THE ECOLOGY OF PESTS: RODENTS

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ABSTRACT[1]

In many countries throughout the world, rodents: damage a variety of growing crops and stored commodities; cause structural damage to buildings and irrigation systems; compete with domestic herbivores; and are involved in the transmission and maintenance of diseases of man and domestic animals. A recent survey reported more than 130 rodent species responsible for damage to growing crops and stored commodities in tropical and subtropical areas. More complete work on problem assessment and species identification, and consideration of other geographic areas, would undoubtedly extend this list. Many of these species range over a variety of habitats and become *pests* only on the rare occasions when they conflict with human enterprise.

The rodent species that have become pests of major importance over broad geographic regions exhibit the common capabilities of rapid reproduction whenever conditions are suitable, flexibility in food habits, and adaptability to man-made environmental changes. Development efforts, particularly those which involve concentration of people in urban areas, increased emphasis on food storage, or intensification of agriculture and irrigation, often create new sources of food and cover which allow rodent populations to expand locally. Such situations signal the need to consider the development of pest management systems as an integral part of development planning.

Because rodents are generally viewed as serious pests only when populations (or public concern) reach outbreak proportions, support for sustained management programmes is minimal. Although the biological information needed for sound management is lacking for some species and some environments, the principles and procedures of effective rodent control are established for many pest situations. Trained research and extension personnel who can adapt existing information to organize and carry out management programmes are an immediate need in many countries.

PLENARY DISCUSSION: THE ECOLOGY OF PESTS: RODENTS

Sawarng Charoenying: Rodents are well adapted to a variety of habitats which they can use as resources for reproduction. Do we have an appropriate method to estimate the density of rodent populations, especially those of the Norway rat?

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[1] Dr. Fall kindly attended the Symposium at short notice and gave participants the benefit of his wide experience in this subject by presenting an overview of current knowledge. In the short time available Dr. Fall could not prepare a written paper for the meeting. We are grateful to him for providing this abstract so that the main points of his valuable review can be published here. — *Editor.*

M.W. Fall: There is a variety of methods for estimating rodent population numbers from live-trapping or snap-trapping data; unfortunately, these methods are designed for use in stable closed populations and do not lend themselves to most crop pest situations. Various kinds of sign counts, if properly calibrated, can provide rough estimates of numbers. Indices of rodent activity—burrow counts, proportion of plants damaged, trap success, tracking or activity-board success—are more commonly used to assess population trends because they are easier to determine. In most cases, the relationships between such indices and actual numbers of animals are non-linear.