

thorough and impartial study demonstrates convincingly that the benefit outweighs the risk.

c. No new pesticides should be registered until tested for mutagenicity.

d. Some disinterested scientific group or commission should be charged with responsibility for continued surveillance of the whole problem of pesticide mutagenesis.

IMPORTANCE OF MUTAGENICITY AS A PUBLIC HEALTH HAZARD

A particular subtle danger from wide scale use of pesticides lies in the possibility that some of them may be damaging to the hereditary material. If this is so, we may be unwittingly harming our descendants. Whether this is happening, and if so, what is the magnitude of the effect, is regrettably unknown. Surely one of the greatest responsibilities of our generation is our temporary custody of the genetic heritage received from our ancestors. We must make every reasonable effort to insure that this heritage is passed on to future generations undamaged. To do less, we believe, is grossly irresponsible.

The first evidence that environmental agents under human control might have some influence on the genetic constitution of future populations followed the discovery that high energy radiation causes mutations. The first convincing evidence of this came with the publication in 1927 of M. J. Muller's classical paper "Artificial Transmutation of the Gene." Muller was quick to point out the potential health hazard associated with indiscriminate use of radiation.

The discovery of nuclear energy brought a whole new dimension to the problem and a greatly increased public awareness of genetic hazards. Out of this concern, originally confined largely to geneticists, radiologists, and radiation biologists, but later including persons of a great diversity of special interests, have come rigorous safeguards to insure that radiation exposure is kept to the lowest practicable minimum.

As soon as radiation-induced mutagenesis was discovered, there were strong reasons to suspect that many chemicals would have the same effect, but proof of this did not come until World War II when mustard gas was shown to induce mutations in fruit flies. Since that time, very efficient test systems have been developed and a large number of chemicals of a great diversity of structure and activity have been shown to be mutagenic. The likelihood that some highly mutagenic chemicals may come into wide use, or indeed may already be in wide use, is great enough to be a cause for real concern.

Pesticides are only a part of the plethora of new chemical compounds that have become a part of our environment, but they are of