

Extension Around the World

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In countries with *developed* farm economies, the main objective of crop protection advice is to prevent harmful biotic and abiotic agents from jeopardizing maximum farm revenue achieved at minimum risk. In countries with *developing* farm economies, the objectives differ. Where most crops are grown for subsistence and reserves are nonexistent, the risks with crop failures are high; where major crops are grown for export and crop failures do not mean immediate food shortages, the risks are slightly lower. The

farmer's attitude toward risks and his knowledge of crop protection practices frequently govern his acceptance of professional advice.

In both developed and developing farm economies, two basically different approaches are taken toward extension systems in general and crop protection components in particular. One approach is the multipurpose system that distributes information and has regulatory and law-enforcing functions but is not oriented to agricultural technologies, is not closely associated with research, does not define technical strategies, and does not have well-trained, field-oriented specialists. Gaining the farmer's trust and goodwill is difficult, and the technical messages offered do not address his needs or affect his cropping performance. The other system emphasizes the professional approach. Advisors are involved in generating the technology, are closely associated with research activities, define cropping constraints and needs at the farmer's level, and are responsible for formulating and disseminating the relevant technical messages. They have no regulatory duties, receive regular training and updating, and follow a systematic field-visit schedule. This approach is exemplified by the "Training and Visit" agricultural extension system, a derivative of the Israeli advisory system being promoted through World Bank projects. "Training and Visit" is now being applied in almost 40 countries, mainly in Asia, Central and South America, and, most recently, Africa.

Most extension organizations fit in somewhere between these two approaches. Five organizational forms of providing crop protection advice have evolved:

1. Crop advisors at the local level are generalists (often including animal husbandry in their scope); crop protection specialists serve only at the district, regional, and state levels. This is the situation in Kenya, India, Peru, and some states in the United States.

2. Crop advisors and crop protection specialists both serve at the local level (some specializing in crops or in disciplines) and

are supported by experts at regional or national centers and research institutions. This is the case in most of western Europe, Israel, and much of the United States.

3. Crop protection advisors operate outside the general farm advisory structure, either in separate units of the ministry of agriculture, as in Thailand, Togo, and the Federal Republic of Germany, or in research institutions, as in Portugal.

4. Each farm employs its own crop protection advisor, with the ministry of agriculture providing overall guidance and issuing warnings. This system is used in some countries of eastern Europe on cooperative farms run by the state and in developing countries where crops are produced on large farms or plantations or as special projects.

5. Either no public advisory system exists or the advisory organization has no crop protection specialists and relies on representatives of chemical firms or commercial dealers for advice. This is the case in some regions of southern and western Europe and in large pockets in developing countries where the representatives of private industry are virtually the only persons directly advising the farmer.

The approach that separates extension from research prevails in Europe, the United Kingdom, Israel, and most developing countries. The approach that unites extension and research is exemplified by the American land-grant system of state agricultural colleges; division of extension and research duties varies among colleges, departments, and individuals. One approach favors technology consumers and the other favors technology generators.

Is one approach better than the other? In my view, advisors who specialize in *crops*—covering all three major plant protection disciplines, namely, plant pathology, entomology, and weed control—have easier contact with both crop specialists and farmers than research-oriented advisors who specialize in *disciplines*. The extension structure oriented to the crop and the farmer supports the advisor making decisions in the field about cropping techniques, diagnosis, and pest management. The field advisor specializing in just one of the three major plant protection disciplines is less equipped to make these decisions.

A large part of the advice given to farmers at the local level concerns how to protect crops. The need for advice in crop protection is urgent, especially in developing countries where know-how may be limited and losses can be heavy. I recommend that, wherever needed, crop protection advisory bodies be set up on a crash basis. Establishing a comprehensive statewide extension system requires a tremendous national effort, and we cannot afford to wait any longer. We should not regard the private sector active in advising farmers as competitors but should work out standards of cooperation for the benefit of the farmers. In the long run, crop protection advisors should be part of a professional extension system. Aside from setting goals and providing tools to advisors, an efficient extension system should create an environment of professionalism, encouraging field work and demanding relevant technical contributions to the farmer's needs.