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## POTENTIAL FOR PHOSPHINE AND SULFURYL FLUORIDE AS REPLACEMENTS FOR METHYL BROMIDE TO CONTROL PESTS OF DRIED MEAT

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### ABSTRACT

Fumigation with methyl bromide has been a long established and effective method for controlling the key major pests infesting dry-cured ham. Methyl bromide is the only fumigant used for dry-cured ham facilities in the USA. However, MB has been identified as an ozone-depleting chemical and its use is being restricted in accordance with an international agreement, and a more rapid alternative is desirable. This study compares the efficacy of methyl bromide versus phosphine and sulfuryl fluoride against two major key arthropod pests of dry-cured ham under laboratory conditions. Laboratory bioassay data showed that phosphine was more effective for controlling both *Necrobia rufipes* and *Tyrophagus putrescentiae* than methyl bromide. Eggs of both species were found to be highly tolerant to phosphine and methyl bromide for 48h exposure at 23°C while mobile stages were susceptible. *T. putrescentiae* was found differ from *N. rufipes* in the response either to phosphine and methyl bromide. A complete control was achieved for the both species with a dose level 0.85 and 4.0 g/m<sup>3</sup> of phosphine and methyl bromide respectively. Sulfuryl fluoride (SF) has been registered in many countries for stored product applications as an alternative to methyl bromide (MB). All life stages of ham beetles were easily killed by SF within low label rates, but the ham mite showed high tolerance to SF and survived concentration-time products in excess of three times the standard label limit 1500 g.h/m<sup>3</sup>. Data so far suggest that phosphine will be a suitable fumigant replacement for MB in the control of dried ham pests.