

Title Effect of the temperature during spraying on the biological efficiency of chemical protectants of stored grains.

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Abstract

The effects of high temperatures during application on pirimiphos-methyl persistence and efficacy against maize weevil (*Sitophilus zeamais*) were studied. Maize (cv. BR-1051) grains were sprayed with pirimiphos-methyl 500 EC (0.8 ml c.p./litre at 1.5 litre/t of maize) at different temperatures (25, 30, 35, 40, 45 and 50 deg C) and 55% relative humidity. The grains were then maintained at 27 plus or minus 1 deg C and 55 plus or minus 5% relative humidity for 90 days. Residues of pirimiphos-methyl on the sprayed grains were analysed every 30 days. Grain samples were evaluated every 15 days after insecticide spraying for their effect on maize weevil. Insect mortality was evaluated after 24 and 48 h of exposure to the treated grain. The level of pirimiphos-methyl residue on maize grains decreased with an increase in storage period and air temperature during insecticide spraying (varying from 11.0 plus or minus 0.1 to 1.1 plus or minus 0.1 ppm, corresponding to the residue levels at 25 deg C on the day of spraying and after spraying at 50 deg C and 90 days of storage). The same trend was observed for mortality of the maize weevil, which was reduced from 95.4 plus or minus 13.3% to 2.5 plus or minus 2.5% after 90 days storage after insecticide spraying at 50 deg C. These results indicate that temperature at spraying can affect insecticide persistence and activity during storage.