

Abstract

Infestations of onion thrips (*Thrips tabaci* Lind.) continue to be a major problem in export onions. The efficacy of Vapormate™ (containing 16.7% ethyl formate by weight in carbon dioxide) for the control of onion thrips was tested in infested onion bulbs. Preliminary work had suggested that this fumigant has great potential while a further study failed because of insufficient thrips. Onions with high numbers of live thrips were selected for use in the trial described. Plastic 220L barrels were half filled with onions. We compared four rates of Vapormate™ 160, 215, 270, 325 g/m³ and a Control (untreated) treatment. A hand applicator gun and vapouriser were used to warm and apply Vapormate™. In this trial treatment of onion thrips with 160 g/m³ Vapormate™ killed nearly all adult thrips immediately after treatment for 4 h at 19-20°C and left only a few live nymphs (probably just emerged from eggs). A second assessment 9 days after treatment showed that eggs had not been killed by the treatments because many more nymphs had appeared. A second treatment to kill the newly emerged thrips is recommended. No effect of Vapormate on skin colour, onion firmness or incidence of rots was found. We have been unable to detect residues of ethyl formate in samples collected 1-28 days after treatment.