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Grain Protectants Including Inert Dusts, Natural Products, Resistance and Residues — Session Summary

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Twenty-nine papers were presented associated with 64 poster presentations. Session participants were keenly aware that the use of grain protectants had generated concerns regarding residues and environmental issues. However, we believe that the use of grain protectants will continue for the foreseeable future. The detection of resistance and resistance management continues to be an important issue and the development of phosphine resistance and the phase-out of methyl bromide emphasised the need for alternatives.

One group of papers dealt with endorsing the efficacy and extending the use of current grain protectants through improved formulations and applications systems. There were studies on specific issues such as the application to storage fabrics and there was a report on the developmental research required to achieve registration in specific markets. There was also one paper on the potential of a completely new microbial product.

Considerable interest was shown in new formulations of diatomaceous earths. It was apparent that diatomaceous earths from different sources vary in potency which may be broadly correlated with physical and chemical properties. However, bioassays are essential to determine insecticidal activity. There was strong emphasis on its use in integrated programs and several such uses have been developed which include treatment of storage fabrics, application to the surface of grain bulks, and the treatment of seed and feed grains.

Several papers reported preliminary studies on the potency of new insect growth regulators against storage pests. These materials are generally slow in action but in some markets may be regarded differently from conventional products. Numerous materials of botanical origin were shown to be active against storage pests. One paper gave a detailed analysis of the chemical constituents of potent extracts. There are differences among countries regarding approval for use of botanical products. In some countries they are exempt from tolerance requirements while in other countries extensive toxicological studies are required to support registration.

There is a continuing need to understand the principles which underlie the use of grain protectants and the degradation of residues. The differences between grain protectants and other chemicals used to control insects in stored products had been exaggerated. Some materials have residues which can be removed during grain processing, while others have residues which are within the naturally occurring range. There is a need for the clarification of the attitude of legislators to such uses.

In conclusion, grain protectants provide the most economic means for controlling insect pests of stored grain in many situations. There is a need for research on both existing and new products and on combining use of these products with alternative control strategies. Grain protectants are an important component of integrated pest management programs.