

Leaflet F

**FUMIGATION AND DIP-
PING OF NURSERY
STOCK**

New York Agricultural Experiment Station
Geneva, N. Y.

1918

**Fumigation
commendable.**

The fumigation of nursery stock before shipment is now practiced by many nursery-men in the eastern states. The growing demand for treated stock makes the fumigatorium, or "gas house," a necessary adjunct to the modern nursery plant, if one wishes to cater to public demands or to meet successfully competitors practicing fumigation. While it is true that the treatment of stock by hydrocyanic acid gas is not an absolute guarantee of the immunity of the trees from insect pests, still it is a commendable practice. The gas is one of the most penetrating and destructive of our insecticides, and all trees that have been carefully treated by it should be free from the insects commonly disseminated by the nursery trade. To obtain the best results the work should be done under the direction of a competent person, who should select the stock to be treated and direct the various details of compounding the chemicals and handling the fumigation.

**Essentials for
fumigation.**

The essentials for fumigating nursery stock with hydrocyanic acid gas are: (1) Chemicals; (2) a suitable vessel in which to mix them; and (3) an air-tight box or chamber to hold the stock while it is being treated.

**Chemicals and
formula.**

The chemicals that are needed are: (1) Fused cyanide of potassium; (2) sulphuric acid and (3) water. The cyanide should be guaranteed 98-99 per ct., while the best grade of sulphuric acid, having a specific gravity of at least 1.83 should be used. These chemicals may be purchased from local druggists or from wholesale dealers in druggists' supplies. Tap, well, or rain water, that is clean, may be used. In handling the chemicals care should be exercised not to spill the acid upon the clothing or the person.

The cyanide is a deadly poison and should be carefully labelled and stored, when not in use, in a safe place to prevent accidents. Nurserymen should not use the cheaper grades of cyanide.

The following formula is recommended for use in fumigating clean, well matured dormant stock. For each one hundred cubic feet of space in the room use

Potassium cyanide.....	1 oz.
Sulphuric acid.....	2 ozs.
Water.....	4 ozs.

Directions for fumigating.

For combining the chemicals one should use earthenware dishes or jars of about one gallon capacity. There should be one vessel for each pound of cyanide. If more than one jar is used, distribute them at even intervals in the room. Place in each jar the required amount of water, and then gently pour in the acid. When the nursery stock is in place and everything is ready for the final operation, drop in the cyanide which is contained in a paper bag. For the safety of the operator, each bag should be suspended by a string over the jar containing the liquid. The main supporting string may be operated from the outer door, so that all the bags may be lowered at the same time in their respective vessels. The door should then be closed, displaying a danger card. After thirty or forty minutes of fumigation, all doors and windows should be opened and the room should be ventilated for at least ten minutes before anyone enters. The gas is most deadly, and one should be very careful not to get a breath of it.

A room or box to be used for the treatment of stock should be air tight. Provision should be made for a quick and thorough ventilation. The fumigatorium should be in a convenient position and should be located so that the escaping gas will not interfere with other operations of the nursery. Descriptions of practical fumigating

plants are given in Bulletin 174 of the New York Agricultural Experiment Station.

Dipping of nursery stock. Fruit growers who desire to disinfect their purchases of stock before planting may dip the trees in concentrated preparations of lime-sulphur wash, using 1 gal. diluted with 10 gals. of water, or a miscible oil, at the rate of 1 gal. diluted with 10 or 12 gals. of water. Immerse trees to the collar, leaving roots untreated. **Never dip roots in spraying mixtures.** After dipping, rub trees with a coarse cloth, without removing or injuring buds. **Immerse trees while buds are dormant, and just before planting.**