...es in ... d spinach purchased in grocery stores. ... the ... les were U.S. products and all samples ... ed ... water before tested.

Apples w... ound to average about .03 parts per million F... spinach .016 ppm, and canned spinach up to ... ewsome said the findings are incidental to ... velop a reliable method of measuring ETU in ... he has developed the technique using app... wider testing will be done to determine how ... e substance is in various foods.

This was said ... e first time evidence was found that food can b... aminated by the chemical. In March, Environm... rotection Agency Administrator William D. Ruckels... announced that while there was no evidence that ETU residues occurred in commercially marketed crops, three fungicide manufacturers had agreed to reduce the parent compound in their products.

William M. Upholt, EPA deputy assitant adminstrator for pesticide programs, said ethylenebisdithiocarbamates account for a large percentage of total fungicides used.

He said, "There are relatively few compounds which could be used to replace them and in some instances little is known about their interactions in the environment, such as benomyl, or their safety has been challenged, such as captan."

Cancellation of use of ethylenebisdithiocarbamates would result in an increased use of fewer compounds, some of which also might present potential hazards, he stated. EPA feels the ethylenebisdithiocarbamate fungicides probably are the most important group of fungicides for plant protection, he said.

The Government recommends that use of ethylenebisdithiocarbamates be continued, and a two or three-week interval between last application and the time of harvest be imposed until additional data can be supplied concerning the formation, fate, and residues of ETU. Available evidence indicates that if this were done, most economically important crops would have adequate protection and there would be no threat to human health, according to the Department of Agriculture.

Warren R. Bontoyan, of EPA in Beltsville, Md., reported that ETU was found in commercial packages of the fungicides in a variety of concentrations increased with storage times. The degradation of ethylenebisdithiocarbamate fungicides to ETU could constitute a hazard to applicators because of the thyroid cancer link found in National Cancer Institute and Food and Drug Administration studies, he warned.

"Further studies under actual storage conditions must be made on these products before any realistic conclusion can be made as to the formation of ETU in commercial products," he stated.

Controlled Release

Controlled-time release pesticides would eliminate both the waste and the polluting aspects of excessive application, Dr. R.L. Collins, of the University of Texas, said.

Controlled-release pesticides would permit use of short-persistence chemicals in a way that runoff pollution quickly dissipates and allow wide latitude in persistence at the application site, he reported. His method of controlled release was laboratory-tested to give the farmer "effective" concentrations of 2-4D from the first day of application and to have a persistence at the site of application up to 300 days with a single application.

J. Sherma and T. Shafik, of EPA's Perrine Primate Laboratory, reported on a multiresidue method for chlorinated, organphosphorus, and aromatic N-methyl carbamate insecticides developed for interfacing with the National Air Monitoring Program. The method involves partitioning and extracting the pesticides from ethylene glycol (the trapping solvent for airborne pesticides) with methylene chloride, fractionation and cleanup by liquid chromatography on an active absorbent, and determination of chlorinated compounds by EC-GC, phosphorus pesticides by FPD-GC, and carbamates by EC-GC after derivatization with pentafluoropropionic anhydride.

Polychlorinated Biphenyls

Dr. Robert K. Ringer, a poultry scientist from Michigan State University, said mink diets can no longer contain coho salmon or other fish from Lakes Erie and Michigan. He reported that Michigan State University studies showed that fish from these lakes reduced the number of mink offspring by as much as 80 percent. In some cases, they killed the adults.

The cause of deaths probably is polychlorinated biphenyls, not pesticides, he said. It was determined by feeding chlorinated hydrocarbons (DDT and dieldrin) to mink that pesticides were not to blame. Analyses showed PCBs were running as high as 15 parts per million in Great Lakes' coho.

V. Zitko, Environmental Canada Fisheries Research Board, said using hatchery-reared Atlantic salmon for pesticide studies, he and O. Hutzinger, Atlantic Regional Laboratory, National Research Council of Canada, noticed unusually high levels of PCB in the fish. The researchers found that PCB up to one part per million in the diet did not cause a buildup of PCB residues in Atlantic salmon. Fish receiving up to 10 parts per million soon reach and maintain constant PCB, he reported. No steady buildup of PCB residues in aquatic fauna should occur in localities receiving only small amounts of PCB if food is the only source of PCB, he stated.

Self-Destructing Plastics

Solid waste problems caused by containers can be overcome by plastic materials that self-destruct or disintegrate on exposure to sunlight two scientists told ACS.

Dr. James E. Guillet of the University of Toronto, demonstrated the disintegration of a plastic cup that disappeared after being exposed to 14 days of sunlight. The disintegration can be controlled so that a plastic bottle or any other product does not fall apart before a person wants it to, he explained.

Dr. Gerald Scott, University of Aston, Birmingham, England, said colorings sensitive to sunlight can be incorporated into the plastic to give an early-warning system as to when a container would start to break down.

Guillet and Scott reported on two recently patented methods of disposing of plastics which add chemicals to them when they are formulated. The chemical additives do not affect manufacturing processes or present other problems, they said.

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