

Symposium 5: PESTICIDES AND FUMIGANTS FOR PREVENTION OF STORAGE LOSSES

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Seven papers were presented in this Symposium which between them described problems and strategies in the use of chemical control methods and detailed some new results.

The first paper described the role of residual pesticides in stored product insect control in the current climate of increasing resistance and public suspicion of chemical residues. The continued role of pesticides was accepted and it was recognised that they are likely to remain the major component of pest control strategy for the immediate future until alternative measures became established. This paper highlighted the problem of the continued increase in the incidence of resistance which is now extended to virtually all compounds in use. The presence of resistance restricts opportunities to reduce pesticide usage, while sensitivity to residues in treated commodities increase and can result in a loss in marketable value following treatment. Although it was recognised that pesticide usage resulted both in quantitative savings and in increased quality, this market sensitivity needed to be borne in mind during any cost benefit analysis.

The second paper illustrated the practical desirability of linking chemical control procedures with other control techniques to combat pest problems in the humid tropics. Changes in the dominant pest species on major crops in the Philippines and surrounding regions were reported together with the extent of losses in paddy and maize. More extension work and training was needed to overcome problems arising from cultural background and tradition which prevented the implementation of effective storage practices.

The third paper dealt with rodent control in relation to resistance and described how attempts to restrict the spread of resistance while pursuing an active control programme with the compounds concerned were unlikely to succeed. The mode of action of anticoagulents in operating on vitamin K_1 in the blood clotting process was described. To prolong the useful life of anticoagulents a programme of intermittent use was advocated.

The remaining papers dealt with aspects of fumigation. A technique for assessing fumigant repellency was described and some repellent and attractant effects were reported for methyl bromide and phosphine. It was clear that further work is needed in this area to assess the practical significance of such responses. Not only was information required on factors affecting efficacy but a gap was identified in our knowledge on the reaction products of fumigant gases in the treated commodity, and on other potentially adverse properties of fumigants. Some recent results with methyl bromide were described. Data needed to be available to forestall any precipitous move following unjustified adverse publicity which could lead to the banning of useful compounds.

The effective use of phosphine was detailed in another paper and continuous introduction of gas was advocated in preference to dosing twice in less gas-tight structures. Evidence was presented showing

that control could not be achieved by merely increasing the dose where leakage occurred, an increase in exposure period being required to bridge tolerant stages. Resistance to phosphine was mentioned and again increased periods of exposure were advocated to prevent its spread. Some practical problems in phosphine usage were described and the need for adequate sealing was stressed.

The final paper compared the advantages of using methyl bromide under vacuum, or in the presence of carbon dioxide, based on studies on the elimination of insects from dates. The order of tolerance of different species and stages was dependent on the strategy employed and the exposure period chosen.

In spite of the long history of pesticide use and the extensive knowledge now available on the properties of the available compounds, this symposium indicated that further research is required to improve the efficacy of the material and provide essential information on potential hazards to the community.

SYMPOSIUM 6: GRAIN STORAGE IN TROPICAL AND SUBTROPICAL CLIMATES

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This symposium addressed specifically problems of developing countries. Throughout the world the general economic depression has put considerable stress on the budgets of many countries and most industrialised countries have undergone a period of belt tightening. As a consequence the scale of aid programmes to developing countries has been reduced, in some cases very drastically. With reductions in finance and manpower resources it seems pertinent to review the priorities of need in the field of food grain storage so that what resources are available can be addressed to the greatest need and in the most efficient and effective manner.

It was to be expected that the brief, and in view of the immense and complex situation, the somewhat cursory, review of need, identified food supply as continuing to be the greatest need. However those countries with the highest population growth were shown to be those with the most dire problems of maintaining food production to meet demand. They also have such weak economies that they will have to rely on food aid supplies for some time to come. FAO has stated categorically, on the basis of past failures, that many of these countries do not have adequate technical resources and manpower to develop, operate and manage marketing and storage systems to deal with these aid flows.

There is a clear need for the disciplines represented at this conference, entomologists, chemists, engineers, extension workers (and economists) to join in an examination of this situation; to develop appropriate systems of storage facilities, pest and quality control (having regard to local resources) and give guidance and training in their use and management.

This operation is only one element in the global pattern of world food security. The world's major producers of cereals will, sooner or later, have to agree with developing countries how the essential