

## NIPM Item #9

### SUGGESTED PROCEDURE FOR SUPERVISION OF HOT WATER TREATMENT OF GRAPEVINES FOR NEMATODE CONTROL

This treatment is a means of salvaging infested rootings. It is not a substitute for approved treatment and handling procedures to ensure against nematode infestation or the laboratory sampling methods and techniques for detection of nematodes. The commissioner must approve use of this procedure in advance.

Following is a suggested procedure to be used for supervision of hot water treatment for nematode control.

#### I Conditions under which hot water treatment of grapevines may be approved.

1. To clean up dormant grapevine nursery stock found infested with nematodes.
2. If an approved fumigation is blocked by conditions beyond the nurseryman's control after the fumigant has been applied.
3. If a dispensation is granted by the Director.

#### II Nematodes approved for control.

Any species of plant-parasitic nematodes that is not a known vector of plant viruses causing diseases in grapevines; with the following exception: *Xiphinema americanum*.

#### III Procedure

##### A. Equipment

1. A recording thermometer with multiple probes accurate to  $\pm 1^\circ\text{F}$ .
2. Tank to be used for pre-dip.
3. Tank to be used for dip.
4. Tank to be used for post-dip or running water or hose for cooling vines.

##### B. Calibration

Each year, before vines are dipped, the recording thermometer must be calibrated and approved by the Department.

##### C. Preparation

All vines to be dipped should be washed and free of soil.

##### D. Pre-Dip (for vines that are below $78^\circ\text{F}$ at the time of treatment).

1. A water bath maintained at  $78^\circ\text{F}$ .
2. Vines should be submerged for five to ten minutes at  $78^\circ\text{F}$  to warm up the vines.

##### E. Dip Treatment: $125^\circ\text{F} \pm 1^\circ\text{F}$ for five minutes

1. A minimum of three temperature probes must be placed; one probe near the heat source, and at least one probe within the bundle or cluster of vines.

2. Vines that are to be dipped must be placed loosely in baskets or in loose bundles.
3. The ratio of water to vines should be such that after immersion of the vines, the water temperature recorded by the probe in the cluster of vines will return to 125°F within one minute.
4. Water in the dip tank must circulate during the treatment of vines to ensure even distribution of temperature in the tank.
5. Temperatures at all probe locations must be held at 125°F ±1°F during the five minute dip period after an initial temperature drop and recovery. Any deviation in temperature above or below 125°F ±1°F must be corrected within one minute.

F. Post-Dip

Immediately following hot water treatment, vines should be plunged into cool water or hosed off to prevent damage to the plants.

G. Supervision

1. The commissioner should approve the dipping equipment prior to the dipping.
2. Commissioner should ensure that the recording thermometer is calibrated prior to use.
3. Commissioner should visit the site on a daily basis during the dipping to examine the recording from the thermometer. If a non-recording thermometer is used the commissioner should supervise each lot treated.
4. Vines that receive a dipping that does not meet the standards outlined in this procedure should not be re-dipped due to cumulative damage to the vines.