

There are several variables and complexities which complicate evaluation of the pesticide and insecticide situation. First, the pesticides and insecticides themselves are highly variable. Next, collection of a truly representative sample poses a particular and peculiar series of interrelated problems. Finally, analytical techniques are exceedingly complex and still in the development stage.

Commercially prepared pesticides and insecticides frequently are made from byproducts of other industrial activities, and, as such, their composition has a tendency to vary with other portions of the overall production activity.

Many of the more widely used insecticides are insoluble or only slightly soluble in water, so they usually are mixed or diluted with organic solvents or other petroleum or coal tar derivatives prior to field use, or they are applied as dusts mixed with inert materials.

Thus, there is a definite possibility that a significant percentage of a particular insecticide applied to an area literally could be floated away as a scum or oil slick.

Again, when such an insecticide enters a waterway such as a canal, drain, or river, it could remain as a surface scum, or as a result of turbulence and other motion it could become suspended throughout the entire cross section.

A further complication is that many of the organic insecticides are heavier than water and have a tendency to settle to the bottom and intermingle with bottom sediments.

The aforementioned variables make it exceedingly difficult to determine the true significance of insecticide measurements reported from the laboratory.

Additionally, problems which must be met within the laboratory itself provide further reasons to view insecticide measurements with extreme caution. There are numerous pitfalls in the complex analytical procedures. As time passes, however, we are making progress in developing more reliable methods.

One of the most perplexing difficulties, however, is that insecticide solutions of standard strength or of known purity and composition are difficult, if not impossible, to obtain for use in calibrating the measuring instruments. A part of this difficulty can be related to the chemical complexity and to variations in manufacture and in raw materials used to make various insecticides marketed under the same product name.

The complexities of interpreting pesticide analyses are underscored by the fact that the Advisory Committee of the U.S. Public Health Service, in establishing the 1962 drinking water standards, included the following statement in their report:

Consideration was given to the more common chlorinated hydrocarbon and organophosphate insecticides, but the information available was not sufficient to establish specific limits for these chemicals.

In commenting on the decision to set aside adoption of pesticide concentration limits for drinking water, experts cited two basic reasons: first, the difficulties in establishing acceptable concentrations; and second, the lack of simple analytical techniques for identifying and measuring concentrations of these chemicals.

Although several years have elapsed since establishment of the 1962 drinking water standards, and although much progress has been made