EXTENSION, REGULATION, AND WILDLIFE DAMAGE CONTROL: AN EXAMPLE FROM WESTERN AUSTRALIA

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Abstract: Wildlife cause damage in many agricultural settings throughout California and the world. Many organizations are charged with responsibility for assisting land managers and others in dealing with wildlife problems. This assistance takes several forms, including supplying information about problems and solutions, cost sharing of control measures, and operational control. Some organizations have the objective of encouraging landholders to adopt management practices to reduce wildlife damage. This can be achieved in several ways. Regulations and extension programs are two prime examples. In Western Australia, both approaches are used by the same organization. The implications of these two approaches on resource management are discussed.

Both exotic and native wildlife species have and continue to cause damage to Australia's agricultural and natural resources (Salmon 1986). Individual Australian states have organizations charged with the responsibility for various aspects of solving these pest problems. In Western Australia, the responsible agency is the Agriculture Protection Board (APB). Their wildlife damage control program includes regulation, enforcement, research, bait manufacturing, field control, extension, and training. In this paper, I focus on their extension program, its implementation, and relation to regulation. These concepts may be useful because the regulation versus extension question is currently being debated in relation to the California Hardwood Range Management Program (Passof and Bartolome 1985).

EXTENSION DEFINED

The early concept of extension was based on the need to communicate between University researchers and field staff, and to promote adoption of agricultural research. Currently, the concept includes disseminating all types of information. Extension requires feedback because communication is a reciprocal process. By obtaining feedback, we learn more about resource problems and needs. We can then take action either by improving knowledge to better answer questions, or initiating research to solve problems. Once solved, extension can be used to take the solution(s) back to the field.

There is no one definition of the term "extension". It depends to a great degree on the organization and the type of program carried out. However, there is basic agreement about the general goal of an extension program.

Extension is a communication concept. It involves explaining the reasons and needs for the various programs, suggestions or recommendations and working towards their adoption. In the area of pest control, the ultimate goal is to work with landholders to change their attitude and behavior toward pest management. General assumptions of an extension program include: (1) farmers take an active role in learning, (2) they use a wide range of information sources, (3) they usually do not initiate communication with the extension advisor or information source first, and (4) communication is a two-way process.

Information transfer or dissemination is an important component of extension programs but is by no means the ultimate goal. Woodfield (1970) clearly showed that information alone can have very little influence on adoption of specific control recommendations. In testing different extension techniques, he found that only 30% of the farmers who received information in the mail on a new rabbit control practice adopted it. However, when an active extension program, including local meetings, discussion groups, and demonstrations, was undertaken, almost all of the farmers adopted the new practice. Extension needs to be much more than just information dissemination. It requires working with landholders. Farmer involvement, using either individual or group contacts, is essential (Berwin 1980).

A study on adoption of new managerial methods showed that farmers must perceive the method as economic, feasible and compatible with their existing operation (Chaudhry 1984). In the same study, the reasons for non-adoption of a new technique were high risk, lack of funds, no perceived advantage to the individual, and lack of confidence in the management agency. These problems exist for extension and regulatory agencies alike. If we understand what causes people to change their management practices, we can use that to develop regulatory or extension programs.

REGULATION VERSUS EXTENSION

Often people look at regulations as the antithesis of extension. Regulations "tell" and extension "persuades". Paisley (1981) found that enforcement action often fails because it conveys negative information to resource managers. However, when landholders understand a regulatory action and how it relates to their own well-being, they are more likely to accept those regulations (Jackson et al. 1978, Beck 1979). Presser (1979) found that farmers accepted and encouraged enforcement actions by governmental agencies when they perceived the actions as important. In this case, extension was used to get farmers to accept the need for enforcement.

Table 1. Frequency of general definitions of extension submitted by APB staff (APB staff survey 1985).

General Definition Given	Field staff (N=74)	Head office (N=11)
None	2 (3%)	0 (0%)
No idea	2 (3%)	0 (0%)
Public relations	8 (11%)	0 (0%)
Communication between head office and field	22 (30%)	0 (0%)
Educating landholders about pest control	23 (31%)	3 (27%)
Changing landholder behavior about pest control	10 (14%)	7 (64%)

Understanding the need behind suggested actions is the key to success of any program.

WESTERN AUSTRALIA EXAMPLE

I worked with the APB in 1984-85 while on sabbatical leave from the University of California. The primary objective was to help the APB develop the framework of an effective extension program, focusing on wildlife damage control. This framework would be useful in bringing together relevant biological and economic data, and in demonstrating the importance of wildlife damage control to Western Australia agriculture. The ultimate goal was to develop and expand the APB's extension program as a complimentary method to regulations for achieving improved agricultural protection. To familiarize myself with the current wildlife damage control situation in Australia, I talked with extension and research personnel throughout the country. In addition, I surveyed both APB staff and many vertebrate extension and research workers throughout Australia.

Regulation and Wildlife Damage Control

Western Australia takes a regulatory approach to most wildlife pest problems. They officially declare a species as a pest. This allows them to regulate what can and should be done to control that animal. For example, rabbits are declared as pests to be eradicated. Regulations have been promulgated which state that: (1) rabbits cannot be kept as pets or for commercial purposes (they might escape), (2) any rabbits found on properties should be controlled (regardless of perceived damage), (3) no rabbits can be imported into Western Australia, and (4) only rabbits in the desert area can be shot and sold for meat. This approach provides authority for the APB to require control of declared species. In cases of non-compliance, control can be conducted and the property owner billed. While these regulations have been important in developing a sound rabbit control program,

they have not solved all the rabbit problems. Some feel that extension efforts may help in the APB's overall wildlife control efforts.

Moving Toward Extension

In Western Australia, as in many other areas of the world, there is government involvement in programs designed to protect agriculture and related resources from wildlife. Farmer acceptance of this type of involvement varies according to the program in question (Hoiberg and Bultena 1981). Many organizations rely on regulation and enforcement activities for pest control. However, this approach alone is not likely to solve the problem (Chaudhry 1984, Grieshop 1984). The APB recognized this and has been moving towards the use of more extension and less regulation to achieve pest control objectives. This has been termed the "extension approach".

Perceptions of Extension

New programs or approaches to problem solving must be understood before they are accepted within an organization. With the extension concept, confusion often occurs because methods, e.g. leaflets, slide tape, speeches, etc., are seen as extension. This was illustrated during a survey of about one-third of the APB staff. The survey asked the open-ended question "What is your definition of extension?". Responses were kept separate (head office and field staff) and were classed into categories by two individual raters (Table 1). Not surprisingly, head office staff more consistently defined extension according to the general concept explained to me by the top administrators: changing landowner behaviors to get adoption of APB pest control policies. Field staff had a much greater array of definitions. The common thread was that the term implied communication. Many defined extension as public relations. Others held the more traditional view of extension as the development and dissemination of

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