

Sustained Collective Action for Integrated Pest Management



Every year, crop and animal pests deprive farmers of significant parts of their production. It is estimated that 10–40 percent of the world’s gross agricultural production is destroyed by agricultural pests. These pests include a huge variety of different organisms, not only insects, mites, worms, rodents, and birds, but also, in a broader sense, all organisms such as weeds, fungi, bacteria, and viruses. The variety of pests and their interactions with other ecosystem conditions make pest problems very diverse and often complex, so solutions to single pest problems must vary substantially. Some pests can be controlled by individual farmers; others are amenable to public programs like aerial spraying. Many pest management approaches, however, call for neighbors to work together. Collective action is particularly important for reducing pesticides in agriculture.

Often, the best results occur when the majority of farmers in an area adopt integrated pest management (IPM) practices, such as combining occasional use of pesticides with crop rotation or intercropping of different crops or varieties. Convincing neighboring farmers to adopt such prac-

SOURCE:

Ravnborg, H. M. 2004. *Collective Action and Property Rights for Sustainable Development: Collective Action in Pest Management*. 2020 Focus Brief 11, International Food Policy Research Institute, Washington, D.C.

Integrated Pest Management

Integrated Pest Management (IPM) is an ecosystem approach to crop production and protection that combines different management strategies and practices to grow healthy crops and minimize the use of pesticides (Source: FAO).

tices in a coordinated fashion is, thus, a key to success. This need is especially great when the integrated approach involves allowing some crop losses to achieve greater overall profits, as well as to reduce environmental pollution and health hazards from heavy pesticide use. In such cases, successful pest management has both a spatial and a temporal dimension.

- First, IPM depends upon being implemented in a coordinated fashion over a wide geographic area. Thus, pest management is more effective if required institutions are in place to stimulate and facilitate coordinated or collective management efforts.
- Second, although in some cases a pest is controlled once and for all over a short period of time, in other cases pest management is a continuous effort that requires sustained collective action. This commitment in turn requires a certain degree of stability in the group undertaking. Under certain conditions, secure property rights might contribute to ensure such stability, but they are no guarantee.

Many other factors contribute to farmers' decisions about whether to continue farming in an area, such as the existence of alternative livelihood options in and outside the area, a sense of belonging to an area, and local cultural and social settings.

The Case of Collective Action in Pest Management

Leaf-cutting ants are a serious problem for farmers in many parts of Latin America. These ants are capable of destroying an entire cassava plot or one or more fruit trees overnight. There are simple technical options for controlling the ants, such as the regular pumping of insecticide into the anthill.

Ants, however, do not respect farm boundaries. Farmers who control anthills on their own fields might still face damage to their crops caused by ants coming from neighboring fields where no control measures are taken. Actions by individual farmers acting alone in cases like these can also raise new problems. The extensive use of pesticides on some farms may drive pests to fields of others or cause the pests to develop localized resistance to pesticides. Likewise, if farmers use pesticides that kill not only the pests but also their enemies, neighboring farmers who introduce or encourage the presence of predators may find that their predator populations never reach a viable size.

Gaining Farmers' Support for Collaboration

One obstacle to coordinated pest management is the view of farmers as sovereign decision makers. In many places, farmers are reluctant to interfere with the farming practices of others because this action might be perceived as a reproach and thus endanger future relationships and reciprocity. A key challenge therefore is to create institutions that encourage neighboring farmers to participate in coordinated pest management so that the individual farmer does not need to approach his or her neighbors.

Recognizing the transboundary nature of pest management problems helps to legitimize the otherwise socially unacceptable interference with the farming practices of others. In the case of ant control in Colombia, a joint community map of the location of anthills and their potential radius of crop damage, superimposed on a map of farm boundaries, provided an important illustration of the transboundary nature of the ant control problem. With the help of the map and the backing of external facilitators, farmers could calculate the average number of anthills affecting each plot and the number of anthills actually located on plots belonging to other farmers.



Since pests cross farm boundaries, joint action to control them is needed.

In many cases, external support is needed to help systematize the ecological and entomological observations and treatments upon which the need for coordinated pest management is based. Institutions such as farmer field schools or an agricultural extension service might be feasible options for providing this external support.



Farmers are more willing to participate in coordinated pest management when low-cost, economically feasible technical options are available. Which options are considered low cost and economically feasible obviously depends upon the context, i.e. the potential damage caused by the pest as well as the resources available to the individual farmer. Not surprisingly, the more widespread and severe the damage caused by pests and the less demanding and costly the technical control option, the easier it will be to persuade farmers to participate in coordinated pest management.

Hence, in areas with no previous experience of coordinated pest management, it is wise to begin by embarking on pest management problems that:

- are widespread (that is, they should affect the majority of farmers so that a large proportion of farmers will choose to participate in the coordinated pest management effort);
- are amenable to low-cost management options so that the poorest farmers are not prevented from participating in the coordinated pest management effort; and
- can be dealt with effectively at a relatively limited spatial scale so that farmers do not become frustrated at having to coordinate their pest management efforts with distant and perhaps unknown farmers.



Coordinated action in pest management takes into account both the spatial and temporal dimensions of pest ecology.

Because of the transboundary nature of many pest problems, technical solutions, whether based on the use of pesticides or on biological principles, are rarely sufficient. To be effective, such technical solutions need to be implemented in a coordinated fashion among farmers within a given area. Coordination, however, often represents a major challenge.

In areas with no previous experience of coordinated pest management, it is best to start on pest management problems that are widespread, have low-cost solutions, and are of limited spatial scale. Under these conditions, it is easier for farmers to mutually monitor compliance with agreed management practices. Widespread and consistent compliance will, in turn, facilitate the gradual development of trust among neighboring farmers, which is so important when, as in integrated pest management, short-term individual gains must be balanced against longer term collective interests.

Suggested Readings

- Pretty, J. 2002. *Regenerating Agriculture: Policies and Practice for Sustainability and Self-Reliance*. London: Earthscan.
- Ravnborg, H. M., A. M. de la Cruz, M. P. Guerrero and O. Westermann. 2002. *Collective Action in Ant Control*, p. 257-271. In: Meinzen-Dick, R., A. Knox, F. Place and B. Swallow (eds). *Innovation in Natural Resource Management: The Role of Property Rights and Collective Action in Developing Countries*. Baltimore: Johns Hopkins University Press.

Sourcebook on **Resources, Rights, and Cooperation**, produced by the CGIAR Program on Collective Action and Property Rights (CAPRI)