

Methyl Bromide Fumigation at the Lone Peak State Forest Nursery, Utah¹

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Abstract.--Methyl bromide-chloropicrin fumigation has been done at the Lone Peak State Nursery by staff members, which gives much more flexibility of the process and ultimately, better control. The primary reason for fumigation at the site is for the control of weed and weed seed, and fumigation is an integral and strategic part of the long-term weed management plan.

BACKGROUND

The Lone Peak State Forest Nursery, located in Draper, Utah, has been on its present site for nearly 15 years. Prior to the nursery being located there, the site had been used for alfalfa hay and pasture and had then spent considerable time unused. As a result, a tremendous reservoir of weed and weed seed had built up, with a nearly unmanageable diversity of weed species. Additionally, the lack of shelterbelts around the nursery and a notorious, ever-present prevailing wind brought more weeds and weed seeds by the bucketfuls.

1980 on a trial basis and the results were mixed. Problems with contractor scheduling, wind, and soil moisture gave marginal results in some areas, and great weed control in others. It was great when it worked, but when it did not, it was costly.

The greatest problem encountered was the problem of contractor scheduling. The amount of fumigation done annually at the nursery is 4 to 6 acres which does not give contractors much profit motive to make a special trip to Salt Lake City. If they do decide to make the trip it was usually a stopover between Luck Peak Nursery and Mt. Sopris Nursery and contractors gave themselves a fairly narrow window for fumigating.

NURSERY DEVELOPMENT

Back in the mid 1970's pressure from management would not allow proper development of the nursery, Production of seedlings was paramount for the governor's "Million Trees for a Million People" program while sound nursery cultural practices fell by the wayside. In 1979, it was decided that the weed problem had top priority and finally a plan was set up to deal with the problem.

In 1983, an opportunity to purchase a used fumigator presented itself. The cost was \$4500, from a contractor who just wanted to get out the business. The Lone Peak State Forest Nursery hired a consultant from North Carolina, Clarence Lemon, to assist in the start-up, safety and training in methyl bromide fumigation. The staff at the nursery has been fumigating the production blocks ever since.

The supplies needed for fumigation include: fumigant (67% methyl bromide, 33% chloropicrin), sprayable glue, 1 mil poly tarp and nitrogen to pressurize the fumigant tanks. The per acre cost of supplies are currently running about \$700. Other cost include maintenance costs for hoses, and fittings.

Fumigation was contracted out in

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RESULTS

The biggest advantage the nursery has with doing its own fumigation is the flexibility in the control of weeds. For fall fumigation, the dates can be moved back as late as weather and soil temperatures permit, minimizing the late summer blow-in of weed seed. There also have been times when spring fumigation occurred when fall fumigation was unsuccessful.

Generally fumigation is done in the early morning before the afternoon winds begin to pick up. Morning fumigation allows the soil moisture to condense on the tarp under the heat of the sun. This allows added weight to the tarp to resist effects of the wind.

The weed control at the nursery is worth the time, effort and money. In 1986, funds were

not available for fumigation and the results were disastrous. Conifer losses were up by 60% and hardwood production suffered similar losses.

Fumigation is an integral part of the nursery weed management plan. The future of fumigation is stable at the Lone Peak State Nursery although eventually it will be reduced to once every second or third rotation.

Because the nursery staff is trained to do its own fumigation the efficiency has been increased. The flexibility of scheduling and reduced labor costs make up for the increased hassle. The costs to the beneficial soil borne microorganisms may be high right now, but the benefits received as a result of the weed control outweighs that cost right now. The weeds sap more from the seedlings than the micro-organisms can contribute.