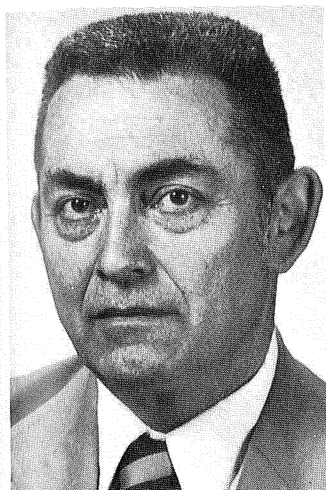


Pest Information Needs

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A major constraint preventing the reliable and predictable production of food and fiber is the large and diverse number of pests causing crop losses. To solve plant pest problems, much information relating to pests, losses, and management has been collected by scientists, government agencies, and industry. Unfortunately, most of this information is not easily accessible, in a standardized mode. A national effort should be made to bring together as much pest information as possible in a readily accessible form.

Several questions must be asked:

1. What types of information should be included in a proposed system? Should information be limited to historical occurrence and distribution or should on-line "real time data" be included?

2. How much information is needed? Do we need information regarding the pest's genetic variability, its potential for causing crop loss, aspects of control, prospects for biological control, and integrated pest management programs?

3. Are data management systems available that can handle the vast amount of data?

4. Can we define achievable goals at the outset?

Various institutions and government agencies have mandated missions and goals, with pest information needs closely bound to these goals. Further, different users require pest information of varying degrees of quality and comprehensiveness. An example of this diversity are the missions of the Plant Protection and Quarantine Section of USDA/APHIS: 1) point-of-origin inspection certification, 2) detection and exclusion of incoming exotic plant pests, 3) certification of export cargo, and 4) containment of outbreaks of exotic and new pests in the United States. A variety of potentially interested clientele should have access to both input and output of such information. This clientele must eventually include many international agencies.

The large numbers of potential pests present us with what appears to be an impossibly large data management task. Attempts can be made to reduce these numbers by assigning risk values to the pests and treating only those with an apparent "high-risk" index. Priority assessment needs to be realistically examined in terms of biological and socioeconomic criteria. Although no system will function with 100% accuracy, any start will go a long way toward reducing the extent of the "unknown."

Pest information published in scientific publications is readily available from bibliographic resources. Many bibliographic services provide pest manual or computer-based information retrieval and printouts. These include the National Agricultural Library, BIOSIS, Chemical Abstracts Service, the Military Entomology Information System, and the National Library of Medicine. The Commonwealth Agricultural Bureau (CAB) of England has an abstracting service for material on insects, weeds, and diseases; the USDA already has a working link with CAB. Present systems, however, are not equipped to store and retrieve pest-related information in significant depth.

Every phase of plant protection is capable of generating pest information from pest identification, quarantines, regulatory measures, and pest management programs. A complete record of biocontrol agents as they are introduced and established in this country is not readily available.

Delivery of timely data with minimum time lag is exceedingly important in detection, quarantine, and IPM programs. The scouting data collected in IPM programs must be made immediately available to pest managers and growers to facilitate time-sensitive decision making.

Historical fragmentation of plant protection disciplines along curricular lines, such as entomology, plant pathology, nematology, and weed science, has prevented the consideration of these disciplines as parts of a unified body of information concept. Some data are quantitative and reliable, others are of little value.

During 1979-1980, an ad hoc committee of the Plant Pest Survey and Detection Committee of the Intersociety Consortium for Crop Protection developed and submitted a report of its analysis of plant pest information needs of APHIS-PPQ (USDA) to the administrator of PPQ. Following is a synopsis of the committee's recommendations:

1. There is great need for a centralized national effort to collect, summarize, and present plant pest information in a standardized format.

2. The system must have a rapid input and retrieval mode.

3. A "lead agency" must be identified. This agency will house a pest information coordinator whose prime function would be to supervise data storage and retrieval.

4. The program at start-up must have carefully defined achievable goals for the various data bases.

5. The lead agency will have the responsibility to develop interactive pest information clientele.

6. The lead agency should promote the development of a comprehensive pest detection manual.

A central, computerized system for plant pest information storage and retrieval integrating the information needs of major users of such information could be of great benefit as agriculture moves toward a more sophisticated and integrated plant protection technology.