Phytosanitary treatments
Traitements phytosanitaires

Hot water treatment of grapevine to control *Viteus vitifoliae*

Specific scope

This standard describes a short duration hot water treatment of grapevine against *Viteus vitifoliae* and other external pests. It is an alternative to the standard PM 10/in preparation *Fumigation of grapevine to control* Viteus vitifoliae (previously PM 3/19). A standard on long duration hot water treatment of grapevine against *Flavescence dorée* and other grapevine diseases is in preparation.

Specific approval and amendment

First approved in 2009–09.

Introduction

Viteus vitifoliae (Homoptera: Phylloxeridae – EPPO A2 list), phylloxera, is native to North America and was introduced into Europe at the end of the 19th century. It is the most destructive pest of grapes (EPPO/CABI, 1997). It is a quarantine pest for all grapevine-growing European countries, and its further spread to some of these areas is prevented by phytosanitary measures.

Hot water treatment is an effective alternative to methyl bromide for the control of a number of pests and pathogens of grapevine. Rooted cuttings can be disinfested of all life stages of phylloxera, *V. vitifoliae,* by a short duration hot water treatment. This hot water treatment is also effective against a number of other external pests, including: the mealybug, *Planococcus ficus* (Haviland *et al.*, 2005), the mite *Calepitrimerus vitis* (Szendrey *et al.*, 1995) and root knot nematodes, *Meloidogyne* sp. (Barbercheck, 1986; Walker, 1997).

Commodities/regulated articles

Plants of grapevine for planting (dormant rooted cuttings, see notes 1 and 3), *Vitis vinifera* (VITVI).

Pest

Viteus vitifolia (VITEVI).

Treatment schedule

Remove plants from pots and wash roots free of soil. Prune roots to approximately 15 cm and trim shoots to 6–7 buds in length. To preheat roots, dip grape cuttings in water at 43°C for 5 min, and then transfer immediately to water at 52°C for 5 min (see note 2). Following hot water treatment, it is standard practice to immediately immerse cuttings in cold water for a minimum of 30 min to facilitate rapid cooling and minimize heat damage (Waite & Morton, 2007).

Efficacy of treatment

A Japanese investigation by Sakai *et al.* (1985) showed that a hot water treatment (45°C for 20 min) was comparable to that of a methyl bromide treatment (24 g m^{-3} for 3 h) in protecting grapevine stocks against grape phylloxera.

Notes

1. A hot water treatment should only be applied while canes and buds are fully dormant.
2. Preheating roots helps to maintain a constant temperature.
3. Pinot noir cuttings are sensitive to hot water treatments.

References

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