MB Concentration, Fumigation Time, and Temperature Effects on Fruit Fly Mortality

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Abstract: Reported are the effects of methyl bromide (MB) concentration (16, 32, 48, or 64 g/m3), fumigation temperature (15, 20, 25, or 30ºC), and fumigation time interactions on the survival of Mediterranean fruit fly, Ceratitis capitata (Wiedemann), and oriental fruit fly, Bactrocera dorsalis
(Hendel) (Diptera: Tephritidae), eggs and first and third instars.
Increasing the fumigation temperature from 15 to 25°C resulted in significant reductions in both the MB concentration and fumigation time required for equivalent egg and larval mortalities; no further reductions in either MB concentration or fumigation time resulted from increasing the temperature from 25°C to 30°C. The optimum fumigation temperature for Mediterranean and oriental fruit fly eggs and larvae was 25°C. Reducing MB concentrations required for phytosanitary fumigations would save time and expense, and reduce the amount of MB released into the atmosphere during aeration.