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ABSTRACT

SMALL FARM MANAGEMENT: RESEARCH AND EDUCATION

By

Victoria Claire Shade

As background work for the preparation of a small farm management text, the author explores the small farm situations and problems related to small farm research and education. The author identifies the lack of available and accessible references as one significant problem and includes major listings of information sources and references. Current materials are identified as inadequate to the needs of small farm families and suggestions for future materials are made. A small farm management text is proposed.

SMALL FARM MANAGEMENT:
RESEARCH AND EDUCATION

By

Victoria Claire Shade

A PLAN B PAPER

Submitted to

Michigan State University

in partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE

Department of Agricultural Economics

1982

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Preface

It would be tempting to begin with the gag line "I started out as a child..." because in many ways that is where this paper did start. My parents' love for rural areas and farms was instilled in me at an early stage -- even as I was growing up in Chicago. I have them to thank for the many trips through the countryside and vacation trips that included stops at the small family farm in southern Ohio.

Today I marvel at how long it took me to figure out that one doesn't have to be born a farmer (or marry one) to become one. Once that revelation occurred, my education progressed with the goal of becoming a farmer in mind. However, I became increasingly aware of the myriad problems facing the small farmer and agriculture as a whole, and my goals shifted to include sharing my new found information. Five years ago there was very little information available for either the small farmer or the small farm researchers.

My first meeting with Dr. Ralph Hepp (my major advisor for my masters program) included a discussion of my interest in writing a small farm management text. Three years later, after what seemed to be a phenomenal number of research hours, this paper represents the

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tangible outcome of that meeting. However, it is just the beginning, for this paper represents the background research, completed to date, to write that small farm management text. I will continue my writing efforts while I work to earn the money for the small farm I always wanted. The Missouri Co-operative Extension Service has kindly hired me to work as a farm management specialist of the state that initiated its small farm program back in 1971.

Federal interest has stimulated small farm research and many new materials have become available just within the past two years. I hope to combine the new research results as they arise from across the country, and my own practical work experience garnered during the next few years, to put together a functional management tool for small farmers. By then I may be a small farmer myself!

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Chapter I
INTRODUCTION

A. Statement of Problems

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Chapter I

INTRODUCTION

This first chapter of the paper will present a statement of the problems to be dealt with, a discussion of the author's objectives, and an elaboration on the procedures used for gathering the materials for the paper.

A. Statement of Problems

1. There is a dispute over the role of small farms in agriculture and society. For many years there was little interest in the well being and continued existence of small farms. The topic is currently popular, but for a variety of reasons. On the one hand, those interested in poverty and welfare issues have raised the cry of "aid the small farmer...it's the only humane thing to do." The small farm is preserved as a fossil, by this philosophy, and not for any active function. On the other hand, small farm advocates and grassroots organizations of small farmers are discussing the small farm as an important and viable section of agriculture. These groups investigate the structure of agriculture and how it should relate to the goals of society.

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2. There is a lack of information effectively available concerning current small farm research and activities around the country. For example, the small farm listings in the card catalog of the main library at Michigan State University could be counted on the fingers of both hands. While the majority of small farm research and activities has developed during the last five to ten years -- the materials are not as pitifully non-existent as most reference facilities would lead one to believe.

3. There is a lack of small farm management materials. In the past, the major agricultural research and education emphasis has been directed at the larger farm operator. While much of the traditional materials can be adapted for use by the small farmer, they are rarely available in an appropriate form. On the other hand, there is a definite need for new size-specific research to deal with the specific problems and circumstances relevant to the small farm.

4. Small farm bibliographies are almost non-existent, or are not sufficiently comprehensive. It is difficult for research to proceed apace when the results of complementary efforts are unavailable. This situation leads to "reinventing the wheel".

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B. Objectives

The author's primary objective for this paper is to present, in an organized and meaningful form, the mass of information gathered to date as background for writing a small farm management text. The information presented is organized around four secondary objectives.

Objective 1. Support the functional role of the small farm, as a viable and active member of the agricultural economy and community. The paper will discuss the past and current small farm situations to demonstrate that the small farm has functional value.

Objective 2. Analyze and categorize current small farm research and activities to determine any potential limitations for meeting small farm needs.

Objective 3. Address the problems of small farm management education to determine the needs for new materials.

Objective 4. Provide a small farm reference bibliography and as much other source information as is practical under constraints of time.

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C. Procedures used for the Paper

Though the author has been casually collecting materials relevant to small farms for the past ten years, serious efforts did not begin until mid-1980. After exhausting traditional reference techniques with little result, a multi-direction plan was adapted.

1. With the aid of Agricultural Economics Reference Room personnel and Bibliographic Retrieval Services, Inc. (BRS) a computerized search was run. Keywords accessed 370 English language references related to agricultural economics and small farms or alternative agriculture, and, of those, less than 100 were potentially useful. However, it was evidence of much better progress than before.

2. As many publications as were immediately available were acquired. The reference lists for each represented the beginning of a large many-branched tree. Each publication led to other publications and the beginning of a bibliography was assembled. As it was not possible to divide the main body of the bibliography into topic areas, most references include a notation to one other publication that cited that reference.

3. A correspondence effort was also begun, each letter requesting (a) information concerning any small

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farm activities or programs of which the recipient might know, and (b) organizations or people to contact for more information. Some of the initial letters were sent to different universities and state cooperative extension offices where the author knew small farm programs existed. With a few notable exceptions, response was poor to nonexistent. Other letters were sent to popular alternative agriculture periodicals and responses from these were generally warm, encouraging and filled with referrals to small farm organizations and magazines, and to specific programs and people at universities and in Extension. Armed with referrals, names, and addresses, letters to these groups drew good response.

Each response to a letter the author sent meant sending a reply, as well as several other letters to new prospects. Profiles of a sampling of those organizations corresponded with are included in the paper.

4. Advertising, book catalogs, and articles in alternative agriculture publications provided additional references. Many of the "how-to" materials came from these sources.

5. The Current ^{RESEARCH} Information Service (CRIS) was accessed in September 1980. This provided a stack of 285 research project descriptions. The projects were

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analyzed for general topic category and for regional location. These results are compared with an earlier (1978) CRIS search by Dr. Jerry West, University of Missouri.

6. Other references and source people were discovered through the agricultural economics departmental publications lists of other universities. State Cooperative Extension Publication bulletins and governmental publication catalogs provided references to more material. Where possible, all of these relevant publications were ordered.

The remaining parts of the paper, besides those specifically mentioned above, were assembled in an ordinary fashion using as source the over one hundred bulletins, publications, articles and other materials that became physically available. Because of the unwieldy size of the bibliographies themselves, materials directly used in the paper are referenced in footnotes at the end of each chapter.

Initially, the author felt discouraged by the lack of small farm materials available, and exalted at each new discovery. Now the feeling is more one of frustration, because so much has been written, but is not effectively available for research purposes. Some

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groups and organizations have started assembling their own libraries of small farm materials for in-house research. The author was generously invited to visit those libraries, and spend all the researching time necessary. However, as these groups are all located at some distance, travel costs proved prohibitive. Unfortunately, the groups had not compiled bibliographies or lists of the publications they had collected. The exceptions were Dr. Patrick Madden of Pennsylvania State University and his collaborator, Heather Tischbein Baker of the National Rural Center's Small Farm Project. The National Rural Center is researching a bibliography that will be published in the future and Mrs. Baker invited the author to visit her collection of "four file boxes and four file drawers" of uncataloged small farm materials (a veritable treasure!). Dr. Madden, in conjunction with other research projects, is working on a computerized bibliography that is expected to access upwards of 4000 references, when completed. However, the sheer quantity of materials that have been written does not bear evidence to their usefulness. Deficiencies in past research are discussed later in this paper. New materials are becoming available at a rapid rate, during the current Federal interest in small farms; one hopes that small farms will not be "dediscovered" by future administrations.

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- A. Past Changes in Agriculture: The Statistics
- B. Past Changes in Agriculture and Rural Society:
Forces and Issues
 - 1. Technology and Its Delivery
 - 2. Cheap Energy
 - 3. Agricultural Policy and the Family Farm
- C. Profile of Small Farms Today
 - 1. Small Farm Definitions
 - 2. Small Farms in the U.S.
 - 3. Small Farms by Region
- D. Chapter Footnotes and Miscellaneous References

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Chapter II

HISTORICAL PERSPECTIVES

Historically policies concerning farm size are significantly the philosophies of rebels ending an old political and social order, and starting a new. The cry for land reform (a breakdown of the large estates and distribution of the land to the people) was heard during the French Revolution and many a Latin American one. The large collective and state farms in the Soviet Union were formed after 1928¹, offering another example of the connection between farm size and political/societal philosophy.

Farm size was also of importance as the United States was being formed. To Thomas Jefferson and other early Fathers of American History, farm size and the right to own land were important for political and social reasons.² Jefferson felt that small property-owning farmers had the qualities of freedom, independence, self-reliance and the ability to resist oppressors.³ Also, agriculture was considered to be a source of most of the human virtues vital for popular self government.⁴ In later years agriculture was lauded as being the bastion of a competitive economy: entry and exit were open, markets were competitive, and there were a large number of small firms (or in this case, farms). Continuous debate and the issuance of

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a new land act every few years finally culminated in the Homestead Act of 1862, which gave a settler up to 160 acres of land in return for settling on it for five years and improving it.⁵

However, agriculture has undergone dramatic changes since that time. The number of farms, the size of farms, the amount of land in farms, and the very structure of agriculture have changed. This chapter will cover some of those changes, first with a look at some of the statistics (II.A), then with a look at some of the forces of change (II.B), such as technology, cheap energy, and agricultural policy. Finally the chapter will define "small farm", and profile the small farm as it is today, both on a national and regional level.

A. Past Changes in Agriculture and Rural Society:
The Statistics

Perhaps the most dramatic change in agriculture has been in terms of the number of farms (Table 1). In 1935 the U.S. saw its maximum number of farms - over 6.8 million. The years thereafter have witnessed a continual decrease until only 2.3 million remained in 1974.⁶ This loss of 4.5 million is a 66% decrease in that period. Three million of those farms have been lost since 1950 (57%).

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also, though not so drastically (see Table 1). In 1950 there were 1161.4 million acres of farm land (the acreage maximum). This had dropped 12.4% by 1974. As new acreage was coming under production during this time, frequently from irrigation gains, the total acres lost from agricultural production is probably much larger.

The change in farm numbers has a slightly different look on a regional basis (Table 2). The decreases come from abandonment of poorer land, particularly in the more mountainous areas, of farms too small to support a family, and of land going for other uses in the Eastern States, for example.⁷ The combination of smaller farms into larger ones also affected the number of farms. This means that the average size of farms also changed. In 1935 the average farm size was 155 acres. By 1974 the average had increased to 440 (Table 3). These average farm size figures are somewhat deceptive, though. There is considerable variation between region and even more between states. The average in Arizona is 6,539 acres, while in Rhode Island farms average 102 acres.⁸ The regional figures show a spread of 1360 acres for Western farms in 1974 to 183 acres for Northeastern farms (Table 4). In making comments on average farm size, one must bear in mind that Western farms have increased in size to a much greater extent than elsewhere in the country. In 1935 Western farms were an average of 1.4 times larger

Table 1 - Number of Farms and Land in Farms
1935-1974

<u>Year</u>	<u>Number of Farms</u>	<u>% Decrease from¹ Previous Census</u>	<u>Land in Farms (acres)</u>	<u>% Change</u>
1935c	6,812,350	--	1,054,515,111	--
1940	6,102,417	-10.5	1,065,114,774	1.0
1945c	5,859,169	- 3.9	1,141,615,364	2.0
1950	5,388,437	- 8.1	1,161,419,720	1.7
1954c	4,782,416	-11.1	1,158,191,511	- .3
1959	3,710,503	-22.6	1,123,507,574	-3.0
1964	3,157,857	-14.9	1,110,187,000	-1.2
1969	2,730,250	-13.5	1,062,892,501	-4.3
1974	2,314,013	-15.2	1,017,030,357	-4.3
Change from 1935	-4,498,337	-66.0	-37,484,700	-3.6
Change from 1950	-3,074,424	-57.0	-144,389,300	-12.4

Source: U.S. Bureau of the Census. Census of Agriculture, 1974.
Government Printing Office, Washington, D.C., 1978.

¹Except for 1964 and 1969, data represent differences for
coterminous United States.

^cConterminous United States.

Table 2 - Region
1935

Region

Northeast

North Central

South

West

United States

Source: U.S. Bureau of Economic Analysis
Government Printing Office

Table 2 - Regional Decrease in Farm Numbers
1935-1974

<u>Region</u>	<u>Year</u>		<u>% Decrease</u>
	<u>1935</u>	<u>1974</u>	
Northeast	555,925	127,531	-77
North Central	2,263,543	1,017,367	-55
South	3,421,923	930,099	-73
West	570,959	239,016	-58
<hr/>			
United States	6,812,350	2,314,013	-66

Source: U.S. Bureau of the Census, Census of Agriculture, 1974.
Government Printing Office, Washington, D.C. 1978.

Table 3 - A
23

Year

1935c

1940

1945c

1950

1954c

1959

1964

1969

1974

Source: U.S.
Government Printing Office

Continuous

Table 3 - Average Number of Acres Per Farm
1935-1974

<u>Year</u>	<u>Average Acres Per Farm</u>	<u>% Change From Previous Year</u>
1935c	154.8	-
1940	174.5	113.
1945c	194.8	112.
1950	215.5	111.
1954c	242.2	112.
1959	302.8	125.
1964	351.6	116.
1969	389.3	111.
1974	439.5	113.

Source: U.S. Bureau of the Census, Census of Agriculture, 1974.
 Government Printing Office, Washington, D.C. 1978.

^cConterminous United States

Table 4 - Average
1981

Region

Northeast

North Central

South

West

United States

Source: U.S. Bureau
of Economic Analysis

Table 4 - Average Farm Size by Region
1935-1974

<u>Region</u>	<u>1935</u>	<u>1974</u>	<u>% Increase</u>
Northeast	93.4	183.2	96
North Central	172.3	356.7	107
South	109.9	328.6	199
West	414.0	1360.0	229
<hr/>			
United States	154.8	439.5	184

Source: U.S. Bureau of the Census, Census of Agriculture, 1974.
 Government Printing Office, Washington, D.C. 1978.

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The population declined during this period from 32.2 million in 1935 to 8.9 million in 1975, a total change of 72.3%. This off-farm migration changed the relation between the farm and nonfarm population. In 1935 farmers were 25% of the total population, but were only 4% by 1974 (Table 5). This means that the number of people in the U.S. per farm changed considerably. In 1935 there was one farm for 19 people but by 1974, the ratio was only one farm for every 92 people (Table 6).

Prices have changed considerably as well. Table 7 shows the development of the prices farmers received for agricultural products sold compared with the prices they paid for all their inputs purchased. One decision tool has been the parity ratio (prices received divided by prices paid), which takes the price figures for 1910-14 as its base level. In general, parity has fallen, leaving farmers in a cost squeeze. This in turn affects other aspects of agricultural structure.

The figures in the previous tables show the bare bones of what has happened to farm numbers, size and farm population. Another aspect, control of agriculture, is also of interest. With the increase in size of farm has come an increase in corporate farming.* Large

* Family Farm Corporations are not included in this discussion

Table 5 - Farm

Year

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1945

1950

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1975

40 year decrease

Source: David Cro

Table 5 - Farm Population, 1935-1975

<u>Year</u>	<u>Farm Population</u>		
	<u># (000s)</u>	<u>% Change</u>	<u>% of Total Population</u>
1935	32,161	-	25
1940	30,547	- 5.0	23
1945	24,420	-20.0	18
1950	23,058	- 5.6	15
1954	19,019	-17.5	12
1959	16,592	-12.8	9
1964	12,954	-21.9	7
1969	10,307	-20.4	5
1975	8,900	-13.7	4
40 year decrease	-23,261	-72.3	

Source: David Orden and Dennis K. Smith, Small Farm Programs.

Table 6 - U.S.
1933

Year	Popul
1933a	1.1
1940	1.1
1945a	1.1
1950	1.1
1954a	1.1
1960	1.1
1964	1.1
1969	1.1
1974	1.1

Source: U.S. B.
Government Printing

Estimated; Alaska

Unrounded farm

Table 6 - U.S. Population and Persons Per Farm
1935-1974

<u>Year</u>	<u>Total U.S. Population (000s)</u>	<u># Farms (000s)</u>	<u>Persons Per Farm^b</u>	<u>% Increase From Previous Year</u>
1935a	127,057	6812	18.65	-
1940	132,165	6102	21.66	116.1
1945a	139,583	5859	23.82	110.0
1950	151,326	5388	28.08	117.9
1954a	161,763	4782	33.82	120.4
1960	179,323	3710	48.33	142.9
1964	191,463	3158	60.63	125.5
1969	202,711	2730	74.25	122.5
1974	211,909	2314	91.58	123.3

Source: U.S. Bureau of the Census, Census of Agriculture, 1974.
Government Printing Office, Washington, D.C. 1978.

^aEstimated; Alaska and Hawaii not included

^bUnrounded farm numbers used in calculating this column

Table 7 - Ind
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<u>Year</u>	<u>Pr all A</u>
1910	
1920	
1930	
1940	
1950	
1960	
1970	

Source: USDA,
Printing Office

Parity Ratio

Table 7 - Indices of Prices Paid by Farmers,
Prices Received by Farmers, and
Parity Ratios 1910-1970

<u>Year</u>	<u>Prices Received for</u> <u>all Agricultural Products</u>	<u>Prices Paid for</u> <u>all Inputs Purchased</u>	<u>Parity</u> <u>Ratio^a</u>
	(1910-14 = 100)		
1910	104	97	107
1920	211	214	99
1930	125	151	83
1940	100	124	81
1950	258	256	101
1960	238	300	80
1970	280	390	72

Source: USDA, Agricultural Statistics, 1972. U.S. Government
 Printing Office, Washington, D.C. 1972.

^a"Parity Ratio": Prices received divided by prices paid.

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agribusiness corporations are obstructions of the Jeffersonian ideal for agriculture in that they threaten a reversal of the abolition of entail.⁹ A corporation has an unlimited lifetime, theoretically, and a corporate-owned farm could continue on and on for generations. One benefit of privately owned land is that management and land use are likely to change with the death of the owner, in the changing of ownership. Corporations do not normally die and, while corporation ownership may change, the management of these large firms may well remain the same - cementing any inherent management errors.

So far agribusiness corporations have not concentrated on land-extensive commodities, such as grains, cotton, and beef. There is no great advantage in producing the undifferentiated, widely produced commodities. The corporations are mostly found in feed-cattle, laying hens, fruits and nuts, vegetables and melons, and, to some extent, in cotton.¹⁰ There is a concentration of larger corporations (10 or more shareholders) in California, Florida, Texas, Hawaii, and Louisiana.¹¹

These changes in agriculture have happened against a back drop of rural society as a whole. Though net farm population out migration was in the 5-6% range for several decades, it dropped considerably in the early 1970s to just under 3%.¹² This is related to what has

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been called the "new migration," the "rural renaissance," or the "demographic revival of nonmetropolitan territory."¹³ In effect there has been a renewal of growth in nonmetropolitan areas, especially the rural ones.

The vast changes in agriculture have enabled American consumers to spend a relatively small percentage of their income on food. However, these changes meant rural poor were displaced from the farm, leading to an enormous migration of people. Many of these people were not able to adjust to the changes because of a lack of skills or education.¹⁴ For these the technological revolution has not been a success.

As the unskilled migrate to urban areas, the indirect costs of cheap food appear in the form of social services for support and training. "The President's Commission on Rural Poverty concluded that many people merely exchange life in a rural slum for life in an urban slum... (and) that the violence in northern streets is a product of frustrations born in southern fields."¹⁵

The original, major migrations from rural to urban areas left rural areas at a considerable disadvantage in terms of services and, generally, quality of living. The new urban to rural migration has meant progress, but nonmetro areas are still depressed in terms of wage

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3. Past Cha Forces

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levels, family income, employment opportunities, adequate nutrition, adequate housing, and access to health care and other essential services and facilities.¹⁶ Poverty is prevalent in many rural areas of the country.

What has brought about these changes in agriculture? Part B will discuss some of the forces and issues involved.

B. Past Change in Agriculture and Rural Society:
Forces and Issues

There are many dimensions to farm structure: number and size of farms, degree of specialization in production, ownership and control of productive resources, conditions of entry and exit, and socioeconomic characteristics of farm operators and resource owners, among others.¹⁷ These aspects are affected by many factors in varying ways, over different periods of time. Technology, economies in size, taxes, goals of the farmer, capital requirements, variation in input prices, price cost margins, risk and expectations, managerial ability and alternative opportunities all can affect some dimension of structure.¹⁸ This section will concentrate on aspects of three issues or forces that have made a significant impact on the shape of agriculture and rural society: technology and its delivery (II.B.1), cheap energy (II.B.2), and agricultural policy on the family farm (II.B.3).

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1. Technology and its Delivery

In the early days of U.S. history, hand power was the basis for most technology.¹⁹ Improvements included the cotton gin, cast iron plows, and mechanical reapers. Between the Civil War and WWI, horse drawn implements predominated. The U.S. Department of Agriculture was established in 1862; the land grant colleges (1862 and 1890), agricultural experiment stations (1887), and the Cooperative Extension Service (1914) followed. Across the nation farmers were receiving information about new practices.

Between World Wars I and II mechanical power came into its own. The high farm prices and high wages relative to machinery costs started the rapid conversion. The Depression delayed a real explosion until 1935, when increasing demand for food related to the economic recovery and war in Europe helped complete the transition from horse to mechanical power. Other new technologies (like improved livestock breeds, hybrid corn varieties, and chemical fertilizers and insecticides) insured continually increasing agricultural productivity.

After World War II technological advances increased production dramatically. Crop yields increased through the use of irrigation, chemical inputs, and improved varieties. In livestock enterprises, improved breeds,

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artificial insemination, and efficient feeding also increased production. Researchers developed new mechanized harvesters for many crops. Figure 1 shows the relation of increases in productivity in different stages of our history during the past 200 years. Table 8 shows the indices of crop production, farm output per hour of labor, and productivity, 1950-1975. Productivity has risen on a per hour and per acre basis as well as for total production.

2. Cheap Energy

The availability of cheap energy has, over the years, "fueled" the technological explosion. Today the food system consumes 16.5% of the total energy in the U.S. (Figure 2). Home Preparation takes 5%, the Wholesale and Retail Trade 2.6%, Transportation 0.5%, Food Processing 5.4%, and Production Agriculture 3%.

In many ways cheap energy has meant cheap food for American consumers by substituting fossil fuel for animal and human labor.²⁰ But not only has energy enabled increased mechanization, it has made possible the augmentation of crop and livestock systems for greater productivity. This is especially apparent in crop systems where yields are boosted by the use of energy intensive aids: fertilizers, pesticides and irrigation.

Table 8 - So
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<u>Year</u>	<u>Index</u>	
	<u>Prod.</u>	<u>per</u>
1950		1
1955		1
1960		1
1965		1
1970		1
1975		1

Source: National
Efficiency. Was
ure, Nutrition,
Ann. 96th Cong
ence, Washing

Table 8 - Some Indices of Crop Production, Farm Output per Hour of Labor, and Productivity 1950-1975 (1950 = 100)

<u>Year</u>	<u>Index of Crop Production per Acre</u>	<u>Index of Farm Output per Hour of Labor</u>	<u>Index of Total Output per Production Input (Productivity)</u>
1950	100	100	100
1955	107	134	111
1960	128	191	128
1965	145	260	137
1970	148	323	139
1975	162	424	162

Source: National Academy of Sciences. Agricultural Production Efficiency. Washington, D.C. 1975. and Committee on Agriculture, Nutrition, and Forestry, U.S. Senate. Status of the Family Farm. 96th Congress, 1st Session, U.S. Government Printing Office, Washington, D.C. 1979.

Figure 1.

Agricultural Production

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1950

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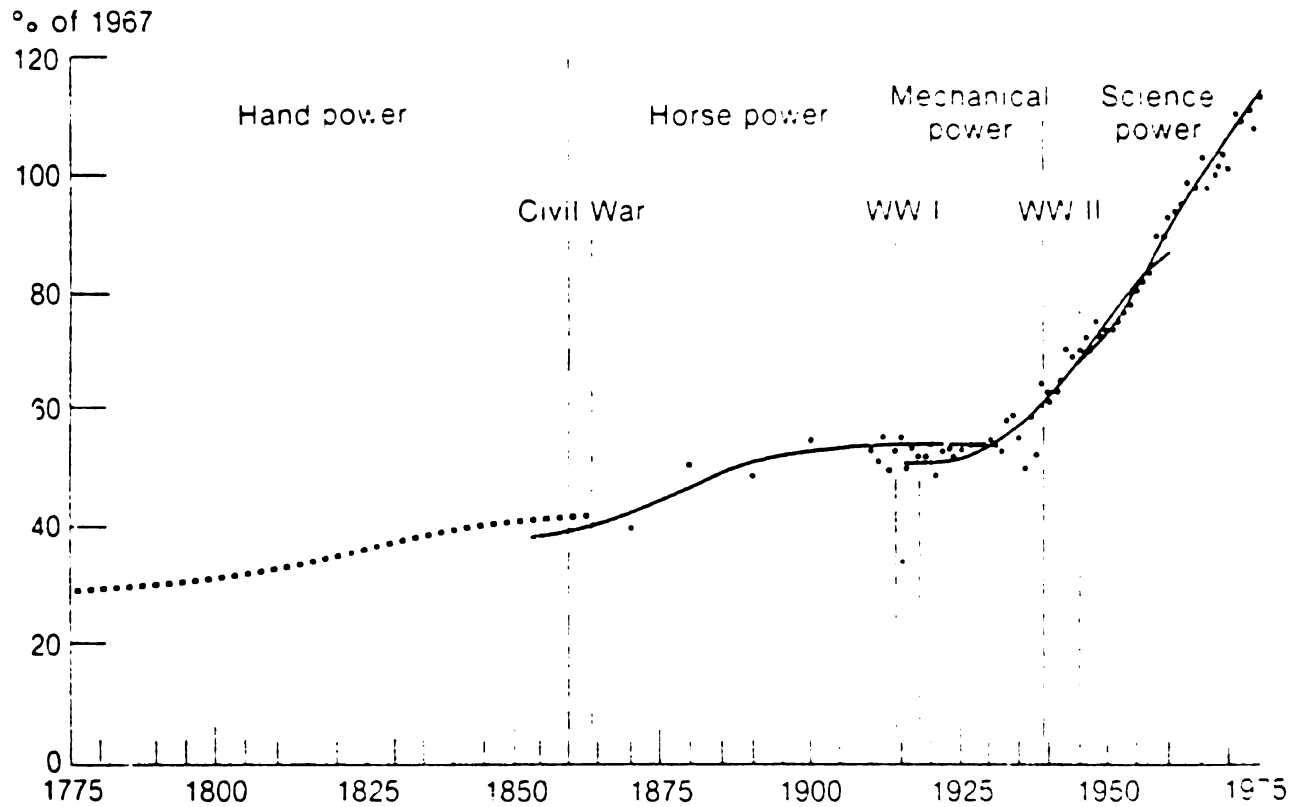
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Source: Lu
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Figure 1.

U.S. Agricultural Productivity Growth During the Past 200 Years


Source: Lu and Quance, Agricultural Productivity: Expanding the Limits. USDA, ESCS, Agricultural Information Bulletin 431. 1979.

Page 1. Energy use

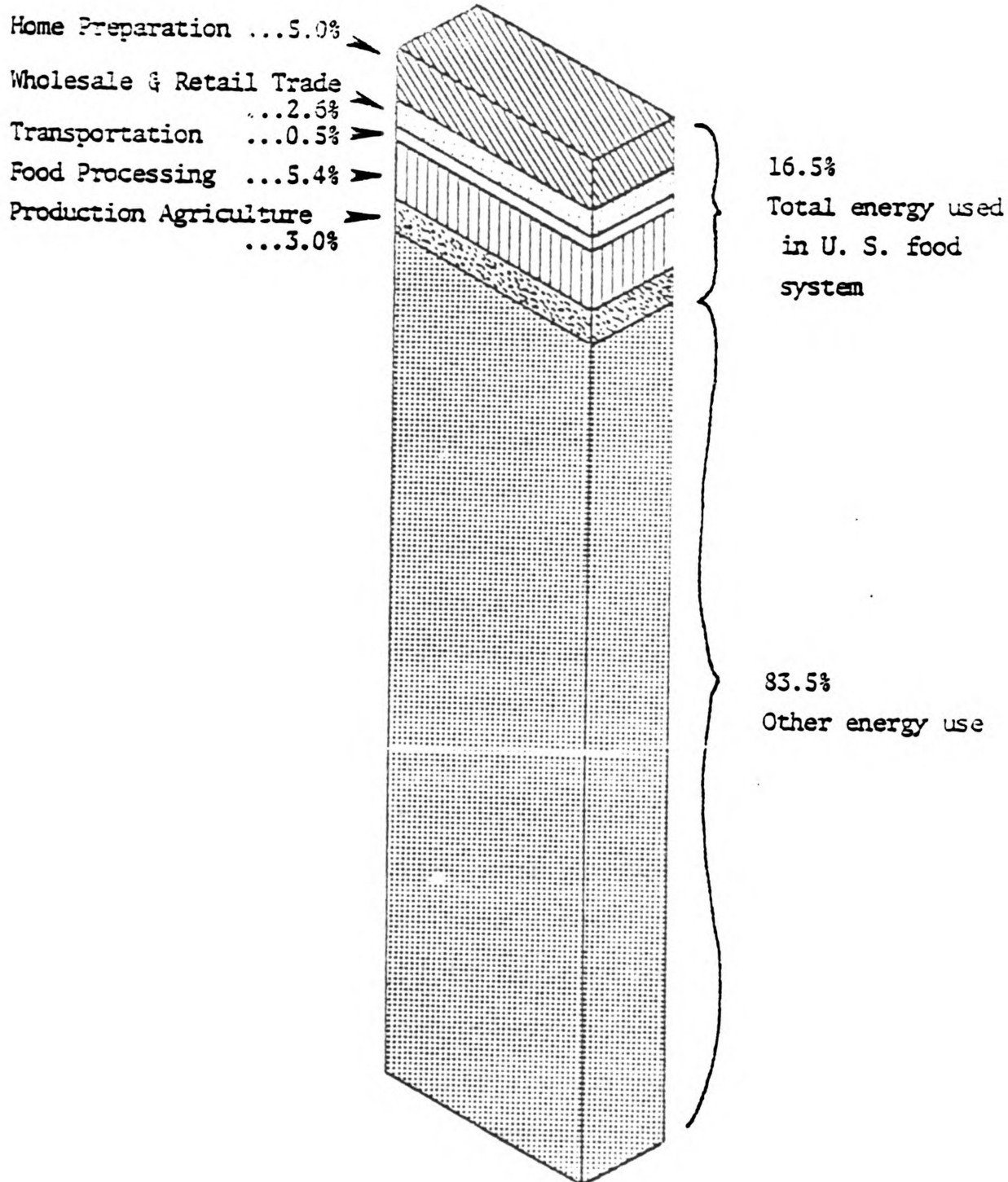
Gas preparation ...

Waste & Retail ...

Information ...

Processing ...

Production Agriculture ...

Figure 2. Energy use in the United States

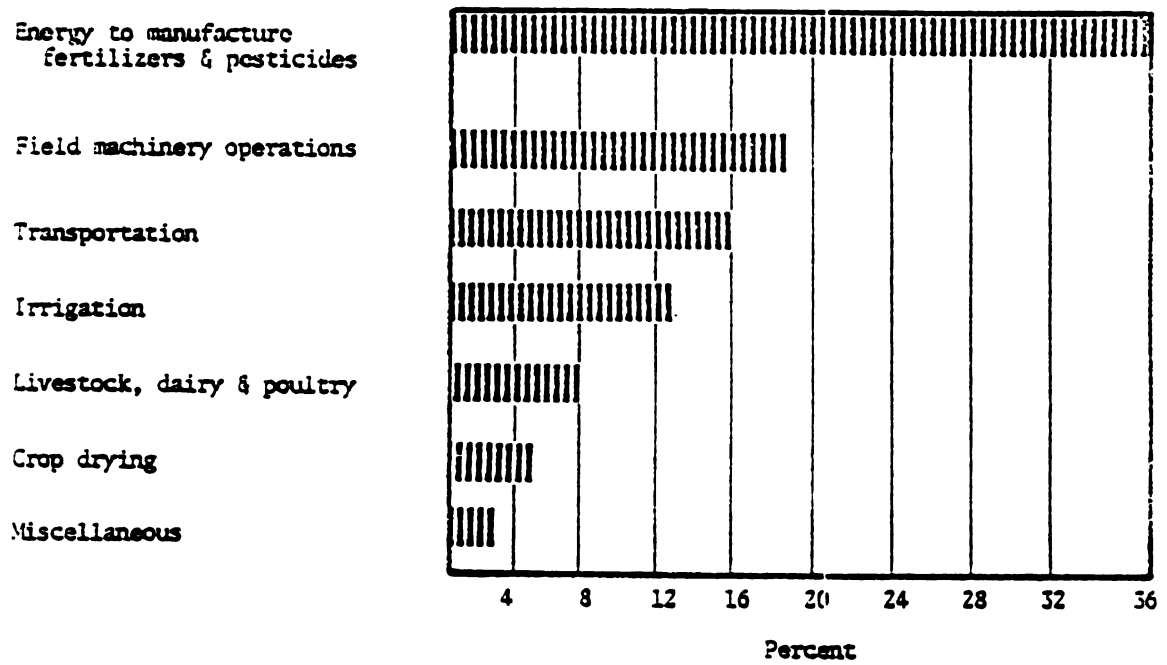
Source: CAST Energy Report, p. 32.

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Figure 3 outlines energy use in production agriculture. The largest category is for the manufacture of fertilizers and pesticides (36%). The actual application takes a much smaller amount. It is important to note that cheap energy has been a guiding force in research and development of the new agricultural technologies. Along the way, in the development of a plant variety, for instance, many gene stocks will be discarded as being undesirable. A field of corn plants must ripen at the same time, be the same height, and above all have a good yield response to the energy-intensive inputs (pesticides, fertilizers, and water). If any one of these should become limiting, the bred-in genetic homogeneity becomes a liability and crop yields plummet. Back along the researcher's path are the undesirable plants. Some of these have moderately high yields, but do not respond well to added fertilizer, pest protection or water. As energy costs increase these discards look more appealing, for a reasonable yield is achieved with low input costs.²¹ Most research decisions embody some assumption concerning future energy availability and price. Since 1972-3, Americans have started to question the directions of the past, looking more creatively to the future in terms of design of new agricultural systems.

In the meantime, cheap energy has made the huge farms possible. Commodities are being produced in much

Figure 3. Energy Use in Production Agriculture, 1974.



Source: CAST Energy Report, p. 33.

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more limited areas since cheap energy allows additional packaging, specialized handling, and transportation across the country. Cheap energy has enabled farmers to dry crops and then store them, holding products for a better price. Management decisions could be made on the basis of energy cost as well. Different cultural practices and production systems use different amounts of energy. Table 9 points this out for beef production systems. The ratio of input BTU's to food value BTU's of retail beef produced can range from 13.4 for beef born in confinement, grown on irrigated pasture and finished on feedlot corn, to 1.9 for beef that are kept on the range for the entire time from birth to finish. In the past corn finished beef with its high level of marbling (intramuscular fat) was more desirable. Today, between high energy costs and dietary recommendations for decreased fat intake in our diet, the noncorn-finished beef may seem advantageous.

Since energy availability will gradually decrease, as world supplies run out, prices should be expected to continue to rise. Figure 4 shows, for example, the estimated natural gas production over the next 100 years. One factor frequently neglected is that, in coming years, there will be a greatly increased energy demand from Third World developing nations. In the next five years, Africa, Latin America, the Near East and the Far East are

Table 9 - 30

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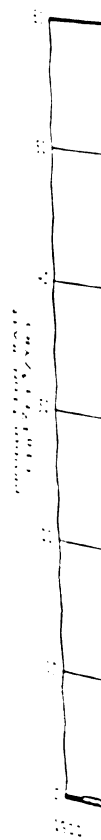
Source: Ocean
Fiber System.
The U.S. Food
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Table 9 - Fossil Fuel Input for Different Beef Production Systems

<u>Birth</u>	<u>Practice at a Given Period</u>		<u>Input BTU per food value BTU of retail beef</u>
	<u>Growth</u>	<u>Finish</u>	
Confinement	Irrigated pasture	Feedlot corn	13.4
Range/ Supplement	Irrigated pasture	Feedlot corn	8.1
Range/ Supplement	Range	Feedlot silage	4.4
Range	Range	Range	1.9

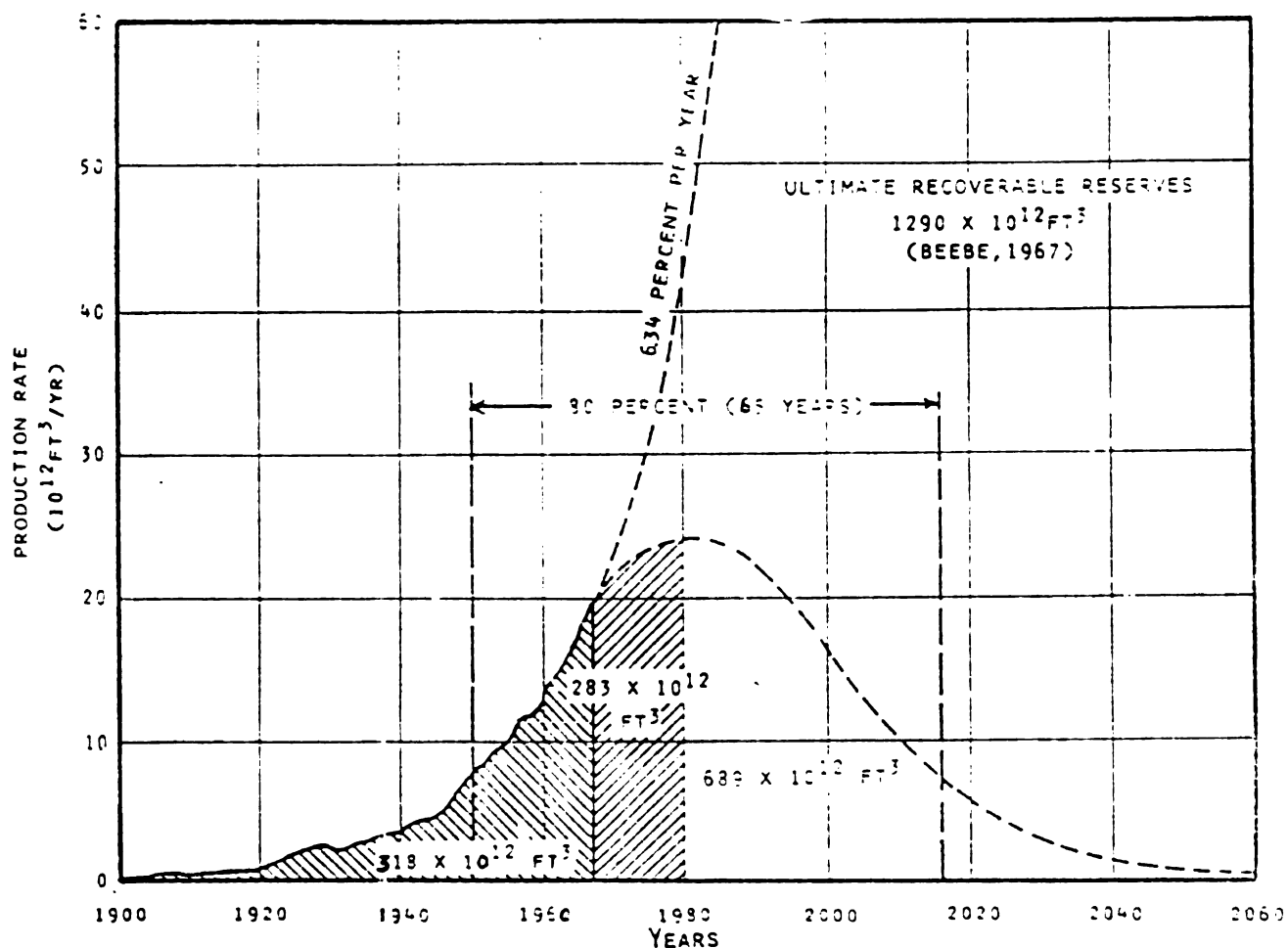
Source: Doering, Otto et al., "Current Energy Use in the Food and Fiber System." USDA, ERS, 1977 in Energy - A Vital Resource for the U.S. Food System. Am. Soc. Ag. Engineers, Chicago, Illinois. 1978.

Figure 4



Source
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more

Figure 4. Complete Cycle of Natural Gas Production in the United States



Source: Energy, Ecology, and Economics. Elements of a Thermodynamically Based Economy, by Herman E. Koenig and Thomas C. Edens. 1977.

expected to increase their energy demands 6% for farm machinery, 9% for irrigation equipment, and 17% for pesticides manufacture.²²

Finally, there is the question of the impact of the energy problem on society as a whole. Different researchers speak for both the highly optimistic end (advances in technology will prevail over all), and highly pessimistic end (culture as we know it is doomed). Amory Lovins, who developed the concept of net energy gain from adopting new technologies²³ is remarkably optimistic. Lovins specializes in energy-related technologies. After considerable travel around the world to see what technologies are being developed, he stated that there is sufficient new technology currently available and "on-line" to conserve enough energy to maintain our style of living.²⁴

Herman Koenig, Director of the Center for Environmental Quality at Michigan State University, agrees with Lovin's estimates of energy availability, though disagreeing on the potential effects of current technology. He is much more pessimistic for the future, as he believes it will be necessary to the survival of society as we know it to decentralize into self-sufficient communities in the coming twenty years. Dr. Koenig is currently working on a plan to decentralize southeast Michigan (the Detroit area) and has included in the

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plan the concept of many small (10 acre) farm plots surrounding each community to provide some of its basic food supplies (grain and other field crops not included).²⁶

There are as many different scenarios of the future related to the energy problem as there are experts, but inevitably the future will bring a change in the structure of agriculture.

3. Agricultural Policy and the Family Farm

Originally, farm policy was based on the idea of agriculture as the paradigm of free economic competition. The theory envisioned many equally small and homogenous firms, a market based solely on the supply and demand for their goods, perfect information for the participants as to market conditions, easy entrance and exit in the market of firms, and a continual seeking of greater efficiency by adopting lower cost production processes. The less efficient firms go out of business, shifting their resources to other uses.²⁷

In practice the model becomes unrealistic. One aspect - the search for cost reducing production processes - may lead to the development of large sized firms (those which do achieve lower production costs and force others out of that business). These would then restrict competition in that area to the few remaining firms

that are most successful.

Other problems center around mobility and homogeneity. Land, some capital items, and many people are not instantly mobile, either with respect to geographic location, or sectors of the economy. Thus, resource adjustments in response to cost saving technology can run into bottlenecks, or create unacceptable hardship. Nor are people or land homogeneous. Factors such as age, lack of education, or lack of appropriate skills, may limit opportunities for some to move out of agricultural production or may make the cost of doing so exceed the benefits.²⁸

Land may or may not have other uses and is not equally affected by changes in technology. Poorer land suffers a relative loss in income producing capacity as technology changes.²⁹

Resource adjustments may be delayed by lags in the dissemination of information. In today's computer economy, information itself becomes a resource, and its distribution (how and to whom) is an issue of its own. Resource adjustments can also be delayed or prevented by price changes related to the inelastic demand for agricultural commodities. When new production technology has been developed and adopted, farm prices have fallen, relative to prices for other goods (see Parity column in Table 7). While some resources can move out of agriculture, others

are 'trapped in', and subsequently returns to agricultural production resources become lower than in other sectors of the economy.

Both the low price and low income situations call for public action outside the scope of the competitive model. The low price situation has been the historic basis of farm policy. The low income-poverty situation has received less attention. A solution to this problem is beyond the capability of the model of perfect competition.³⁰ Having examined the competitive model related to agriculture, it is of interest to look at some of the general agricultural policies and their effects.

The agricultural situation in the 1930s had a great deal to do with agricultural policy. International markets were limited, there were continual problems of excess capacity and a pervading welfare situation, due to low returns to all resources.³¹ The Depression had affected the entire economy so that there were few alternative opportunities for those forced out of agriculture. Large numbers of farm residents (who totaled over 32 million in 1935) were living in near poverty, uncertain of the survival of their farms.³²

Efforts by policy makers to remedy these problems included price supports based on quantity of output, supply management (set-aside plans) to improve prices, development of cooperatives and marketing orders to

enhance bargaining power, making credit available to preserve operator ownership and continued research and development support to improve the productivity of land and labor so that farm costs might be reduced.³³ The 1940s and after saw continued excess farm production as improvement in technology accumulated faster than resources (people) could leave agriculture. A major part of rural development, extension, and credit programs became speeding the exit of resources out of agriculture and aiding the technical advancement of those farms remaining.³⁴ The gap widened between large and small farmers.

The Agricultural Research Act (Title 7, Chapter 17, Section 427) reads, "It is declared to be the policy of the Congress to promote...a sound and prosperous agriculture and rural life as indispensable to the maintenance of maximum employment and national prosperity."³⁵ Ever since the days of Thomas Jefferson, the expressed purpose of the agriculture policy of the U.S. has been to support family farms, especially small, land-owning farms.³⁶

However virtually all the competent research shows that the commodity programs are regressive, that is, they give more help to those who are already well-to-do than they do to the poor. They widen the distribution of income within agriculture.³⁷

Figure 5 shows the 1978 distribution of wheat and feed grain payments, by size of a farm's normal crop acreage (NCA).³⁸ By far the largest percentage of payments went to the upper 10% size class (50% for wheat and 40% for feed grain). Payments in the upper 10% size class were over 53% for cotton and were 40% for rice. On an average for the U.S., the smallest 50% of farms received less than 10% of the payments.³⁹

The commodity program subsidies are on the basis of volume, or on a dollar-per-bushel basis. Those with large farms and large volumes get a large payment while the program provides little help to the small operator. Acre reduction, for example, may considerably benefit the larger operator; he just sets aside his most marginal, least productive land. The small operator may be crippled by any acreage reduction at all.⁴⁰

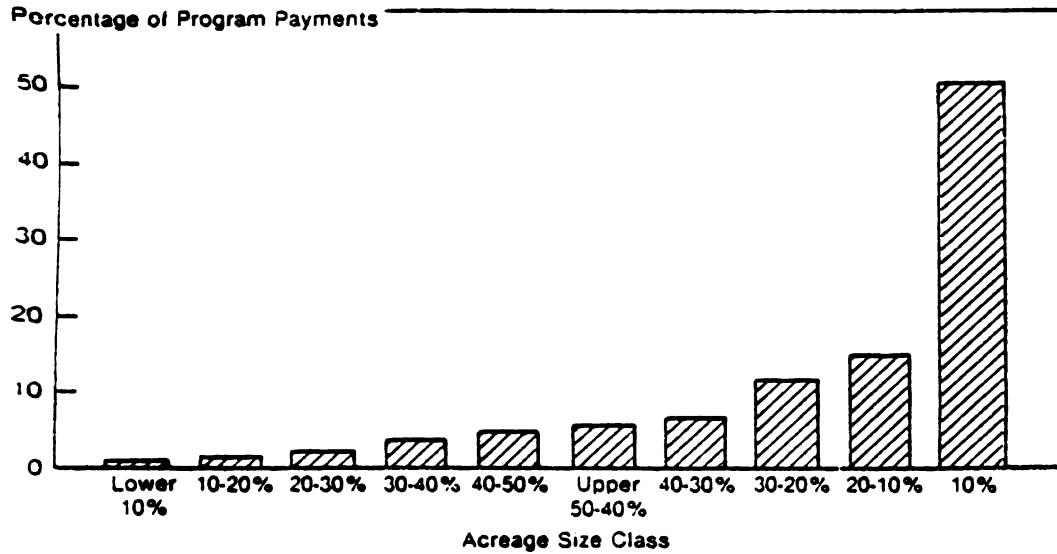
There are questions regarding agricultural policy today, possibly vital to the whole nation, that are becoming of great importance in California. They center around such issues as:

- 1) Is the replacement of family farms by much larger farms leading to the social and economic impoverishment of rural communities?
- 2) Are small farmers and farm workers being displaced from employment at least in part through the investment of tax-payer dollars in research benefitting primarily large producers, despite the national policy goals of maximizing employment and of enhancing the quality of rural life?

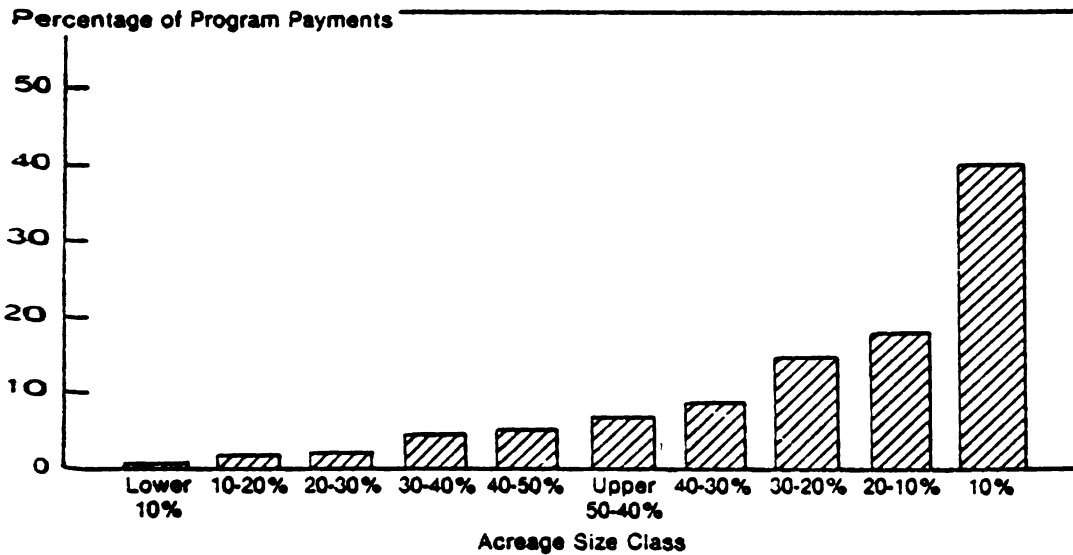
Figure 5.

Distribution of 1978 Wheat and Feed Grain Payments by Size of Normal Crop Acreage

Wheat



Feed Grain



Source: D. Paulberg, Can the Family Farm Survive, 1978.

3) Are lower costs claimed for large farm units reflected in fact at the retail level in lower prices, better quality food or other benefits to the consumer?⁴¹

California's Small Farm Viability Project reached a number of conclusions on the above concerns:

There is little evidence that cost savings to the farmer are passed on to the consumer in the form of lower prices. This is not surprising since the farmer is a price taker, not a price maker, and hence has no control over what the consumer will pay.⁴²

This is also not unexpected because the price of the farm product makes up just a small percentage of the total retail price for most items, especially those that undergo any amount of processing. Each "value added" step contributes its share of the costs (with labor being the largest portion of the whole).

Another conclusion of the California study was that while well-structured and properly managed family farms could compete successfully with far larger units in efficiency of on-farm production, they tend to be at a disadvantage in competing for resources and markets.⁴³

A tight labor market statewide continued industrialization of agriculture that displaces farmworkers from employment, serious economic decline in some regions, and the additional pressure of urban people migrating to rural areas and competing for local jobs, are all factors fueling the current problems.⁴⁴ Until the last few

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decades, there was an informal "farm ladder" which allowed able and hard-working people to progress from being a field hand, up through supervisory positions, to eventual establishment as an independent farmer. By now that ladder has virtually disappeared.

C. Profile of Small Farms Today

1. Small Farm Definitions

The term 'small farm' covers a broad spectrum of farm types. Over the years many different units have been used to measure farm size. The definitions can vary by commodity, by region of the country, and by available information from which to make a distinction (among others). There are no truly acceptable definitions. Defining size by acreage generally works within a commodity group, but a 40 acres garlic field and a 40 acre pasture are not in the same size class. Defining size by number of livestock units also poses difficulties: a forty cow dairy herd would not be equivalent in size to a 40 hen laying flock. Also it would be difficult to make comparisons between crop and livestock farms - not to mention a greenhouse or X-mas tree operation.

Other farm size measures used in the past are levels of capital investment, which has valuation problems; and net income, which information is difficult to obtain, and which measure is based on varying levels of

management capability more than size of operation.⁴⁵

Madden and Tischbein (Pennsylvania State University and the National Rural Center's Small Farm Project) criticize past small farm studies for using simplistic definitions. They object to studies that fail to differentiate among the various types of small farms of the one hand, and then define those small farms by a single dimension, such as a gross sales limitation or level of one resource used (acres of land, number of cows milked, etc.).⁴⁶

In an effort to solve some of the definitional problems, the USDA has adopted a new definition to identify small farm families.⁴⁷ The families so designated should:

- operate farms by providing most of the labor and management;
- have total family incomes from farm and nonfarm sources below the median non-metropolitan family incomes in their states;
- depend on farming for a significant portion, although not necessarily most, of their incomes.⁴⁸

This definition was developed, in part, to depict a group of farm families whose main distinguishing factor is moderate-to-low income. The USDA's previous definition was of the gross income limitation type. A small farm was one that had less than \$20,000 in farm

sales. This emphasized the farm business as the main policy concern. The new definition focuses on farm families and excludes families with relatively large off-farm incomes who sell less than \$20,000 in farm products.

The first and third elements of the new definition are subjective and cannot be easily measured, but median nonmetropolitan family income can be readily measured, and is being used for USDA small farm discussions.⁴⁹ The new definition gives small farm data that differs markedly in some areas from that of the old gross income definition. Besides the subjective aspects of the new definition, it seems as if there is a major flaw that undermines its usefulness.

In areas characterized by rural poverty, such as the South, the nonmetropolitan median income is likely to be much lower than it is in areas with stronger rural economic bases, such as certain areas of the North Central region. Thus, the inherently poor areas should have a lower cutoff point to use for counting their small farms. Regardless of those families excluded because of off-farm income, there will be a number of farm families with income below the \$20,000 level. This should effectively decrease the number of small farms in the South. But, for example in the North Central region, nonmetropolitan income is likely to be higher. So a higher

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acceptable income level is set for inherently wealthier areas, increasing the number of farm families eligible to be counted as "small." This speculation is borne out by comparisons of farm families under both definitions. The number of small farms under the new definition declined 6% in the South and increased 5% in the North Central region.⁵⁰ This result seems contradictory to the USDA's goals for the new definition. Supplemental income farming is much more likely to be a factor in the North Central Region, and it seems to serve no purpose to decrease the number of families eligible for small farm status in the poverty stricken areas of the South (or elsewhere). Government funding is sometimes allocated on a formula basis. It is a point of interest whether the new small farm definitions will bring about any change in funding allocations.

There is a further complication in matters relating to small farm definitions: that of practical expediency. Even if the new USDA definition were completely satisfactory, there are many projects for which it could not be used because of lack of sufficient data.

The Census of Agriculture is the most complete source of data relating to farms. Within this context the best measure of farm size is gross income or farm sales. One major and more recent problem with this measure is that the effect of inflation on prices may

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serve to overstate the apparent increase in the number of larger farms.⁵¹ There are other limitations involved with using Census of Agriculture data. The farm definitions have changed over the years, and to some extent so has the format used. For 1974, detailed comparisons of characteristics of farms related to farm size can only be made for farms with \$2,500 sales or more. Additionally, no data is available for units with gross sales less than \$1,000.⁵²

In spite of Madden's critique⁵³ and the inherent limitations, definition of farm size through gross income measures and the Census of Agriculture seems to be the best alternative available.⁵⁴ It only remains to agree on an income level.

An upper limit of \$20,000 gross income for small farms was first used working with 1969 Census of Agriculture data. Researchers carried it forward for use with the 1974 Census; some still use it today. However, during the past decade inflation has been such that a \$40,000 level is much more appropriate. (\$40,000 is also the upper limit of the next Census economic class up from \$20,000.) \$40,000 as an upper limit for small farm gross income is appropriate according to measures of net farm income, as well. Net farm income is the residual income accruing to the farm operator (or owner) for his inputs of labor, management, and capital.

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In the last five years, net farm income as a percentage of gross income has been about 25% -- varying from 35% in 1973 to 19% in 1977. Small farms usually have a higher net margin than larger farms because small farms are more labor intensive, more labor is contributed by the family and a larger percent of the capital is equity capital versus debt capital. If we accept the 25% net margin as a general guide, \$40,000 gross income would return \$10,000 to the family for resources or a minimum acceptable standard for family income.⁵⁵

The final size breakdown, as used for most of this paper, is as follows:

- small farms: less than \$40,000 sales
- medium farms: between \$40,000 and \$100,000 sales
- large farms: over \$100,000 sales

The remainder of this chapter will discuss small farm national and regional statistics.

2. Small Farms in the U.S.

What are some of the characteristics of a small farm? There is such variety in type that it would be difficult to define a "typical" small farm. However, the Census of Agriculture provides some basis for investigating small farm characteristics.*

* It should be noted that there is considerable variation in Census data from table to table. This hinders accurate comparison.

Almost 80% of all farms are small (Table 10). These farms control 46% of the farmland and 43% of the total cropland. While 60% of the farms with irrigated land are small farms, only 20% of that land is on a small farm.

8.5% of the small farms have more than 500 acres in size. 17% have between 220 and 500 acres, while 75% have fewer than 200 acres (Table 11). This points out the limiting aspect of land size for those farms grossing less than \$40,000.

Of all small farm operators 69% are full owners of their land. 95% are white, but there seems to be little difference in ownership by race. There are 3% fewer white tenant farmers than there are black (Table 12).

29% of small farms hire farm labor, spending an average of \$1069 per farm. Of those laborers 83% work fewer than 25 days. 95% work fewer than 150 days (Table 13). This indicates that most small farmers are dependent on family labor.

Small farms also are limited in available capital. One indication of this is that small farmers use much less credit than do other farmers (Table 14). Of the small farms using credit the average debt per farm is \$25,180, half that of medium size farms and a third of the debt per farm for large farms.

Table 10 - Summary by Value of Agricultural Products Sold, 1974, into Three Farm Sizes

<u>Farms and Land in Farms</u>	<u>Farm Sizes⁴</u>			
	<u>Total</u>	<u>Small¹</u>	<u>Medium²</u>	<u>Large³</u>
<u>Farms (number)</u>	<u>2,311,775</u>	<u>1,834,866</u>	<u>324,310</u>	<u>152,599</u>
%	100	79.3	14.0	6.7
<u>Land in Farms (acres)</u>	<u>961,964,901</u>	<u>438,507,931</u>	<u>246,639,638</u>	<u>276,817,332</u>
%	100	45.6	25.6	28.8
<u>Total Cropland (acres)</u>	<u>439,074,974</u>	<u>199,210,806</u>	<u>123,914,003</u>	<u>115,949,165</u>
%	100	43.0	28.2	26.4
<u>Harvested Cropland (acres)</u>	<u>302,410,581</u>	<u>113,213,798</u>	<u>95,118,383</u>	<u>94,078,400</u>
%	100	37.5	31.4	31.1
<u>Irrigated Land (farms)</u>	<u>235,891</u>	<u>142,715</u>	<u>48,430</u>	<u>44,736</u>
%	100	60.5	20.5	19.0
<u>Irrigated Land (acres)</u>	<u>40,955,167</u>	<u>8,237,677</u>	<u>8,684,972</u>	<u>24,032,518</u>
%	100	20.1	21.2	58.7

¹"Small" refers to farms with gross yearly sales of \$1,00-\$39,999.

²"Medium" refers to farms with gross yearly sales of \$40,000-\$99,999.

³"Large" refers to farms with gross yearly sales of \$100,000 and over.

⁴Subtotals may not add to totals, some farm categories are excluded.

Source: Tables 49 and 56 in 1974 Census of Agriculture, Vol. II, Part 7, pp. 34 and 58. Bureau of the Census, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C. July 1978.

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Table 11 - Small Farms by Size in Acres, 1974¹

<u>Farms by Size</u>	<u>Number of Small Farms</u>	<u>Percent</u>	
1 to 9 acres	118,428	6.5	75.4
10 to 49 acres	363,198	20.0	
50 to 69 acres	143,271	7.9	
70 to 99 acres	223,971	12.3	
100 to 139 acres	214,045	11.8	
140 to 179 acres	191,912	10.6	
180 to 219 acres	113,643	6.3	17.2
220 to 259 acres	89,047	4.9	
260 to 499 acres	224,412	12.3	
500 to 999 acres	96,167	5.3	8.4
1,000 to 1,999 acres	35,853	2.0	
2,000 acres and over	20,919	1.1	
<u>Total</u>	<u>1,813,947</u>		

¹Small Farms - those grossing \$1,000 - 39,999 in yearly sales.

Source: Tables 49 and 56, Census of Agriculture, 1974. U.S. Bureau of the Census.

Table 12 - Race and Tenure of Small Farm Operators,
1974^{1,2}

	<u>Number</u>	<u>Percentage</u>
<u>All small farm operators</u>	<u>1,834,866</u>	<u>100 %</u>
Full owners	1,269,713	69.2
Part owners	375,563	20.5
Tenants	189,590	10.3
<u>White small farm operators</u>	<u>1,770,473</u>	<u>100 %</u>
Full owners	1,226,482	69.3
Part owners	363,321	20.5
Tenants	180,670	10.2
<u>Black and Other Race operators</u>	<u>54,592</u>	<u>100 %</u>
Full owners	36,943	67.7
Part owners	10,315	18.9
Tenants	7,334	13.4

¹For definition of Race, see text 1974 Census of Agriculture.

²Small Farms - farms having \$100-\$39,999 gross yearly sales.

Source: Tables 49 and 56 in 1974 Census of Agriculture, Vol. II, Part 7, pp. 34 and 58. Bureau of Census, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C. July 1978.

Table 13 - Hired Farm Labor on Small Farms¹, 1974

Hired farm labor: farms	533,344
\$1,000s	570,049.
Average dollars per farm (\$1,000s)	1.069

Workers by number of days worked per farm:²

150 days or more	84,812	$\frac{8}{4.0}$
25 to 149 days	262,925	12.5
Less than 25 days	<u>1,753,318</u>	83.5
Total	2,101,055	

¹Small Farms are here defined as those having yearly gross income of \$1-\$39,999.

²Data only available for small farms with yearly gross income of \$2,500-\$39,999.

Source: Tables 49 and 56. Census of Agriculture, 1974.
U.S. Bureau of the Census.

Table 14 - Farm Operator Debt, 1974, by Size of Farm

	Size of Farm		
	<u>Large</u>	<u>Medium</u>	<u>Small</u>
Number of Farms having Debt	88,368	166,956	420,094
Amount of Debt (\$1,000s)	14,001,979	9,110,088	10,575,968
Average Debt per Farm (\$1,000)	158.45	54.00	25.18
Percent of Total Debt in Each Farm Size	41.6	27.0	31.4

Source: Table 66, Census of Agriculture, 1974. U.S. Bureau of the Census.

Many government farm programs have been instituted in order to help the small farmers. While almost 50% of farm program payments go to these farmers, on the average small farms receive much smaller payments (Table 15).

Only 21% of all agricultural products sold come from small farms (Table 16). However, this varies considerably by specific commodity. Small farms produce 54% of the tobacco, 47% of the forest products, and 36% of the forage crops. On the other hand, large farms dominate the markets in sales of certain other commodities. Small farms thus produce only 4% of the poultry and poultry products, 6% of field crops other than grains, forages and cotton, 9% of the vegetables, and 10% of the nursery and greenhouse products. Other commodities sold are produced by small farms at the following levels: cotton (15%), fruits, nuts and berries (17%), cattle and calves (19%), grains (25%), dairy products (25%), hogs and pigs (26%), sheep, lambs and wool (27%), and other livestock (27%).

Averages related to small farms across the whole U.S. can take on quite a different flavor when viewed from a regional standpoint. The next section will briefly look at some regional aspects of small farms.

15 - Payments from Government Farm Programs
by Size of Farm, 1974

	Size of Farm ¹		
	Large	Medium	Small
of Farms	19,493	40,691	155,485
s (\$1,000s)	75,827	68,245	136,735
Payment per Farm (\$)	3889.96	1677.15	879.41
of Total Payments Farm Size	27.0	24.3	48.7

Table 10 for size definitions

Tables 49 and 56, Census of Agriculture, 1974.
 Bureau of the Census.

Table 16 - % of Agricultural Products Sold -- By
Commodity Group and Size of Farm: 1974

<u>Commodity</u>	Size of Farm		
	<u>Small</u>	<u>Medium</u>	<u>Large</u>
ALL PRODUCTS (9%)	20.9	24.9	54.2
TOBACCO	53.9	25.9	20.2
GRAINS	25.0	33.0	42.0
FIELD SEEDS, HAY, FORAGE & SILAGE	35.5	24.6	39.9
COTTON & COTTONSEED	14.6	18.1	67.3
OTHER FIELD CROPS	5.9	12.2	81.9
VEGETABLES, SWEET CORN & MELONS	8.7	9.3	82.0
FRUITS, NUTS, & BERRIES	17.2	17.8	65.0
POULTRY & POULTRY PRODUCTS	3.8	16.9	79.2
DAIRY PRODUCTS	25.5	38.4	36.1
CATTLE & CALVES	19.1	15.8	65.1
SHEEP, LAMBS & WOOL	27.0	20.0	53.0
HOGS & PIGS	26.5	35.5	38.0
OTHER LIVESTOCK	27.1	18.6	54.3
NURSERY & GREENHOUSE PRODUCTS	9.8	12.0	78.2
FORESTRY PRODUCTS	46.7	23.1	30.2

Source: 1974 Census of Agriculture, II:7, Table 61.

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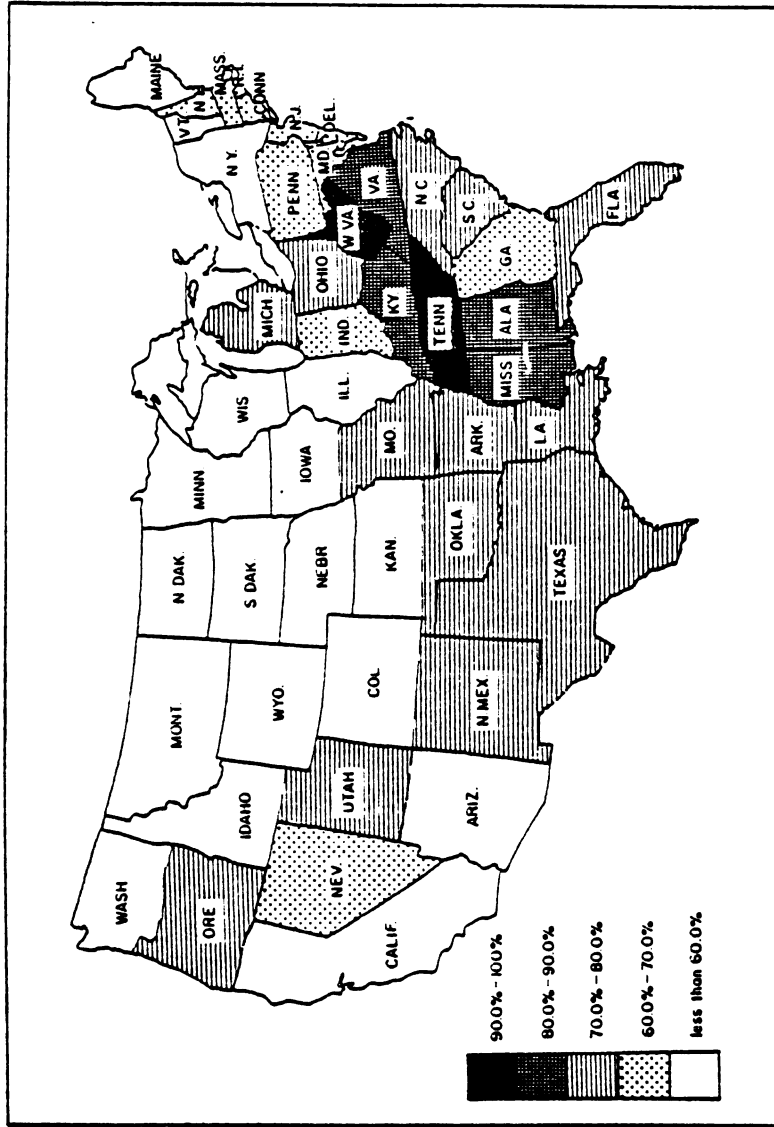
3. Small Farms by Region

Small farms are found in every state. As mentioned earlier 79% of all farms gross less than \$40,000 in sales. These farms are more prevalent in some areas than others, however. The map in Figure 6 gives some idea of the distribution of small farms across the country, based on a \$20,000 gross sales divider. By this method of counting small farm concentration is highest in states such as West Virginia (93%), Tennessee (90%), Kentucky (86%), Virginia (83%), and Alabama (81%). Another fourteen states have over 70% concentration of small farms: Texas (79%), South Carolina (78%), Alaska (78%), Oklahoma (76%), Missouri (75%), Florida (74%), North Carolina (74%), Louisiana (73%), Hawaii (73%), Michigan (73%), Utah (73%), New Mexico (71%), Oregon (71%) and Arkansas (70%). (See Appendix 2 for a complete listing).

By the new USDA small farm definition (see section II.C.1.) 6.6% of North Eastern farms are small farms, with 43.9% in the North Central Region, 39% in the South and 10.5% in the West. For the U.S. small farms represent only 53% of all farms (see Appendix 3 for more details).

However, based on the definition preferred by this author (less than \$40,000 gross sales - see II.C.1.), some interesting regional variations emerge (Table 17).

Figure 6. Percentage of Farms with Annual Sales of Less Than \$20,000 by State, 1974.



Source: Small Farm Issues: Proceedings of the ESCS Small Farm Workshop, May 1978.
USDA, ESCS.

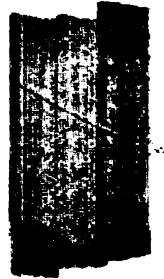
Table 17 - Small Farms by Regions, 1974, with Average Net Farm Income

<u>Regions</u>	<u>Farm #</u>	<u>(% of total)</u>	<u>Market value of ag products sold</u>	<u>(%)</u>	<u>Net farm income</u>	<u>(%)</u>
U.S.	1,834,866	100%	17,524,252	100%	4,731,633	100%
					(\$2,578.73	/U.S. farm)
North East	97,085	5.3	996-769	5.7	193,998	4.1
					(\$1,998.82	/farm)
North Central	754,706	41.1	9,532,981	54.4	3,127,769	66.1
					(\$4,144.35	/farm)
South	810,037	44.2	5,328,410	30.4	1,188,078	25.1
					(\$1,466.70	/farm)
West	173,038	9.4	1,668,091	9.5	221,786	4.7
					(\$1,281.72	/farm)

Source: Census of Agriculture, 1974.

There is a significant concentration of small farms in the North Central and Southern regions. The North Central farms have a much higher level of goods sold (54% of total small farms in U.S.) and the highest average income (\$4144/farm).

Having looked at the past and current situation of the small farm in the U.S., we will consider some of the active forces of change and the role of the small farm.



D. Chapter Footnotes and Miscellaneous References

Footnotes

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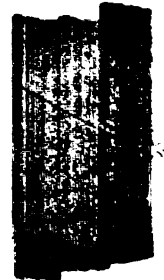
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Chapter III

ACTIVE FORCES OF CHANGE AND THE
ROLE OF THE SMALL FARM

- A. The "Welfare" vs. "Function" Debate
- B. Social Aspects: The Value of Small Farms in Rural Communities.
- C. Energy
 - 1. Transportation, Decentralization, and Diversification
 - 2. Labor Intensive Operations and Family Farm Units
- D. Organic Agriculture
 - 1. Energy
 - 2. Health
 - 3. Environment
 - 4. Poverty
- E. Roles of Small Farms
 - 1. Full-time
 - 2. Part-time
- F. Footnotes and Miscellaneous References

Chapter III
ACTIVE FORCES OF CHANGE AND THE
ROLE OF THE SMALL FARM

A. The "Welfare" vs. "Function" Dispute

In the past there has been a general agreement that small farms are an anachronism out of place in large-scale, capital intensive modern agriculture. There has been a consensus that they are inherently economically inefficient.

Past agricultural policies were based on the premises that:

- a) small farmers are not economically viable;
- b) the best opportunities for those operating small farms are in the non-farm sector; and
- c) the world's food and fiber needs can best (most efficiently) be met by large-scale, energy-and-capital-intensive agriculture.¹

These policies have had the message of "get big or get out," and, indeed, that is what happened to many small farms. Between 1950 and 1974 alone there was a loss of over three million farms (see Table 18). Of those, 76.2% were small farms. Medium sized farms decreased by 25.4% and large farms increased by 1.6%. Change also occurred in the share of the market sales by size (Table 19). In 1950 the respective share of

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Table 18 - Change in Number of Farms, by Size, 1950-1974

<u>Size of Farms</u>	<u>Number of Farms¹</u>		<u>Change</u>	<u>Percent Change</u>
	1950	1974		
Small	4,169,441	1,834,866	-2,334,575	-56.0
Medium	1,102,362	324,310	- 778,052	-70.6
Large	103,231	152,599	+ 49,368	+47.8
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Total	5,375,034	2,311,775	-3,063,259	-57.0

¹ Abnormal farms not included

Source: U.S. Bureau of the Census, Census of Agriculture,
1950 and 1974.

Table 19 - Market Value of Agricultural Products Sold,
by Size of Farm, 1950 and 1974.

	FARM SIZES		
	Small	Medium	Large
<u>1974</u>			
Market Value (\$1000s)	17,524,252	20,071,570	43,699,427
Percentage of Market Share	21.6	24.7	53.7
<u>1950</u>			
Market Value (\$1000s)	5,824,598	10,577,563	5,786,964
Percentage of Market Share	26.2	47.7	26.1

Percent change within Farm Sizes, 1950-1974	- 4.6	-23.0	+27.6

Source: U.S. Bureau of the Census, Census of Agriculture, 1950 and 1974.

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the market for small, medium and large farms was 26.2%, 47.7% and 26.1%. By 1974 that had adjusted to 21.6%, 24.7% and 53.7%, showing that large farms were benefiting from the market policy advantages they were receiving.

However, the 1970s saw evidence of an increasing concern for the "small farm problem." The Rural Development Act of 1972 and the 1977 Food and Agriculture Act both included sections advising development of extension and research programs for small farmers. Jim Hightower (Hard Tomatoes, Hard Times) was not impressed with the efforts. Concerning the Rural Development Act, he wrote, "Having failed millions of small-scale operators during the past thirty years, USDA washes its hands of them... (the Act) is USDA's answer to their small-farmer 'problem.' But the effort here is not to help the little guy in farming, it's to help him out of farming...it could do as much for the small farmer as it does for the biggest farmer and for corporate agribusiness. But it does not."²

In 1978, USDA, ACTION, and the Community Services Administration sponsored five regional conferences on Small Farming.³ Following those conferences, in January 1979, Secretary of Agriculture, Bob Bergland, declared that USDA policy would seek to preserve a place for the small farm operation in American agriculture.⁴ (See Appendix 4 for USDA's actions in implementing this policy.)

Following are the suggestions of the USDA Ad Hoc Committee on Small Farms of the Joint Council on Food and Agricultural Sciences:

1. The rationale for assisting small-scale farmers is based on the following four principles:

-- All farmers, regardless of farm size, should be in a position to benefit from the agricultural science and education system; because of varying needs and types of farming, no single method of assistance will suffice. Programs must meet the unique needs of small-scale as well as larger-scale farmers.

-- Simple humanity requires attention be given to those whose needs are greatest, and human dignity dictates that effort be expended to assist low income small-scale farmers to raise their income, from either farm or nonfarm earned income.

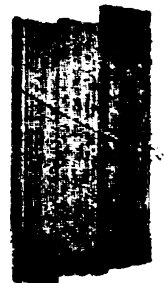
-- An agricultural system that accommodates small farms provides the opportunity for persons to choose small-scale farming, or to combine farming with off-farm employment as a life style.

-- Assistance to small-scale farmers will promote better management and more effective use of a significant body of the nation's natural resources.

2. Small farm research, extension and teaching should not be undertaken:

-- To significantly affect the food supply, or

-- For purposes of altering the number of farms producing most of this nation's food and fiber.



3. Success of a small-farm effort should be measured by:

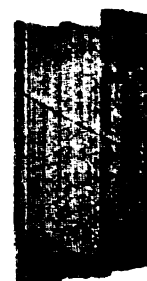
-- The number of small-scale farm families whose real earned farm and nonfarm income increases, with greater emphasis given to raising all farm families above the poverty level.

-- Number of small-farm families who perceive that their quality of life has improved.

-- Reduction in underemployed rural human resources.⁵

While much is praise-worthy in the above proposals, point 2 specifically limits government small farm efforts to the "welfare" realm. This is not only likely to affect the direction of policy decisions in the future in terms of taxes, and credit availability, etc., but may limit efforts in research and education that could help the small farmer become a more viable participant in the food and fiber system.

Why should treating small farms as a welfare issue be significant? In general, it seems that in the past an almost deliberate policy stand was taken to push small farms out of agriculture. This was related to the chronic surplus production that threatened prices and therefore the livelihoods of all farmers. As Kenneth Boulding, an agricultural economist at the University of Michigan, once wrote:



The only way I know to get toothpaste out of a tube is to squeeze, and the only way to get people out of agriculture is to squeeze agriculture... If you can't get people out of agriculture easily, you are going to have to do farmers severe injustice in order to solve the problem of allocation.⁶

(See Appendix 5 for the policy of the Committee for Economic Development [CED] for the farm labor force.)

The remaining small farmers indeed mainly exist in poverty. (See Table 17, Chapter 2.) Average net farm income for small farms in the U.S. is \$2579. Small farms in the North Central region fare the best with an average net farm income of \$4144. Critics have suggested, however, there is no reason to limit small farm policies to the "welfare" realm.

Dr. Allen Thompson, from the Whittemore School of Business and Economics at the University of New Hampshire, has several conclusions concerning small farms:

- 1) Past research and policy has failed to consider the "externalities" of farm policy effects on the rest of the economic system - leading to a systematic understanding of the true costs of farm policies that have helped reduce the number of small farmers. Social costs and benefits should be considered for any policy.
- 2) Small and large farms seem to operate in different economic systems and past economic models are more appropriate for researching large farms.

3) A separation of potential from actual efficiency is necessary. Significant gains can be made over current small farm productivity by employing more modern technology and better management. Past data on small farm efficiency reflect the results of the institutions that favor larger farms. In many cases inefficiency is not due to inherent diseconomies of scale in production.⁷

One interesting point can be noted by returning to look at changes in market share of sales (Table 19). Small farms, in spite of a 76% decrease in numbers over a 25-year period, only lost 4.6% of their share of the market. While large farms have captured over half of the market, smaller farms progressed more (relative to their size) by increasing their sales per farm more than did large farms (Table 20).

The rest of this chapter explored areas in which there are special considerations relevant to small farms that indicate their potentially vital roles in agriculture and society.

B. Social Aspects: The Value of Small Farms in Rural Communities

Policies affecting small farms have wider implications for rural and urban society. The urban implications of the mass migration from rural areas are familiar—high unemployment, ghetto poverty, unadjusted people, etc. Rural areas suffered from the withdrawal of the

Table 20 - Market Value of Products Sold Per Farm,
By Size, 1950 and 1974.

<u>Size of Farm</u>	<u>1950</u>	<u>1974</u>	<u>Percent Increase</u>
	(\$ Sold by Farm)		
Small	1,400	9,551	682
Medium	9,595	61,890	645
Large	56,058	286,368	511

Source: U.S. Bureau of the Census, Census of Agriculture, 1950 and 1974.

population as well. While there has been a movement back into rural areas that has improved job opportunities,

...it is important to note that not all rural areas or rural people have shared in this growth. Approximately 500 counties in parts of the Great Plains, the Cornbelt, and the Mississippi Delta continue to lose population as many have been doing for 20 or 30 years. Most of these counties are agricultural and have experienced an exodus of workers from agriculture that has exceeded non-farm job creation.⁸

For almost 30 years there was only one study of the relationship between agricultural structure and rural communities. Walter Goldschmidt conducted a study of two Californian communities that were similar in many economic and social aspects.⁹ The main difference was that one was surrounded principally by large commercial farms, while the other was in the middle of small family farms. The determination he made was that the community serving small farms had a more active economic and social life than did the community surrounded by large farms.¹⁰ The town surrounded by family operated units was superior in all measures reflecting quality-of-life: "income, level of living, social and physical amenities, social and religious institutions, and the degree of local control of the political process."¹¹

After Goldschmidt's study there have been several other studies conducted. Two relatively unknown projects

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were studies of Maine's contract-broiler growers, comparing the social and family characteristics of independent egg producers and broiler growers with those who had formal contracts with large vertically integrated firms.¹² The studies were in the late 1950s and again in the early 1960s.¹³ There seemed to be few social or economic disadvantages for the contract broilers. However, the study did not focus significantly on measuring the community life of the producers.

A fourth study, this one by William D. Heffernan, at the University of Missouri-Columbia, compared the community life of family farmers and of farmers involved in contract broiler productions with that of workers and managers of larger than family farms.¹⁴ This Louisiana-based study provided four main conclusions:

First, workers in corporate-farmhand structures are less involved in the formal and political activities of the community than are those in family farm structures. Secondly, owner-managers in the corporate farmhand structures are more involved in those aspects of the community than are family farmers. Thirdly, the first two conclusions suggest rather clearly that the corporate farm structure, relative to the family farm structure, begins to emphasize the two extremes with community and political involvement. This type of agricultural structure suggests the development of two rather distinct social classes of rural America which undermines the traditional American ideal of equality. The fourth conclusion is that little difference exists between workers in the corporate integrated structure and workers in the family farm structure with regard to community involvement.¹⁵

A fifth study was done by the Community Service Task Force of the Small Farm Viability Project in California in 1977. It restudied Goldschmidt's two communities.¹⁶ Changes had occurred in the two areas over time, and the study documents the historical growth patterns of the large-farm and the small-farm communities over 30 years. Following are the findings of the original study compared with the current update information:

As in 1945, the small-farm community continues to support more businesses than the large-farm community by a ratio of 2:1.

The volume of retail trade in 1976 was greater by nearly 70% in the small-farm community, an improvement over the 61% advantage in 1945.

Expenditures for household supplies and building equipment were not available.

It was also impossible to determine the number of persons supported per dollar volume of agricultural production.

The small farm community has improved its material advantage since 1945, as measured by median family income.

In 1976 Dinuba had 2½ times the number of independent business outlets in Arvin, a ratio equivalent to that found in 1945.

Farm laborers constituted 37.6% of the large-farm community's labor force in 1970 and only 13.7% of the small-farm community's, compared with 66% and 33% respectively in 1945.

The number of physical facilities and public services is still far greater in the small-farm town.

As in 1945, there are more schools in Dinuba than Arvin; four elementary schools to two, one junior high school to none, and one high school in each town.

The small-farm town still provides its citizens with many more park facilities; five parks to two, and eight playgrounds to none.

The small-farm town has more than four times the number of social and civic organizations.

Public recreation centers were not touched upon.

Today as in 1945, Dinuba supports two newspapers, while Arvin has one.

Consistent with 1945, churches bear the ratio of 2:1 in favor of the small-farm community.

Local decision-making is more accountable and unified in the small-farm community, whereas in the large-farm town, decisions are made in a confusing and fragmented fashion because of the proliferation of special districts. This reaffirms the 1945 findings.¹⁷

Finally, a sixth study was done by University of California-Davis, also in California.¹⁸ This covered 130 towns in the San Joachim Valley, with the objective of comparing size of operation, ownership of land and water resources, and the quality of community life. The findings point out that there is a pattern of advantage going to those communities with small farming area or democratic water usage or both. "Large scale agriculture offers the local communities no substantial advantage."¹⁹

The Community Service Task Force outlines the process of structural change it found:

When small farms are replaced by larger farms a process of economic and social decay begins in rural communities. As farm families move away, local businesses begin to dry up. Social organizations also begin to stagnate as opportunities and local revenues shrink. Public services are constricted by the reduction of the local tax base. As control of the land base is concentrated the probability of absentee ownership is increased. This erodes the local control of community residents and takes more money from the local economy. The population of the community becomes less stable as hired labor, often seasonal, replaces local labor, and average incomes tend to drop. This situation also prevails in areas of California that were developed originally into large farms.²⁰

The Task Force pointed out however, that all is not necessarily rosy for small farm communities. They may be isolated, and may have a limited tax base, as the main employment base (agricultural land) is outside the taxing jurisdiction of small cities. If unincorporated, funds will be received from the county, but at low levels. Small communities are frequently less knowledgeable concerning applying for state and federal assistance. There may well be a housing shortage, inadequate sewer and water systems; costs for utilities, transportation and retail food are high.²¹ Again, there is room for creative public planning and policy making.

C. Energy

As energy in agriculture has been discussed elsewhere, at this point the paper will be confined to a short discussion of the more important points.

1. Transportation, Decentralization, and Diversification

Energy costs in agriculture go beyond the simple aspects of production. After production, commodities can and are shipped across the state, country and world. Where competition is strong, it's possible to see an East Coast enterprise ship exactly same product to the West Coast that a West Coast concern is shipping east. Economists have been at pains to defend, or at least explain, this massive criss-crossing transportation network. At the beginning of an era of resource rising costs and shortages, it becomes less acceptable and feasible. One area, the San Joaquin Valley, produces 42% of California's agriculture products, or close to one-twentieth of the total U.S. output.²² Though it has been calculated that by the year 2000, California will have so many people it won't be able to export any food,²³ currently the rest of the country is fairly dependent on Californian food and fiber. This is quite evidence by the "shock waves" felt through the nation when California has bad weather that damages or wipes out a crop. The situation is hardly a stable one.

Residents of the North East feel themselves particularly vulnerable and are starting a push for regional 'food self-reliance.'²⁴

In a written report, two small farm advocates from Vermont maintained: "We will never produce more than half our food needs, but we can begin to cut the margin and in so doing we can keep the food dollar in Vermont, keep people off the public dole, rely less on social services, help rebuild our rural communities, and finally create a sense of interdependence among the rural people."²⁵

So regionalism, also praiseworthy from the perspective of energy conservation as from stable food supply, is beginning to generate support.

Energy limitations can affect the structure of community organization as well as the structure of agriculture. Dr. Herman Koenig, Director of the Center for Environmental Quality at Michigan State University, believes the energy problems will be severe for the future. To improve the possible situation, Dr. Koenig recommends a decentralized form of society: small service self-sufficient communities surrounded by small (say ten acre) plots of land for growing a part of the local food supply.²⁶

In close conjunction with a regional and decentralized form of agriculture and community is the idea of diversification. This implies a move away from the emphasis on the vast monocultural systems of agriculture, to produce

a mixture of commodities. Even more energy efficient can be small integrated crop and livestock farms. The products and wastes from the integrated systems complement each other, even moving toward an ideal difficult to achieve - closed-system agriculture (wherein an agricultural unit would be input self-sufficient and the output generally stay on the farm). Diversification can vastly improve the biological system itself, aiding when properly designed, in effective pest control.

2. Labor-intensive Operations and Family Farm Units

One theoretical major difficulty of limited resource farms is a lack of capital for many energy-intensive inputs. In reality, the small farmer's ability to substitute labor-intensive technology for capital and energy-intensive operations is a major advantage. As energy and capital become more expensive and less accessible, the small farmer maintains a degree of flexibility unavailable to his larger counterparts.

While industry may expect a 13-15% return on invested capital, farmers may receive only 6% (even before any return to management). In many ways this is related to a lack of choice on the part of the farmers. For many farmers, however, objectives may extend beyond maximum profit and include consideration of farming as a way of life, not just a way to make a living.²⁸

D. Organic Agriculture

Organic Agriculture is just emerging as a respectable farming technology.²⁹ Much research remains to be done, but what exists so far is encouraging. It seems that though organic technologies can be used on large-scale farms, they are best adaptable to small operations. With low input requirements, organic agriculture meets many of the needs of limited-resource farmers.

1. Energy

The Center for the Biology of Natural Systems, of Washington University in St. Louis, conducted a study comparing matched conventional and organic farms, mainly analyzing field crops.³⁰ The organic farms were much less energy intensive. The high energy inputs used by conventional farms were inorganic fertilizers and pesticides (see the Chapter II discussion on Energy in Agriculture). The Organic farms averaged 6.9 thousand BTU's per dollar of market value produced, while the average for the conventional farms was 16.2.³¹

Just as "small farmer" refers to a wide spectrum, so does "organic farmer": the definitions are many. But it can be said that organic farmers tend to use less energy intensive inputs.

2. Health

There has been increasing consumer concern over

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widespread chemical additives in processed foods and over the chemicals sprayed for pest control on food. Diets are changing, with a shift in evidence toward more "natural," unsprayed and unprocessed foods.³² This can be of benefit not only to the organic farmer, but also to the small, local farmers, as both may be able to market their products direct to consumers. Additionally, health considerations are important to those farmers switching into organic agriculture. They cite interest in the health of their family, the soil, and the animals they raise, when organic practices are used.³³

3. Environment

Farmers have been called "stewards of the soils," but in many parts of the country the stewardship is not working very well. Iowa, for example, is praised for its cost sharing conservation efforts, paying close to \$6 million last year. Despite this, the efforts cover only 20% of what needs to be done. Forty years from now an additional 40% (10% now) of Iowa's farmland will be severely eroded.³⁴ One young farmer, after pointing out that a "cheap food policy" is in reality a cheap raw materials policy, continued to say,

But in the end, we will have sold America's agricultural treasure at discount. We will have strained the family farm system to the point of rupture... We will take the responsibility, because we're not just stewards of

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our soil, we are stewards of our energy and water resources as well. We hold them in trust for future generations... And we're managing that trust about as well as some of our forebearers looked after the buffalo herd. And as a young farmer I'm beginning³⁵ to know what it felt like to be a buffalo.

Organic agriculture techniques are not only less energy intensive, but emphasize soil building and conservation.

...greater effort to conserve soil and water and protect the environment is an inescapable mandate for the future. Organic agriculture may not only be in a better position to conform, but may have pointed lessons for all to learn. It may have played a demonstration role. If this be true, it could be the single most positive contribution organic agriculture makes...³⁶

4. Poverty

Organic agriculture as mentioned above is an appropriate technology for limited resource farmers. The National Sharecroppers Fund recognized this in the late 1960s, adopting organic methods for training its agricultural paraprofessionals, who help NSF coops.³⁷ Today the Frank Porter Graham Center (see Chapter IV) carries on the tradition.

E. Roles of Small Farms

Small farms function, or try to, over a wide range of life situations. Some small farm operators may be

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more interested in 'just living in the country,' whether or not that limits their agricultural efficiency. Others are definitely in farming to feed their families, whether they can provide a good living or barely scrape by. In many respects there is little difference in this paper's proposal for the roles of small farmers and those they fulfill today. The objective is to help these roles and the people in them to function more effectively, in ways they may not today.

1. Full-time

The full-time small farmer should be viable, participating actively in the food or fiber system to the limit of his objectives. A combination of good enterprise selection and integration into his system, with good management, in a climate of favorable institutional policy, will make the small farmer's success much more likely. The full-time farmer can be helped to find advantageous conditions and strength in numbers by aiding him to join or form a coop for input purchasing, or more importantly, for marketing. Also valuable in the long term is the active encouragement to everyone, including the farmer, to take seriously his role as steward of the soil to enhance its productivity long into the future. Also of great benefit to the farmer would be direction in using newer, less energy intensive methods and systems.

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2. Part-time

The part-time farmer sometimes has more staying power in adversity, from his significant off-farm income. He has no less responsibility for the effective use of the resources at hand than the full-time farmer, though his relation to agriculture could be much more varied according to conditions, such as:

--Entry into agriculture - With land and capital equipment as expensive as it is today and interest as high as it is, it is necessary for the beginning farmer to have a large off-farm income or other help. The disappearance of relatively inexpensive entry into agriculture is forcing a decline in the numbers of farmers as old ones retire and are not replaced.

--Exit from agriculture - Part-time farming may be a useful step in beginning the retirement process or in divestment to leave agriculture.

--Supplemental income, or "two-timers" - Off-farm income may be instrumental in raising the farmer's quality of life. This can be properly approached as a beneficial and intelligent option.

--Hobby farming - The farming activity (enjoyment of the product) is the main objective here. Good practices and different methods can still be introduced, even as a way to gain their trial by more reticent types of farmers.

--Country lifers or rural residents - The objectives here are likely related to an appreciation of country life. Agricultural activity is probably on a small scale for supplemental food.

--Self-sufficient - Though a share of rural residents may practice a large degree of self-sufficiency because of the exigencies of rural poverty, this category is likely to more describe those with goals of becoming food and/or energy self-reliant as a virtue. Possible other desires in this direction would be to practice voluntary simplicity in living and a barter economy for one's needs.

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¹⁹Ibid., p. 242.

²⁰Ibid., p. 243.

²¹Ibid., pp. 244-245.

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Chapter IV

SMALL FARM RESEARCH AND ACTIVITIES

A. Research

1. Historical Perspectives and the Past
Emphasis on Large Farm Problems
2. Small Farm Problems
3. 1978 CRIS Search
4. 1980 CRIS Search
5. Small Farm Research Needs

B. Small Farm Activities and Management Education Programs

1. Coop Extension Programs in the South;
Missouri
2. Frank Porter Graham Center
3. Agricultural Marketing Project
4. New England Small Farm Project
5. Coolidge Center for the Advancement of
Agriculture
6. Organic Agriculture Organizations; MOFGA
7. The Mother Earth News
8. Center for Rural Affairs
9. Washington Small Farm Resources Network
10. Washington Cooperative Extension
11. Tilth
12. Rural Venture and Control Data Corporation
13. National Rural Center

C. Mini Small Farm Reference Library

D. Footnotes

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Chapter IV

SMALL FARM RESEARCH AND ACTIVITIES

This chapter will look at small farm research - past and present, as well as recommendations for the future (IV.A.). It will also briefly profile several organizations and their small farm activities (IV.B.). A small farm "mini research library" will be presented for the service of those desiring a brief look at the small farm situation through primary materials (IV.C.).

IV.A. Research

1. Historical Perspectives and the Past Emphasis on Large Farm Problems

As has been discussed earlier, rural America underwent considerable social and economic upheaval attended by vast migrations off-farm. Between 1935 and 1974 close to 4 million farms folded. There have been many critics of the land grant complex.¹ Some would like to implicate it, along with big business, in purposefully manipulating conditions to create that rural upheaval.² Others pointed out the institutional bias toward the larger farmers. In 1970, Lauren Soth, an editor of the Des Moines' "Register and Tribune", pointed out that the

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land-grant system spent most of its effort and funds serving the largest and richest farmers while neglecting the needs of the vast majority of farmers: "They have not yet given anywhere near the attention in either research or education to the problems of the bypassed poor farmers and bypassed rural communities that their numbers justify - to say nothing of help on the basis of need."³

Some of this bias was an honest, though partially misguided and narrow-minded, devotion to progress and to the new technologies, with a serious lack of insightful analysis of the long-term fruits of their labors. Or perhaps that can be said only now, through the service of hindsight. Others, not so kind, pointed out that the people and corporations being served were those that were contributing major money in grants for the research.

Possibly the most familiar critique, Jim Hightower's Hard Tomatoes, Hard Times (published in 1973, in conjunction with the Agribusiness Accountability Project⁴) attacks the land grant complex on all fronts. The book's title refers to the development by California land grant research of a hard-skinned, tasteless tomato. This expenditure of research effort and funds subsequently made mechanical harvesting feasible. In turn, this led to serious unemployment of Californian workers, and has led to increased corporate concentrations in the

processing industry. (Four canning corporations now control more than 80% of tomato processing.⁵) An afternote that is both humorous and pathetic is that California has since developed a "square" tomato to further improve harvesting and transportation efficiency.⁶

1975 saw the passage of California's Farm Labor Law, a major victory for the farm workers' unions. In seemingly direct response, the University of California forged quickly ahead in the development of mechanized harvesters.⁷

The farm workers call the machines 'los monstruos' - the monsters. They see them as mechanical behemoths that threaten to decimate the farm labor work force and turn California into another Appalachia, with an underclass of unemployed workers as poor as any to be found in Kentucky or West Virginia.⁸

In exchange for mechanical harvesting of 13 crops, more than 120,000 farm worker jobs will be lost. In response to farm worker criticism, J. B. Kendrick Jr., the University of California's vice-president for agriculture, said that the university is an agent of change: "It does not decide public policy or compensate losers among conflicting societal interests."⁹ Although one can argue that mechanization, and "progress" in general, are neither inherently good nor evil, still

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it is obvious that the university community instrumentally aids the formation of public opinion and of public policy. Through these, as well as its research, the land grant complex affects the structure of agriculture and the welfare of the country in a close to virtual absence of public accountability. With no overall plan, and a lack of societal consensus of goals, research can proceed in many directions that may not promote the overall good. Divorcing pure research from its results echoes the dispute over the ethics of the development of the atomic bomb.

Certainly one can say that the research and Extension of the past have been poorly responsive to the needs of the small farmer. Granting this, what is the next step? Clear decision making and predictive efforts are hampered by the lack of sufficient background information. The relative lack of interest in small farms, until the past decade, has left large gaps.¹⁰ There is just too much that is unknown. Research needs will be addressed later (A.5.), but first a look at small farm problems is appropriate to help judge the effectiveness of current research.

IV.A.2. Small Farm Problems

Many areas that are problems for small farmers have been identified as research needs (discussed below in A.5). What has not been emphasized sufficiently, however, is a recognition of the complexity of the subject. Agricultural research traditionally deals with aspects of production technology; much of the traditional research is not size specific or size exclusive. In other words, it can be applied to the needs of the small farmer. However, some situations require size specific solutions; one cannot "move the decimal point" on everything.

Another aspect is that some problems cannot be dealt with at the farm level. These problems are related to institutions and government policies. A final consideration is, to reiterate, that "small farm" covers a wide spectrum of types of units. Add to that the micro "climates" (society, economics, etc.) for different regions of the country, and one is faced with great diversity. However, some problems are sufficiently pervasive across the spectrum to be worthy of mention. These fall into the general areas of marketing, finance, education, technology, and natural resources.

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Marketing - What many programs ignore is that a small farm's production is useless without a buyer. Many small farmers don't have access to the same markets larger farmers use, sometimes because of low volume and sometimes because of vertical integrations (closed markets) within a commodity. Small farm conference participants called for the development of alternative markets, such as farmers' markets and other direct-to-consumer routes. There is a lack of on-farm storage facilities to allow delay of marketing until prices improve. In some cases programs for pooling products or small farmer co-operatives should be developed. Transportation to market can also be a major problem for the small farmer.

Finance - Credit availability can frequently be a serious problem. The Small Farm Viability Project¹¹ felt that gaps in the supply of funds are more a function of the experience and financial equity of a farmer than of the size of his farm.

The Small Farm Advocacy Project¹² specializes in helping small farmers through the red tape in acquiring loans from the Farmers Home Administration (FmHA) and the Small Business Administration (SBA). It had reported considerable and lengthy delays for many farmers. Federal income tax regulations on capital gains have helped increase farm land prices, decreasing land

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Education - Education programs for the small farmer should cover a long term (2 - 3 years), and be bilingual where appropriate. There is presently a shortage of educators for small farmers; programs for their training should be developed. The California Small Farm Viability Project suggested that student small farmers receive subsistence allowances during training, coordinating these with other welfare payments to prevent loss of benefits. Of particular interest was a suggestion to integrate training programs with credit institutions and funds availability.

Technology - The agricultural sector has concentrated on technologies for large farms for so long that there is a critical need for the research and development of new ag technologies specifically oriented to small farms. Also, older technologies that are appropriate for small farms, but are no longer used because of their lack of relevance to larger farms, should be revived and remarketed. An emphasis should be placed on energy efficient technologies.

Natural Resources - The prime concern is for the accessability of land inputs, and, in some parts of the country, water availability is of equal importance. Land speculation and foreign investment have bid up the price of land in parts of the country so that it is

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beyond the means of would-be new farmers (\$14-16,000 per acre for agricultural land in parts of California). This affects overall entry into agriculture, and makes business more difficult for the existing small farmers. Current estate taxes, income tax structure and capital gains provisions all aid in creating this situation. Dr. Harold Breimyer, agricultural economist at the University of Missouri, believes that "those who invest money in land speculation are participants in inflation, not hedgers against inflation."¹³

This paper will proceed to investigate current small farm research through the medium of two computerized searches of land grant research projects.

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IV.A.3 1978 CRIS Search

A CRIS (Current Research Information Service) search for small farm related research activity was run by Dr. Jerry West in 1978.¹⁴ Along with other source material Dr. West was able to determine the number of publicly funded small farm research projects, the number of "scientist years" devoted to the projects, and the funds devoted to those projects. (Table 21) For comparison purposes, the totals for all publicly funded state and federal agricultural research projects were also determined. There were 25,730 ag research projects with 10,983.4 scientist years supported by \$1,004,086,000 in funds (or \$390,024 per project). The small farm projects were categorized into those that were social science related (50), and those that were technology related (17), giving a total of 67 projects. 27.1 scientist years and \$1,556,000 (or \$23,224 per project) were devoted to those 67 projects. There were also some other projects that were determined to be on topics related to and useful for small farms, though not so directly aimed. These were called "marginal." Dr. West commented that federal monies were just recently available for small farm research, and that over half of the funds went to 1890 institutions. Thus much of the research was carried on in the South. Those 67

Table 21 -

Type of
Research

Total State
& Federal

Total in State
Ag Experiment
Stations

Social Science
Related Small
Farm Research

Technology
Related Small
Farm Research

Total Small
Farm Research

Projects Made
to Small Farm
Research Projects

*only projects

Source: U.S.
Small Scale

Table 21 - Total Publicly Funded Ag Research Compared
with Small Farm Related Research Activity:
1977-1978

<u>Type of Research</u>	<u># of Projects</u>	<u>Scientist Years</u>	<u>Total Funds (000\$)</u>
Total State & Federal	25,730	10,983.4	\$1,004,086
Total in State Ag Experiment Stations	20,725	6,556.7	594,230
Social Science Related Small Farm Research*	50	15.3	1,010
Technology Related Small Farm Research*	17	11.6	546
Total Small Farm Research	67	27.1	1,556
Projects Marginal to Small Farm Research Problems	22	8.9	888

*Only projects at 1862 and 1890 land grant institutions were included.

Source: J. G. West's Agricultural Research and Extension Needs of Small Scale, Limited-Resource Farmers, SJAE, July, 1979.

1. *Phragmites australis* (Cav.) Trin. ex Steud.

small farm projects were divided into groups by topic (Table 22). The topics used (and number of projects) were typology (16), enterprise combination (12), marketing (9), technology (17), and "other areas" (13). Structure of agriculture related projects were deliberately excluded. It was generally felt then, as it is today, that "typology" (description, analysis and classification) represents the small farm research state of the art. The typical first questions researchers ask are, "Who are our small farmers?", "How many are there?", "What resources do they have available?", "What are their needs and desires?", "How can we, as researchers best serve the small farmer?", etc. After that stage, other projects may be designed to meet specific perceived needs. However, as the breakdown of topics shows, many of the projects were in areas other than typology. This does not necessarily mean "beyond" typology, though. Researchers from a number of different disciplines independently start small farm projects. Thus a project on "feeding requirements for small beef herds," for example, may be initiated before there are any clear answers available to typology questions. This situation can have both advantages and disadvantages.

Table 22

Topic

Typology

Enterprise

Marketing

Technology

Other Areas*

Total

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Table 22 - Small Farm Research Projects at Land Grant Institutions: 1977

<u>Topic</u>	<u># of Projects</u>
Typology	16
Enterprise Combination	12
Marketing	9
Technology	17
Other Areas*	13
	<hr/>
Total	67

*Includes Finance (3), Transportation (1), Government Programs (2), Off-farm Employment (2), Human Capital (3), Social Dimensions (1), and Community Impacts (1).

Source: J. G. West's Agricultural Economics Research and Extension Needs of Small-Scale, Limited-Resource Farmers, SJAE, July 1979.

IV.A.4. 1980 CRIS Search

A more recent search (September 1980) of small farm research projects was made through CRIS by this author that looked at a somewhat wider background. Unlike the earlier search, this one included projects related to rural sociology and the structure of agriculture. The specific information request read "Listings of all research related to small farms: all areas are of interest. Some examples are: description and analysis, sociology, appropriate technology and technology aimed specifically at small operations, organic farming, economies of scale, structure of agriculture, marketing, any topic related to farm management, self-sufficiency, Co-operative Extension programs, etc."

The search yielded 285 projects (Table 23), of these 148 were directly related to small farms and another 37 had some portion that specifically addressed a small farm situation or problem. 100 other projects were of a generalized nature that could be applied to small farms. Table 23 breaks down the projects into topic areas and whether the projects are directly related to small farms (Direct), have a small farm portion (Aspect), or are of a general, but applicable nature (Marginal). These projects are listings for 1975 to 1980. The table further divides them into those projects scheduled for completion prior to November 1980

Table 23

Topic

Crops

Livestock

Description
& Analysis

Farm Management

Structure
of Agriculture

Foreign-Tropical

Total

*CRIS Data 1

† Numbers in
process).

Table 23 - Land Grant Small Farm Research Projects:
1975-1980*

<u>Topic</u>	<u>Direct</u>	<u>Aspect</u>	<u>Marginal</u>	<u>Total</u>
Crops	49(9/40) [‡]	4(2/2)	16(9/7)	69
Livestock	25(7/18)	---	---	25
Description & Analysis	20(11/9)	1(1/-)	1(1/-)	22
Farm Management	34(13/21)	10(8/2)	15(12/3)	59
Structure of Agriculture	13(5/8)	12(8/4)	60(40/20)	85
Foreign-Tropical	<u>7(5/2)</u>	<u>10(7/3)</u>	<u>8(4/4)</u>	<u>25</u>
<u>Total</u>	148(50/98)	37(26/11)	100(66/34)	285

*CRIS Data Thru September 1980.

[‡]Numbers in Parentheses are (# projects completed/# projects in process).

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and those that will still be in progress after that time. Projects completed and projects in progress are represented in parentheses after the total number for each topic and type. Of the total number of projects 142 have been completed and 143 are in progress. Of those in progress, 109 are in the Direct and Aspect categories. Five of those deal with small farms in developing countries, so one can say that there are currently 104 land grant research projects that directly address small farm problems. The topic areas are as follows:

1) Crops: covers research related to plants, waste management, related machinery processing, and pest problems.

vegetables	23
pest management	15
fruit	4
machinery	4
waste management	2
beans	2
forages	1
tobacco	1
processing	1

2) Livestock: covers animals, related machinery, diseases and pests, and waste management.

sheep	6
swine	4
dairy	4
beef	3
goats	3
fish	2

waste management	2
general	1
rabbits	1
poultry	1
feed	1

Projects in the following three categories frequently had multiple objectives. Projects were assigned to categories on the basis of what seemed to be the main thrust of the project objective description provided by CRIS.

3) Description and Analysis (D/A) -- includes some income analysis and sociology aspects.

4) Farm Management (FM) -- includes income analysis, enterprise selection, farm business management, and marketing.

5) Structure of Agriculture (S/A) -- includes socio-economic and rural development studies. (The largest representation of this group is in the "marginal" category.)

6) Foreign (Trop.) -- includes tropical small farm research from Hawaii and developing country small farm problems.

It is clear that the largest effort is in the area of crops and livestock (78 total Direct and Aspect projects with 60 of those "in progress"), with an emphasis on the crops end. The farm management category is of second highest magnitude (39 total projects, with 21 "in progress").

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Table 24 indicates the regional location of the universities carrying out the above projects. Again the projects are listed as number completed/number in progress. As in the 1978 CRIS search, the South* continues to dominate the field of small farm research, accounting for 104 Direct and Aspect projects, or 62%. The strongest concentration is from the South Atlantic States with 57 projects (43 in progress).

According to the 1974 Census of Agriculture¹⁵, using a \$20,000 gross income dividing point, the South had 48% of the U.S.'s small farms. Under the new USDA definition, the preliminary 1980 estimate gives the South 39% of the country's small farms.¹⁶ Since Federal research funds are sometimes divided on a formula basis, changes in funding might occur in relation to the small farm "decrease" in the South. The finalized new Census of Agriculture data should bear light in this respect.

The other three regions each had about 12% (38% totally) of the projects: North Central 22 (22/10), North East 21 (9/12), and West 20 (15/5). The main difference for these regions comes in looking at number of projects completed/number of projects in progress. The Western Region has by far the smallest number of projects in progress.

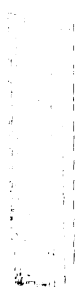
*See Appendix 1 for listing of states in each Region.

Table 24 - Regional Location of Land Grant Small Farm Research Projects*

<u>Region</u>	<u>Crop</u>	<u>Live- Stock</u>	<u>D/A</u>	<u>FM</u>	<u>S/A</u>	<u>Trop.</u>	<u>Total</u>
South Atlantic	6/24 [‡]	-/7	1/2	6/8	1/1	-/1	57
W. South Central	-/5	2/2	3/1	4/5	---	1/-	23
E. South Central	<u>3/4</u>	<u>1/3</u>	<u>2/4</u>	<u>1/4</u>	<u>2/-</u>	<u>---</u>	<u>24</u>
<u>SOUTH</u>	<u>9/33</u>	<u>3/12</u>	<u>6/7</u>	<u>11/17</u>	<u>3/1</u>	<u>1/1</u>	<u>104</u>
W. North Central	-/1	---	---	4/2	---	---	7
E. North Central	<u>---</u>	<u>---</u>	<u>1/2</u>	<u>4/1</u>	<u>2/1</u>	<u>1/3</u>	<u>15</u>
<u>NORTH CENTRAL</u>	<u>-/1</u>	<u>---</u>	<u>1/2</u>	<u>8/3</u>	<u>2/1</u>	<u>1/3</u>	<u>22</u>
Middle Atlantic	-/3	2/3	3/1	---	-/3	3/1	18
New England	<u>-/1</u>	<u>---</u>	<u>---</u>	<u>-/1</u>	<u>1/-</u>	<u>---</u>	<u>3</u>
<u>NORTH EAST</u>	<u>-/4</u>	<u>2/3</u>	<u>3/-</u>	<u>-/1</u>	<u>1/3</u>	<u>3/1</u>	<u>21</u>
Pacific	-/2	1/2	---	1/-	3/-	4/-	13
Mountain	<u>---</u>	<u>1/1</u>	<u>---</u>	<u>1/-</u>	<u>4/-</u>	<u>---</u>	<u>7</u>
<u>WEST</u>	<u>-/2</u>	<u>2/3</u>	<u>---</u>	<u>2/-</u>	<u>7/-</u>	<u>4/-</u>	<u>20</u>

*Current Research Information Service (CRIS) Search for 1975-80.
(Includes all projects under "Direct" and "Aspect")

[‡]#Projects completed/# projects in process (eg. 4/5)



IV.A.5 Small Farm Research Needs

Analysis of past research discloses several weaknesses that hamper its effectiveness.¹⁷ The problems range from research relevant only to limited geographic areas to obsolete research that is no longer valid for current Federal programs, prices, and technology. There is frequently a failure to distinguish between the different types of small farms, and the research generally uses a single factor (gross sales, number of acres of land, etc.) to define the farms. This oversimplifies a complex situation.

One major deficiency is the lack of an overall model that looks at the system within which a small farm operates, with considerations of the many interactions that affect the structure of agriculture and the results of different public policies. This lack of a model leads to fragmentation of effort. "The typical agenda for small farms research reads like a shopping list written with no specific menu or meal plan in mind - just a string of seemingly unrelated items."¹⁸ The attempt to solve small farm poverty problems purely by education in the technology of increasing production while neglecting the problems of marketing the increased production is one example of the results of the lack of a small farm systems model.

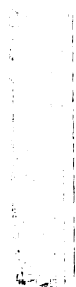
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However, perhaps the worst problem to date is most succinctly stated by the following:

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) 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 relatively large number of small farms) and the bifurcation (disappearing middle) of American agriculture.¹⁹

Considering the deficiencies of past research, what can be suggested for the future? Certainly the development of a small farm model (a major research project in itself) would be of value. In the meantime, important progress could be made by interdisciplinary teams of researchers that could consider the wider aspects related to any one problem. Somewhere though, some consensus is needed as to why we want small farms, to provide direction for research and policy development.

Many researchers have outlined their recommendations for future work. There are research needs of the scientists and the information needs of the small farmer (outlined in Chapter V.A.). There are macro issues, such as related the place of small farms, society's goals and the structure of agriculture.²⁰ What are the socioeconomic



benefits and costs of small farming? Until very recently²¹ when two studies were conducted in California, the only research of this type was from one study conducted in the 1940s, also in California (Goldschmidt, 1946).²² There are also micro issues, such as what the goals and objectives of small farmers are, and such as appropriate technology. Following are the major topics of the recommendations of several organizations and researchers:

1. National Rural Center²³

- a. Public Agricultural - food policies;
- b. Energy;
- c. The tax system and the structure of agriculture;
- d. Marketing;
- e. Off-farm earnings and rural labor;
- f. Production efficiency and technology;
- g. Structure of agriculture and small farm information needs

(A full book-length report is available from NRC on each of the above.)

2. Ad Hoc Committee on Small Farms of the Joint Council on Food and Agricultural Sciences²⁴

- a. Characteristics of small farms;
- b. Management of resources and product marketing;
- c. Community Infra-structure;
- d. Technology appropriate for small farms;
- e. Quality of life for small-scale farm families;
- f. Policy.



3. Small Farm Viability Project (California)²⁵

- a. Marketing;
- b. Finance and credit;
- c. Training;
- d. Technology;
- e. Natural resources;
- f. Community services.

(These are elaborated in a 250-page report by S.F.V.P.)

4. William Saupe, University of Wisconsin²⁶

- a. Small-farm criteria and definitions;
- b. Goals and goal achievement;
- c. Problems and disadvantaged circumstances;
- d. The human resources stock of small-farm families; ✓
- e. The farm resources stock of small-farm families; ✓
- f. Available community and institutional resources; ✓
- g. Current use of resources to solve problems. ✓

5. Steven T. Sonka, University of Illinois²⁷

- a. Economies of scale studies;
- b. Problems of getting started in farming;
- c. Description and analysis of small farms;
- d. Role of Cooperative Extension in education;
- e. Appropriate technology;
- f. Control of resources, especially land.

6. North Central Center for Rural Development²⁸

(The Center rated a number of research problems; those with "high" priority are included below.)

- a. Characteristics, number, needs and nature of small farms: total available resources base (human, physical, economic); types and numbers of small farms; socio-economic costs and benefits of small farms;

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- b. Assessment of small farm "quality of life": the aspirations, goals and expectations of small farm families; satisfactions with occupation, family life, living environment.
- c. Assessment of existing research, educational, service and input organizations and programs for small farms: impact of existing and proposed public policies on farms of different sizes and types (e.g., land use, environmental, safety, taxes, etc.); analysis of sources and systems of information delivery and educational programs for small farms;
- d. Development and modification of technology appropriate for small farms: appropriate machinery, equipment and buildings for small farms (including retrofitting, management and size as related to enterprise); alternative systems of crop production, harvesting, handling, storage and marketing; alternative systems of livestock production, handling and marketing.

As can be seen, many different topics and viewpoints are emphasized, but there is much consensus of opinion. The differences are likely to relate to (1) opinions as to the place of the small farm in the structure of agriculture; (2) the level of approach for solving small farm problems: the micro level (production, education, etc.) or the macro level (institutions, policies, etc.).

Next we will investigate some of the current Small Farm Programs around the country.

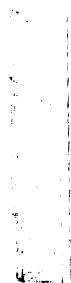
IV.B. Small Farm Activities and Management Education Programs

There is a wide variety of small farm programs around the country. Some are connected with the Cooperative Extension Service, some with community colleges, some with private groups and foundations, and some with popular magazines. Some programs relate purely to conventional agriculture, while others concentrate on organic or alternative agriculture. Programs also vary in emphasis from one region of the country to another.

Both the Rural Development Act of 1972 and the Food and Agriculture Act of 1977 included sections aimed at the development of Extension and research programs for small farmers, but no funding was provided.²⁹

In 1978 five regional small farm conferences were held, sponsored jointly by USDA, ACTION, and the Community Services Administration, to identify important problems and issues in each region.

In January 1979, USDA Secretary Bergland declared that USDA policy would seek to preserve a place for the small farm, and provide assistance that will enable small farm families to increase their total earnings (farm and nonfarm).³⁰ A recent USDA publication "Small Farm Programs and Activities" enumerates the state small farm program progress in 1978.³¹



The following list of small farm programs is not meant to be a comprehensive one. It represents a sampling of programs around the country.

1. Coop Extension Programs in the South;
Missouri

Coop Extension in the South has perhaps the largest and oldest programs.³² (See Appendix 6 for a listing of Southern state programs. It looks at the number of field staff [professionals and paraprofessionals], the type of funding [Smith-Lever 3(c) or 3(d) and other] and the state administrative and specialist leadership at the 1862 and 1890 land-grant institutions.)

Of the southern states, Missouri's Small Farm Program is the largest and one of the oldest. It was started in 1971 and currently has 44 paraprofessional education agents located around the state. The program is to assist small farm families in improving their quality of living, emphasizing agricultural technology, family resource management, and home gardening. The program is subject to systematic evaluation by plan of the State Small Farm Family Committee. The program's accomplishments are then communicated to Extension staff, County Extension Council members and other community leaders. Missouri Extension has published several reports detailing objectives and progress of Small Farm Program:

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- Missouri Small Farm Program Report MP445;
- Missouri Small Farm Program - An Evaluation with a Control Group, SR176;
- Profiles of Families Living on Small Farms, MP518.

2. Frank Porter Graham Center

The Frank Porter Graham Demonstration Farm and Education Center at Wadesboro, N.C. brings together the small farm efforts of the National Sharecroppers Fund and the Rural Advancement Fund. Besides working directly with farmworkers and small farmers, the Center has a number of special programs. Local small farmers are trained as VISTA "paraprofessionals" who then return to their communities to act as farm improvement helpers and community organizers. Another program trains paraprofessionals in adult literacy problems.

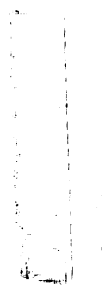
Graham Center concentrates on agricultural technology for small-scale, limited resource farming, on rural development, on farm cooperatives, and on agricultural public policy. The training programs are backed up by the Center's library and demonstration/research farm, which emphasizes ecologically sound farming methods. The Rural Advance newsletter relates the Center's accomplishments.³³

3. Agricultural Marketing Project

The Agricultural Marketing Project in Nashville, Tennessee specializes in providing technical assistance to farmer-controlled small farm marketing projects. Especially successful has been the Food Fair (farmers' market) direct marketing model which was initiated in Tennessee and spread to many other Southern states. Other interest areas are bulk sales markets for small farmers, consumer food education, and alternative on-farm energy sources. AMP publishes materials on marketing, nutrition, energy and land ownership. The newsletter "Farm, Food, Land" provides information on the various marketing activities.³⁴

4. New England Small Farm Project

The New England Small Farm Project at Amherst, Massachusetts brings together funding from the private sector, USDA, Coop Extension, and VISTA to help small scale commercial farmers, and to promote a thriving local agriculture. The Project provides a bimonthly newsletter, credit information, leadership training, help with political strategies, media assistance, issue research and financing for local projects. The Project works closely with Massachusetts Extension's New England Small Farm Resource Center in Amherst. The Center maintains an extensive collection of references and



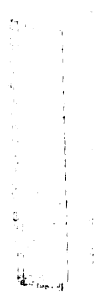
periodicals which cover the technical, economic and political aspects of small scale farming in New England. Visitors are welcome.³⁵

5. Coolidge Center for Advancement of Agriculture

The Coolidge Center for the Advancement of Agriculture researches alternative agriculture technologies for small farmers. The Center conducts a "broad, interdisciplinary investigation of cropping systems, appropriate mechanization, animal husbandry, protected cultivation, long term maintenance of soil fertility, and environmentally sound pest control." The Center publishes "The Coolidge Center Quarterly: A Journal of Small Scale Agriculture", a short but informative newsletter. The Center also maintains an extensive library of agricultural books and research data from world-wide sources. Visitors are welcome, by appointment.³⁶

6. Organic Agriculture Organizations; MOFGA

The small farmer is served by membership in organic organizations throughout the country. One example is the Maine Organic Farmers and Gardeners Association. It publishes a large newsletter that provides production information, marketing info, an advertising medium, and meeting information for MOFGA activities such as group purchasing of inputs, workshops, and farmers' markets.³⁷



For references to other state and local organic agriculture organizations, see listings in VI.C.3: Appropriate Technology and Biological Agriculture Organizations.

7. The Mother Earth News

The Mother Earth News monthly magazine has been a major leader of the back-to-the-land movement since 1970. TMEN focuses on self-sufficiency in both urban and rural areas. Response to TMEN has been such that the organization expanded to provide newspaper, radio, and TV "how-to" spots.

Other major developments have been the purchase of a large tract of land for a research center and ecological village. Each summer intensive workshops are held on the technologies of self-sufficiency: alternative energy sources (wind, water and solar), livestock and crop production, earth-sheltered homes, etc. Traveling workshops provide farmers all over the country with "how-to" information on gasohol production.

Mother's influence and readership in the alternative agriculture and lifestyle areas is such that her glowing endorsement of a new product can bring so many requests and orders that the inventor is forced from a basement operation to a good-sized business in the space of a few months.³⁸



8. Center for Rural Affairs

The Center for Rural Affairs is headquartered in Walthill, Nebraska. It is a non-profit group whose purpose is to aid rural development through providing information, conducting research and publishing reports. Areas of recent interest have been: energy use in agriculture, discrimination against small farmers in credit and legal situations, rate reform in electric utilities, improved rural utility services, use of ag research monies, organic agriculture, and the general misdirection of public policies which fosters the industrialization of agriculture.

The Center publishes four periodicals: the New Land Review, The Small Farm Energy Project Newsletter, the Small Farm Advocate, and the Center for Rural Affairs Newsletter.³⁹

9. The Washington Small Farm Resources Network

The Washington Small Farm Resources Network (out of the Blue Mountain Action Council) addresses Northwestern small farm problems. Different Network projects have organized local commodity groups, cooperative bulk purchasing of farm inputs, and local farmers' markets. Project members and VISTA volunteers research credit availability, marketing strategies, alternative agriculture methods, and write local news releases on small farm issues.⁴⁰

10. Washington Cooperative Extension

Washington Cooperative Extension has several counties with strong small farm programs and has around 20 limited resource farming project personnel. The project's priorities center around providing technical "how-to" information. Small-scale agriculture enterprises are researched for their capital requirements and potential profits. The emphasis is on educational materials, workshops, and the Small Farm Newsletter. Current agricultural information and Extension Bulletins are being researched and rewritten so as to be relevant to small-scale farmers.⁴¹

11. Tilth

Tilth is a regional association that focuses on agriculture in the Pacific Northwest. Local chapters serve as a framework for responding to both the urban and rural community needs. Past activities have included workshops, seed exchanges, farm tours, farmers' markets, apprenticeship programs, group purchases of ag inputs, and the promotion of land preservation programs. Emphasis is on information networks and local research. After 5 years of specialized research, Tilth published Winter Gardening in the Maritime Northwest. Tilth members are kept up to date via the quarterly journal, "Tilth".⁴²

12. Rural Venture and Control Data Corporation

Rural Venture (Minneapolis, Minnesota) is a subsidiary of CDC (Control Data Corporation), a large computer and credit corporation. It has one of the more ambitious small farm programs, especially for a private sector organization. Rural Venture states its purpose is "to plan, initiate and manage comprehensive programs for revitalizing existing rural areas, and for creating innovative small-scale agriculturally-oriented rural environments." The programs being implemented to accomplish this are many. However, two are of specific interest: (1) the experimental farm - 1500 acres of land divided into fifteen 100 acre farms that will act as a demonstration that "small farms are technically and economically feasible." As a backup RV and CDC are developing computerized small farm educational programs for transmission by their PLATO system terminals, with the view in mind to develop a world-wide small farm market for the small computers in twenty years; (2) grants - to develop small farm appropriate technology, CDC has made grants of over \$15 Million to universities and other organizations. One such was to Tuskegee Institute to develop PLATO education courses. Grants also addressed specific areas such as small-scale hog raising, beekeeping, alternative energy projects, specialty crop growing, small business planning, management and marketing.

Many other projects around the U.S. and in developing countries address the problems of small farmers and the rural poor.⁴³

13. National Rural Center

The National Rural Center Small Farms Project - NRC is an independent nonprofit organization specializing in research and development of policy alternatives concerning rural issues. The Center's Small Farm Project is completing a two-phase research program. Phase I involved two national workshops with diversified participation. The first focused on questions of small farm definitions. The second looked at research needs. Phase II brought together researchers to review the existing small farm knowledge and to propose a research agenda. The results to date include seven reports on public policy, energy, the U.S. tax system and the structure of agriculture, marketing, off-farm earnings, production efficiency and technology, and small farm information needs.⁴⁴

IV.C. Mini Small Farm Reference Library

The following publications are a sampling of the most current and useful references (of those I have read myself) for someone wishing to quickly look into the small farm situation. Those wishing to do more in depth research or to check out a specific aspect relating to small farms should turn to the several bibliographies listed in Chapter VI.

1. "Agricultural Economics Research and Extension Needs of Small-Scale, Limited-Resource Farmers," by Jerry G. West. Southern Journal of Agricultural Economics, July, 1979. 7pp
2. Can the Family Farm Survive? Special Report 219, 1978. University of Missouri, Columbia. 77pp
3. Co-operative Extension Small-Farm Programs in the South: An Inventory and Evaluation. Virginia Polytechnic Institute and State University, Research Division Bulletin 153, April, 1980. 86pp
4. A Dialogue on the Structure of American Agriculture: Summary of Regional Meetings, November 27 - December 18, 1979. USDA. 113pp
5. The Family Farm in California. Report of the Small Farm Viability Project, November 1977. 253pp
6. Information Needs and Sources for Michigan Small Farm Operators by Ralph Hepp and Thomas Olson. Michigan State University, AER 372. March 1980. 44pp



7. Missouri Small Farm Program: An Evaluation With a Control Group. University of Missouri. SR 176, 1975. 26pp
8. Information Needs Relating to Small-Farm Programs and Policies by William E. Saupe. ESCS Staff Report, July 1980. 38pp
9. Profiles of Families Living on Small Farms. University of Missouri Bulletin MP 518. 1980. 30pp
10. Regional Small Farms Conferences: National Summary and Regional Reports. USDA & CSA. December 1978.
11. Research, Extension, and Higher Education for Small Farms. Report of Ad Hoc Committee on Small Farms of the Joint Council on Food and Agricultural Sciences. December 1979. 51pp
12. Small Farms: A Review of Characteristics, Constraints, and Policy Implications. by James E. Horne. Southern Rural Development Center, SRDC #33, September 1979. 35pp
13. Small-Farm Issues: Proceedings of the ESCS Small-Farm Workshop. May 1978. ESCS-60. 73pp
14. Small Farm Programs: Implications from a Study in Virginia. Research Division Bulletin 135. Virginia Polytechnic Institute and State University. October 1978. 200pp
15. Small Farm Research Priorities in the North Central Region. N.C. Regional Center for Rural Development. Iowa State University, February 1979. 25pp
16. Structure Issues of American Agriculture. USDA & ESCS. AER 438, November 1979. 305pp
17. USDA Research and Extension on Family Farms. Hearings before the Subcommittee on Agricultural Resources and General Legislation. July 25 & 26, 1979. 211pp
18. "USDA Small Farm Policy: Emphasis on the Family." Issue Briefing Paper #28, September 19, 1980. 7pp.

IV.D. FOOTNOTES

¹Land grant complex refers to:
 a. the 1862 and 1890 agricultural colleges, created by the Morrill Acts;
 b. the state agricultural experiment stations, created by the Hatch Act in 1887, and
 c. co-operative extension service, created in 1914 by the Smith-Lever Act.

²Mark Ritchie. "The Loss of Our Family Farms: Inevitable Results or Conscious Policies?" 1979. 32pp

³Lauren Soth. "The End of Agrarianism: Fission of the Political Economy of Agriculture." American Journal of Agricultural Economics, 52:5 (December 1970), p. 655.

⁴Jim Hightower and Susan DeMarco. Hard Tomatoes, Hard Times. Schenkman Press, Cambridge, 1973.

⁵J. Belden, G. Edwards, C. Guyer and L. Webb, eds. New Directions in Farm, Land and Food Policies. Conference on Alternative State and Local Policies, Washington, D.C. (1979) p. 55-69.

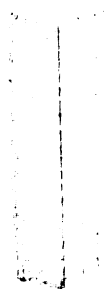
⁶Robert Lindsey. "And Now California Develops a Square Tomato," New York Times, March 8, 1977.

⁷Cesar Chavez, "Square Tomatoes and Idle Workers: The Farm Workers' Next Battle" 1977 in New Directions in Farm, Land, and Food Policies, pp. 176-178. (see #5 above)

⁸Ibid.

⁹Ibid.

¹⁰One might liken the current gaps in small farm research to those that exist in biological entomology. The advent of DDT switched the emphasis to pesticide research. Integrated pest management researchers must now make up for a thirty year gap in the biological aspects of their field.



¹¹Small Farm Viability Project. "The Family Farm in California" November 1977.

¹²Small Farm Advocacy Project - see Center for Rural Affairs under IV.B.

¹³Gene Logsdon and Jim Ritchie. "Can the Family Farm Survive the Eighties? Decade of Decision." (An interview with Harold F. Breimyer) "The New Farm" vol.3:1. January 1981, pp. 46-51.

¹⁴Jerry G. West. "Agricultural Economics Research and Extension Needs of Small-Scale Limited-Resource Farmers." Southern Journal of Agricultural Economics, vol. 11:1, pp. 49-56 (July 1979).

¹⁵United States Bureau of the Census. U.S. Census of Agriculture, 1974. Washington, D.C.: U.S. Government Printing Office, 1977.

¹⁶United States Department of Agriculture. "USDA Small-Farm Policy: Emphasis on the Family." Issue Briefing Paper #28. Office of Governmental and Public Affairs, Washington, D.C. September 1980. 7 pp.

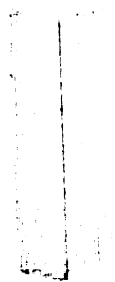
¹⁷A number of researchers treat with small farm research needs and critique the current research. Of particular interest are: a) Madden and Tischbein (see #18), b) West (see #14), c) Small Farm Viability Project (see #11), d) Saupe (see #26), and e) Allen R. Thompson, "Suggestions for Researching Small-Farm Questions" in Small-Farm Issues: Proceedings of the ESCS Small-Farm Workshop, May 1978. USDA, ESCS-60. Washington, D.C. 20250. July 1979.

¹⁸J. Patrick Madden and Heather Tischbein. "Toward an Agenda for Small Farm Research." American Journal of Agricultural Economics, vol. 61:5, pp. 940-946. (December 1979)

¹⁹Ibid., p. 944.

²⁰See West, #14.

²¹See Small Farm Viability Project, #11.



²²(1) Walter R. Goldschmidt. "Small Business and the Community: A Study in Central Valley of California on Effects of Scale of Farm Operations," U.S. Senate, Report of the Special Committee to Study Problems of Small Business, 79th Congress, 2nd Session, December 1946;

(2) also his update and return to the same research project: Walter Goldschmidt. As You Sow. Montclair, N.J. Allanheld, Osmun & Co., 1978.

(3) University of California, Davis, Study of Community Services Task Force in "The Family Farm in California" pp. 230-242. See #11.

²³National Rural Center, Bulletin. National Rural Center, Washington, D.C., January 1981. 2 pp.

²⁴USDA. Joint Council on Food and Agricultural Sciences. Research, Extension and Higher Education for Small Farms. Report of the Ad Hoc Committee on Small Farms. December 1979. 51 pp.

²⁵See #11.

²⁶William E. Saupe. Information Needs Relating to Small Farm Programs and Policies. USDA, ESCS Staff Report. Washington, D.C. 20250. July 1980. 38 pp.

²⁷Steven T. Sonka. "The Research Needs of Small Farmers" in Small Farm Issues: Proceedings of the ESCS Small Farm Workshop, May 1978. pp. 31-35. (see #17)

²⁸North Central Regional Center for Rural Development. Small Farm Research Priorities in the North Central Region. 108 Curtis Hall, Ames, Iowa, 50011. Iowa State University. February 1979. 25 pp.

²⁹See #28.

³⁰See #16.

³¹Ovid Bay. Small Farm Programs and Activities: States Reports, 1979. USDA, SEA-Extension. Washington, D.C. 20250. September 1980. 36 pp.

³²Co-operative Extension Small Farm Programs in the South: An Inventory and Evaluation. Virginia Polytechnic Institute and State University. Research Division Bulletin 153. April 1980.



³³Rural Advancement Fund and Graham Center Information leaflets, 1980. (see "Organizations" VI.C.1.).

³⁴Agricultural Marketing Project papers, 1980 (see "Organizations" VI.C.1.).

³⁵New England Small Farm Project information sheets, 1980. (See "Organizations" VI.C.1.).

³⁶Coolidge Center Quarterly vol.I:1, Winter 1980 (See "Organizations" VI.C.1.).

³⁷From several 1980 issues of the MOFGA newsletter (See "Organizations" VI.C.1.).

³⁸The Mother Earth News Magazine (see "Magazines and Newsletters" VI.C.2.).

³⁹Center for Rural Affairs "Annual Report," 1979. (See "Organizations" VI.C.1.).

⁴⁰Personal communication: Randal Son, WSFRN Project Director, July 1980.

⁴¹Personal communication: Tyler Clark, Skagit County Extension, July 1980; Steven Kraten, King County Extension, July 1980; Richard Carkner, Extension Economist at Washington State University, August 1980.

⁴²Tilth subscription and membership leaflet, 1980.

⁴³Rural Venture information packet, received from Pat Gorman, President, Rural Venture, October 1980.

⁴⁴See #18.

Chapter V

SMALL FARM MANAGEMENT EDUCATION

- A. Information Needs of Small Farmers
- B. Types of Small Farm Management Education Programs
 - 1. Traditional Extension
 - 2. Paraprofessionals
 - 3. Intensive Training
- C. Small Farm Education Materials
 - 1. Current Materials
 - 2. Recommendations for New Publications
- D. Small Farm Management Text - Some Thoughts
 - 1. Why?
 - 2. The Content
 - 3. An Outline
- E. Footnotes and Miscellaneous References

Chapter V

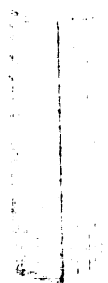
SMALL FARM MANAGEMENT EDUCATION

This chapter will start with a look at the information needs of small farmers (V.A.), followed by the current types of programs used for management education (V.B.). The advantages and disadvantages of current types of small farmer education materials will be discussed, along with recommendations for new materials (.V.C.). A proposed outline for small farm management text will finish the chapter (V.D.).

A. Information Needs of Small Farmers

Since "small farmers" exist as a broad spectrum (part-time, supplemental income farmers, part-retired farmers, subsistence, and other low-income farmers, etc.), one's information needs may be different from another's. To some extent information needs may vary with geographical area, agricultural enterprise, or even time of year.

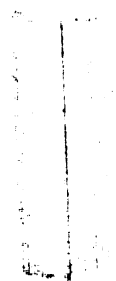
In Michigan, a research project evaluated the needs of limited resource farmers.¹ County Extension agents felt that a farm's stage of development, regardless of size, had a strong influence on information needs. Farmers just getting started asked more basic questions, while those in business longer asked more complicated



questions that reflected a good deal of thought. However, the agents felt that small farmers tended to ask more "how-to" types of questions on production technology, and were more interested in specific recommendations. Time of year was also considered important. "During the summer, farmers are busy and most questions are the 'brush-fire' type. Army worms were a problem common to each of the counties, and the questions asked by farmers were the same no matter what the size of the farm."²

The Michigan study looked at over 40 specific problems farmers might have, and asked farmers of different sizes to rank the problems according to level of importance. These problems were grouped into categories: technical, institutional, and human. Then the perceived importance of each category of information by farm size category was examined.

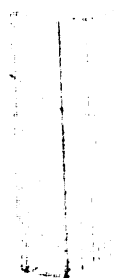
Small farmers did not consider technical problems as "very important" as often as large farmers did, and even more small farmers responded that some problems were "not important at all" than did any other size category. There seemed to be little relation between farm size and perceived importance of human problems.³ This variation in perception of problems may indicate that certain problems are more size related than might have been expected. However, it is very likely that small farmers have problems that they are not aware of.



The problems that Michigan small farmers rated as the most important were:

1. How to get better prices for your farm products?
2. How to cut down on the heating bill?
3. Keeping up-to-date on the records and farm accounts;
4. Personal or family health concerns;
5. Figuring how much fertilizer to use;
6. How to figure income tax;
7. Not knowing when to sell your farm products;
8. Problems with insects and disease;
9. Political issues (school bonds, highways, etc.);
10. How to raise children properly.⁴

Farmers in all size categories felt that farm product prices were the most important problem. Items 3, 5, 6, 7, and 8 were also in the top ten for large farms. Again, it is important to mention that particular information needs may be tied to location or enterprise. A minority sharecropper in the Deep South will have different needs from those of a part-time farmer who works fulltime on an assembly line.



B. Types of Small Farm Management Education Programs

The state Cooperative Extension Services are the main agencies involved with small farmer management education, though not, by far, the only source of information used by small farmers. Information can come from newspapers, magazines, radio or television. It can also come from dealers, salesmen, banks, farm organizations, or friends.

Frequently there is only one extension agent in any one county to serve the information needs of all the farmers, regardless of size, in the area. Small farmers may well represent 70-90% of all the farmers in the area and an agent's time and funding are limited. What kind of programs does extension use to meet the needs of local small farmers?

1. Traditional Extension

In some areas that have a large population of small farmers, the local agents may be somewhat puzzled by all the new uproar about the importance of serving small farm clientele, since that is what they've been doing for years. In other areas, by philosophical choice, there are no special small farm programs. These agents feel that dividing their clientele is discrimination and they prefer to serve all comers equally. Other agents will work with small farmers, but feel their primary commitment should be with the larger operators who contribute the majority

of products for the food and fiber system.⁵ Traditional communication methods are likely to be used: newsletters, weekly newspaper columns, workshops and the ever important telephone.

2. Paraprofessionals

While small farmers do make use of a wide spectrum of information sources, they tend to seek out their neighbors, friends and relatives more than do farmers of any other size.⁶ This phenomenon is much studied by rural sociologists and by those interested in "the diffusion of innovation" or the process of adaptation of new technologies.⁷

In each community, different friendship and interaction patterns exist that define certain key people as opinion leaders.⁸ Extension agents can concentrate on working with these farmers, knowing that the information will spread, through the natural communication lines of the community. This has been referred to as the "multiplier effect". The idea has been developed further to add a new dimension to the Cooperative Extension Service.

In the late 1960s Texas A&M University and the Texas Agricultural Extension Service initiated a pilot program using nonprofessionals (now called paraprofessionals) for Extension education.⁹ Previous studies had indicated that poorly educated, low-income small farmers made little use of the services offered by government agricultural agencies



such as Cooperative Extension.¹⁰ This serves to help increase the gap between the disadvantaged and the advantaged farm families.

In some cases the small farmers are unaware of the services available to them. In other cases they have a negative attitude to the agencies as being part of a generally unresponsive or even oppressive government ("them"). Under any circumstances, it was felt that sometimes a well educated, professional county agent might not be able to communicate effectively with the small farmers. In an attempt to remedy this problem, nonprofessionals who were members of the community were selected to act as small farm program aides. Where possible, people were picked who already had agricultural skills and had credibility in the community. Intensive training was provided where necessary.

The program received a favorable evaluation and similar programs have since been implemented around the country. Missouri Extension's Small Farm Family Program, in operation since 1971, also uses paraprofessionals to good advantage.¹¹ The Graham Center (see IV.B.2) in North Carolina functions as a training center for local small farmers. The farmers then return to their communities to act as farm improvement helpers and community organizers. A program in adult literacy is included along with agricultural training.

3. Intensive Training

Another form of small farmer educational program involves intensive training. A limited group (20-50) of small farmers in one particular area is selected, and participates in a long term, intensive program. It is generally expected that the program will last 2-3 years.

The Training Task Force of the California Small Farm Project analyzed the training requirements of a diverse group of small farmers and would-be small farmers.¹² This group included the whole spectrum from non-English-speaking people with limited formal education to back-to-the-landers or urban dropouts. Each group has different training needs. Some suggestions were that subsistence funding be available for the farmer during training, that training take place "on farm", and that credit availability be arranged with local lending institutions. Suggestions from other researchers are: a) the whole farm family be involved; b) the training programs include elements which will give quick cash results for those families which are desperate for income; c) the label 'low' or 'limited' income be avoided for program titles; d) programs include considerable one-to-one contact and as many real life demonstrations as possible; and e) the program have the endorsement of local community leaders.¹³ Another possibility in intensive training is an intensive subject-matter



workshop. One such example is Missouri Extension's Female Farrowing School.

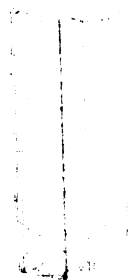
C. Small Farm Education Materials

Besides the newsletters, workshops, and in-training materials, continually duplicated in Extension and other offices around the country, what types of materials are available for a small farmer to learn the answers to his problems.

1. Current Materials

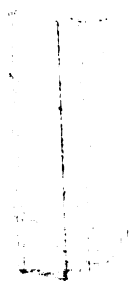
Many State Extension Services have bulletins specifically aimed at the needs of the small farmer. Missouri, for example, has a Small Farm Guide series, with 13 bulletins on cow-calf, dairy, and feeder pig enterprises, as well as pasture and building information.¹⁴ Michigan has a similar small farm series entitled "Farming-Know-How: Guidelines to Better Family Farming." There are bulletins on geese, sheep, winter wheat, tractors, feeder pigs, buildings and equipment for horses, sheep, beef and swine, roadside marketing, and enterprise selection.¹⁵

Other than bulletins (and other sources already discussed) the one remaining major information source is the popular book. Five years ago just of few of these were available. Today several hundred are on the market (see VI.B. How-To Books...). Many of these have been written in response to the large increase in urban-to-rural



migrants and the back-to-the-landers with interests in food and energy self-sufficiency. Depending on a farmer's objectives these materials have certain limitations. The books have little business management or decision making information in them. The styles are easy-to-read and frequently folksy. However, recent publications generally have more technical information included and will serve as good, basic manuals. After a would-be-farmer is familiar with the basics of a particular enterprise, more detailed information should be obtained either from a practicing farmer, Extension agent or a technical manual. (Books in the energy or construction categories are frequently an exception, having plenty of functional, applicable information.)

Another category of education material available is the farm magazine (see VI.C.2. Magazines and Newsletters). The sources for small farmers are limited, but improving. The Small Farmer's Journal emphasizes "practical horse farming," but provides other good enterprise information along with updates on government small farm policies. Countryside is a "serious homesteader's" magazine that emphasizes small livestock information. Tilth (Biological Agriculture of the Northwest) has an emphasis on crops and gardening, but provides a well-balanced spectrum of information on small farm marketing, resources, history and publications, and serves as an information exchange medium.



Finally, a new magazine got off to a good start and is getting better with time: Rodale Press' The New Farm. The main thrust is moderate organic agriculture, but an issue might cover Federal small farm policy, marketing, crop production problems, relevant economics, and many other topics in a clear and sometimes even scientific exposition.

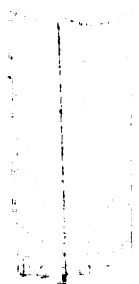
In spite of the few sources of information that are available, the small farm operator is frequently at a disadvantage when decision making time comes around. New publications are needed that remedy the weaknesses of those in the past.

2. Recommendations for New Publications

New materials should maintain an easy-to-read style, but include more specific production information. Decision making, record keeping and financial aspects should also be included unless the publication is aimed specifically at hobby farmers with no concern for expenses. Case histories would be of benefit in some formats.

Extension bulletins frequently could benefit by adapting an easy-to-read style. Bulletins are most effective when paced for the target audience. Occasional humor would not be out of place, and is even to be desired.

More small farm information on crops is needed, while there is a reasonable collection of livestock and gardening materials currently available.



D. Small Farm Management Text - Some Thoughts

1. Why?

As was mentioned much earlier, this paper is an outgrowth of the author's belief that there is a need for a small farm management text. That belief has been strengthened as the subject was researched.

A text is needed because currently available materials are insufficient in quantity and inadequate in scope. Most publications are not oriented toward decision making. Furthermore, most of the materials are limited as to audience.

The author envisions that the final form of the text will serve many purposes. The audience can include the entire spectrum that falls under the heading of "small farmer," so that the needs of part-time, full-time, limited-resource, self-sufficient, conventional and alternative agriculture farmers will be served. The text is not intended primarily to be a "how-to" manual, though aspects of that may be included. It is intended to serve mainly as an educational tool in management and decision making.

The expanded outline of the finished text could be used as a source for organizing management workshops and seminars. The different levels of the outline could provide the appropriate topics for meetings of different length (one hour, half-day, whole day, intensive workshops, etc.).

Ideally, the format of the finished text should be a collection of loose leaf units that are one to four pages long, that could be used as a whole or broken up for individual use. The terminology should be kept as simple as possible and an easy-to-read style maintained. Clearly explained illustrations and tables should be included, where appropriate, and a few cartoons or other bits of humor would not be out of order.

2. The Content

There should be three main areas of subject matter covered by the text: goal definitions and decision making, farm business management, and farm enterprise management.

Goal definitions is the first step in any form of decision making process. Getting a farm family to define its goals and objectives and to realistically look at the options is very important. This approach will prevent multiple headaches later when the family has to make choices between alternatives. The text should discuss the different types of small farmers so that a family can realize the options available and decide how to categorize itself.

For totally new farmers, "getting started" should be discussed. This is one area where there is a special need. The back-to-the-land movement of the 1970s saw



many families unprepared for the realities of farm life. Also, this is a good place to expose the reader to basic energy conservation and environmental issues to demonstrate the different management issues that will be decided at a later time. When that is complete, enterprise selection, farm business organization and a preliminary farm plan can be worked out. This is another part of the planning process that cannot be neglected. The above topics are the ones for which the least material is available to would-be small farmers. Yet, they are the most critical.

The second major topic area is the more traditional one of Farm Business Management. Many texts already cover this area for university students. Few, if any, explain the basic business principles in a sufficiently clear manner to meet the needs of the large variety of small farm audiences. This material is dry and potentially confusing to those without special training.

Of special importance to this section of the text is liberal use of case studies or practical examples. Farmers need to see that the theory has practical application.

As in the first section, references should be made along the way to the differences in decision making and management inherent in the variety of small farm operations.

The third major area is Farm Enterprise Management. This is an especially important section, as little decision

making information is available to small farmers on, for example, a goat dairy, a worm farm, or any other of a multitude of specialty and conventional enterprises. This section should include check lists of important decisions or decision categories, examples, and a reference list for accessing more information about each topic.

3. An Outline

Below is a rough outline covering the just discussed topic areas. It is not broken down to the suggested unit form and will have to be expanded and adjusted to fit appropriate unit length.

So many small farmers and would-be small farmers make mistakes that could be remedied by implementing a proper decision making process beforehand. The author hopes that the proposed text will serve as a management tool for avoiding some of these problems.

I. Goal Definition and Decision Making

A. So you want to be a farmer?

- Define family goals
- How to make decisions
- Profiles of types of small farmers
(part-time or supplemental income,
homesteading or self-sufficiency,
part-retired, limited-resource and
low-income, hobby, full-time)

B. Getting Started in Farming

- Farm appraisal and acquisition
- Resource inventory
- Organic agriculture, energy conservation, and environmental considerations
- Enterprise selection
- Farm business organizations

C. Making a Preliminary Farm Plan

II. Farm Business Management

A. Economic Principles

- Margins and profit
- Substitution principle
- Opportunity costs

B. Farm Records

- Accounting
- Cost concepts
- Income tax management
- Business analysis

C. Credit, Insurance and Sources

D. Ownership costs - DIRT

E. Budgeting

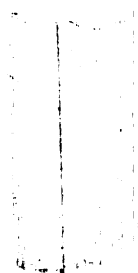
- Partial budgets
- Enterprise budgets
- Whole farm planning

F. Capital Budgeting

- G. Enterprise Records and Decision Making
 - Role of programmable calculator
- H. Marketing
 - Direct marketing
- I. Coops
- J. Labor Needs
- K. Off-farm Employment
- L. Retirement and Estate Planning

III. Farm Enterprise Management and Miscellaneous

- A. Land and Water Management
- B. Pest Management
- C. Field Crops
- D. Fruits, Vegetables, and Specialty Crops
- E. Forestry and Nut Trees
- F. Animals and Other Livestock
 - Dairy (cows and goats), beef, swine, poultry, sheep, horses, rabbits, fish, earthworms, etc.
- G. Farm Buildings and Greenhouses
- H. Tools, Machinery, and Draft Animals
- I. Energy
 - Conservation
 - Solar, wood, bio, wind
- J. Home Food Processing
- K. Farm Product Storage
- L. The Farm Home
 - Building your own



M. Rural Crafts

-Stone work, fencing, and small-scale
construction

N. Urban Agriculture



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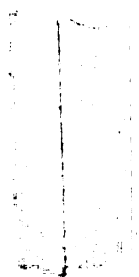
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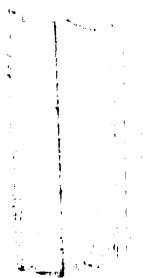
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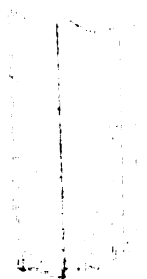
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Chapter VI

Bibliographies and Other Information Sources

Contents

- A. Small Farm Research Bibliography
 - 1. Bibliography
 - 2. Bibliography Source List
- B. How-To Books for Small Farmers, Gardeners and Homesteaders
 - 1. Farm Buildings and Equipment
 - 2. Gardening, Crops, Trees, Soils, Fertilizers, Pest Control, and House Plants
 - 3. Greenhouses
 - 4. Homesteading: How-To, History and Philosophy
 - 5. Livestock, Bees and Aquaculture
 - 6. Misc. Farm Management References
- C. Other Information Sources
 - 1. Organizations
 - 2. Magazines and Newsletters
 - 3. Appropriate Technology and Biological Agriculture Organizations
 - 4. Agencies of the U.S. Department of Agriculture
 - 5. Misc. Government Publication Sources



Chapter VI

Bibliographies and Other Information Sources

A. Small Farm Reference Bibliography

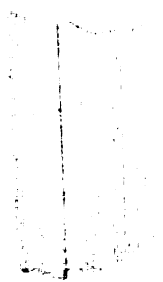
As mentioned earlier, one of the most difficult and frustrating aspects of researching small farm problems is the lack of available and/or accessible resource information.

The author originally undertook compiling a list of what seemed to be the few references existing. It quickly became obvious that, in reality, there were many references. However, without small farm bibliographies or indexing at libraries (as "small farm" has not been generally recognized as a specific category) these "many references" were extremely difficult to find.

Throughout this paper references have been cited that the author had the opportunity to read. Those many references cited other references that the author was not able to obtain in the limited time available. The following listing of approximately 800 references represents all these cited. To prevent an incorrect interpretation of abbreviations in the many different forms used by those authors, most citations have been retained in their original form. Also, as the author was unable to read those listings to determine precise

subject matter, it was impossible to break up the listings by subject matter. So, the entire 800 references are listed alphabetically by the name of the primary author and then by the title of the article or book.

To aid somewhat in interpreting the subject matter of the listing, the bibliography is followed by a list of the major reference sources and which pieces they cited (VI.A.2).



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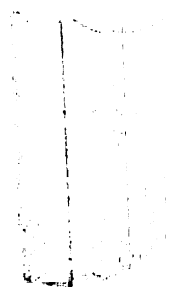
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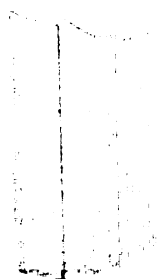


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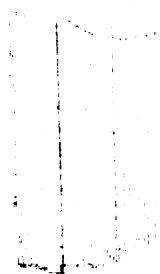
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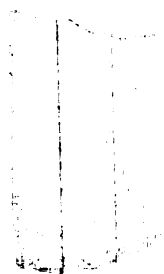


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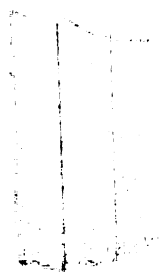


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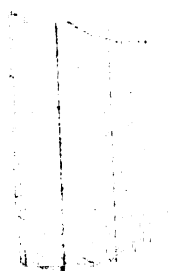


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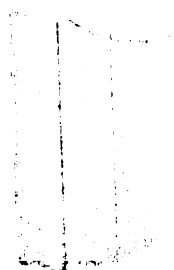
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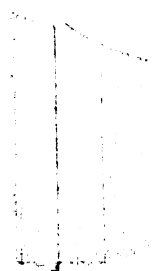
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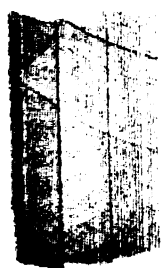
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702-711-712-713-714-715-738-749-753-754-755-756-
764-773-775-776-782-791-798-799.

VI.B. How-To Books for Small Farmers, Gardeners, and Homesteaders

The following listings include both popular books and a limited assortment of textbooks. Most are still in print and are available from the publisher or can be ordered from a local bookstore. Many of the popular books are available through the catalogs provided by Garden Way and The Mother Earth News:

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Garden Way Publishing

Charlotte, Vermont 05445

2) Mother's Bookshelf

Post Office Box 70

Hendersonville, NC 28739

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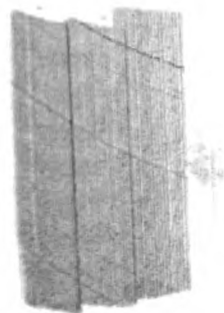
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VI.C. Other Information Sources

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Nashville, Tennessee 37204. (615) 297-4088.
Lindsay Jones, John Vicek, Laurie Heise.

AMP organizes farmers' markets, or "food fairs,"
in 19 southern cities. Issues excellent pamphlets
on food and agricultural issues for both consumers
and farmers. Field offices in Tuscaloosa, Alabama
and North Carolina.

Agricultural Teams Farm to Market Project. 436 Alameda
Avenue, Youngstown, Ohio 44504. (216) 743-1734.
Ron Daniels, Project Coordinator.

Project on direct marketing alternatives for low-
income and minority farmers.

American Agriculture Movement. Main Office, Springfield,
Colorado 81073. (303) 533-6223 or 523-6666; Washing-
ton Office, 308 2nd Street, S.E., Washington, D.C.
20003 (202) 544-5750.

AAM is the new farm organization which grew out of
the 1978 "farm strike" and the movement to enact 100%
parity at the federal level.

American Agri-Women. Estate Tax Issues Committee,
Springfield, Nebraska 68059. Doris Royal, Coordi-
nator.

Working committee on estate and inheritance tax
problems faced by farm women.

Black Land Services. Penn Community Center, P.O. Box 126,
Frogmore, South Carolina 29920. (803) 838-2669.
Joseph McDomick, Director.

Concentrates on the legal problems facing black land
owners in the "sea island" region of the Southeast.
Excellent paralegal booklet available; Got Land
Problems?

Blobaum and Associates. Main Office, 1340 42nd Street,
Suite A, West Des Moines, Iowa 50265. (515) 225-6035.
Roger Blobaum; Washington Office, 1346 Connecticut
Avenue, N.W., Washington, D.C. 20036. (202) 659-4367.
Joe Belden.

Blobaum and Belden are full-time consultants on
agricultural and food issues/policies.

Boston Farmers' Markets. Division of Land Use,
Massachusetts Department of Food and Agriculture,
100 Cambridge Street, Boston, Massachusetts 02202.
(617) 727-6633. Greg Watson.

Provides technical assistance and issues a newsletter
to community groups working on farmers' markets and
urban agriculture projects.

Boston Urban Gardeners. 300 Massachusetts Avenue,
Boston, Massachusetts 02115. (617) 267-4825.
Charlotte Kahn, Judy Wagner.

Coalition of neighborhood community organizations and
urban agriculture activists that provides technical
assistance, organizes workshops, and publishes a news-
letter, BUG.

California Agrarian Action Project. P.O. Box 464, Davis,
California 95616. (916) 756-8518. Paul Barnet, Don
Villarejo and Katherine Bertolucci.

Ongoing work on the impact of agricultural research
at the University of California; special emphasis on
the problems of California farm workers. Publications,
slide show and newsletter available.

California Food Policy Coalition. c/o Earthwork, 3410
19th Street, San Francisco, California 94110.
(415) 626-1266. Eleanor McCallie, Anna Hackenbrecht.

Coalition of consumer activists, public interest re-
search groups and church/hunger organizations working
on a broad range of agricultural and food policy
issues in California.

California Office of Appropriate Technology. 1530 10th
Street, Sacramento, California 95814. (916) 445-1803.
Gil Friend and Rosemary Menninger.

Issues "Grants News" and provides technical assistance,
contacts and small grants to groups working on a
variety of appropriate technology projects in Califor-
nia. A State Agency.

California Small Farm Viability Project. c/o Department of Employment Development & Rural Affairs, 800 Capitol Mall, MIC 77, Sacramento, California 95814. (916) 322-4440. Bill Myers, Director.

Issued an excellent report in 1977; "The Family Farm in California," with recommendations for new approaches and public policies for the state to adopt in order to support small and family farmers.

Center for the Biology of Natural Systems. Washington University, Box 1126, St. Louis, Missouri 63130. (314) 899-5327. Barry Commoner, Director.

Excellent research and comparative studies on the efficiency and viability of organic and ecological methods of crop production.

Center for Community Change (CCC). 1000 Wisconsin Avenue, N.W., Washington, D.C. 20007. (202) 338-6310. Pablo Eisenberg, Director; Norm Deweaver, Rural Development.

CCC monitors federal policies and programs affecting rural communities, farmworkers and small farmers. Provides information and technical assistance to rural community-based groups. Has helped to initiate a Rural Coalition; a network of groups which will together advocate for increased attention, funds and programs for rural communities - especially the rural poor.

Center for Rural Affairs. P.O. Box 405, Walthill, Nebraska 68067. (402) 84605428. Marty Strange, Don Ralston; Co-Directors.

Focusing on Nebraska, CRA's staff works on projects and research which supports family and small farmers; monitors federal, state and local policies; issues excellent publications on issues such as rural credit and irrigation issues. Publishes two newsletters; "New Land Review" and the "Center for Rural Affairs Newsletter."

Small Farm Advocacy Project. Gene Severens, Attorney; Chuck Hassebrook, Field Organizer.

CRA's project on legal assistance to small and family farmers.

Center for Rural Communities. Cooperative Extension Service, Stockbridge Hall, University of Massachusetts, Amherst, Massachusetts 01002. (413) 545-2715. Pat Sackrey, Christina Platt.

The Center is sponsoring a variety of innovative projects which support small and family farmers and encourage rural community economic development in Massachusetts.

Center for Science in the Public Interest (CSPI). 1755 S Street, N.W., Washington, D.C. 20009. (202) 332-9110. Michael Jacobson, Director.

Publications and information on nutrition, food quality and community/citizen action strategies on food related issues. Publications listing available.

Central Coast Counties Development Corporation (CCCDC). 7000 Soquel Drive, Aptos, California 95003. (408) 688-9000. Miguel Barragan.

CCCDC works with farmworker cooperatives and organizations in a multi-county area; providing technical assistance, training and financial advice.

Clearinghouse for Enforcement of the Reclamation Law. c/o Rural America, Inc., 1346 Connecticut Avenue, N.W., Washington, D.C. 20036. (202) 659-2800. Henry Hyde, Coordinator.

The Clearinghouse was established to coordinate information and activity on the 160-Acre Limitation/1906 Reclamation Law.

Community Nutrition Institute (CNI). 1146 19th Street N.W., Washington, D.C. 20006. (202) 833-1730. Ellen Haas, Rob Stein.

Monitors legislation and acts as an advocate on food and nutrition issues. Publishes excellent weekly newsletter; CNI Weekly Report.

Conference on Alternative State and Local Policies. Agriculture Project, 1901 Que Street, N.W., Washington, D.C. 20009. (202) 234-9382. Lee Webb, Executive Director, Cynthia Guyer; Coordinator, Ag. Project.

Focus is on state and local policy innovations. Publications, technical assistance, workshops and a "Clearinghouse on Alternative Legislation."

Connecticut Conservation Association. Northrop Street, Bridgewater, Connecticut 06572. Robert Kunz, Director.

Spearheaded effort to enact Connecticut's Farmland Preservation Bill (passed 1978). Issues reports on the need to protect agricultural land in the state.

Conservation Foundation. 1717 Massachusetts Avenue, N.W. Washington, D.C. 20036. (202) 797-4300. Robert Healy.

Publishes "Conservation Foundation Letter", \$1/issue. Book to be published in 1979 on preservation of agricultural land.

Consumer Federation of America (CFA). 1012 14th Street, N.W., Suite 901, Washington, D.C. 20005. (202) 737-3732. Kathleen O'Reilly, Director; Gary Rosenberg.

The largest consumer group in the U.S.A. Research and advocacy on consumer issues, including an ongoing focus on U.S. food and agricultural policies. Publishes a newsletter.

Cooperativa Central. Technical Assistance Project. 53 Russell Road, Salinas, California 93906. (408) 449-3996. Gabino Marquez, Director.

Technical assistance to farmworker agricultural cooperatives.

Cooperative League of the U.S.A. (CLUSA). 1828 L Street, N.W., Washington, D.C. 20036. (202) 672-0550.

National federation of customer owned businesses. Advocates for producer and consumer cooperatives, direct marketing and support for family and small farms. Publications list available.

Council on the Environment. 50 Chambers Street. New York, New York 10007. (212) 566-0990. Liz Christy, Director.

City-wide organization providing technical assistance, workshops, seeds, plants and publications to community groups working on urban agriculture projects.

Domestic Working Group on Hunger & Poverty. c/o National Council of Churches, 475 Riverside Drive, New York, New York 10027. (212) 870-2307. Mary Ellen Lloyd, Director.

An ecumenical task force concerned with U.S. food and agricultural policy. Organizes regional and state-wide conferences to bring people together around these issues at the local level.

Earthwork/Center for Rural Studies. 3410 19th Street, San Francisco, California 94110. (415) 626-1266. Mark Ritchie, Eleanor McCallie.

Clearinghouse of information on farm and land related issues (library, publications, films, etc.). List of publications is available.

Emergency Land Fund (ELF), and National Association of Landowners (NAL). 836 Beecher Street, S.W., Atlanta, Georgia 30310. (404) 758-5506. Joseph Brooks, Director.

ELF does excellent work on the legal problems facing black farmers and landowners. NAL is a membership organization of black farmers in the Southeast.

Environmental Action. 1346 Connecticut Avenue, N.W. Washington, D.C. 20036. (202) 833-1845. Victoria Leonard, Coordinator.

Advocacy on environmental issues. Publishes "Environmental Action" magazine and conducts "Dirty Dozen" campaign against anti-environmental members of Congress.

Environmental Defense Fund. 1525 18th Street, N.W. Washington, D.C. 20036. (202) 833-1484. Maureen Hinkle, pesticides coordinator.

Initiates lawsuits on problems threatening people and the environment, such as pesticides and food additives.

Environmental Policy Center (EPC). 317 Pennsylvania Avenue, S.E., Washington, D.C. 20003. (202) 547-6500. Louise Dunlap, Director; Jack Doyle, Energy and Agriculture Issues.

Excellent work on the impact of energy-related developments (strip-mining, power-line siting, etc.) on agricultural land and rural communities. EPC is an extremely effective lobbying group at the federal level.

Exploratory Project on Economic Alternatives (EPEA). 2000 P Street, N.W., Washington, D.C. 20036. (202) 833-3208. Gar Alperowitz, Jeff Faux.

Ongoing research and publications on national food policy alternatives. Published "Towards a National Food Policy" by Joe Belden and Greg Forte.

Farm Labor Organizing Committee. 714½ St. Clare, Toledo, Ohio 43609. (419) 243-3456. Baldemar Velasquez, Chairperson.

Organizing farm workers throughout Ohio. Coordinating a major, national boycott against Del Monte and Campbells in 1979.

Farralones Institute. Agricultural Training Center, 1800 Joy Ridge Road, Occidental, California 95465. (707) 874-2332. David Katz, Gil Friend.

Alternative training center to be established in 1978/1979. Emphasis on self-sufficiency and appropriate technology skills.

Federation of Southern Cooperatives. Rural Training Center, P.O. Box 95, Epes, Alabama 35460. (205) 652-9676. John Zipper, Charles Prejean.

Federation provides technical assistance to farmer cooperatives and rural, community-based organizations throughout the Southeast. Operates a Training Center in Alabama and an office in Atlanta.

Food Policy Center. 538 7th Street, S.E., Washington, D.C., 20003. (202) 547-7070. Marty Rogol, Director.

Research, information and lobbying on hunger, food and farm related issues -- both domestic and international. Involved with the White House Commission on World Hunger.

Food Research and Action Center (FRAC). 2011 Eye Street, N.W., Washington, D.C. 20006. (202) 452-8250. Roger Schwartz, Director; Jeff Kirsch, Deputy Director.

A public interest law firm and advocacy organization for federal feeding programs as they affect states and localities.

Graham Training Center. c/o Rural Advancement Fund. P.O. Box 95, Route 3, Wadesboro, North Carolina 29170. (704) 851-9346. John Gauci, Director; Cary Fowler, Resource Center.

Established in 1973 to provide innovative training opportunities to small farmers, sharecroppers and rural community organizations in the areas of agriculture and cooperative/community development.

Greenmarkets. 24 West 40th Street, New York, New York 10018. (212) 840-7355. Barry Benape, Director.

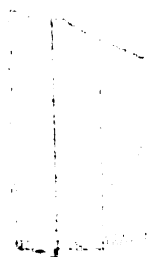
Technical assistance, contacts and resources on farmers' markets and direct marketing alternatives.

Hartford Food Systems, Inc. c/o Conn PIRG, 248 Farmington Avenue, Hartford, Connecticut 06105. (203) 525-8312. Jack Hale; Conn PIRG Director.

The non-profit organization which was set up to initiate and then operate the various components of the integrated system which was developed from the "Hartford Food Plan" under the City's initiative (1976-1977).

IMPACT. 110 Maryland Avenue, N.E., Washington, D.C. 20002. (202) 544-8636. Bob Odean, National Director.

Affiliated with the Interreligious Task Force on U.S. Food policy, IMPACT issues the action-oriented news bulletins. Twelve (12) state-wide IMPACT offices were established in 1978.



Institute for Food and Development Policy. 2588 Mission Street, San Francisco, California 94110. (415) 648-6090. Frances Moore Lappe, Joseph Collins.

Researches international food and agricultural issues, with emphasis on potential for food self-sufficiency in all countries. Lappe and Collins co-authored the excellent book, "Food First".

Institute for Local Self-Reliance. 1717 18th Street, N.W., Washington, D.C. 20009. (202) 232-4108. Tom Fox and Tessa Huxley, Urban Agriculture Project; David Morris, Director.

Offers technical assistance on community gardens, neighborhood parks, waste recycling, community-based economic development projects. Publication list available.

Institute for Policy Studies (IPS). 1901 Que Street, N.W., Washington, D.C. 20009. (202) 234-9382. Bob Borosage, Director; Eleanor LeCain, Food Policy.

Research and publications on the impact of U.S. policies on Third World countries.

Interfaith Center on Corporate Responsibility (ICCR). 475 Riverside Drive, Room 566, New York, New York 10027. (212) 870-2316. Bob Morris, Director, Agribusiness Project; Leah Margulies, Coordinator, Agribusiness Campaigns.

Coordinates church-related investments re: corporate accountability in the food and agricultural industries. Research and publications on agribusiness.

Interfaith Committee on Corporate Responsibility. 3410 19th Street, San Francisco, California 94110. (415) 863-8060. Robin Jurs.

Research on corporations in the food industry, focus on Del Monte and the impact of food corporations on local economies.

International Independence Institute (III). National Community Land Trust Center, 639 Massachusetts Avenue, Suite 316, Cambridge, Massachusetts 02139.

(617) 661-4661. Robert Swann, Director.

Excellent resource for information and technical assistance on land trusts and land banking concepts. III's book, "The Community Land Trust: A Guide to a New Model for Land Tenure in America," is the best available publication on the land trust concept.

Interreligious Task Force on U.S. Food Policy. 110 Maryland Avenue, N.E., Washington, D.C. 20002. (202) 543-2800. George Chauncey, Director; Buff Main.

Washington based staff working for the American religious community (the Task Force is interdenominational) on support for the family farm, nutrition policy, estate tax reform and international development assistance programs. Monitors federal programs and policies.

Domestic Food Policy Task Force. 245 Second Street, N.E., Washington, D.C. 20002. (202) L17-4343. Don Reeves, Director.

Monitors, testifies and lobbies on domestic agricultural and rural development legislation.

Maine Consortium for Food Self Reliance. P.O. Box 186, Hallowell, Maine 04347. (207) 622-3188 or 623-1667. Michael Schaaf, Coordinator.

A consortium of six active groups who are focusing on agricultural and food related issues and policies in the state of Maine.

Maine Food and Farmland Study Commission. State Planning Office, 184 State Street, Augusta, Maine 04333. (207) 289-3261. Chaitanya York, David Vail; Commission Members.

State Commission taking a comprehensive and integrated approach to future policy recommendations relating to agricultural and food issues in Maine.

Maine Organic Farmers and Gardeners Association (MOFGA). Box 187, 110 Water Street, Hallowell, Maine 04347. (207) 622-3118. Chaitanya York, Director.

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A dynamic, growing, membership-based organization providing information on organic agriculture, producer and consumer cooperatives and many other issues. Publishes an excellent newsletter, "The Maine Organic Farmer and Gardener."

Missouri Small Farm Project. Cooperative Extension, 228 Mumford Hall, University of Missouri, Columbia, Missouri 65201. (314) 882-2728. Edward Wiggins, Jerry West.

Uses successful small farmers as paraprofessionals in an extension program which provides production, marketing and management skills to limited-resource farmers. A publication summarizing the Program is available.

Migrant Legal Action Program. 806 15th Street, N.W., Washington, D.C. 20005. (202) 347-5100. Rafael Gomez, Director.

A Legal Services Corporation-funded support center, focusing on farm labor cases, for legal aid offices.

The Mother Earth News. Research and Seminars, P.O. Box 70, Hendersonville, NC 28791.

Publishes The Mother Earth News magazine, gives workshops and seminars on self-sufficiency and energy.

National Association of Conservation Districts. 1025 Vermont Avenue, N.W., Washington, D.C. 20005. (202) 347-5995. Neil Sampson, Director.

Organization of conservation districts and related state associations. Publishes a newsletter, the "Tuesday Letter," (\$10/year).

National Association of Farmworker Organizations (NAFO). 1329 E Street, N.W., Suite 1145, Washington, D.C. 20004. (202) 347-2407. Tom Jones, Director; Cliff Rosenthal and Susan Hoechstetter; Hunger & Nutrition Division.

Advocacy and monitoring on farmworker issues. Serves as an information clearinghouse and source of training for farmworker organizations. NAFO is a membership organization -- its members being local farmworker unions and groups throughout the country.

National Catholic Rural Life Conference. 3801 Grand Avenue, Des Moines, Iowa 50312. (515) 274-1582. Gerald Foley, Director.

Educational materials, workshops, training sessions, research and Rural Ministry Project. Focus on food policy, rural development and social change.

National Center for Appropriate Technology (NCAT). P.O. Box 3838, Butte, Montana 59701. (406) 723-6533. Miranda Smith, Urban Agriculture Project.

Sponsored by CSA, NCAT offers technical assistance and small grants to primarily low-income groups working on appropriate technology projects, i.e., in food production, solar technology, methane generation.

National Council of La Raza. 1725 Eye Street, N.W., Washington, D.C. 20006. (202) 659-1251. Raul Yzaguirre, President

AGRED 2403 San Mateo Boulevard, N.E., Albuquerque, New Mexico 87110. (505) 268-2421. Ray Lopez, Director.

La Raza's project; Assistance Group for Rural Economic Development provides technical assistance and training to individuals and community-based organizations in the Southwest.

National Extension Evaluation Project. United States Department of Agriculture (USDA), Room 6435-South Building, Washington, D.C. 20250. (202) 447-4478. Bill Wood, Director; Susan DeMarco, Research Staff.

A USDA in-house evaluation of the Extension Service. The "Final Report" will be issued to Congress in April 1979.

National Family Farm Coalition. 1346 Connecticut Avenue, N.W., Washington, D.C. 20036. (202) 483-1116. Catherine Lerza, Robin Rosenbluth; Co-Directors.

Coordinates information and public education on the "Family Farm Development Act" introduced to Congress in 1978.

National Farmers Organization (NFO). 720 Davis Avenue, Corning, Iowa 50841. (515) 322-3131. Oren Lee Stanley, President.

National headquarters. Non-partisan organization of farmers; major thrust is collective bargaining for sale of farm commodities.

NFO-Washington Office. 475 L'Enfant Plaza, S.W., Washington, D.C. 20024. (202) 484-7075. Charles Frazier, Director.

Legislative office; monitors federal legislation and programs affecting NFO members/farmers.

National Farmers Union (NFU). 12125 East 45th Avenue, Denver, Colorado 80239. (303) 371-1760. Tony Dechant, President; Victor Ray, Assistant to the President.

National headquarters. Organization of family farmers; conducts ongoing education and legislative programs and activities.

NFU-Washington Office. 1012 14th Street, N.W., Washington, D.C. 20005. (202) 628-9774. Robert Mullins and Ruth Kobell, Legislative Staff. Robert Lewis, Director.

Legislative office, monitors federal legislation and programs affecting NFU members/farmers.

National Land for People. 2348 North Cornelia, Fresno, California 93711. (209) 233-4727. George Ballis, Director.

Research, litigation and public education on issues involving land and water rights. Excellent work on the 160 Acre Limitation/Reclamation Law. Concerned

with both family farmers and farmworkers. List of publications and media presentations is available.

National Rural Center (NRC). 1828 L Street, N.W., Washington, D.C. 20036. (202) 331-0258. John Cornman, President. Heather Tischbein, Small Farm Policy Project.

Research, information and projects on a broad range of rural issues and policies; focusing on low-income rural communities. Information clearinghouse monitors federal rural policy legislation and programs. Regional offices in Atlanta and Austin. Publishes the excellent "Director of Rural Organizations" and other extremely useful publications.

National Rural Development and Finance Corporation (NRD & FC). 2101 L Street, N.W., Suite 916, Washington, D.C. 20037. (202) 659-2064. Alfredo Navarro, Director. Barbara Rose.

Non-profit corporation established in 1978 to address the problems of the rural poor using the techniques of community-based economic development. NRD & FC's goal is to develop an effective mechanism of providing development assistance, capital and other resources increasing economic opportunities for low-income, rural people.

Natural Resources Defense Council. Main Office, 122 East 42nd Street, New York, New York 10017. John Adams, Director. Washington Office, 917 15th Street, N.W., Washington, D.C. 20005. (202) 737-5000.

Litigation and research on a variety of environmental issues.

Neighborhood Technology Coalition. 909 Fourth Avenue, Seattle, Washington 98104. (206) 447-3625. Lucy Gorham, Coordinator.

City-wide coalition of community and technical assistance groups working on small-scale housing, energy, food, waste and water projects.

NETWORK. 1029 Vermont Avenue, N.W., #50, Washington, D.C. 20005. (202) 347-6200. Carol Coston, Director; Nancy Sylvester.

Catholic lobbying group for progressive national legislation on food and agriculturally-related issues.

New England Small Farm Institute. 33 King Street, Northampton, Massachusetts 01060. (413) 586-1101. Judy Gillan, Coordinator.

Proposed regional Training Center for small farm skills. Affiliated with both Women in Agriculture and the Center for Rural Communities in Massachusetts.

New York State Assembly Task Force on Food, Farm & Nutrition Policy. Room 404-Legislative Building, Albany, New York 12248. (518) 472-2330. Assemblyman Maurice Hinchey, Chairman

Assemblyman Hinchey established the Task Force to encourage more activity on agricultural and food issues within the New York State legislature.

North Central Regional Center for Rural Development. 108 Curtis Hall, Iowa State University, Ames, Iowa 50011. Research and publications related to rural development. (See listing for Southern Rural Development Center).

Northeast Task Force on Food & Farm Policy. Room 5 CW, The Capitol, Albany, New York 12248. (518) 472-6882. Mabel Gil, Coordinator; Assemblyman Hinchey, Chairman.

Network of state and local officials, activists, and others interested in food and agricultural policy for the Northeastern U.S. Publishes newsletter, sponsors conferences and meetings.

Organic Gardening and Farming Research Center. (Rodale Press) Kutztown, PA. Dr. Richard Harwood, Research Director.

Publishes technical reports on organic agriculture research, aquaculture, etc.

Pike Place Market Preservation and Development Authority.
85 Pike Street, Room 500, Seattle, Washington 98101.
(206) 625-4764. Frankie Whitman, Coordinator.

Provides technical assistance to various local projects such as a new farmer's equipment co-op and direct marketing efforts in Seattle and the surrounding area.

Resources for the Future. 1755 Massachusetts Avenue, N.W., Washington, D.C. 20036. (202) 462-4400.
Pierre Crosson.

Ongoing research on land use and the preservation of agricultural land.

Rural Advancement Fund/National Sharecroppers Fund.
2128 Commonwealth Avenue, Charlotte, North Carolina 28205. (704) 334-3051. Kathryn Waller, Director.

RAF/NSF has worked for over 30 years to provide technical assistance and training to small farmers and tenant farmers in the Southeast. Operates the Graham Training Center and Demonstration Farm in Wadesboro, North Carolina.

Rural America. 1346 Connecticut Avenue, N.W., Washington, D.C. 20036. (202) 659-2800. Clay Cochran, Director; Peggy Borgers and Henry Hyde, Food and Agriculture Policy.

National membership organization advocating on behalf of rural people. Monitors federal legislation and programs, conducts policy oriented research, organizes annual conferences and offers technical assistance on rural issues/policies. Publishes an excellent monthly newsletter, "Rural America."

Rural American Women. 1522 K Street, N.W., Washington, D.C. 20005. (202) 785-4700. Jane Threatt, Director.

Membership and advocacy organization concerned with problems of rural women. Publishes a regular newsletter, "Rural American Women."

Rural Resources and Information. P.O. Box 567, Magic Springs, ID 83845. Michael Pilarski.

Seattle Department of Community Development. 400 Zester Building, Seattle, Washington 98104. (206) 625-4492. Daryl Grothaus, Director; Susan Appel.

Developing and supporting programs for neighborhood groups aiming to reduce food costs through alternative food projects. Leveraging federal community development funding for these local efforts.

Second Harvest Food Banks. 819 North Third Street, Phoenix, Arizona 85004. (602) 254-7458. Bob McCarty, John Van Hengel.

National food salvage/gleaning network which provides ongoing technical assistance, workshops and issues a newsletter.

Small Farm Energy Project. P.O. Box 736, Hartington, Nebraska 68739. (402) 254-6893. Dennis Demmel, Ron Krupka.

Demonstration and research program helping small farmers install and use alternative energy systems. A model for what the county extension service could be doing in this field. The Project issues a newsletter.

Small Farmer's Journal. P.O. Box 197, Junction City, Oregon 97448. Publishes Small Farmer's Journal featuring practical horse farming. Helps coordinate small farm activities in Pacific Northwest.

Soil Conservation Society of America. 7515 Northeast Ankeny Road, Ankeny, Iowa 50021. Max Schnepf.

Ongoing concern about land use related issues. Publishes the "Journal of Soil and Water Conservation" (\$15/year).

Southern Cooperative Development Fund (SCDF). 1601 Surrey Street, Lafayette, Louisiana 70501. (318) 232-9206. Reverend McKnight, Director.

A strong organization providing technical and financial assistance to a great number of rural community economic development projects throughout the Southeast. SCDF's "Annual Report" is available.

Southern Rural Development Center. Box 5406, Mississippi State, MS 39762.

The SRDC is one of four regional rural development centers in the nation. It coordinates cooperation between the Research (Experiment Station) and Extension (Cooperative Extension Service) staffs at land-grant institutions in the South to provide technical consultation, research, training, and evaluation services for rural development.

Southern Rural Policy Congress. 915 South Hull, Montgomery, Alabama 36104. (205) 263-1397. Bill Harrison, Director.

An organization established to coordinate the efforts of the major, progressive organizations in the Southeast concerned with the effects of federal, state and local policies on low-income rural communities and small, limited-resource farmers.

Texas Farmworkers Union. P.O. Box 876, San Juan, Texas 78589. (512) 787-5984. Antonio Orendain, Director.

TFWU is organizing farmworkers state-wide. Publishes a regular newsletter which updates the Union's activities (bi-lingual).

Texas Intensified Farm Planning Program. A & M University Cooperative Extension Program, Drawer B, Texas A & M University, Prairie View, Texas 77445. (713- 857-2023. Hoover Carden, Dempsey Seastrunk.

An extremely effective extension program using para-professionals in local communities to assist low-income farmers and rural residents.

Tilth Association. Route 2, Box 190-A, Arlington, WA 98223.

Publishes Tilth journal, conducts alternative agriculture research for Pacific Northwest; coordinates P.N. small farm activities; does technical and research consulting.

Trust for Public Land. 82 Second Street, San Francisco, California 94105. (415) 495-4014. Steve Costa.

95 Madison Avenue, New York, New York. (212) 689-8833.
Peter Stein.

Provides information, training, technical assistance and financing for community ownership of land, assisting in a variety of open space projects, including community gardens and parks.

Tuskegee Institute. Cooperative Extension, Tuskegee, Alabama 36088. (205) 727-8011. Philip Brown, Dir.

Tuskegee's extension program works specifically with low-income, minority farmers in Alabama. Publications are available.

Small Farm Demonstration Project. Tuskegee, Alabama 36088. Booker T. Whatley, Director.

Professor Whatley is developing a "model farm" which will test crop varieties, production methods and consider marketing outlets -- all geared towards the small, limited-resource farmer in the Southeast.

TVA. Ag Marketing Research Development Section, National Fertilizer Development Center, Tennessee Valley Authority, Muscle Shoals, Alabama 35660. Joe Free.

Small farm and general agriculture research and publications.

United Farmworkers of America AFL-CIO. Box 67, Keene, California 93531. (805) 822-5571. Cesar Chavez, President; Dolores Huerta, Vice-President.

Headquarters of the first, most successful farmworkers' union. The UFW has concentrated its organizing and legislative efforts in California, but is a national union which intends to expand into other states where farmworkers remain unrepresented and unprotected.

Urban Land Institute. 1200 18th Street, N.W. Washington, D.C. 20036. (202) 331-8500. Ronald Rumbaugh, Executive Vice-President.

Publishes "Environmental Comment" \$25/yr., monthly. Runs articles in agricultural land preservation. See especially the entire issues; May 1975 and January 1978.

U.S. Farmers Association. Box 496, Hampton, Iowa 50441.
Fred Stover, President; Merle Hansen, Vice-President.

The smallest and most progressive of the national
farm organizations. State chapters. Publishes "U.S.
Farm News."

Washington Small Farm Resources Network. 19 E. Popular
Street, Walla Walla, WA 99362, or 1505 Tenth Avenue,
Seattle, WA 98122.

Coordinates local small farm activities.

Women's Family Farm Project. United Methodist Church,
475 Riverside Drive, New York, New York 10027.
(212) 678-6161. Ruth Gilbert, Coordinator.

Works with rural women throughout the country on a
variety of issues of concern such as estate and in-
heritance tax problems, protection of farmland, and
inadequate social services to rural communities.

Women in Agriculture. 133 King Street, Northampton,
Massachusetts 01060. (413) 545-0648. Pat Sackrey,
Christina Platt, Judy Gillan.

Organization and network of individuals in Massa-
chusetts who are actively involved in many critical
rural and agricultural issues.

2. Magazines and Newsletters

This is a listing of some of the publications that address small farm related interests. Included are addresses and subscription rates as of 1980.

Acorn/Midwest Energy Alternatives Network. Governor's State University, Park Forest South, IL 60466. Bimonthly. \$6/yr.

Acres, U.S.A. A Voice for Eco-Agriculture. P.O. Box 9547, Daytown, MO 64133. Monthly, \$7/yr. Emphasis on productive alternatives to chemical farming for commercial farmers.

Alternative Market News. 8Earth Cyders, Rt. 1, Box 9C, Edwall, WA 99008. \$5 or donations. Coordinates contact for growing of experimental field crops and seed sources.

Alternative Sources of Energy. Route 2, Box 90A, Milaca, MN 56353. Bimonthly, \$10/yr. Includes articles on wood heat and farm energy sources.

Blair & Ketchum's Country Journal. 139 Main, Brattleboro, VT. 05301.

Co-Evolution Quarterly. Box 428, Sausalito, CA 94965. Quarterly, \$12/yr. (In the tradition of the Whole Earth Catalog.)

Communities: A Journal of Cooperative Living. Drawer 426, Louisa, VA 23093. Bimonthly. \$6/yr.

Compost Science/Land Utilization. JG Press, Box 3511, Emmaus, PA 18049. Bimonthly. \$20/yr. Journal of waste recycling.

Countryside. 312 Portland Rd., Waterloo, Wisc. 53594. Monthly. \$12/yr. "Serious homesteading."

Country Women. Box 51, Albion, CA 95410. 5 issues. \$6/yr.

Dairy Goat Journal. P.O. Box 1808 C-4, Scottsdale, Arizona 85252. \$11/yr. A breeder's journal.

The Draft Horse Journal. Rt. 3, Waverly, IA 50677. Quarterly. \$6/yr.

Elements. Public Resource Center, 1747 Connecticut Ave., N.W., Washington, D.C. 20009. 9 issues. \$7/yr. Frequent articles on agriculture, energy, and nutrition.

Farmstead Magazine. P.O. Box 111, Freedom, Maine 04941.
8 issues. \$12/yr. Home gardening and small farming.

Food Monitor. Food Monitor, Inc., P.O. Box 1975, Garden City, Long Island 11530. 11 issues, \$15/yr. Articles on family farms, agricultural policy, nutrition, rural development and food aid programs overseas.

40 Acres and A Mule. Emergency Land Fund, 836 Beecher Street, S.W., Atlanta, Georgia 30310. Bi-monthly, \$2/yr.

The Green Revolution: A Voice for Decentralization. School of Living, Rt. 7, Box 388A, York, PA 17042. Ten Issues, \$8/yr.

Harronsmith. Camden East, Ontario, Canada K0K1J0. 8 issues, \$10/yr. Homesteading in Canada.

In Business. JG Press, Box 323, 18 S. Seventh St., Emmaus, PA 18049. Bimonthly, \$14/yr. Emphasis on skills for alternative and traditional small businesses.

The IPM Practitioner. Bio-Integral Resource Center, P.O. Box 7242, Berkeley, CA 94707. Monthly; \$10 non-professional, \$25 professional.

The Journal of the New Alchemists. The New Alchemy Institute, P.O. Box 432, Woodshole, MA 02543. Once a year, \$10. Aquaculture and self-sufficient living systems.

Land, People, Food. National Land for People, 2348 North Cornelia, Fresno, California 93711. \$10/yr includes membership to NLP. \$5/yr for low-income membership and subscription. Covers family farm issues, farmworkers, water and irrigation issues, land ownership, corporate farm.

The Maine Land Advocate. P.O. Box 2762, 183½ Water St., Augusta, ME 04330. Quarterly. \$5/yr. Emphasis on land trusts.

The Maine Organic Farmer and Gardener. P.O. Box 187, 110 Water Street, Hollowell, Maine 04347. Bi-monthly. \$6/yr.

The Mother Earth News. Editorial and Subscription offices: P.O. Box 70, Hendersonville, North Carolina 28791.

Bi-monthly, \$15/yr. Emphasis on alternative energy and lifestyles, ecology, working with nature, and voluntary simplicity.

The New Farm. Rodale Press, Inc., 33 E. Minor Street, Emmaus, PA 18049. Bimonthly. \$10/yr. Emphasis on Small-Scale and Organic Farming.

New Land Review. Center for Rural Affairs, P.O. Box 405, Walthill, Nebraska 68067. \$.50 per issue. Published quarterly. Covers farm related issues and policies in Nebraska--of particular interest to people and organizations in the Great Plains region.

Newsletter of the Northeast Task Force. Northeast Task Force for Food and Farm Policy, Room 5CW--The Capitol, Albany, New York 12248. Free. Updates policy innovations and legislative activities for over 10 states in the Northeast region.

NFO Reporter. National Farmers Organization, 475 L'Enfant Plaza, S.W., Washington, D.C. 20024. Monthly. \$2/yr for non-members. Monitors federal legislation, programs and Congressional activities.

Rabbits. 312 Portland Rd., Dept. 7, Waterloo, Wisconsin 53594. \$7/yr.

Rain. 2270 N.W. Irving, Portland, Oregon 97210. 10 issues, \$10/yr; \$5/yr low-income subscription rates. Alternative technology topics.

Rural America. Rural America, 1346 Connecticut Avenue, N.W., Washington, D.C. 20036. Monthly, \$10/yr newsletter and membership. An excellent newsletter with articles on a variety of rural issues, programs, policies and events.

Self-Reliance. Institute for Local Self-Reliance. 1717 S Street, N.W., Washington, D.C. 20009. Monthly, \$6/individuals; \$12/institutions. Concentrates on urban and neighborhood issues; waste recycling, urban gardens, farmers markets, community parks.

Sheep. Hwy 19E, Waterloo, Wisconsin 53594. \$9/yr.

The Small Farm Advocate. Center for Rural Affairs, P.O. Box 405, Walthill, Nebraska 68076. Quarterly. \$7/yr. Surveys legal and administrative issues affecting small and low-income farmers.

Small Farmer's Journal. P.O. Box 197, Junction City,
Oregon 97448. Features practical horse farming.
Quarterly \$10.yr.

Tilth. Tilth Association, Route 2, Box 190-A, Arling-
ton, Washington 98223. Quarterly, \$5/yr. Journal
of alternative agriculture for the Pacific Northwest.

Wood Burning Quarterly. 8009 34th Ave. So., Minneapolis,
MN 55420. Quarterly, \$4.95/yr.

3. Appropriate Technology and Biological
Agriculture Organizations

Most of the following addresses were supplied by
the Organic Gardening and Farming Research Center Staff
at Kutztown, PA.

ACCESS. John Shade. University of Wisconsin, 3203 N. Downer, Milwaukee, WI 53201.

Acorn magazine. Midwest Energy Alternative Network. Governors State University, Park Forest South, IL 60466.

Alternative Energy Resources Organization. (AERO) 435 Stapleton Building, Billings, MT 59101.

Alternate Sources of Energy magazine. Route 2, Box 90-A, Milaca, MN 56353.

Appropriate Technology Center. 82 Allen Hall, Urbana, IL 61801.

Appropriate Technology International. (ATI) c/o Agency for International Development (AID). U.S. State Department, Washington, D.C. 20523.

Appropriate Technology Research. 1938 Hano Road, Santa Fe, NM 87501.

Brace Research Institute. P.O. Box 400, McDonald Campus of McGill University, Sainte Anne de Bellevue 809, Quebec, CANADA. Publisher of: A Handbook on Appropriate Technology.

Center of Concern. 3700 13th Street, N.E., Washington, D.C. 20017.

Co-Evolution Quarterly magazine. Box 428, Sausalito, CA 94965.

Conservation Tools and Technology, Ltd. (CTT) P.O. Box 134, Surrey KT26PR ENGLAND.

Coolidge Center for the Advancement of Agriculture. Eliot Coleman, Director, 17 Bradstreet Lane, Topsfield, MA 01983.

Doing It! magazine. Box 303, Worthington, OH 43085.

Earthcare Information Center. Mr. Paul Hanley, Box 1048, Wynyard, Saskatchewan, CANADA SOA 4T0.

East-West Center. Technology and Development Center, Honolulu, HI 96822.

Ecological Agriculture Project. Box 225, Macdonald Campus of McGill University, Quebec, CANADA H9X1C0.

Ecotope Group. Box 618, Snohomish, WA 98290.

Environmental Institute. Blaisdell House, University of Massachusetts, Amherst, MA 01003.

Farallones Institute. P.O. Box 700, Point Reyes, CA 94956.

Friends of the Earth. 530 Seventh Street, SE, Washington, D.C. 20003.

The Futurist magazine. World Future Society, P.O. Box 30369, Bethesda Branch, Washington, D.C. 20014.

Groupe de Recherche sur les Techniques Rurales. (GRET)
34 rue Dumont d'Urville, 75-775 Paris, Cedex 16,
FRANCE

IFOAM Secretariat. c/o The Coolidge Center, Riverhill Farm, 17 Bradstreet, Topsfield, MA 01983.

Institute for Local Self-Reliance. 1717 18th Street, N.W., Washington, D.C. 20009.

Intermediate Technology. 556 Santa Cruz Avenue, Menlo Park, CA 94025.

Intermediate Technology Development Group (ITDG).
Intermediate Technology Publications, 9 King Street, Landon, ENGLAND. Publisher of: Appropriate Technology, a quarterly journal.

Note: All United States inquiries for ITDG Publications should be sent to: International Scholarly Book Services, Inc., P.O. Box 555, Forest Grove, OR 97116.)

International Development Research Center. Box 8500, Ottawa, K1G 3H9 CANADA.

International Rice Research Institute. Agricultural Engineering Department, Manila, PHILIPPINES.

Land Institute. Route 3, Salina, KS 67401.

Maine Organic Farmers and Gardeners Assoc. Box 188, 95 Second Street, Hallowell, ME 04347

Minimum Cost Housing Group. School of Architecture, McGill University, Montreal, Quebec, CANADA.

National Centre for Alternative Technology. Llywngwern Quarry, Pantperthog, Machynlleth 2400, Powys, WALES.

National Center for Appropriate Technology (NCAT). Box 3838, Butte, MT 59701.

New-Age Foods Study Center. P.O. Box 234, Lafayette, CA 94549.

New Alchemy Institute. P.O. Box 432, Woods Hole, MA 02543.

NOFA (Natural Organic Farmers Association). P.O. Box 86, Greensboro Bend, VT 05842.

Office of Appropriate Technology (OAT). Box 1677, Sacramento, CA 95808.

Organic Gardening and Farming magazine. Rodale Press, Inc., Organic Park, Emmaus, PA 18049.

Piedmont Organic Growers. Mrs. William H. Chandler, Route 4, Boiling Road, Taylors, SC 29687.

Rain magazine. 2270 NW Irving, Portland, OR 97210.

Research Institute of Biological Husbandry. Postfach, CH-04104 Oberwill BL, Switzerland.

Rural Education Center. Stonyfield Farm, Wilton, NH 03086.

Small Industry Development Network. Georgia Institute of Technology, Industrial Development Division, Atlanta, GA 30322.

Technical Assistance Information Clearing House (TAICH). 200 Park Avenue South, New York, NY 10003. Publisher of: TAICH News.

TOOL Foundation. P.O. Box 525, Eindhoven, NETHERLANDS.

Total Environmental Action, Inc. Solar slides & Solar Age Magazine. Box SA5, Church Hill, Harrisville, NH 03450.

Transnational Network for Appropriate/Alternative Technologies (TRANET). 7410 Vernon Square Drive, Alexandria, VA 22306.

Undercurrents, Ltd. 11 Shadwell, Uley, Dursley,
Gloucestershire, ENGLAND.

Volunteers for International Technical Assistance (VITA).
3706 Rhode Island Avenue, Mount Rainier, MD 20822.
Publishers of: Village Technology Handbook.

Volunteers in Asia, Inc. (VIA). Box 4543, Stanford,
CA 94305. Publisher of: Appropriate Technology
Sourcebook.

4. Agencies of the U.S. Department of Agriculture

Source: New Directions in Farm, Land, and Food Policies. Conference on Alternative State and Local Policies. Washington, D.C. 1978. pp. 12-314.

The U.S. Department of Agriculture (USDA) has local offices at the regional, state and county level. These include the following agencies.

Agricultural Stabilization and Conservation Service (ASCS).

Ten special rural development/conservation projects in 10 states have been funded at \$1.3 million to help small farmers solve conservation and water quality problems. ASCS conducts the USDA cost sharing programs with farmers that install needed soil, water, woodland and wildlife conserving practices, and the Federal Crop Insurance Program which provides farmers with all-risk insurance that repays crop production costs lost because of bad weather, insects, disease and other unavoidable natural causes.

Farmers Home Administration (FmHA).

The FmHA provides loans, grants and technical advice to small farm operators including: ownership, operating and emergency farm loans; financing single and multiple rural homes for people unable to satisfy financial needs elsewhere.

Cooperatives: Economics, Statistics, and Cooperative Services (ESCS).

ESCS provides organization and management help to cooperatives in connection with financing provided by the Farmers Home Administration and other organizations.

County Agents: Cooperative Extension Service (CES).

Extension Service is the educational arm in the field for the Department of Agriculture and Land Grant universities and colleges; including the 1890 colleges. There is a county Extension office in nearly every county in the nation and it is usually located in the county seat town--listed under county government in the telephone directory. County agents have materials on production, marketing, nutrition, rural and community development and 4-H youth programs.

Food and Nutrition Service (FNS).

The FNS conducts the Food Stamp Program for low-income households. Some small farm families qualify for food assistance programs administered by USDA in cooperation with appropriate state and local agencies.

Forest Service (FS).

Together, the Forest Service and State Forestry agencies give technical advice to small private non-industrial forestry landowners to help bring their woodlots under improved management. Increased production of fuelwood, pulpwood, and sawtimber can provide supplemental income. Help is available to contact buyers of these forest products. After tree harvest, assistance is given with tree planting and other management activities to maintain production and improve the property.

Soil Conservation Service (SCS).

Through local Conservation Districts, farm families request technical assistance to develop conservation plans and apply needed practices for the protection and proper use of soil resources, water and wildlife. Increasing production of pastures, range lands and crops may provide increased income.

Briefly, that is a summary of services and programs of USDA agencies with local offices. Programs of these agencies and others operating programs out of USDA headquarters in Washington, D.C. are listed in further detail as follows:

Agricultural Stabilization and Conservation Service (ASCS).

Administers programs to maintain production of wheat, feed grains, substitute crops or soybeans, at a level sufficient to satisfy market demand and meet food and feed assistance commitments through purchases and loan and price guarantees. Administers a cotton program to assure adequate, but not excessive, supplies through purchases and loan and price guarantees. Administers acreage allotments and marketing quotas when applicable under law to certain major crops, to help keep supplies in line with demand. Administers loans, purchases and payments specified by law, and manages commodity inventories. Administers the National Wool Act and the Dairy Program. Administers programs to help obtain

adequate farm and commercial storage drying equipment for farm products. Administers cost sharing programs with farmers to install needed soil, water, woodland, and wildlife conserving practices and pollution prevention and abatement practices of enduring community-wide benefits under the Agricultural Conservation Program (ACP). Conducts monitoring activities during periods of anticipated shortages of fuel, fertilizer, pesticides and other key farm production items. Assists and cooperates with the Foreign Agricultural Service in making government-held food stocks available for foreign assistance program. The Commodity Credit Corporation, administered by ASCS, with its \$25 billion borrowing authority (effective October 1, 1978), finances the commodity stabilization program, domestic and export programs, including commodity disposal, foreign assistance, storage activities and related programs and operations of the Department. Administers the Federal Crop Insurance Program which provides farmers with all-risk Insurance that repays crop production costs lost because of bad weather, insects, disease and other unavoidable natural causes.

Agricultural Marketing Service (AMS).

Helps the marketing system move food and other farm products from producer to consumer. Establishes standards for grades. For instance, the Federal Grain Inspection Service operates acceptance services to make sure contract specifications are agreed to by individual firms.

Animal and Plant Health Inspection Service (APHIS).

Helps safeguard the health and quality of the nation's animals and plants. Protects consumers by maintaining a strong system of Federal-State inspection of meat and poultry products to assure wholesomeness and truthful labeling. Maintains close surveillance of all animal and plant imports, cargoes, and passengers' baggage for foreign pests or disease. Cooperates with the states and the agricultural industry to eradicate and control animal diseases of national importance. Cooperates with the states and industry to control or eradicate native or alien pests and diseases of plants which pose an interstate menace. Administers the Federal Meat Inspection Act and the Poultry Products Inspection Act.

Forest Service (FS).

Directs multiple-use management programs on forest and rangelands of the 187 million acre National Forest System, an area covering one-twelfth of America's land. Located in 44 states and Puerto Rico, the 155 National Forests in the System contain the major resources of timber, forage, watersheds, wildlife habitats, outdoor recreation, minerals and natural beauty. Carries on cooperative programs on about 400 million acres on non-Federal commercial forest lands with state foresters, other state, public and private organizations, private owners of forested lands (small woodland owners and wood processors). Concerns itself with marketing and utilization of forest products, prevention and suppression of wildfires, land use planning, urban forestry, river basin surveys, control of forest insects and diseases, flood prevention, watershed protection, and forest management incentives to small forest owners (such as the production and distribution of seedling and planting stock). Other cooperative programs stimulate the proper management of state, county, municipal and community forests.

Economics, Statistics and Cooperatives Service (ESCS).

Analyzes factors affecting farm production and their relationship to the environment, prices and incomes, and the outlook for various commodities. Studies production efficiency; marketing costs and potentials; rural development and natural resources; agricultural trade, production and Government policies. Estimates crop and livestock production and prices paid and received by farmers. Keeps statistical methods used by USDA accurate and responsive to changing needs. Conducts economic research to help farmers market their products and purchase supplies cooperatively. It also helps all rural people to obtain other business through cooperatives. Assists farmers and other rural people by conducting educational work to help them improve the effectiveness of their cooperatives.

Farmers Home Administration (FmHA).

Provides loans, grants and technical advice to farm and other rural and small town people and their communities unable to satisfy financial needs elsewhere for rural development and related purposes. Administers loans

and grants through county FmHA offices for many types of agricultural, housing, community facility and business and industry purposes. This assistance includes but is not limited to: ownership, operating and emergency farm loans; financing modest but adequate single and multiple rural homes; financing water, sewer, health, fire-fighting, educational and similar facilities; and guaranteeing payment of business and industry loans made by conventional lenders.

Food and Nutrition Service (FNS).

Administers USDA programs to provide food assistance to all Americans who need such help, in cooperation with appropriate state and local agencies. Administers the Food Stamp Program that enables low-income households to buy more food of greater variety to improve their diets.

The Packers and Stockyards Administration (PSA).

Administers the Packers and Stockyard Act which helps to maintain free and open competition in the marketing of livestock, poultry and meat production. Prohibits unfair, deceptive, discriminatory and monopolistic marketing practices which would deprive the farmer of a fair price for his product, and deprive the market of a reasonable profit for market services.

Science and Education Administration (SEA).

Carries out research on crops, livestock, soil and water conservation, energy conservation, agricultural engineering, control of insects and other pests, human nutrition and consumer and food economics. Develops new and expanded uses for farm commodities, and conducts and administers a research program using the physical and biological sciences to solve problems of market quality, transportation and facilities. Handles Federal grant payments for research at the agricultural experiment stations and eligible schools of forestry. Assists state experiment stations, land-grant colleges, and USDA agencies in planning and coordinating scientific research programs. Through Extension, is the field educational arm of the Department of Agriculture and land-grant universities and colleges. Federal, state and local governments cooperatively share in financial support.

Extension is administered by the land-grant university through a director in the 50 states, District of Columbia, Puerto Rico, Virgin Islands and Guam. The county agricultural agent is the contact. The office is usually located in the county seat. Helps people apply new research findings and technological developments to the everyday problems of living and making a living. Major areas include efficient production and marketing of agricultural products; improved family living, including nutrition, 4-H development and community and rural development.

Rural Electrification Administration (REA).

Finances electric and telephone facilities in the rural areas of 46 states. Most REA borrowers are cooperatives.

Soil Conservation Service (SCS).

Develops and carries out a national soil and water conservation program through 2,949 conservation districts (Public Law 46, 74th Congress, 1935). Helps develop and carry out watershed protection and flood prevention projects in 11 major watersheds in cooperation with other agencies. (Flood Control Act, Public Law 534, 78th Congress, 1944). Administers the Great Plains conservation program (Public Law 118, 91st Congress, 1969.) Helps local sponsors develop and carry out multicounty resource conservation and development projects (Food and Agriculture Act, Public Law 703, 87th Congress, 1962). Helps develop USDA's conservation cost-sharing programs. Is responsible for assisting in the preparation of long-term conservation plans of operation and for most of the permanent conservation practices provided by these programs. Provides technical assistance to participating farmers and ranchers and prepares designs and specifications for work undertaken. Appraises potential for outdoor recreation developments. Helps establish income-producing recreation areas on privately owned land in public water-based recreation and fish and wildlife areas in watershed protection and resource conservation and development projects. Gives technical assistance to land users participating in the conservation credit program of the Farmers Home Administration. Assists land users to develop conservation plans and apply conservation treatment for the reclamation, conservation, and development of eligible coal mined lands and water.

5. Misc. Government Publication Sources

Request publication catalogs.

U.S. Department of Commerce. National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

U.S. Department of Agriculture. Economics, Statistics and Cooperative Service, Washington, D.C. 20250.

U.S. General Accounting Office. Document Handling and Information Services Facility, P.O. Box 6015, Gaithersburg, MD 20760.

Superintendent of Documents. U.S. Governmental Printing Office, Washington, D.C. 20402.

Chapter VII

CONCLUSION

This paper is an outgrowth of the author's interest in writing a small farm management text. The primary objective of presenting the background information gathered for the text has been accomplished. The information was given meaningful form and organization by four secondary objectives.

1. "Small farm" is a broad-shouldered term that supports not only many definitions, but many roles. Its versatility almost enables it to be "all things to all people." To some it provides supplemental income and a part-time job, or a retirement home, or a "fruitful" and productive hobby, or the base for a full-time livelihood, while to others a small farm is the prudent start and gathering of experience and resources before jumping into full-time, large-scale commercial agriculture.

This paper explored the historical and current contributions of small farms in agriculture and their positions relative to other size farms. Large farms relentlessly increase their share of the market. Medium size farms are losing ground. Small farms gain in numbers, but many face below poverty-level incomes.

Many forces are actively changing the directions of agriculture. Federal policy plays a significant role in whether small farms are suffered as welfare problem or encouraged as functional members of agriculture. Rural communities of small farms are richer culturally according to some researchers. Others see the small farm as having greater potential for energy efficiency. New concerns for health and the environment foster the organic agriculture movement, another "natural" for the small farm. The conclusion is that there are many viable roles for the small farm in the future - both in society and the agricultural economy.

2. Two CRIS computer searches of small farm land grant research were categorized and analyzed. There had been an increase in projects in the two intervening years, though mostly in the South East. It seems as if the historical bias towards large farm research may be abating. Certainly grass roots organizations across the country and at certain state extension services are springing up. Some have specific small farm interests, while to others small farms are a side line to self-sufficiency interests on a personal or even a regional basis.

3. Addressing the problems of small farm management education was another objective. The current

situation and its problems were reviewed and new materials suggested. The proposed management text was discussed.

4. While the listings in the small farm bibliography, "how-to-books" and other information sources are by no means comprehensive, they are much more extensive than any before. These source listings represent a major step forward and will serve until Dr. Madden at Penn State completes his computerized bibliography.

While this paper presents more small farm information together in one place than ever before, the author hopes it is just the beginning.

Chapter VIII

THOUGHTS FOR THE FUTURE

It has become clear to the author that the future prosperity of small farms is intimately related to the overall policy climate. Past policies, in effect - if not by intent - have favored the development of larger farms. Research and extension have played their parts, but it takes stronger tools to change the structure of agriculture. Secretary of Agriculture, Bob Bergland, has been instrumental in stimulating an interest in small farm programs on the Federal and State levels. Hopefully, future administrations will not "undiscover" small farms.

If the pro-small farm policy climate continues, it can stimulate new efforts in research on technology appropriate to small farms. This research can capitalize on a small farm's potential advantages related to less energy intensive and capital intensive technology.

In the past, small farm programs operated independently, with little awareness of similar programs operating elsewhere in the country. A small farms information network established on the Federal level is a good start, but needs further implementation. Another level of information network is needed at the local level.

Groups, such as the Washington Small Farm Resources Network, and others composed of small farmers themselves, can function as self-help groups in a wide variety of functions. However, the information aspects of such groups are the most important. Farmers, especially small ones, while long noted and applauded for their independence should not let this attribute stand in the way of beneficial group action.

Improvements can be made in many extension programs as they relate to small farms. The major one is to make working with small farmers an accepted and desirable role for a county agent to play. In some areas, goals for advancement are related to effective increase of local farmers' net farm income. This serves as a negative stimulus for working with small farmers.

The specific goals of small program programs should be developed in cooperation with the local small farmers. Programs imposed from above with little local input will have limited long-term success.

The author believes that the small farm sector of agriculture can be revitalized to the benefit of the economy, the environment, and both rural and urban societies. It is a long-term project, involving adjustments to the structure of agriculture, but a worthwhile one.

POSTSCRIPT

Over three years have passed since this paper was started and it's been more than a year between the final writing and the printing. In the intervening time administrations have changed, and no one can accuse Ronald Reagan of having small farm sympathies. Federal policies reflect his pro-large business interests. In addition, Federal budget cuts, in desperate attempt to mend the ailing economy, have pulled the rug out from under many promising programs. In some cases the "buck was passed" to the states who, in turn, passed it to their counties. Unfortunately, the areas most in need of small farm programs are those that can least afford to take over the funding of those programs. Grassroots organizations supported by involved individuals will have the best likelihood of survival. Federal funding, as always, has again proved to be chancy at best.

An old Chinese curse goes "May you live in exciting times." Well, we're certainly in the midst of it now; only time will tell whether it is a curse or a blessing for the small farm.

APPENDIX

APPENDIX

- A.1. States by Regions
- A.2. Percent of Farmers Having Gross Annual Sales Under \$20,000 by State, 1974.
- A.3. Number of Small Farms by Region, by New USDA Estimate, 1980.
- A.4. Implementing the USDA Small Farm Policy.
- A.5. Policy of Committee for Economic Development (CED) for Farm Labor Force.
- A.6. Field Staff, Funding and Institutional Affiliation of State Leaders of Cooperative Extension Small-Farm Programs, Southern Region, 1977.

Appendix 1

STATES BY REGIONS

North EastNew England

Maine
New Hampshire
Vermont
Massachusetts
Rhode Island
Connecticut

Middle Atlantic

New York
New Jersey
Pennsylvania

North CentralEast North Central

Ohio
Indiana
Illinois
Michigan
Wisconsin

West North Central

Minnesota
Iowa
Missouri
North Dakota
Nebraska
Kansas

SouthSouth Atlantic

Delaware
Maryland
Virginia
West Virginia
North Carolina
South Carolina
Georgia
Florida

East South Central

Kentucky
Tennessee
Alabama
Mississippi

West South Central

Arkansas
Louisiana
Oklahoma
Texas

Appendix 1, continued.

WestMountain

Montana
Idaho
Wyoming
Colorado
New Mexico
Arizona
Utah
Nevada

Pacific

Washington
Oregon
California
Alaska
Hawaii

Appendix 2

Percent of Farms Having Gross Annual Sales
Under \$20,000, by State, 1974.

Source: U.S. Department of Commerce, 1974 Census of Agriculture,
Vol. 1, part 51.

State 1/	All Farms	Farms with Sales Under \$20,000
	<u>Number</u>	<u>Percent</u>
West Virginia	16,909	92.6
Tennessee	93,659	90.0
Kentucky	102,053	85.7
Virginia	52,699	82.6
Mississippi	53,620	82.5
Alabama	56,678	80.9
Texas	174,068	79.2
South Carolina	29,275	78.2
Alaska	291	78.2
Oklahoma	69,719	75.8
Missouri	115,711	74.5
Florida	32,466	74.4
North Carolina	91,280	74.2
Louisiana	33,240	73.1
Hawaii	3,020	73.1
Michigan	64,094	72.7
Utah	12,184	72.7
New Mexico	11,282	71.1
Oregon	26,753	71.0
Arkansas	50,959	70.2
Ohio	92,158	69.1
New Hampshire	2,412	68.2
Georgia	54,911	68.0
Pennsylvania	53,171	64.5

Appendix 2 Continued.

State 1/	All Farms	Farms with Sales Under \$20,000
	<i>Number</i>	<i>Percent</i>
Indiana	87,915	64.4
Massachusetts	4,497	63.0
New Jersey	7,409	62.7
Rhode Island	597	62.3
Maryland	15,163	60.9
Connecticut	3,421	60.0
California	67,674	52.2
Washington	29,410	59.1
Nevada	2,076	58.6
Arizona	5,803	57.4
Wisconsin	89,479	57.3
New York	43,682	56.0
Maine	6,436	55.2
Kansas	79,188	55.0
Wyoming	8,018	54.9
Colorado	25,501	54.2
Idaho	23,680	53.9
Minnesota	98,537	51.4
Montana	23,324	48.1
Vermont	5,906	47.5
Illinois	111,049	47.3
Delaware	3,400	45.2
South Dakota	42,825	44.3
Nebraska	67,597	42.3
North Dakota	42,710	37.8
Iowa	126,104	36.3
United States	2,314,013	65.5

Appendix 3

Number of Small Farms by Region,
by New USDA Estimate, 1980.¹

Region	# of Small Farms	% of total Farms in Region	% of small Farms in U.S.
<u>North East</u>			
			(6.6)
New England	15,790	58	1.3
Middle Atlantic	65,370	58	5.3
<u>North Central</u>			
			(43.9)
E. North Central	205,160	46	16.7
W. North Central	333,600	60	27.2
<u>South</u>			
			(39.0)
South Atlantic	166,870	52	13.6
E. South Central	141,120	53	11.5
W. South Central	170,400	53	13.9
<u>West</u>			
			(10.5)
Mountain	66,200	61	5.4
Pacific	62,880	49	5.1
<hr/>			
United States	1,227,390	53	100.0
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¹See section II.C.1 for USDA small farm definition.

Source: USDA Briefing Paper #28: USDA Small Farm Policy,
September 19, 1980.

Appendix 4

IMPLEMENTING THE USDA SMALL FARM POLICY

First, USDA has developed a small-farm network extending from the secretary to each state. A policy committee on small-farm assistance was established to provide overall policy direction and establish specific program objectives. The committee is chaired by USDA's assistant secretary for rural development and has as members all the assistant secretaries, USDA's chief economist and the director of the Science and Education Administration.

A small-farm working group comprised of representatives from each major USDA agency conducts small-farm activities under the direction of the policy committee. Each state rural development committee has established a small-farm committee to identify and address small-farm problems at the state level. The USDA small-farm working group is available to support each state small-farm committee in the implementation of a state plan to assist small farm families.

Second, the secretary instructed all agency administrators to take the necessary steps to insure that small-farm families have access to and utilize USDA programs.

Source: "USDA Small-Farm Policy: Emphasis on the Family." Issue Briefing Paper No. 28. USDA, Washington, D.C. 20250.

Appendix 5

POLICY OF COMMITTEE FOR ECONOMIC DEVELOPMENT (CED)
FOR FARM LABOR FORCE

The following is excerpted from "The Loss of Our Family Farms, Inevitable Results or Conscious Policies? A Look at the Origins of Government Policies for Agriculture." by Mark Ritchie, 1979.

"The situation of U.S. agriculture has changed drastically within a decade. In 1962, when the Committee issued the policy statement An Adaptive Program for Agriculture, the problems of U.S. farming were mainly related to maintaining farm income in the face of continuing surpluses. The diagnosis was that agriculture was using too many resources; fewer farms and farmers could produce all the output then required or even more than could be marketed. As a result of these findings, we prescribed programs for the better use of our resources in agriculture [that], vigorously prosecuted, would enable the people involved in farming to receive higher incomes without government controls or subsidy. In general, policies of this nature have been pursued by the U.S. government, with the result described in the present statement: namely, that U.S. agriculture today is a far more efficient, far more productive industry." (emphasis added). (p. 8)

Their evaluation was that their past analysis and recommendations were fundamentally correct, the government had faithfully implemented their recommended policies, and that the desired results, 1/3 fewer farmers, was achieved. Specifically, they recognize that

"The farm population [4.5 percent] is now so small in relation to the total population that further migration from farms will not be substantial. Annual agricultural employment, which was 4.5 million persons only ten years ago, is now about 3.5 million persons, or only 4 percent of the total labor force, and it is still declining. It represents approximately the optimum farm labor force that this Committee [CED] envisaged for the 1970's in its statement An Adaptive Program for Agriculture (1962)" (p. 32).

Source: Committee for Economic Development "A New U.S. Farm Policy for Changing World Needs." 1974.

Appendix 6

Field Staff, Funding, and Institutional Affiliation of State Leaders
of Cooperative Extension Small-Farm Programs, Southern Region-1977

State and program titles	Local extension units conducting a small farm program	Field Staff		Funding			State administrative and specialist leadership ^a / Land-grant institution	
		Parapro- fessionals	Pro- fessionals	Smith-lever 3(c)	3(d)	Other	1862	1890
ALABAMA								
Small and Part-Time Farmers & Home Gardening	12	12			X			+++
Extension Agents, Small-Farm Responsibility ^b	12	6	6		X		+	+++
Whole Farm & Enterprise Demonstration Program ^c		No full time field staff		X			+	
ARKANSAS								
(Jefferson County) Small-Farm Program	1	4			X			+
(White County) Small-Farm Program	1		1	X			+	
FLORIDA								
Small-Farm Management and Economics Program	1	1		X		X	+++	
Small & Part-Time Farmers & Home Gardening Program	6	6			X			+
GEORGIA								
Small-Farm Program	5	7		X		X	++++	+++
Small & Part-Time Farmer & Home Gardening Program	14		14		X			
KENTUCKY								
Small-Farm Development Program	12	12		X	X		++	+
LOUISIANA								
Extension Agents, Small-Farm Responsibility	18	13	18		X		+	+++
MISSISSIPPI								
Small Farmer Program	10	23			X		+	++++++
MISSOURI								
Small-Farm Family Program	33	41		X	X	X	++++	+++
NORTH CAROLINA								
Farm Opportunities Program	16	20			X		+	+++
OKLAHOMA								
Small & Part-Time Farmer & Home Gardening Program	6	6		X	X			+
SOUTH CAROLINA								
Vance Community Agricultural Project	1	1			S		+	
Small Farmer Program	1	4			X			+++
Area Agents, Small-Farm Responsibility	9		3		X		++	
TENNESSEE								
Developing New Enterprises	2	2			X	X	+	++++
Extension Agents, Small-Farm Responsibility	12		12		X	X	+	
TEXAS								
Small & Part-Time Farmer & Home Gardening Program	6	6			X		+++	+++
Intensified Farm Planning Program	14	17			X		+	+++
VIRGINIA								
Small-Farm Program	4	16			X	X	+	+

^a/ (+) = 1-50 man-days commitment during 1977 by administrator or state program leader.

^b/ The Whole Farm and Enterprise Demonstration Program assigns each local extension agent responsibility to conduct two demonstrations on limited-resource small farms. Three district agents supervise the program and results are tabulated and published annually. This program was included in the study on the basis of the criteria considered in program selection. However, since it does not have full time field staff, in many cases it is not comparable to other small-farm programs.

Source: Interviews with Cooperative Extension administrators (N=23) and small-farm program leaders (N=20), southern region, Dec 1977-April 1978. [From "Cooperative Extension Small Farm Programs in the South: An Inventory and Evaluation," Virginia Polytechnic Institute & State University, Research Division, Bulletin 153. April 1980.]

