

OBSERVATIONS ON THE USE OF METHYL BROMIDE

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Use of methyl bromide may be the most economical and reliable soil-sterilizing method on seedbeds in which first-year seedlings are produced. Savings over other chemical methods are as high as 50 percent, with savings over solvent oil and sulfuric acid methods as high as 100 percent. Savings vary with nursery location, length of growing season, and the nurseryman's experience.

Cost data:

1. Approximate wholesale cost per pound, 59 cents.
2. Trial application rates, 1/4 to 1 1/4 pounds per 100 square feet (or 110 to 540 pounds per acre, average 280 pounds).
3. Material cost per acre, \$ 165 (average).
4. Total cost per acre, \$234 (average includes labor, gas, and 2-year life on plastic covers).
5. Average dose (standard) for easily produced and easily stimulated species, such as shortleaf pine, 1 /2 pound per 100 square feet.
6. Maximum suggested dose for difficult to grow or hard to stimulate species, such as white pine, 1 to 1 1/4 pounds per 100 square feet.

In treating seedbeds, the fumigant is applied under gas proof cover. It can kill most weed seeds, herbaceous plants, roots, soil insects, disease organisms, and other soil animals.

A single application of fumigant can cover a wide area if polyethylene covers are used. These range from 1,600 to 8,000 square feet in area, and may be conveniently re-used. In using a cover on a large area, it is necessary to reset only one, edge each 24 hours. The opposite edge is left in place and the cover is flipped over and set on one edge only. Where covers are set by machine, it is most economical to treat all of the area including paths, pipelines, bed ends, and adjacent areas. Careless or incomplete machine gassing is more expensive in the long run, than is hand gassing.

Methyl bromide acts in four *ways*. It controls diseases, soil-borne insects and nematodes, and weeds. Use of methyl bromide also has resulted in growth stimulation. This effect varies from soil to soil.

The suggested rates are for trial use, since the optimum rate must be determined by the kind and severity of disease or weed infestation. Weeds as well as diseases vary in ease of kill. Weeds also vary in their reaction to different soils gassed at the same rate.

Experience and constant testing are needed to maintain good balance and an economical rate of application. For example, at Vallonia a 2/3-pound treatment results in satisfactory weed control. It also satisfactorily controls disease in shortleaf pine. It tends to overstimulate growth (unbalance the top-root ratio) of shortleaf pine, but does not upset the top-root ratio of either Virginia pine or white pine. However, it does not control disease in white pine.