

## SESSION 7: INTEGRATED COMMODITY MANAGEMENT METHODS WITH CA AND/OR FUMIGATION

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### Rapporteur's Report

The international conference on controlled atmosphere and fumigation in stored products is a great event for every specialist in this field. Each of us comes here with his own ideas and opinions and the results of his own investigations. Each of us leaves the conference enriched by dozens of ideas and opinions, as well as the results of work undertaken by the best brains of many countries. Here we have a chance to meet old friends and be introduced to many new ones.

Although only four papers were presented, in my opinion session 7 was one of the key sessions of the conference because in it an approach towards the rationalization of the insect control system was pursued.

R.J. Hodges, representing the research team of the NRI from the UK, in cooperation with H. Haled of Indonesia, managed, by developing a fumigation decision support system, to solve the difficult problem of when to fumigate. This system consists of an insect monitoring technique, an insect growth model and a pragmatic pest control threshold. Using these three elements it is possible to predict when future fumigations will be required and determine whether previous fumigations were successful. The present results are limited, being applicable only to *Tribolium castaneum* in the humid tropics, but the approach seems to be very important.

The next report was presented by Paul Flinn, who worked with David Hagstrum in the USA, and was entitled "Simulation model of low O<sub>2</sub> atmospheres on insect population dynamics in stored grain." Its approach is close to that in the previous paper. It has become possible, on the basis of their experimental results, to predict the effects of low O<sub>2</sub> atmospheres, grain temperature and insect stage on insect mortality, to predict the duration of fumigation required to produce a given mortality using low O<sub>2</sub> levels and to predict insect density in grain 1 to 2 months after fumigation.

Two other reports, presented by Australian participants, detailed research that was no less pragmatic. Barry Bridgman's investigations showed that the CO<sub>2</sub> fumigation of organic grain, followed by refrigerated aeration, enabled insect-free grain to be outloaded over a storage period of 24 months.

Sarah Hilton and J. Banks carried out investigations on the sorption rate of ethyl formate on sultanas and raisins as well as studying the effectiveness of this fumigant against six pests. They concluded that ethyl formate, where not limited by sorption behaviour, has excellent potential as a replacement for MB in the treatment of durable commodities.