaporation is less, and the temperature continues to climb: thus, the grass and weeds get weaker and weaker and finally die. This method has been most effective at Herty Nursery.

During the seedling germination period the weed and grass seed germination should be observed closely. Observe the weed and grass germination closely enough to catch them in the two-leaf stage. If you wait until the weeds and grass can be seen up and down the beds -- standing at one end -- then it might take an application heavier than the seedlings will stand to get good control.

When mineral spirits is applied in the early morning, the seedlings will look greasy behind the sprayer from one end of the field to the other. If spraying of the same dosage is done during the middle of the day when the temperature is higher, the seedlings will appear greasy only 30 to 40 feet behind the sprayer. So, it is only common logic to see the early morning sprayings are more effective.

### Hazardous times to spray

In most every nursery conference I have attended, this has been one of the most controversial subjects in mineral spirits spraying. Some have obtained serious damage, where on the other hand under like conditions, others have received little or no damage.

In my opinion, there are two times during the crop season to be really cautious with solvent--

1. During peak germination period of pine seed when the radicles have just emerged from the seed and have not yet gone into the soil. After the majority have rooted down, spirits applications are relatively safe until the seedlings -

2. Drop the seedcoat. This is a time to watch because the tender bud is exposed and the spray *is* directed straight down. If sprayed too early after the seedcoat is dropped, you might get some burn.

Wakeley and others say to be careful when the seedlings are putting on secondary needles. However, I have not experienced this. At this stage of the game, if mineral spirits is necessary, we spray with from 30 to 60 gallons per acre and have little or no burn.