These staff papers are published at the discretion of their authors who are solely responsible for the decision to publish as well as for the contents.
ILLINOIS AGRICULTURAL ECONOMICS STAFF PAPER

Series S, Rural Sociology

ENVIRONMENTAL PROTECTION:
POLICY DILEMMAS IN U. S. AGRICULTURE

J. C. van Es

May 1979

No. 79

Department of Agricultural Economics
University of Illinois at Urbana-Champaign
305 Mumford Hall, Urbana, IL 61801
ENVIRONMENTAL PROTECTION: POLICY DILEMMAS IN U. S. AGRICULTURE

J. C. van Es

University of Illinois, Urbana-Champaign

Abstract

Trends toward intensification, specialization, and the use of purchased inputs have resulted in identifiable environmental problems in U. S. agriculture. In this paper the policy problem areas related to Environmental Protection programs are identified. While these problems have a strong sociological (rather than a technological) component, the lack of adequate applied sociological research in this area necessitates that the issues be discussed more in terms of a research agenda than in terms of research findings.

Because of the highly dispersed nature of the decision making regarding Environmental Protection in agriculture, policy makers are confronted with issues of enhancing farmer participation and with instituting decentralized administration and enforcement.

The paper points out researchable issues in participation or compliance policies. It is assumed that most environmental protection programs will conflict with the short term economic interests of the farmer-decision maker. This calls into question the utility of previous research on adoption of "profitable" practices.

* The writing and presentation of this paper were supported by the Department of Agricultural Economics of the University of Illinois, the Illinois Agricultural Experiment Station, the Office of International Programs in Agriculture, and the UIUC Office of International Programs and Studies.
Environmental Protection: Policy Dilemmas in U.S. Agriculture

J. C. van Es

The recent public concern over environmental quality has focused attention on a number of features of United States agriculture and agricultural policy which have not received sufficient attention in the research efforts of rural sociologists. I want to approach these issues in terms of a research agenda of policy-relevant issues which need to be addressed. Policy implementation and its sociological prerequisites will be the focus of this paper. This atheoretical approach has well-known dangers, in the sense that it may operate without a theoretical framework, or even without the basis of an articulated set of assumptions and theoretical understandings. However, within the context of the division of labor at this Conference, it may be a justified effort to approach environmental quality in agriculture from the perspective of issues raised in policy situations.

Agriculture as a social system and as a system of production is claiming renewed attention in the sphere of public decision making. Control of the land base, vertical integration, agricultural labor, energy, and environmental quality are just some of the issues that face the agricultural sector. Local, regional and federal policies are being considered and implemented to deal with these problems.

The policy-relevant nature of rural sociology has to be one of the more persistently discussed in-house issues of the U.S. Rural Sociological Society. Presidential addresses (Copp, 1979; Ford, 1973; Warner, 1974; Capener, 1975) have continued the tradition of proclaiming the need and
validity of policy-relevant research as being at the core of rural sociology, if not the explicit mandate of rural sociologists.

But the preoccupation with policy-relevant research is not limited to ceremonial statements; many of the daily workers in fields of rural sociological endeavor have expressed their interest in policy-relevant rural sociology (Loomis and Loomis, 1967; Hobbs, 1969; Bealer, 1969; Nolan and Heffernan, 1974; Stokes and Miller, 1975; Nolan, et al., 1975).

Rural sociologists appear to believe generally in the utility of policy research. In other words, they believe that applied research would be welcomed by policy makers if it were available. With remarkable humility rural sociologists have found themselves blamed for their inability to influence public policy. Warner (1974) argues for more codification and interpretations. Others have pointed at the inability to inject research findings effectively into the policy making process (Ford, 1973; Nolan and Galpher, 1973). Several authors have addressed the issue of the organizational framework within which rural sociological research takes place. Capener (1975) argues that much policy research will need to be multidisciplinary in nature, and that rural sociologists should be given the same resources and the same leeway to fail as those in other disciplines. Warner (1974) has pointed out the lack of critical mass for many rural sociological research activities: too thin a distribution of intellect over too many areas of concern.

Whatever reasons are advanced by rural sociologists for their lack of impact on policy decisions, rural sociologists appear remarkably devoid of the cynicism, or realism, that is exemplified in the following quote from Stryker (1976):
... Policy making is a political process, and it is the imperatives of politics and not the imperatives of knowledge that are determinative (sic). Perhaps my pessimism is related only to the short run, and the long-run impact of empirical research on policy is indeed great. I doubt it!

I guess that rural sociologists have not adequately tested the superiority of political over knowledge imperatives, but they nevertheless appear to reject Stryker's statement. Although I will offer suggestions for "more" policy research, I also believe that many policy makers are interested only in research findings which bolster their decisions.

To the policy maker, rejecting research as irrelevant, inappropriate, and of questionable validity is an inexpensive way to avoid unpleasant information. At the same time, to the researcher the attraction of policy-related research may therefore not be in the degree to which specific research is used in policy formation. To the researcher policy formation and implementation will likely raise new questions and challenge existing wisdom, and his research effort will be to deal with these "new" entities.

However, it is clear that the previous paragraph clearly obscures the distinction between applied and "theoretical" research, or as Ford (1973) expresses it: "knowledge produced for professional consumption and that produced for a public client." Some authors (Sewell, 1965; Loomis and Loomis, 1967; Warner, 1974) do not recognize a meaningful distinction between these two goals of scientific pursuit, while others (Ford, 1973; Nolan and Galiher, 1973; Nolan et al., 1975) have argued that applied and basic research are not necessarily compatible, or that they may even be incompatible, witness the following statement by Nolan et al. (1975):
The point here is that sociologists appear to have been drawn into defining problems and gathering data in such a way that the probabilities of being "scientific" are maximized but relevance for policy is minimized ... in short, as long as rural sociologists allow a methodological tail to wag their research dog (as it seems currently is the case) they will never have very much to offer in the way of social policy recommendations.

While it is a dangerous notion to imply that policy-relevant research somehow should be less "scientific," especially since that is often equated with "rigorous," it is also true that defining the policy-related research issues is a true intellectual challenge. Seeking one's inspiration in the profession, with its own legitimate concerns with "discipline" knowledge and standards may yield excellent research that may well be charged with being irrelevant to policy concerns. On the other hand, policy makers, action agencies, and many agricultural research administrators define research very much on the basis of its topicality; leading the researcher into the role of helping to put out brush fires.

It is my observation that many researchers have accepted the notion that a happy mix of discipline orientation and topicality will lead to a good policy research. While such a formula undoubtedly has been successful on occasion, the results appear more often than not dilettantish: low quality research providing information of little relevancy to policy makers.

In this paper I start from the point that in policy-relevant research the research problem is selected from issues raised by policy design and implementation. However, just as in any other research, the researcher's judgment in the selection of problems to analyze, and the validity with which research is pursued are the full responsibility of the researcher and thus open to public scrutiny.
Within U.S. agriculture the issues of environmental protection (E.P.) are largely related to the following three characteristics of modern agriculture: intensification, specialization, and the use of purchased inputs, especially chemicals. As a result of these developments, specific problems of waste disposal, soil erosion, and water pollution have become associated with agriculture. Government bodies have considered, and in some instances have put in place, a number of remedial actions such as restrictions on the use of pesticides, the disposal of animal waste, the control of water pollution from either agricultural point or dispersed (non-point) sources. The specifics of these actions are not of great interest here; the issues appear similar in most industrialized countries.*

Introducing these policies into agriculture has proven to be quite difficult. The policies are generally predicated on the basis that farm operators (or sometimes land owners) are the decision makers through which the system ultimately needs to be implemented. This, and the innate problems associated with the wide diversity in farm enterprise types, agronomic conditions and the fluctuations of the market have placed a high premium on policies which can attract high levels of farmer participation

* One area where the United States appears different is in the degree to which the geographical specialization in agricultural land use has progressed. Much less than in the more densely populated European countries do we find a conflict specifically over the continued recreational use of farm land. For the majority of Americans, agricultural land is for practicing agriculture, while recreational land is somewhere else. The conflict over land use tends to be over different specialized uses (agriculture, energy, transportation, tourism) rather than over multiple usage (Wilkening and Klessig, 1978).
and maintain responsiveness to local conditions. Farmer participation raises issues associated with voluntary and mandatory compliance, while responsiveness to local control raises the issues of decentralized decision making and control.

In the following paragraphs we will discuss some of the main research issues that are raised by the nature of the policies currently being pursued.

**Voluntary Compliance.** All agricultural policy faces the issue of the extent to which it succeeds in changing farmers' behavior. While mandatory programs are in existence, most programs in the U.S. are based on voluntary compliance. The reasons for this are found both in terms of the political "technical" attractiveness of a voluntary system, and in the perceived/advantages and disadvantages of voluntary over mandatory systems. However, very little is known about the limits of a voluntary compliance system that operates within the restraints of economic parameters. In the area of production "voluntary compliance" with programs of technology introduction, based on a very strong foundation of profit maximization, and a real threat to individual economic survival, is generally judged to have been phenomenal.

The Extension Services have an excellent record of achieving change in agriculture through voluntary programs. However, much of Extension's work has focused on educational activities compatible with the profit-maximization efforts of most farmers. While much of the technology introduced to farmers in the past has helped them to increase their productivity, pollution control policies have as their goal activities which deal with public welfare and which may not be profitable to the farmer.
Yet, there are many examples where significant policies have been implemented in which economic benefits were not apparent. Much of the support for rural education, complete with extra-curricular activities in sports and music, has extremely weak economic justification. Many home and family life improvement extension programs are not primarily justified in economic terms. More complex value configurations are involved, but we appear to have precious little research output to bring to these matters. Preliminary research indicates that the motivation for maintaining basic resources may differ from that for obtaining immediate economic payoff (Wilkening and Klessig, 1976:5-6; van Es and Pample, 1976). It is likely that farmers most responsive to resource conservation and public welfare considerations are not necessarily the same ones most responsive to productivity-enhancing innovations (Kronus and van Es, 1976; Pampel and van Es, 1977). The research also indicates that the support of conservation measures relates positively to age. This may be a cohort phenomenon reflecting the impact of the experiences of the thirties on the conservation attitudes of older farmers. It may also be a matter of economics: younger farmers may be so heavily indebted that they have no choice but to pursue profit maximization above all other alternatives.

While a system of voluntary compliance can boast some specific policy results, in many instances the voluntary approach has not produced the desired problem solution. In some cases the value conflict between the policy goal and the values of farmers is raised as a significant issue. Gun control policy exemplifies this situation. In other cases it is argued that economic restraints are the major factor inhibiting the success of voluntary compliance programs.
Producer costs and incentives. One of the most important factors affecting the response of farmers to a policy is, of course, the economic implication of the policy. Many farmers try to maximize their profits within the economic, technological and institutional constraints in which they operate. Sociologists have been rather cavalier in their treatment of economic determinants of farmer behavior. While economists have studied farmer behavior in terms of profit maximization and financial risk management, sociologists have focused on noneconomic values, thus losing the opportunities to study the interaction between economic and noneconomic values.

Most E.P. options to farmers will be seen by them as a nonproductive expenditure. Even if E.P. programs may benefit the farmers in the long run, in the short run they need to deal with farm budget considerations (Sharp and Bromley, 1978). The individual farmer has no control over market forces and lacks the ability to pass on additional cost to the product purchaser. He absorbs additional costs either financially or in terms of his lowered return on labor, including inconvenience.

Market forces could be manipulated such that farmers would be in a better position to adopt E.P. practices. But current government food and agricultural policies are not conducive to adoption of E.P. practices. These policies have placed a premium on economic efficiency on the farm and E.P. has been incidental. E.P. policies have generally focused on inducing individual farmers to change their behavior, not by structurally changing market forces, but by mitigating the impact of market forces in individual cases (Rural Clean Water Program [PL95-217]).
Many of the incentives suggested to date include expanding the current programs of cost-sharing, technical assistance, and income tax credit, as well as instituting new incentives such as abolishing cost-sharing ceilings and eliminating income taxes on cost-sharing payments. Usually incentive programs are defined in terms of short-term inducements to help farmers make certain changes or put certain improvements in place. But after the project is complete it may do little to enhance the short term productivity of the farm. Incentive programs thus will be most appropriate when dealing with programs requiring one-time investments in capital improvements or management changes. When used under different circumstances, incentive programs may create a farm population continuously dependent on direct government subsidies. A system of continuous direct payments to farmers is quite controversial if not politically unacceptable, and its effectiveness and secondary effects are areas open to research.

A special concern with incentive programs is the need to establish carefully defined criteria for participation. In the past participation has generally been limited to those farmers who perceived financial benefit from their participation, i.e., who volunteer. More carefully designed programs should attempt to reach those situations where the most E.P. can be accomplished. This may require some type of local priority designations and making incentives available only to those with high priority designations. It is quite doubtful that the currently existing local decision making structure will be able to deal with this expanded set of obligations.

Regulatory Activity. The use of regulatory programs in E.P. is faced with a number of difficulties that can probably be subsumed in the categories
farmer resistance and enforcement problems. However, before discussing these points in any detail, it is necessary to discuss the limited knowledge of program efficacy that surrounds many E.P. measures.

E.P. in agriculture is fraught with the difficulty that good measurement of degree and origin of the pollution/does not exist. Emission standards, which underlie many of the incentives and tax policies modeled by economists, do in effect usually not exist in agriculture (Sharp and Bromley, 1978). As a result, policy is oriented toward activities which are deemed beneficial in a general sense, but whose efficacy in providing a cleaner environment cannot be demonstrated with any real sense (GAO, 1978). The limited knowledge of program efficacy creates problems for E.P. programs of any kind, but it makes mandatory programs especially vulnerable to charges of regulatory capriciousness and rigidity. The limited knowledge of program efficacy also tends to bolster problems created by farmer attitudes and enforcement problems.

Since the prohibition era we are all aware of the difficulty of implementing policy for which strong public support does not exist. Farmers have displayed strong opposition to government regulation of their activities. There is strong value opposition on the part of farmers and their leaders to programs which affect their autonomy in farm decision making. The opposition is strongly ideological, based on widely held beliefs of individualism and independence. These values are enforced by the perceived economic threat posed by many regulations.

The success of most regulatory programs is at least in part due to the ability to enforce them. E.P. programs face particular enforcement problems. We have already alluded to the limited knowledge of program efficacy and the resulting difficulty in determining performance criteria.
Secondly, the diffuse nature of the pollution sources, combined with the particular sensitivity of agriculture to local conditions such as topography, climate, and land use pattern, creates real limitations on the ability of centralized and uniform implementation and enforcement policies.

However, there are many mandatory programs operating in agriculture, including public health requirements in the dairy and cattle industries, animal waste disposal, pesticide, applicator licensing, local noxious weed controls, and the ban on poisoning coyotes. The many mandatory programs in agriculture appear to provide remarkable cases of social control: they operate in an environment where frequently complex measures are being imposed on a large and geographically diffused population. Still, there is little sociological research on the implementation of these programs.

The decision-making structure is a second important element of the policies related to E.P. in agriculture. In implementing agricultural policies one needs to be extremely sensitive to local conditions. If the decision makers are too far removed from the locale where the program will be implemented, they may be misinformed about local conditions and opportunities and, as a result, use inappropriate measures. There are frequent complaints that through decisions in the political process the general standards are set, while bureaucratic agencies are left to decide on how to implement the policies. It appears, however, that for many agricultural programs a policy of stating the criteria to be met while leaving the implementation to local decision-makers—including farmers—would be most appropriate. Many agricultural programs have operated under a decision making structure which incorporates a high level of local autonomy in program execution with national organizational structure. We
have little knowledge of the extent to which local decision making "perverts" national goals, and to what extent national resources and administrative structures create dependency at the local level. The issues are researchable as indicated by studies of the draft (Davis and Dolbeare, 1968) and many studies of the federal poverty program (Rose, 1972).

A related issue deals with the problems involved in local citizen participation in bureaucratic decision making. The literature on that subject is voluminous, but few studies have dealt directly with the nature of farmer participation in bureaucratic decision making affecting farm activities, including the forms of farmer participation in existing agricultural programs (Oberle, 1970). Research on citizen participation indicates that neither the objectives of the citizen participation, nor the role and power of the citizen participants, has usually been well enough defined to allow a functional system to develop (van Es, 1976).

This problem becomes more important because the nature of E.P. policies will occasion some real shifts in the performance of local decision making groups. In the past these local agencies have offered resources to those most interested. In the future, decisions will be more likely based on local needs and priorities and these groups of peers and fellow citizens may well exercise some real authority. In addition, given the public welfare considerations in E.P. programs, and the public resources likely to be involved, the representation of different interest groups on local decision making bodies will become more frequent.

In the preceding statement I have identified some of the major issues associated with E.P. programs in U.S. agriculture. The issues were selected on the basis of the actual obstacles they represent in E.P. policy in agriculture. These problems are not technological, but are largely
sociological in nature. Yet sociologists appear to be able to make only very modest contributions when it comes to resolving these issues, nor does it appear that we have a research agenda which will lead us to strengthen our capabilities in the future.

References

Bealer, Robert C.

Capener, Harold

Copp, James H.

Davis, James W., and Kenneth M. Dolbeare

Ford, Thomas R.

Hobbs, Daryl

Kronus, Carol L., and J. C. van Es

Loomis, Charles P., and Zona K. Loomis

Nolan, Michael F., and John F. Galliher

Nolan, Michael F., and William D. Heffernan

Oberle, Wayne H.

Pampel, Fred C., and J. C. van Es

Rose, Stephen M.

Sewell, William H.

Sharp, Basil M. H., and Daniel W. Bromley

Stokes, C. Shannon, and Michael K. Miller

van Es, J. C.

van Es, J. C., and Fred C. Pampel, Jr.

Warner, W. Keith

Wilkening, Eugene A., and Lowell Klessig