

THE SCREENING PROCESS

The chemical company, on the other hand, searches for new chemicals and more economic sources of familiar compounds. It screens these chemicals in search of useful activity, and the nature and direction of the screens employed depend upon the market interest and facility of the company in question. If its interests are confined solely to pesticides, it may restrict its screening procedures solely to these objectives. On the other hand, if the company has wide and varied interests, it may retain a central file of all its chemicals and systematically screen them over a wide array of quite unrelated uses.

Each screening test is a carefully researched and statistically calibrated procedure designed to sort out active from inactive candidates with a precision of at least 95 per cent. Any candidate which emerges positive in the primary screen is at once checked in secondary and tertiary screens to confirm its activity and raise the odds for acceptance from 95 per cent to over 99.9 percent. Once a particular activity is established, all its chemical relatives (analogues) are also screened to determine if even more useful related compounds can be found.

Once a positive possible utility among a family of compounds is established, search is then made to determine in what areas of the country and on what product, crop or animal it is likely to be of valid economic use.

Approach is then made to the agricultural college and experiment station staffs who are expert in the particular problem to which the compound appears to be applicable. On the basis of the preliminary utility and safety data, they will decide whether to go to the field with the compound and apply it experimentally under proximate farm conditions. Such field testing usually proceeds simultaneously in as many as a dozen or more areas and over a period of at least two years and often for as long as five years.

Concomitant with these extensive field trials, the company proceeds with research and development of other phases necessary to establish safety, stability, compatability, metabolism, toxicology, formulations, manufacturing process development, and finally market research to determine where, how, when, and in what form to introduce the product into commercial channels.

TWO YEARS IN DEVELOPMENT

After at least two years, and usually more, of this intensive research and development, the entire data sheets are collated into a comprehensive report and submitted to the regulatory offices of the Federal government that are concerned, usually the U.S.D.A. and the F.D.A. Their experts go over the evidence in detail, usually requiring additional evidence of