

Title Disinfestation and quarantine fumigation.
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Abstract

VAPOURMATE (16.7% weight ethyl formate (EF) dissolved in liquid CO₂) was evaluated for disinfesting imported bananas, exported onions, apples and flowers. On bananas, complete mortality of adult mealybugs [Pseudococcidae] and adult two-spotted mites were observed at 0.3 and 0.6% (10-20 g/m³) EF when exposed between 2 and 4 h at 20 deg C. Banana was able to tolerate a 6-h exposure at 0.6% (20 g/m³) EF before peel discoloration symptoms appeared. On onions, VAPOURMATE recorded 98% mortality of adult onion thrips [Thrips tabaci] with a single 2-h exposure of 1.0% (35 g/m³) EF at 18 deg C. EF in its vapour form appeared to penetrate the stem sheath to where thrips were generally located. Onions tolerated up to 1.8% (60 g/m³) EF vapour before softening developed. Complete mortality of larvae of light brown apple moth [Epiphyas postvittana] (LBAM) and of apple leaf curling midge [Dasineura mali] (ALCM) was observed in apples upon treatment with VAPOURMATE at 0.3% (10 g/m³) EF. However, ALCM was not completely controlled with this formulation. The efficacy of VAPOURMATE on adult western flower thrips [Thysanoptera] in the presence of export flowers calla lily [Zantedeschia sp.], sandersonia [Sandersonia sp.] and orchids [Orchidaceae] showed that control can be achieved with a 2-h exposure to 0.15% (5 g/m³) EF. Calla lilies tolerated the highest rates (0.6% EF), followed by orchids (0.3% EF).