MINERAL SPIRITS

Lee Draper
Container Corporation of America - Callahan, Florida

This past spring I became quite alarmed when the Gulf Oil Corporation informed us that, after they sold out of their present supply of mineral spirits, they would no longer be in the mineral spirits business. Gulf Oil has supplied Container with stoddard solvent since 1957 at which time we produced our first seedling crop. We immediately purchased what they had on hand and this, along with the inventory at our nursery, will most likely meet our needs for the 1974 season.

I contacted several oil companies in regard to supplying us with mineral spirits and they all seemed reluctant to take on new customers at that time. They further indicated that there would more than likely be a shortage of mineral spirits in the near future. This prompted me to call Jim McConnell on one or two occasions expressing my deep concern about the situation. I guess Jim got tired of me bugging him, so he asked me to cover this subject here today.

In order to get facts and figures, I sent out questionnaires to the various nurseries in the South. If I overlooked you, it was not intentional; it was because I didn't have your address. I personally would like to thank each of you for taking time from your busy schedule to get this data to me. It's because of your cooperation along with that of several other people that I am able to pass this information on to you today.

The use of mineral spirits in the weed control programs at Southern Pine nurseries varies from one location to another. Its importance ranges all the way from no use at one nursery up to and including 90% of the total weed control cost at other nurseries.

Therefore, we can say that the majority of the pine seedling nurseries in the South are presently to some degree dependent upon mineral spirits for weed control.

Over fifty per cent of the nurseries report that they have had some difficulty in securing mineral spirits this season. However, the majority indicated that they had secured a sufficient amount of this material to meet their needs for this season.

In order for mineral spirits to be effective in weed control, it must contain a minimum of 15% aromatic hydrocarbons. A few companies report that they were unable to purchase mineral spirits with the desired level of aromatics; in which case they have added Xylene or equivalent material to bring the per cent aromatics to the desired level. Xylene is a derivative of the crude oil process and contains about 95% aromatic hydrocarbons. Various companies use different trade names for this material. Example: Standard Oil Company, Solvesso 100; Exxon, Exxon Aromatic 100.

The price of mineral spirits ranges from .21 to .66 cents per gallon. These lower figures more than likely reflect material purchased this past fall. It is very doubtful if one can purchase mineral spirits for less than .35 to .40 cents per gallon at the present time.

Is there a shortage of mineral spirits? In general there is not. There is, however, a shortage of cheap mineral spirits. Although many of the producers have gotten out of the business, the increase in price has encouraged some producers to increase their production of this material. According to my source of information, mineral spirits can be readily obtained presently at most locations in truck tanker lots of 7000 gallons. The aromatic hydrocarbon content will vary with the manufacturer. Amsco is now producing two grades, one with 15% aromatics and one with less than 1% aromatics. Where needed one can usually purchase the necessary aromatic additive to raise the aromatic hydrocarbon per cent to the desired level.

While attempting to gather information for this paper, a matter was brought to my attention that might be of some interest to you here today.

The E.P.A. is requiring that all states submit regulations covering air quality control within their own state. One of the areas getting much attention is the emission of hydrocarbons into the air.

California took the lead and submitted a plan to E.P.A. in 1966 which has become known as Rule 66. This plan readily received E.P.A. approval. E.P.A. sent copies of Rule 66 to the other 49 states suggestion that it be used as a guideline.

What is Rule 66 and how could this or a similar regulation affect us? It is quire a lengthy document; however, one small paragraph states that no product shall contain more than 8% aromatics. This is the reason that most of the manufacturers are now producing mineral spirits with a very low per cent aromatics referred to as exempt mineral spirits.

When I first learned about Rule 66, I was a little alarmed as the person supplying me with this information was of the opinion that this rule or similar regulations would prohibit the use of mineral spirits for weed control at our nurseries.

After many phone calls I obtained a copy of Rule 66, along with a similar proposed plan for the State of Florida. Careful study of these plans revealed one small paragraph of great importance which is as follows. "The provisions of this rule shall not apply to the spraying or employment of insecticides, pesticides or herbicides."

If my interpretation is correct, use of mineral spirits in nursery weed control programs would exempt under this rule as it is used as a herbicide. Please do not take my word as final authority on this subject as I have talked with oil company representatives, air quality control personnel, along with many other people in place of authority and no one has been able to give me a definite answer to this question.

Further checking into the situation here in Florida revealed that mineral spirits is not registered for use as a herbicide. Immediately this question came to mind. Is it legal to use mineral spirits as a herbicide here in Florida if it is not registered for such use? According to our State people in charge of registering materials, mineral spirits falls into a gray zone. The manufacturer does not market this material as a herbicide or make any guarantees that it can be used as such. Therefore, he cannot be forced to register this material as a herbicide. They further informed me that the nurseryman would probably not be violating any regulations when using this material. The State office in charge of registering materials has said that, after consulting with their legal advisors, they would give us a definite answer as to whether this material needs to be registered as a herbicide.

I am not really certain whether we have a problem in this area or not. However, it would perhaps be well to emphasize one point at this time. We in the forestry industry need to be more aware of what is going on around us in regard to proposed rules and regulations that would apply to materials vital to our industry. We should want to have an active voice in the making of such rules and regulations. Whether it's herbicides, pesticides or insecticides, the amount used by the forest industry is very small as compared with that used by general agriculture as well as other industries. For the above reason, along with others, the forestry industry many times is not given any consideration when various guidelines of this nature are drawn up. If we know of materials that need to be tested, registered for our specific use, or regulations for which our usage should be exempt, we must initiate the effort to get this work done. We can't depend on others to do it for us.

Mineral spirits is no longer a cheap commodity, and its future use in nursery weed control programs is uncertain at this time. Therefore, we as nurserymen have the choice of becoming more efficient in the use of this material, or look to otheralternative methods of weed control or a combination of both.

It might be well for each nursery manager to sit down and review his spraying program to see if the maximum effectiveness is being accomplished using his present practices.

Many of you passed on suggestions to me as to certain practices that have helped you get the most effective use from your mineral spirits spray program. These practices are not new to the majority and most can be found in the proceedings of previous nursery meetings. However, a quick review won't hurt any of us and it might be helpful to someone. Let us keep in mind that conditions vary from one nursery to another; consequently, practices that give good results at one nursery will not always give the same results at another. With this in mind I'll pass on these general recommendations.

1. Set up and maintain an effective program that will keep weed seed contamination of your nursery area at a very minimum.
2. Keep spraying equipment in top shape.
3. Begin spraying before actual seedling germination.
4. Use large fan type spray nozzles to reduce fog and drift.
5. Make periodic checks to see that you are getting proper coverage.
6. Make periodic checks on effectiveness of spraying and adjust schedule accordingly.
7. Spray at low pressure to keep loss through evaporation at a minimum. (Maximum of 40-50# pressure)
8. Excess of 30-35 gallons varsol per acre results in waste.
9. Light frequent spraying much more effective than heavy infrequent spraying.
10. Spray in early mornings when temperature is cool, relative humidity is high and there is little or no wind.
11. Water prior to spraying, unless preceded by rain.
12. Avoid spraying on cloudy days whenever possible.
13. Spot spraying and hand spraying can be quite effective in certain cases.

Your present practices may be getting the job done; however, there may be a more efficient and effective way to do the same job. The end result means lower seedling costs.

What are the various alternatives available to the nursery manager for controlling weed problems should mineral spirits have to be dropped from his program?

1. Fumigation – Many nurseries already fumigate all or portions of their nursery prior to planting their seedling crop. In the majority of cases the primary purpose is for disease control, although good weed control and increased tree growth are also realized. Some supplementary or follow-up program is usually needed along with fumigation to give adequate weed control. Present fumigation costs are running in the neighborhood of $500-$550 per acre depending on the rate at which the material is applied.

2. Cultivation – The Georgia Forestry Commission pioneered work in this area. This practice requires that the trees be grown at a wide spacing in order that they can be cultivated with farm equipment. At this wide spacing it is extremely difficult to control tree growth and considerable more nursery area is required to produce a given crop. The Georgia Forestry Commission is presently following these practices only in their hardwood plantings.

3. Handweeding – The high cost, along with the scarcity of labor, in most instances, make it necessary that this portion of our weed control program be kept at a minimum.

4. Pre- and Post-emergence Chemicals – I believe that there are many chemicals on the market today that can be of great help to us in controlling our weed problems at our nurseries. This same feeling was expressed by many of you on the questionnaires returned to me.

Mason Carter pioneered work of this nature at Auburn University and the program is still active at this time. Some of you here today have been active in this program. A number of you gave very encouraging remarks regarding your experiences using chemicals for controlling weeds at your nursery. I will not elaborate on your results at this time since Mr. Crowley will report on the Auburn project later in the program, and I don't want to steal any of his thunder.

May I suggest that we pay close attention to what Mr. Crowley has to say, for perhaps the solution to our future weed problems lie in this area.

In conclusion I would like to make one final suggestion. At the end of this conference it might be well to organize a steering committee whole purpose would be to assist in coordinating a broader testing program of pre- and post-emergence chemicals. Much of the initial screening and testing work has been completed by Auburn. However, through a cooperative effort of all interested parties, we can perhaps have answers to many of our particular problems much quicker.