TOWARD AN AGENDA FOR SMALL FARM RESEARCH[1/]

by

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Introduction

"Research has focused primarily on increasing the short term per unit return to investment. This has meant that, especially since World War II, farmers have been encouraged to use larger machinery and invest more heavily in chemical fertilizers, pesticides, herbicides, and rodenticides. To justify the heavy capital costs of the inputs, it has been necessary to increase farm size. While these practices have undeniably resulted in higher yields, there is increasing evidence that they have also been responsible for serious environmental problems, for long-term degradation of the soil, and for the increasing decline in the number of prosperous small family farms.

In other words, we may have increased productivity at the expense of our social and biological environment, leaving our children a harvest of economic concentration, exhausted soil, and polluted waters."

(Opening statement by Senator Abourezk, U. S. Congress, 1977).

There is little disagreement today with Senator Abourezk's description of changes in agriculture since World War II and the ramifications of those changes on the larger society. There is disagreement as to how and why these things have come to pass, and how best to chart a course for the future. The purposes of this paper are (1) to discuss the reasons underlying the recent renewal of interest in small farms; (2) to describe a major project intended to yield an agenda for further research, an agenda predicated upon explicit value judgments regarding the social implications of small farms and designed to build upon the already existing state of the arts; and (3) to list a few of the important topics and approaches that should be pursued by future research.

Reasons for Concern About Small Farms

Ever since the days of Thomas Jefferson the expressed intent of the nation's agricultural policy has been to support family farms, particularly small, land-owning farms. Despite statements of concern and support by both agriculturists and statesmen, often the effect (if not the intent) of public policy has been to undermine the economic and political support structures of a system of agriculture and rural communities based on land-owning family farms. Recently a widening array of interested groups of citizens have begun to express alarm over the discrepancy between the avowed intent and the ultimate effect of public policy--that is, the failure of public policy to achieve the goal of supporting family-owned and operated farms.

Increased attention to the changing structure of agriculture has illumined the economic, political, sociological, and ecological ramifications of the trend toward fewer but larger farms (especially highly technical and capital intensive farms) to policymakers, the private sector, philanthropic organizations, and the public. This increased awareness has created a climate in which the value of small-scale family farms is being reassessed and reaffirmed. Advocates for smaller-scale family farms cite a wide range of adverse social and ecological consequences of current trends in production and marketing and in changes in the structure of agriculture as a rationale for more strenuous political and economic support of smaller-scale family farms. In general, these concerns are characterized by a striving to understand the interrelationships between and among production practices, marketing systems, the structure of agriculture, and their impact on ecological and human well-being.

For example:

- The social, ecological, and economic vitality and viability of rural and urban communities is directly related to patterns of ownership, control, use, and distribution of agricultural resources. As the number of farms in a community decreases and size increases, the resultant migration of displaced residents has aggravated social and economic problems such as unemployment, and alienation, inadequate housing and health care, and deterioration of the economic base of both rural and urban communities.
- The specialization and increased uniformity of farming resulting from the adoption of the techniques of regional monocultural production has increased the vulnerability and reduced the adaptability of agriculture to natural disasters; to large-scale disease and insect attack; to short and long term disruptions and shortages of energy supplies for production, processing, transportation, and storage of agricultual products; to soil erosion and depletion of soil organic matter; to pollution and depletion of ground and surface water; and to contamination of the food chain through the misuse and abuse of toxic chemicals used in producing and processing of foodstuffs.
- The ownership and control of land and other agricultural resources plus marketing and distribution mechanisms is becoming increasingly concentrated in the hands of fewer and fewer individuals and/or corporations, a trend which, if carried to extremes, could have severe implications for the survival of the nation's economic and political institutions.

While the drive for profit maximization seems to be a powerful underlying force, these trends are clearly the result of a complex interaction of many forces--political, technological, historical, demographic, and cultural forces as well as economic ones. Given the very complexity of

these forces and our limited understanding of their operation in determining the viability and prosperity of small farms, there exists a great need for more and better information regarding structural trends, and the causal forces underlying those trends. Also needed is a better understanding of the likely impact of alternative policy initiatives that could eliminate the discrepancy between the avowed intent and the actual impact of public policy, that is, ways to ensure that small-scale family farms flourish as a permanent part of the structure of American agriculture. The questions related to the viability of small family farms are most realistically framed in the context of 1) the overall structure of agriculture; 2) the complex set of interconnected causal factors that determine trends in the structure of agriculture; and 3) the likely impact of changing structural patterns on the larger society and the environment.

Within the context of the interrelationships described above, four areas consistently emerge as priority concerns: (1) the declining quality of rural life; (2) the impoverishment of limited resource farm families; (3) the human, social, and ecological elements of economic efficiency; and (4) the perils of the disappearing middle.

Declining Quality of Rural Life

The quality of life in rural communities deteriorates as the support for various services, schools, churches, and other institutions dries up--a frequent result of the depopulation associated with the demise of small to moderate scale family farms.

The sociological studies such as those by Goldschmidt, and Fujimoto (U. S. Congress, 1977, p. 1394-96) should be extended to a wide range of

locations and types of rural community, to provide a more solid basis for understanding the relationship between changing structure of agriculture and community decline (Rodefeld et al., 1978). This type of research should include systematic collection of longitudinal data, at two or more points in time, so that changes in farm structure and quality of rural life can be observed and causal relationships estimated.

Improverishment of Limited Resource Farm Families

While the vast majority of small farm families have family incomes above the poverty line (due to off-farm income) (Emerson, 1978) many of the limited resource type small farm families could become more self sufficient and could afford a more adequate level of living if ways were found to increase their incomes--either through improved farming practices, better marketing options, or increased off-farm earnings. The "trapped" or limited resource farms, are those who are in poverty because the quantity and/or productivity of their labor, management, land, and other capital is chronically low and often getting less. These families seem unable to enhance their incomes either by moving away or staying. Simply assuming or advocating "perfect resource mobility" is of no comfort to those who have few job skills, few years before retirement or interment, or an unalterable determination to stay put. And while these small farms may be numerically prevalent and durable, their plight is often miserable.

Increasing the income-earning options of these small farms is clearly in the national and local community interest and is a worthy social and humanitarian goal.

The rationale for helping the limited-resource type small farms to increase their incomes is partly humanitarian and partly pragmatic--it may

be less expensive than welfare payments. Research should determine the conditions and situations under which various program strategies may be cost-effective in improving the self-sufficiency of limited-resource small farms.

The Human, Social and Ecological Elements of Economic Efficiency

There exists a wide range of phenomena (e.g. use of certain chemical pesticides) which are deemed to be economically efficient according to short term accounting of firm-level costs and returns. However, if the scope of accounting were broadened to include short and long term social and environmental costs and returns, then some of these same phenomena may not be judged to be "efficient." A major research effort is needed to re-examine the concept of economic efficiency in this broader context, and to develop measures and theoretical frameworks within which the trade-offs between firm-level efficiency in the conventional sense versus various human, social, and ecological concerns logically and systematically be entered into the calculations.

The Disappearing Middle

Schumacher, in his book Small Is Beautiful, coined the term "disappearing middle," in describing a trend toward bifurcation of technology: very small and primitive technology coexists with mass production technology, while intermediate technology vanishes. Concerned agriculturalists have suggested this phenomenon is occurring in American agriculture. Assuming no major changes in the market structure and the political system, the very large farms are here to stay, probably in increasing numbers, and almost certainty in increasing importance as a source of the Nation's food and fiber, because of their economic efficiency and/or their market power. The very small farms are also here to stay--those part-time and retirement places and

little patches of ground on the hilltops and narrow valleys and in the irregular corners of the huge fields, areas that cannot be economically farmed as a part of a large farming operation. Here the opportunity cost of the land and other resources is often very low, and the farmer or farm resident depends largely on income from an off-farm job or business rather than from the sale of crops and livestock. Other commercial producers of specialty crop and livestock for special and limited markets (roadside stands, local organic markets, etc.) seem to be a permanent part of American agriculture. Still others are the limited resource farms.

The very large farms are in no danger of disappearing; nor are the small farms whose families are either trapped in impoverished farming or have comfortable incomes from off-farm sources. However the plight and prospects for the small to moderate sized farm that supports a farm family at a level considered "decent" by modern standards, with little or no help from off-farm jobs or other sources of outside income is much less certain. The need for preservation of this middle sector, of small to moderate sized family farms, seems to be a central value judgment underlying much of the current concern for what is loosely termed the "small farm." Many observers are convinced that society needs to retain the flexibility of keeping options open, options which will disappear permanently if the middle sector of family farms is totally replaced by huge farming operations. Frequently concern is voiced regarding the need to prevent an irrevocable concentration of farmland in the hands of a few investors--particularly speculators or others who have little concern for the husbandry of the soil or for enhancing the quality of life in rural communities.

Much of the current confusion and dissention discussions related to small farms is the result of an overly simplistic view, implicitly thinking

that all "small farms" are alike and that the social and economic or humanitarian rationale is equally compelling for all segments of the small farm sector. Clearly this is not true. More and better research is needed to clarify the issues. A priority in this area is developing a meaningful typology of small farms, indicating distinctly different kinds of small farms in terms of their resource endowments (land, labor, etc.) aspirations, sources of income, and other causal and descriptive factors that interact to determine their long term survival and their potential for earning a decent level of income (Tweeten et al., 1979).

Widely divergent views abound concerning research related to small farms. Some contend that all research, public and private, is stacked against the small to moderate scale family farm, in favor of huge corporate operations. Others contend that all, or virtually all research is "size-neutral," equally benefitting all farms regardless of size. Further, those in government who determine the budgets and the emphasis of research in various public agencies and educational institutions express no interest, or outright hostility, toward the idea of increasing the level of research activity directly relevant to small farms. [U. S. Congress, 1977.] Other somewhat more sympathetic officials have indicated in personal conversations that if a comprehensive and well documented research agenda was developed, then and only then would adequate research funds be forthcoming. It is primarily in response to statements of the latter kind that a national project on small farms research and policy was initiated by the National Rural Center in 1976.

The NRC Small Farms Project

The National Rural Center (NRC), is a private, non-profit corporation, established to develop policy alternatives and to provide information

which can help rural people improve the quality of life in their communities. A central value judgment underlying NRC's philosophy is that the goal of government ought to be to increase the options people have for a decent life in whatever kind of community they choose to live--rural, urban or suburban. Because small-scale farming can provide an important option for earning income, and because, despite the predictions of many experts, a large number of people (many of whom, in some sections of the country are minorities) wish to exercise that option, NRC selected small farm issues as a major policy development effort.

The project is organized into three phases, with the information brought together in each phase providing direction for subsequent phases. The work of each phase is reviewed at a conference whose participants include small farm operators, researchers, policymakers, and representatives from public and special interest groups.

The task in Phase I was to agree on a definition of small farm family and to identify barriers which hinder these families from increasing on-farm income. In Phase II, issue groups reviewed the existing knowledge on each of those barriers, to determine in which issues there is adequate information, and which issues deserve additional research. The output of Phase II is a series of state-of-the-arts review papers, including preliminary discussions leading toward an agenda of research and demonstration projects. The goal of Phase III is to develop a set of federal policy recommendations based on the findings of Phase II. At the conclusion of the third phase, NRC, with the assistance of a wide range of individuals and interest groups will recommend a federal small farms program consisting of a research agenda, an agenda of demonstration projects, and policy alternatives.

Phase I was funded by the National Rural Center, Ford Foundation, Farm Foundation, and U. S. Department of Agriculture. Phase II was funded in part by grants from the Appalachian Regional Commission, the National Science Foundation, the Farm Foundation, the U. S. Department of Agriculture, the Community Services Administration, and the Rockefeller Brothers Fund. Funding for Phase III is in the development stage.

Phase I

The Phase I workshop, was held October 16-18, 1977, at Winrock International Livestock Education and Training Center, located in Morrilton, Arkansas. Forty individuals from around the nation and with varied backgrounds, came together primarily to discuss the questions of small farm definition and barriers which hinder small farm families from increasing on-farm income. A secondary goal was to determine what agreements could be reached on a proper approach to small farms policy by a widely divergent group of knowledgeable people.

Perhaps the most important outcome of the Winrock conference was the fact that regardless of differing views of the ultimate role of small farms, the participants did agree on a definition and a list of barriers to increased on-farm income. Concensus also was reached on the importance of approaching the small farm issue not primarily as a welfare question, not as a subsection of commercial agriculture policy, but as a question of what ought to be done to make the small farm option more viable.

The working definition of small farm family adopted at the conference contains three provisions: (1) The family or individual must rely on farm income for a substantial share of their livelihood. Hobby farms of the wealthy are excluded; (2) The operating family or individual must manage or control the farm business and must contribute the majority of the farm labor (except in peak seasons); and (3) The family or individual income

must be moderate or less. The target "moderate" income level (including income from all sources) is the national median, currently about $17,000.[2/] In addition, it was agreed that, within the working concept, priority for policy and research should be given to those who have low incomes, desire to become small farm families as defined above, and experience infrastructure barriers to full participation in our economic system.

The lists of barriers to increasing on-farm income developed by separate task groups of the conference were categorized into six general areas. These areas form the basis of Phase II of the NRC Small Farms Research Agenda and Policy Project. The areas identified by participants at Winrock were (1) structural change and information needs; (2) production efficiency and technology; (3) energy conservation; (4) marketing; (5) government policies; and (6) taxation. Two additional areas, (7) off-farm income and (8) societal values and goals relating to small farms, were added by the project staff and advisory team after the conference.

Phase II

Phase II began in April 1978. Forty individuals, principally researchers from the academic community and government agencies, were selected to review the existing knowledge and propose a research agenda in each of the eight issue areas. Outlines of the papers were developed at a working conference of authors in June 1978, and a completion date of December 1978 was agreed upon.

On January 31, 1979, 106 individuals representing a wide range of perspectives and backgrounds met at the Nebraska Continuing Education Center

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[2/] A new USDA definition includes a slightly lower (on the average) limit on family income: the median nonmetropolitan family income in the state where the farm is located.

on the University of Nebraska campus in Lincoln to review and comment on the papers prepared by the issue groups. In addition to those involved in preparing the papers, participants included representatives of government agencies and public interest groups, as well as selected small farmers who had been delegates to the five regional USDA/CSA/ACTION Small Farms Conferences held during the summer of 1978.

The purpose of the Lincoln Conference was threefold: (1) to have the papers reviewed by a diverse group of people actively interested in the area of small-scale farming, to generate comments and suggestions to help the paper writers improve their reviews of the literature; (2) to strengthen a research agenda for small farms, to be prioritized by mail after the conference; and (3) as a starting point for Phase III of the Small Farms Project, to begin discussion of possible policy alternatives that would help improve the incomes of families or individuals living on smaller scale farms. The conference was designed to achieve these goals through a series of small group sessions and plenary sessions.

The papers presented at the Lincoln Conference are being published (with a few exceptions) as a series of eight NRC monographs, listed in the references. A review or summary of the review papers is beyond the scope of the present article. However, some of the major conclusions and the more salient components of the research agendas suggested in these papers, and in the small working groups at the Lincoln Conference, will be discussed here for purposes of illustration. The reader is encouraged to read each of the papers to obtain a full perspective of the knowledge base and the remaining gaps which call for additional or better research.

Deficiencies In Previous Research

Ideally, research contributes three general kinds of Knowledge:

1. Increased understanding of the existing <u>conditions</u> and <u>trends</u> regarding

the survival and well-being of various kinds of small farms in different locations and farming situations.

2. Better knowledge of the underlying causes of these conditions and trends, the underlying forces, constraints, and opportunities.
3. Improved capacity to predict what effects possible alternative actions or inactions may have upon the survival and prospering of various kinds of small farms under various conditions.

The state-of-the-arts papers are an essential step in the creation of a well documented and persuasive research agenda for small farms. The papers indicate what past research has contributed to knowledge and what gaps remain to be filled. In general, the gaps are substantial--the ideal listed above has seldom if ever been completely realized. There are some areas (such as taxation and governmental price, income, and credit policies) in which present conditions and trends are well documented, and to some limited extent the underlying causes, constraints, and opportunities are known. But the existing state of the arts is rarely if ever completely adequate to provide a solid basis for predicting the outcomes of alternative policy initiatives under the wide range of conditions and resource combinations found on small farms. Six general types of deficiencies are found in the existing literature:

1. Simplistic definitions: Most studies fail to differentiate among various types of small farms (limited resource, part-time, retirement, commercial, etc.) In most studies, small farms are defined naively by a single dimension, usually a gross sales limitation (such as $20,000), or by the level of one resource used by the farm (acres of land, man-years of labor, number of dairy cows milked, etc.)

2. Obsolescense: Much of the research is out of date, not valid for today's technology, prices, or goverment programs.

3. Chronic Gaps: Other information has never been collected and synthesized; essential studies have never been initiated or completed.

4. Qualitative Limitations: Much of the information and research findings are either severely limited in scope (a few counties in one state, for example) or flawed by methodological, empirical, or theoretical deficiencies which preclude any valid generalizations regarding existing conditions, trends, underlying causal factors, or predictions of future outcomes.

5. Fragmentation: Another important deficiency of the entire body of small farms research is its fragmentation. It lacks a comprehensive and explicit causal model linking all of the various conditions and factors that interact to determine (1) the essential nature (structure) of agriculture at the firm, community, state, national, and international levels,[3/] and (2) the policy outcomes with respect to specific goals, such as increased income of small farm families, for example. The typical agenda for small farms research reads like a shopping list written with no specfic menu or meal plan in mind--just a string of seemingly unrelated items, with no underlying rationale and no apparent plan or framework for pulling it all together. An illustration of this fragmentation is the contention of many persons that the solution to the problem of low income on small farms is simply to provide better technical information--fertilization, improved plantvarieties, livestock disease control, etc.--while ignoring the harsh realities of the market place.

3/ Such a model is presented in the NRC monograph by Madden, Tischbein, and West (1979, forthcoming) to clarify the importance of this approach and to provide a framework for conceptualizing further research and interpreting research findings.

6. Lack of Predictive Validation: Research to date does not provide a reliable basis for predicting the success or failure of small farms, or of various programs intended to help them survive and prosper. This is largely because the economic models (Leibenstein, 1979) on which this research is based have never been proven valid for analyzing or predicting the behavior of small farm families. Conventional neoclassical theory of the firm, which leads to the conclusion that only those firms producing at the low point on a long run average total cost curve can ultimately survive, fails to explain both the pluralism (the continued existence of a relative large number of small farms) and the bifurcation (disappearing middle) of American agriculture.

Brief Suggestions for Further Research

In general, our agenda for small farm research covers a wide range of subjects. The following list is illustrative:

1. Research to predict the impacts on various types of small farms of policy alternatives for price, income, taxation, farm credit programs. (See Spitze et al., 1979; and Sisson, 1979 for more discussion of these points.)
2. Research on marketing, including an examination of how conventional and alternative marketing channels can both hinder and enhance the economic and political prospects of small farms. (See Thompson, 1979.)
3. Evaluation of various alternative approaches for providing technical and marketing information to small farms, incuding but not limited to the use of paraprofessionals.
4. Determination of both the descriptive and causal aspects of the structure of the small farm sector of American agriculture, including new and better data on the resource endowments, opportunities, constraints, and aspirations of small farms, plus the impacts of farm structural change on rural communities. (See Tweeten and Huffman, 1979; and Rodefeld, 1979.)

5. Interdisciplinary studies on the processes underlying the nature and scope of agricultural research and Extension, including policy decisions at all levels, systems of professional rewards and incentives, and funding levels for research and Extension relevant to various sizes and types of farms; studies to determine the impact of various kinds of research on the economic and political viability of small farms in various locations and types of farming. (See Thompson, 1979; and Buttel et al., 1979)

6. New and better research on economies of farm size. New paradigms, to be developed and tested through extensive research, should avoid the conceptual deficiencies of the earlier studies, reviewed by Madden in 1967. Specifically, studies should analyze a wide array of actual and potential farm enterprises, rather than the usual assumption of a rather limited range of crop and livestock enterprises modeled after larger commercial farms. Research should take into account the full array of possible enterprises and appropriate technology, including both new and used equipment; custom hiring and cooperative arrangements as well as full ownership of machinery; organic as well as conventional farming practices; and other alternative approaches. Research should recognize that many small farms depend heavily upon off-farm income for their livelihood and as a source of operating and growth capital (Jones, et al., 1979.) Off-farm jobs or businesses should be included as enterprises, for example, and the income from all sources should be taken into account in calculating efficiency ratios. This kind of change in the approach to the study of economies of size, viewing the farm as a "goods and services firm" rather than as a producer of a rather limited selection of crop or livestock enterprises, (Madden, 1967, p. 23)

would undoubtedly improve the predictive value of those studies in understanding and predicting trends in the structure of agriculture. Here again the need for actual farm data is imperative, to learn what small farms are actually doing.

These and many other research suggestions are discussed at greater length in the first eight of the forthcoming NRC Small Farms Monograph Series, and will be intergrated in the monograph by Madden, Tischbein, and West.

Conclusion

Research on small farms may continue to be ensnared in a vicious circle of inadequate funding, inadequate research, therefore continued inadequate funding.... Clearly a research agenda in and of itself will not solve any of the problems of small farms, nor will it provide the necessary guidance for public policy. Hopefully, the existence of a comprehensive and well documented agenda for research on small farms would be useful in (1) inspiring individual researchers and research administrators to press ahead in meaningful research areas, and (2) providing a framework within which the findings of various individual pieces of research may fit together somewhat more meaningfully. It is also possible that the level of funding allocated to small farm research may be related to the persuasiveness of the research agenda. It is in the hope that these outcomes may manifest in the long run that this project has been attempted.

References

Berry, Wendell. The Unsettling of America: Culture and Agriculture. San Francisco: Sierra Club Books, 1977.

Buttel, Fred, William Lockeretz, Martin Strange, and Elinor C. Terhune. Energy and Small Farms: A Review of Existing Literature and Suggestions Concerning Further Research. NRC Small Farms Project Report No. 3, forthcoming, 1979.

Emerson, Peter M. "Public Policy and the Changing Structure of American Agriculture," U. S. Congress, Congressional Budget Office, Washington, D. C., Sept. 1978.

Goldschmidt, Walter. As You Sow. Montclair, N. J.: Allanheld, Osmun & Company, Publ., 1978.

Hoiberg, Eric, and Wallace Huffman. "Profile of Iowa Farms and Farm Families: 1976." Iowa Agriculture and Home Economics Experiment Station and Cooperative Extension Service Bulletin P-141, Iowa State University, Ames, Iowa, April 1978.

Jones, Dewitt, Ronald J. Hanson, Sammy Comer, and John Crecink. Off-farm Earnings and Small Farms (Washington, D. C.) NRC Small Farms Project Report No. 6, forthcoming 1979. Part 1. Jones, Dewitt. "Farm and Non-farm Uses of Farm Family Resources: Impact on Farm and Total Farm Family Income." Part 2. Hanson, Ronald J. "Role of Off-farm Income to Small Farm Families." Part 3. Crecink, John. "The Rural Labor Market." Part 4. Comer, Sammy. "Rural Industrialization and Off-farm Employment Opportunities of Small Farm Families."

Madden, J. Patrick. Economies of Size in Farming--Theory, Analytical Procedures, and a Review of Selected Studies. Washington, D. C., U. S. Department of Agriculture, Agricultural Economics Report No. 107, February 1967.

Madden, J. Patrick, Diana Branch, David Holland and Howard Osborn, Production Efficiency and Technology for Small Farms. (Washington, D. C.) NRC Small Farms Project Report No. 7, forthcoming, 1979. Part 1. Madden, J. Patrick. "Agricultural Mechanization and the Family Farm--Some Social and Economic Considerations." (Pennsylvania State University AERS Report # 139, January 1979.) Part 2. Branch, Diana H. "Tools for Small Scale Farming: An International Picture." Part 3. Holland, David. "Production Efficiency and Economies of Size in Agriculture," Part 4. Osborn, Howard A. "Technology and the Small Farm: A Conceptual Framework."

Madden, J. Patrick, Heather Tischbein, and Jerry G. West. An Agenda for Small Farm Research. Washington, D. C.: The National Rural Center, 1828 L Street, N. W., NRC Monographs, Small Farms Policy Series, No. 1, forthcoming.

Moles, Jerry. Societal Values and Goals Related to Small Farms. (Washington, D. C.) NRC Small Farms Project Report No. 9, forthcoming, 1980.

National Rural Center, "Toward A Small Farms Policy--Phase I." NRC Small Farms Project Report # 1, Nov. 17, 1978.

North Central Regional Center for Rural Development. Small Farm Research Priorities in the North Central Region. Ames, Iowa: Iowa State University, February 1979.

Rodefeld, Richard D. et al. (ed.) Change in Rural America: Causes, Consequences and Alternatives. St. Louis: C. V. Mosby Co., 1978.

Schumacher, E. F. Small is Beautiful, Economics As If People Mattered. New York: Harper and Row Publishers, 1973.

Sisson, Charles A. The U. S. Tax System and the Structure of American Agriculture. NRC Small Farms Project Report No. 4, forthcoming, 1979.

Spitze, R. G. F., Daryll E. Ray, Alan S. Walter, and Jerry G. West. Public Agricultural-Food Policies and Small Farms. NRC Small Farms Project Report No. 2, forthcoming, 1979.

Thompson, Allen. Marketing and the Small Farmer. (Washington, D. C.) NRC Small Farms Project Report No. 5, forthcoming, 1979.

Tweeten, Luther, Wallace Huffman, Steven T. Sonka, and Richard Rodefeld. Structure of Agriculture and Information Needs Regarding Small Farms. (Washington, D. C.) NRC Small Farms Project Report No. 8, forthcoming, 1979. Part 1. Tweeten, Luther and Wallace Huffman. "Structural Changes: An Overview." Part 2. Sonka, Steven T. "Consequences of Farm Structural Change." Part 3. Rodefeld, Richard D. "Farm Structural Characteristics: Recent Trends, Causes, Implication and Research Needs--Excerpts."

U. S. Congress, Senate Committee on the Judiciary, Subcommittee on Administrative Practice and Procedure. Priorities in Agricultural Research of the U. S. Department of Agriculture. 95th Congress, 2nd Session, October 1977.

U. S. Department of Agriculture, Science and Education Administration--Extension. National Summary of Regional Small Farms Conferences. Washington, D. C., December 1978.