Project No. 86-X5 - Tree and Crop Research
Methyl Bromide Studies

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Objectives: (1) Revise the critical review of methyl bromide to incorporate recent findings from rat oral gavage and inhalation studies. (2) Based on pharmacokinetic modeling, prepare a risk evaluation resulting from exposure to air, water and food containing methyl bromide. (3) Continue to work with scientists in the Netherlands and in the United States who have and are conducting animal toxicology tests and epidemiological studies on methyl bromide. The goal is to consider these findings in light of the above risk assessment.

Interpretive Summary: An initial objective of this project at its inception was to critically review the toxicology of methyl bromide. A manuscript of the review was prepared, submitted and accepted for publication. However, the paper was withdrawn before publication for two reasons. First, the review contained an analysis of the Dutch gavage study in which rat forestomach carcinomas were reported. Subsequently, a pathology working group from the National Toxicology Program reviewed study slides and concluded that carcinomas were not formed. This raised many more fundamental questions about the carcinogenicity of methyl bromide than had been considered in the review. Second, Dutch scientists have completed a chronic rat inhalation study which is critical to the question of the occupational safety. Unfortunately, compilation of the data took a year longer than originally estimated, but the complete data should be available for inclusion in the review.

Dr. Schwartz and his colleagues have been working for a number of years in the area of pharmacokinetic modeling for purposes of risk assessment. Modeling is now used in setting air, water and food standards. Work is now proceeding on modeling methyl bromide kinetics so that it is possible to estimate the relative contributions of methyl bromide exposure via air, water and food. Exposure assessment will aid interpretation of epidemiological studies and interpretation of industry-provided residue data.

At its 1985 meeting, the United Nations Food and Agriculture Organization (FAO) reviewed information on the current uses of methyl bromide and crop residue data. The meeting concluded that there was no reason to change the current organic methyl bromide guideline levels for almonds, which are ten ppm at point of entry and 0.1 ppm (100 ppb) at point of consumption. In June 1982, the European Economic Committee (EEC) set an organic methyl bromide maximum residue level of 100 ppb. The following member states have adopted this 100 ppb organic bromide level (at point of consumption): West Germany, Ireland, Netherlands, United Kingdom, and Denmark. The following countries have not officially published a maximum residue level for organic methyl bromide: Italy, France, Greece, Belgium, Spain, Luxembourg and Portugal.