EDB FUMIGATION OF CITRUS IN REEFER COMPARTMENTS OF A REFRIGERATED SHIP

J. G. Leesch, R. Davis and J. M. Zehner
Stored-Product Insects Research and Development Laboratory, USDA/ARS
3401 Edwin Street, P.O. Box 22909
Savannah, Georgia 31403, USA

ABSTRACT

A cooperative study between U.S. Department of Agriculture, California Department of Food and Agriculture, Sunkist Growers, Inc., and Salen Shipping Agencies was conducted to test the feasibility of fumigating citrus with ethylene dibromide aboard ships. The refrigerated holds (reefers) were used as fumigation chambers. Concentrations of EDB in the reefers during fumigation and aeration were measured using an infrared analyzer. Possible worker exposure was assessed in areas throughout the ship using charcoal tubes. Sixteen separate areas throughout the ship were monitored through 5 days post-fumigation. These areas of potential human exposure had either no EDB or concentrations well below 130 ppb. During transit, the aerating reefers were checked daily for EDB concentrations and all areas had below 130 ppb. Upon arrival in Hong Kong, fruit was inspected for possible phytotoxic effects of the EDB and samples were sent to the U.S. for residue analysis. Before and during unloading EDB concentration at various positions in the ship and fumigated reefers were measured and found to have 130 ppb of EDB. The test indicated that shipboard fumigation of commodities for export might be an alternative to chamber fumigation on land and would meet current worker health and safety standards.