

**THE GROWTH OF NON-COMMERCIAL FARMING IN OREGON'S
WILLAMETTE VALLEY: ASSESSING IMPACT ON COMMERCIAL AGRICULTURE**

LINDA DIANE BERNHARDT

M.S.

1988

THE GROWTH OF NON-COMMERCIAL FARMING IN OREGON'S
WILLAMETTE VALLEY: ASSESSING IMPACT ON COMMERCIAL AGRICULTURE

By

LINDA DIANE BERNHARDT

A RESEARCH PAPER

submitted to

THE DEPARTMENT OF GEOGRAPHY

in partial fulfillment of the
requirements for the
degree of

MASTER OF SCIENCE

February 1988

Directed by
Dr. James R. Pease

ACKNOWLEDGEMENTS

I wish to thank my major professor, Dr. James R. Pease, Land Resource Management Specialist at the Oregon State University Department of Geography, for his review of the research methodology. Dr. Pease is credited with the primary conception of this project.

I also wish to thank the Geography Department Chairperson, Dr. Thomas Maresh, for his constant support and encouragement over the past two years, and for his frequent, but friendly, inquiries as to how my research was progressing.

Much gratitude is extended to the department staff, including Mary Prucha, Chris Jones and Joanne Vangeest for their assistance, support and good humor.

LIST OF TABLES AND FIGURES

TABLES

- Table 1. Acreage in Farms by Size - Change from 1978 to 1982.
- Table 2. Mean of Adjusted Gross Sales [per \$1,000] by SIC Group for Farms Earning Over \$2,500.

FIGURES

- Figure 1. Acreage in Farms Earning Over \$2,500 - Change from 1978 to 1982.
- Figure 2. Acreage in Farms Earning Under \$2,500 - Change from 1978 to 1982.

TABLE OF CONTENTS

Acknowledgements	ii
List of Tables and Figures	iii
Abstract	1
Introduction	1
Methodology	4
The Census of Agriculture	6
Enumeration Methods	6
Statistical Adjustments	7
Comparability of Data	7
Results and Discussion	9
Comparison of Census Data to Other Sources	17
Farm Tax Deferral Records	17
EFU Reporting	19
Building Permit Records	20
Conclusion	22
References	24
Appendix A	
Appendix B	
Appendix C	

THE GROWTH OF NON-COMMERCIAL FARMING IN OREGON'S
WILLAMETTE VALLEY: ASSESSING IMPACT ON COMMERCIAL AGRICULTURE

ABSTRACT: The effect of increasing numbers of non-commercial farms, or hobby farms, on commercial agriculture is examined through a comparison of Census of Agriculture data for the years 1978 and 1982. During this time, State Land Use Goal #3, mandating the protection of farmland, was firmly in place and exclusive farm use zoning had been adopted by most counties. The objective of this study is to gain some insight into the success of Oregon's farmland protection program as a means of maintaining land in agricultural use. The study area encompasses ten Willamette Valley counties, the 'heart' of commercial farming in Oregon. Although the data shows that large tracts of commercial farm land have been maintained in agricultural use and commercial farms remained economically viable during the study period, increasing fragmentation of the land base may pose a serious threat to future resource production. Information on where new hobby farms are locating is important to assessing the success of Goal #3.

INTRODUCTION

The inception of the state mandated land use planning program in Oregon was spurred largely by the widespread concern over the accelerated loss of commercial farmland since the middle of this century, particularly in the Willamette Valley. Between 1950 and 1976, Oregon's farm acreage shrank by 1.5 million acres (Leonard 1983). The adoption of Statewide Planning Goal #3 in 1975 was intended to minimize this loss primarily through the adoption of exclusive farm use (EFU) zoning which would restrict land divisions and development that would interfere with commercial agriculture.

The objective of Goal 3, "Agricultural Lands, is to "...preserve and maintain agricultural lands." More than twelve

years after its adoption, much concern has been generated over the question of if, or how well, the objectives of Goal 3 have been met. The criteria used to evaluate the farmland protection program should be the statutory statement found in Oregon Revised Statutes 215.243, the "Agricultural Land Use Policy" adopted by the 1973 Legislature. As suggested by Mitch Rhose of the Department of Land Conservation and Development (DLCD), the official criteria can be reduced to a single line:

The program can be considered to "work" to the extent that large commercial agricultural holdings are maintained and that competing uses do not interfere with commercial farm practices or drive up the cost of agricultural land. Implicit in this policy is that "hobby farms" -- small holdings of which farming is an incidental, noncommercial activity -- conflict with commercial farming.

A number of authors have attempted to assess Oregon's farmland protection program and have offered varying conclusions (Benner 1982, 1985, 1987; Daniels 1986; Furuseth 1979, 1981; Gustafsen et al 1982; Rhose 1985). Daniels has used the 1978 and 1982 Census of Agriculture data as a basis for developing some conclusions about the effectiveness of farmland preservation. This paper will dispute some of the claims made by Daniels based on further analysis of the data.

Furuseth points out that the program must be assessed from two perspectives: that of land use effectiveness and political acceptability (Furuseth 1981). While Oregon voters have repeatedly reaffirmed their support for the state land use program, Furuseth points out that political support does not guarantee effective implementation of the goals. Local

governments have been criticized for failing to adequately implement agricultural land use policies and standards. Particularly critical of this issue is Richard Benner, formerly with 1000 Friends of Oregon (Benner 1982, 1985, 1987).

This study is concerned with land use effectiveness. The objective of the study is to gain some insight into the success of the Oregon program as a means of maintaining land in agricultural use. As a partial assessment of the success of Goal 3, this paper will evaluate selected data provided by the Census of Agriculture. With the availability of information from the 1982 census, a comparison of the data can be made between two years for which census data is largely comparable, and during which time Oregon's farmland protection program was firmly in place.

METHODOLOGY

The Willamette Valley was chosen as the study area since it contains the state's most productive farm land and is a region which contributes the greatest share to the state's agricultural economy. It also contains three of the state's largest urban centers. It is at the urban fringe where the conflict between development pressures and farm land preservation is the most intense.

The ten counties of the Willamette Valley are divided by the Census of Agriculture into two districts. District 1 contains the counties of Columbia, Washington, Yamhill, Clackamas, and Multnomah (Columbia County is not generally recognized as a Willamette Valley county but will be used in this study for the purpose of being consistent with the census data). District 2 contains the counties of Polk, Lane, Linn, Marion, and Benton.

Selected data for both districts were derived from the Special Tabulations of the 1978 and 1982 Census of Agriculture and entered in a computer program. New tables were then generated which provided information on the number of farms and acreage in farms from which the average size of farms, as well as the difference between the two years, was derived. Cross tabulations are given for all farms, two gross income groups, six acreage groups and for each of eleven types of agriculture, defined by Standard Industrial Code (SIC) groups. See Appendix

A for a summary of the data; see Appendix B for more detailed data which includes crop type.

In order to gain some information on the relative economic health of commercial farming, a table was created showing the mean of adjusted gross sales for farms earning over \$2,500. These data are cross tabulated with farm size and SIC group (see Appendix C). The mean of adjusted gross sales was derived from the Special Tabulations by adding the means of the figures in the category of "Expenses for Energy and Petroleum" with the means of "Other Expenses," and subtracting this figure from the means of "Gross Income." Tabulations are given for 1978 and 1982 and the difference has been calculated between the two years.

The potential for comparing the data derived from these tables with other sources of information, to determine where hobby farms are locating, will be discussed later in this paper. Prior to describing the results of this study, a discussion of the census data is in order.

THE CENSUS OF AGRICULTURE

Enumeration Methods

All censuses since 1969 have been conducted primarily by mail (U.S. Bureau of the Census, 1982). The 1978 census included a mailout/mailback enumeration supplemented by a direct interview of all households in a sample of area segments which was intended to improve completeness of coverage. Due to budget reductions, the area sample was eliminated in 1982. In order to provide comparable data for 1978 and 1982, estimates from the area sample were subtracted from the 1978 data.

The mail list for the 1978 and 1982 census "was comprised of all individuals, businesses and organizations that could be readily identified as being associated with agriculture" (U.S. Bureau of the Census 1978, 1982). The list was assembled from the records of the previous census and "administrative records of various government agencies, primarily the Internal Revenue Service and the U.S. Department of Agriculture."

Two versions of the report form were mailed. Most farms received the shorter nonsample form which included major items such as land use, crops, and market value of agricultural products sold. This was intended to reduce the reporting burden, especially for small farms. The longer sample form was mailed to all large and specialized farms, and approximately 17 percent (20 percent in 1978) of all other farms. The sample form included all the information asked on the nonsample form

plus the sample items which included information on expenditures for energy and petroleum products. (See the 1978 and 1982 Census of Agriculture for estimates of sampling reliability.)

Statistical Adjustments

The sample items mentioned above are subject to sampling error. Errors also arise from nonsample sources which affect the accuracy of data. The sources of errors include "incorrect or incomplete reporting, processing, and the inability to obtain a report from each eligible reporting unit" (U.S. Bureau of the Census 1982). Some sources of sampling and nonsampling errors affect all the data while others affect only certain items or geographic levels.

Follow-up procedures were undertaken with nonrespondents. Since a 100 percent response rate was not obtained, a nonresponse adjustment procedure was used to represent the final nonrespondent farms in the census results. The 1982 Census of Agriculture includes information on the effect of nonresponse on selected major items at the state level, but does not include information at the county level.

Comparability of Data

A number of changes were made between the 1978 and 1982 census which affected the comparability of some of the data. Some of these changes did not affect the data desired for this research; however, some data were absent in one year or not comparable between the two years due to the differences and

therefore not used for this research. Some of the changes involved a different breakdown of information within categories that required simple calculations to derive comparable data.

In the 1982 census, some categories of agricultural types were divided into more specialized categories. In 1978 there were eleven categories, or SIC groups, but in 1982, they were expanded into fifteen groups. Thus, a comparison of data on agricultural type was restricted to the original eleven categories. (For specific commodities grouped under each type, see the Standard Industrial Classification Manual, 1972). These categories, with the corresponding new group number, are as follows:

Cash Grains	1
Field Crops	2
Vegetables and Melons	3
Berries and Grapes	4
Tree Fruits and Tree Nuts	7
Horticultural Specialties	10
General Farms, Primary Crop	11
Extensive Animal Grazing	12
Intensive Animal Husbandry	13
Dairy Farms	14
General Farms, Primarily Livestock	15

Although the use of some data was restricted for the purposes of this research, data are generally comparable between 1978 and 1982.

RESULTS AND DISCUSSION

Following many years of decline, the 1982 Census shows a slight increase in the number of acres of farmland in the Willamette Valley over the 1978 Census. Land in farms has increased by about one percent, or 17740 acres. In order to gain some insight into this change, as well as some other changes affecting the structure of agricultural land use, an assessment of the census tables is useful.

Depending on their location, hobby farms may pose a serious threat to commercial agriculture. These establishments, sometimes referred to as minifarms or part-time farms, are not in the business of farming but serve primarily as rural residences. Hobby farms have been criticized as being a threat to commercial agriculture by fragmenting the agricultural land base, driving up the price of agricultural land, destabilizing the agricultural economy of the area, and by creating conflicting uses which are incompatible with commercial agriculture.

For the purposes of this study, a hobby farm is defined as having a gross farm income of less than \$2,500 annually but capable of grossing more than \$1,000 in order to be counted as a farm by the Bureau of Census. Although specific definitions of hobby farms often vary by researcher, these farms are characterized by their inefficiency and generally small parcel size. Of the farms in the Willamette Valley with gross incomes

of less than \$2,500 in 1982, well over half, or 59 percent of these farms were under 20 acres, and 80 percent were under 40 acres. In a study by Nora L. Brooks titled "Minifarms: Farm Business or Rural Residence?", profiles of minifarms depict a very extensive type of agriculture, an underutilization of farm resources, and generally negative net returns.

The Willamette Valley has a significantly higher percentage of farms with gross annual sales of under \$2,500 than the national average. These farms accounted for 24% of all U.S. farms in 1978 (Brooks 1984), and they accounted for 37% of all farms in the Willamette in 1978, rising to 47% in 1982. While this increasingly high percentage should be a cause for concern, also important in assessing the impact on land use is the acreage in hobby farms. While there were slightly more farms earning over \$2,500 than under this figure in the Willamette Valley in 1982, there were more than

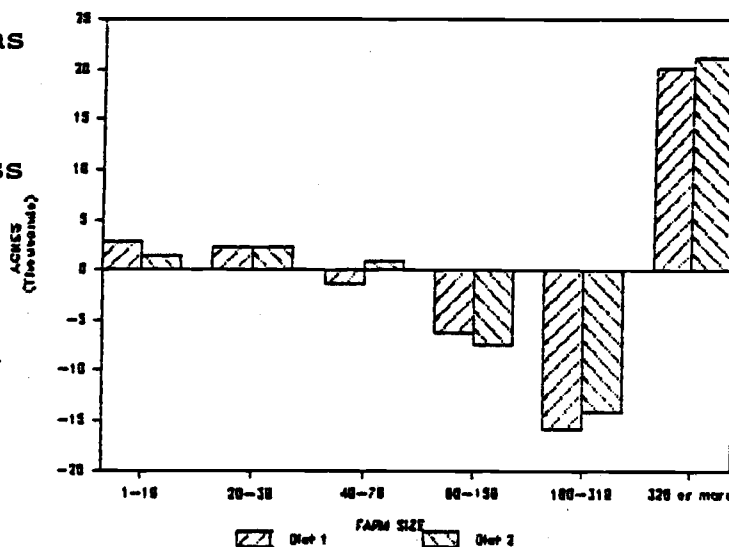


Figure 1. Acreage in Farms Earning Over \$2,500 - Change from 1978 to 1982. Source: Compiled from data in the Census of Agriculture (1978 and 1982).

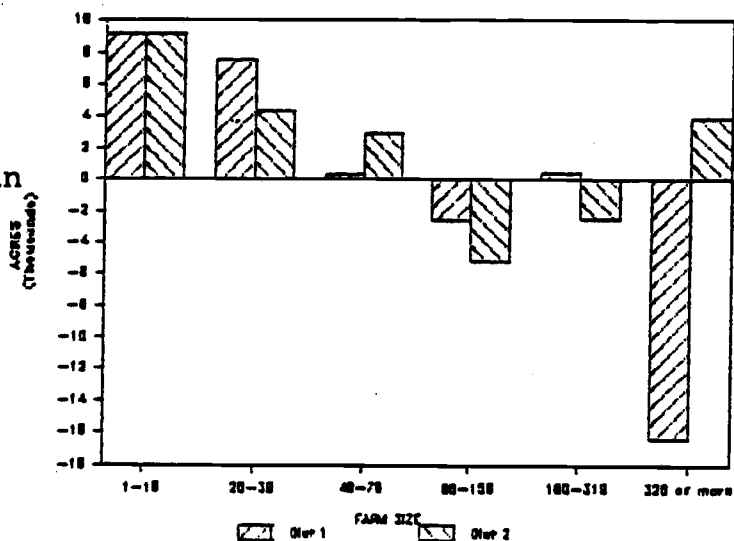


Figure 2. Acreage in Farms Earning Under \$2,500 - Change from 1978 to 1982. Source: Compiled from data in the Census of Agriculture (1978 and 1982).

six times as many acres in farms earning over \$2,500 in the same year. And while the acreage in farms earning less than \$2,500 was 10.14 percent of all farms in 1978, it had risen to 11.02 percent in 1982, representing an increase of less than 1 percent. (See Figure 1 for a breakdown of farm acreage by size categories for farms earning over \$2,500, and Figure 2 for farms earning less than \$2,500. Note the difference in scale.)

Where hobby farms are locating is of critical importance to evaluating the success of Oregon's farmland protection program. Exclusive farm use zones were not intended to halt rural growth. In conjunction with the creation of EFU zoning, rural residential zoning was established to accommodate and direct this growth away from commercial farm land. If hobby farms are being diverted to rural residential zones as intended, the program could be considered a success. While figures on the numbers of hobby farms locating in rural residential zones are not readily available, claims that they are locating on commercial farm land is not supported by the data, as demonstrated in this report in the discussion on mid-size farms. Attempts by this researcher to determine how many hobby farms are locating in EFU zones by comparing census data to other sources of information met with little success. The results of these attempts will also be discussed later in this paper.

Another issue affecting resource protection in Oregon is the growth in the number of rural residences on forest lands. If rural residences are being diverted from agricultural land to forest land (under the guise of tree farms or woodlots) then we

may be sacrificing one resource for another, or Goal 4 for Goal 3. Farm land protection may be working, but at the expense of forest land protection. To help determine the success of overall resource protection, it would also be useful to determine the numbers of rural residences locating in areas zoned for forest use.

The Willamette Valley follows the national trend in the decrease in mid-size farms. Daniels, who also reviewed census data and used the Willamette Valley for a study area, asserts that medium size farms in Oregon have been divided into smaller farms due to the decline in *number* of mid-size farms and a slight increase in large farms. The census data however, shows an increase in *acreage* in farms for large farms (over 320 acres), exceeding the increase in acreage for small farms (under 20 acres), (see Table 1). While mid-size farms fell by 53508 acres from 1978 to 1982, farms under 20 acres gained 22617 acres, and farms over 320 acres gained 28994 acres. It is possible that mid-size farms are losing more acreage to larger farms than to smaller farms and that more consolidation, rather than parcelization, is occurring. Even if farms up to 40 acres are included as small farms, this acreage (39314) is still well under the acreage lost from mid-size farms. This argument assumes that new hobby farms have occurred on land already in production and does not take into account the 17740 acres of new farmland shown in the 1982 census. It also assumes that land previously in mid-size farms was not converted to other non-agricultural uses.

Table 1. Acreage in Farms by Size - Change from 1978 to 1982.
 Source: Compiled from data in the Census of Agriculture (1978 and 1982).

	1978	1982	Change	% Change
All Farms	1879256	1896996	17740	1%
1 - 19	40621	63238	22617	56%
20 - 39	73916	90613	16697	23%
40 - 79	148304	151234	2930	2%
80 - 159	225601	204023	-21578	-10%
160 - 319	303670	271740	-31930	-11%
320 or more	1087154	1116148	28994	3%

It is widely acknowledged that the ability of large commercial farms to increase the land base is important in maintaining financially viable farming operations. As stated by Van Otten (1980):

In striving for optimal efficiency, farm operators have generally enlarged their land bases to spread total fixed costs over larger production units. Failure to make size adjustments consistent with increasing fixed costs of production has led to the economic failure of some farms.

Willamette Valley farms over 320 acres have gained a total of 28994 acres, causing the average size of farm in this category to increase by 57 acres (this increase occurred in District 2, District 1 remained stable). The percentage of acres in farms in this category increased slightly in both districts (from a combined 57.9 percent in 1978 to 58.8 percent in 1982). But while the ability of farmers to increase their land base may be an indication of the economic health of commercial agriculture, it is not necessarily an indication of a

stable land base. Van Otten (1980) has demonstrated that farmers are willing to add non-contiguous parcels to their farms in order to expand their operations, although there is a point beyond which expansion will not be practical due to increased time, higher operation costs, planning difficulties and hazards in equipment movement. While larger farms may be adding land previously in mid-size farms to their operations, they may not be contiguous parcels.

Future agricultural production remains partially dependent upon a stable agricultural land base. Fragmentation of the land base can be assessed by the trend in the average size of farms. The average size of farms began decreasing in 1969, and from 1969 to 1974, it decreased by 11 percent (Van Otten 1980). From 1978 to 1982, the average size of farm decreased 17 percent. But while the average size farm has decreased overall, it increased in most SIC groups. For farms earning over \$2,500, the average size of farm decreased only 3.4 percent. The decrease in the average size of farm has occurred primarily in groups 12 and 15 (livestock operations), two groups which have a concentration of farms under 20 acres and which have the lowest adjusted gross sales (see Table 1). This may suggest that the fragmentation of agricultural land has occurred on less efficient farms. However, where more farms were added to these groups, the average size of farm could decrease but fragmentation could occur on an efficient mid-size farm.

The adjusted gross sales for all farms in the Willamette Valley earning over \$2,500 increased by nearly 20 percent from

Table 2. Mean of Adjusted Gross Sales [per \$1,000] by SIC Group for Farms Earning Over \$2,500. Compiled from data in the Census of Agriculture (1978 and 1982).

	District 1			District 2			Dist. 1 & 2
	1978	1982	Change	1978	1982	Change	% Change
All Farms	19.3	22.8	3.5	25.6	31.0	5.3	20%
SIC Group							
(1) Cash Grains	13.5	18.8	5.3	12.7	21.2	8.5	53%
(2) Field Crops	13.1	14.4	1.3	57.3	70.6	13.3	21%
(3) Veg/Melons	38.2	55.3	17.1	50.4	70.4	20.0	42%
(4) Berries/Grapes	25.5	31.1	5.6	13.2	16.8	3.5	24%
(7) Tree Frt/Nuts	15.1	13.4	-1.8	16.0	7.0	-9.0	-35%
(10) Hort Spec	58.2	66.1	7.9	72.1	81.1	9.0	13%
(11) Gen Frms/Corp	25.6	42.3	16.7	54.1	61.4	7.3	30%
(12) Ext Animal Gr	2.3	0.4	-2.0	1.2	1.8	0.6	-40%
(13) Int Anim Gr	17.6	15.3	-2.3	7.8	17.0	9.2	27%
(14) Dairy Farms	42.8	78.0	35.1	64.3	99.8	35.4	66%
(15) Gen Frms/Lvst	12.9	5.5	-7.4	9.0	-26.6	-35.6	-196%

1978 to 1982. (See Table 2 for the mean of adjusted gross sales for farms earning over \$2,500 by SIC group.) While the total increase was comparable between districts, it varied significantly among SIC groups. In District 1, adjusted gross income decreased in four SIC groups (7, 12, 13 and 15), and in District 2, it decreased in two groups (7 and 15). Adjusted gross sales in all of these groups were relatively low. With the exception of group 7, which had no significant change, these SIC groups had a corresponding sharp decrease in the average size farm, while the number of farms rose significantly. This implies a less serious attempt at commercial farming in these SIC groups.

The overall increase in adjusted gross sales, coupled with increases in acreage in the SIC groups which show the highest adjusted gross sales, suggests that commercial agriculture in

the Willamette Valley prospered during the study period, in spite of the apparent fragmentation of some agricultural land mentioned above. An assessment of some changes which occurred between agriculture types - in relation to income - is presented below.

Groups 1 and 11 had the largest increase in acreage both in numbers and percent increase. Nearly all of this increase (55237 acres combined) occurred in farms earning over \$2,500. These groups had two of the highest percent increases in adjusted gross sales of all SIC groups.

Groups 3 and 12 lost the most acreage (52169 acres) with nearly all of the loss occurring in farms earning over \$2,500. However, group 12 had one of the lowest adjusted gross sales in both 1978 and 1982. While group 3 lost the most acreage (31466 acres), it did not negatively impact adjusted gross sales. This group ranked near the top of the SIC groups in sales for both years and sustained an increase in sales in 1982 by more than 40%.

A significant portion of the decrease in acreage in farms earning over \$2,500 occurred in a SIC group with low adjusted gross sales (group 12), while the most significant increase in acreage occurred in groups with high adjusted gross sales (groups 1 and 11). It appears that this shift in agricultural land use benefited the overall economic health of commercial farming during the study period.

COMPARISON OF CENSUS DATA TO OTHER SOURCES

The author attempted to make a comparison of the census data with a variety of other sources of information relating to the use of agricultural land. The purpose was to gain an understanding of the number of new hobby farms locating in EFU zones.

Farm Tax Deferral Records

Farm tax deferral was created by the Oregon legislature to complement the farmland protection program. The purpose of the deferral is to maintain land in agricultural use by providing tax breaks for farmers. While farm tax deferral is automatically applied to parcels located in EFU zones, farmers in non-EFU zones must apply and meet the income requirements in order to receive the deferrals. This tax incentive has been criticized for working against the effort to maintain land in farm use because it encourages people who are not intending to operate a commercial farm to locate rural residences in EFU zones.

It was hoped that information from the applications for deferral would give some indication of the number of hobby farms locating in non-EFU areas, therefore allowing one to deduce the number locating in EFU areas. Tax deferral records were reviewed at the Linn County Assessor's Office to determine what information was available from the records. A number of

problems were encountered hampering the comparison of data.

Information available from deferral records includes the number of applications approved, parcel size, income, and type of agriculture. A major problem with comparing the number of farms in the census to the number of farm tax deferrals, was that each application did not necessarily pertain to a farm unit (which would be consistent with the census) but often applied to a separate parcel that was part of a larger farm.

Because the application forms are not specific enough, it was not possible to determine which type of agriculture contributed to the majority of income or area of the parcel when more than one type was reported. Direct comparisons of tax deferrals to the census data are also hampered by the different breakdown in farm income and type of agriculture. In addition, since no farms are included in the census which gross less than \$1,000, there may be a significant number of small farms that qualified for deferral (\$500 in sales for parcels under five acres) but were omitted from the census.

In spite of the difficulty in obtaining comparable information, it was interesting to note the disproportionately large number of deferrals approved on parcels under twenty (20) acres in 1982. Also of interest was a comment made during a discussion with Sam Pollard of the Linn County Assessors Office, indicating his concern for the large increase in the number of deferrals granted to small farms since 1984.

EFU Reporting

The state standards which regulate uses in EFU zones are required to be administered by the counties. All dwellings and land divisions (in addition to other land use actions) must go through the land use process and be reviewed for compliance with the standards prior to being approved by the local jurisdiction.

The 1981 Legislature required Oregon counties to submit to the Land Conservation and Development Commission a report on certain land use decisions made within exclusive farm use zones for the following year. These decisions include approvals and denials for farm and nonfarm dwellings, and farm and nonfarm land divisions (nonfarm requests involve the application of more stringent standards).

A comparison between the census data and the EFU report on the number of new farms created and the number of farm dwellings approved in EFU zones in 1982 posed a number of problems. First, the assumption must be made that all new farms showing up on the 1982 census went through the land use process for the issuance of a building permit for a farm related dwelling. This is very unlikely. According to the 1987 report on EFU decisions by LCDC, some counties bypassed the process in many cases during that reporting period, and there is no evidence to suggest that this was not the case in earlier reporting periods. An estimate of the number of decisions bypassing the process would be difficult to make according to Ron Eber, Rural Lands Specialist with LCDC (Eber 1987). However, he did indicate during a phone

interview that it would include a substantial portion of all permits issued on EFU lands.

Another problem with using these data is that the reporting period for county EFU decisions does not coincide with the census period. The reporting period ended on January 31, 1982, while the census period ended on September 1, 1982. Although a rough comparison could be made based on a general time frame, it would probably be more useful to evaluate other information available in the EFU reports between reporting periods. This would not yield information associated with the location of hobby farms, but on the trend for the approval of farm dwellings in general. Whether or not these approvals correctly applied the standards is a key element in assessing the success of the program from a political perspective.

Building Permit Records

Although very labor intensive, it would be possible to review all building permit approvals for each Willamette Valley county to gather information on the number of dwellings issued in EFU zones for a specified period of time. In order to compare this information to the census data to determine where hobby farms or rural residences were locating, one would have to make the assumption that all parcels which had received building permits in EFU zones were counted on the census as farms. However, not all dwellings in EFU zones are farm related. And while an important reason for locating in EFU zones may be to reap the benefits of farm tax deferral, a rural residence may

qualify for deferral without qualifying for farm status in the census.

CONCLUSION

Oregon's Farmland Protection Program can be said to work from a land use perspective, according to the criteria outlined in the introduction of this paper. The data show that large commercial agricultural holdings have been maintained and competing uses have not substantially impacted commercial farms.

The above statements, however, do not come without precautions. While the data suggest that commercial agriculture was healthy during the study period, the long term stability of agriculture in the Willamette Valley may be jeopardized by increasing fragmentation of the land base, taxation policies and lax enforcement of agriculture land use policy by local governments.

It is encouraging that the data show that parcelization has been largely restricted, during the study period, to smaller or less productive farms. Although it is not discernable from the data, it is likely that much of the parcelization was occurring near the urban fringes where development pressures are the greatest, away from the larger, more productive commercial farms. However, increasing parcelization of farm land, regardless of productivity, could have serious long-run consequences on large agricultural holdings due to the conflicts presented by rural residences and restrictions placed on the ability of commercial farms to consolidate. As demonstrated by Van Otten, there is a threshold beyond which commercial

agriculture cannot tolerate further fragmentation of the land base.

The question begs an answer - was the vitality of the Willamette Valley's commercial agriculture during the study period *because* of the farmland protection program or *in spite* of it? More conclusive information could be provided by knowing where hobby farms are locating. If hobby farms are being diverted away from productive agricultural land and into rural residential zones as intended, the program could be considered a success. Further research is needed in this area.

REFERENCES

- Benner, Richard P. 1982. Farmland In Jeopardy: County Administration of Exclusive Farm Use Zoning. Unpublished Paper. Portland: 1000 Friends of Oregon.
- _____. 1985. 1000 Friends Charges Farm Land Protection Program "Not Working." Unpublished Paper. Portland: 1000 Friends of Oregon.
- _____. 1987. Oregon's Farm Land Protection Program: Is It Working? Unpublished Paper. Portland: 1000 Friends of Oregon.
- Brooks, Nora L. 1985. Minifarms: Farm Business or Rural Residence? Agricultural Infor. Bulletin No. 480. Washington: U.S. Department of Agriculture, Economic Research Service, National Economics Division.
- Daniels, Thomas L. 1986. Hobby Farming in America: Rural Development or Threat to Commercial Agriculture? Journal of Rural Studies Vol. 2, No. 1: 31-40.
- Eber, Ronald. 1987. Personal Interview, May 20.
- Furuseth, Owen J. 1979. The Oregon Agriculture Protection Program: An Assessment. Paper presented at the Annual Meeting of the Association of American Geographers, Philadelphia, Pennsylvania.
- _____. 1981. Update on Oregon's Agricultural Protection Program: A Land Use Perspective. Natural Resources Journal Vol.21, No. 1: 57-70.
- Gustafson et. al. 1982. The Oregon Land Use Act. APA Journal Summer: 365-373.
- Leonard, Jeffrey H. 1983. Managing Oregon's Growth. Washington: The Conservation Foundation.
- Pease, James R. 1982. Special Tabulations, 1978 Census of Agriculture. Oregon State University Extension Service, Department of Geography.
- _____. 1982. Special Tabulations, 1982 Census of Agriculture. Oregon State University Extension Service, Department of Geography.

- Rhose, Mitch. 1985. Farm Land Protection in Oregon:
Evaluating the Most Extensive Program in the Country.
Unpublished Paper. Salem: Department of Land
Conservation and Development.
- U.S. Bureau of the Census (1978). 1978 Census of Agriculture.
Washington: GPO.
- U.S. Bureau of the Census (1982). 1982 Census of Agriculture.
Washington: GPO.
- Van Otten, George A. 1980. Changing Spatial Characteristics
of Willamette Valley Farms. The Professional Geographer
32: 63-71.

APPENDIX A

DISTRICT I	# of FARMS		TOTAL ACRES		AVE SIZE FARM		% FARMS		% ACRES	
	1978	1982 +/-	1978	1982 +/-	1978	1982 +/-	1978	1982	1978	1982
ALL FARMS TOTAL	6921	8593 1672	635866	636299 433	92	74 -18	100.0%	100.0%	100.0%	100.0%
Farms by Acres										
1-19	2296	3738 1442	21425	33458 12033	9	9 0	33.2%	43.5%	3.4%	5.3%
20-39	1390	1775 385	38322	48221 9899	28	27 0	20.1%	20.7%	6.0%	5.3%
40-79	1374	1369 -5	75760	74783 -977	55	55 -1	19.9%	15.9%	11.9%	11.8%
80-159	950	860 -90	102565	93665 -8900	108	109 1	13.7%	10.0%	16.1%	14.7%
160-319	513	448 -65	113911	98559 -15352	222	220 -2	7.4%	5.2%	17.9%	15.5%
320 or more	398	403 5	283883	287613 3730	713	714 0	5.8%	4.7%	44.6%	45.2%
Farms by Income										
>\$2,500	4137	4388 251	522569	524591 2022	126	120 -7	100.0%	100.0%	100.0%	100.0%
1-19	939	1224 285	8545	11430 2885	9	9 0	22.7%	27.9%	1.6%	2.2%
20-39	728	832 104	20549	22915 2366	28	28 0	17.6%	19.0%	3.9%	4.4%
40-79	897	881 -16	50519	49220 -1299	56	56 0	21.7%	20.1%	9.7%	9.4%
80-159	732	666 -66	79615	73346 -6269	109	110 1	17.7%	15.2%	15.2%	14.0%
160-319	465	399 -66	103962	88149 -15813	224	221 -3	11.2%	9.1%	19.9%	16.8%
320 or more	376	386 10	259379	279531 20152	690	724 34	9.1%	8.8%	49.6%	53.3%
<\$2,500	2784	4205 1421	113297	111708 -1589	41	27 -14	100.0%	100.0%	100.0%	100.0%
1-19	1357	2514 1157	12880	22028 9148	9	9 -1	48.7%	59.8%	11.4%	19.7%
20-39	662	943 281	17773	25306 7533	27	27 0	23.8%	22.4%	15.7%	22.7%
40-79	477	488 11	25241	25563 322	53	52 -1	17.1%	11.6%	22.3%	22.9%
80-159	218	194 -24	22950	20319 -2631	105	105 -1	7.8%	4.6%	20.3%	18.2%
160-319	48	49 1	9949	10410 461	207	212 5	1.7%	1.2%	8.8%	9.3%
320 or more	22	17 -5	24504	8082 -16422	1114	475 -638	0.8%	0.4%	21.6%	7.2%

DISTRICT 2	# of FARMS		TOTAL ACRES		AVE SIZE FARM		% FARMS		% ACRES	
	1978	1982	1978	1982	1978	1982	1978	1982	1978	1982
ALL FARMS TOTAL	7559	9014	1243390	1260697	164	140	100.0%	100.0%	100.0%	100.0%
Farms by Acres										
1-19	2052	3359	19196	29780	9	9	27.1%	37.3%	1.5%	2.4%
20-39	1292	1562	35594	42392	28	27	17.1%	17.3%	2.9%	3.4%
40-79	1297	1390	72544	76451	56	55	17.2%	15.4%	5.8%	6.1%
80-159	1102	998	123036	110358	112	111	14.6%	11.1%	9.9%	8.8%
160-319	851	773	189759	173181	223	224	11.3%	8.6%	15.3%	13.7%
320 or more	965	932	803271	828535	832	889	12.8%	10.3%	64.6%	65.7%
Farms by Income										
>\$2,500	4874	5027	1117269	1121828	229	223	100.0%	100.0%	100.0%	100.0%
1-19	877	1053	8095	9540	9	9	18.0%	20.9%	0.7%	0.9%
20-39	634	732	17652	20037	28	27	13.0%	14.6%	1.6%	1.8%
40-79	834	864	47141	48103	57	56	17.1%	17.2%	4.2%	4.3%
80-159	838	777	94236	86776	122	112	17.2%	15.5%	8.4%	7.7%
160-319	766	700	171727	157670	224	225	15.7%	13.9%	15.4%	14.1%
320 or more	925	896	778418	799702	842	893	19.0%	17.8%	69.7%	71.3%
<\$2,500	2685	3987	126121	138869	47	35	100.0%	100.0%	100.0%	100.0%
1-19	1175	2306	11101	20240	9	9	43.8%	57.8%	8.8%	14.6%
20-39	658	830	17942	22355	27	27	24.5%	20.8%	14.2%	16.1%
40-79	463	526	25403	28348	55	54	17.2%	13.2%	20.1%	20.4%
80-159	264	221	28800	23582	109	107	9.8%	5.5%	22.8%	17.0%
160-319	85	73	18032	15511	212	212	3.2%	1.8%	14.3%	11.2%
320 or more	40	36	24853	28833	621	801	1.5%	0.9%	19.7%	20.8%

APPENDIX B

DISTRICT 1 DATA	# of FARMS			TOTAL ACRES			AVG SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 1 Cash Grns									
All Farms	506	533	27	109141	118715	9574	216	223	7
Farms by Acres									
1-19	26	53	27	310	635	325	12	12	0
20-39	67	83	16	1955	2456	501	29	30	0
40-79	121	100	-21	6793	5631	-1162	56	56	0
80-159	99	104	5	11118	11789	671	112	113	1
160-319	92	76	-16	20634	17462	-3172	224	230	5
320 or more	101	117	16	68331	80742	12411	677	690	14
Farms by Income									
>\$2,500	402	433	31	103963	115795	11832	259	267	8
1-19	6	8	2	54	109	55	9	14	5
20-39	33	51	18	1023	1546	523	31	30	-1
40-79	86	83	-3	4823	4760	-63	56	57	1
80-159	86	98	12	9683	11176	1493	113	114	1
160-319	91	76	-15	20474	17462	-3012	225	230	5
320 or more	100	117	17	67906	80742	12836	679	690	11
<\$2,500	104	100	-4	5178	2920	-2258	50	29	-21
1-19	20	45	25	256	526	270	13	12	-1
20-39	34	32	-2	932	910	-22	27	28	1
40-79	76	17	-59	1970	871	-1099	26	51	25
80-159	13	6	-7	1435	613	-822	110	102	-8
160-319	1	0	-1	160	0	-160	160	0	-160
320 or more	1	0	-1	425	0	-425	425	0	-425
GRP 2 Field Crops									
All Farms	484	458	-26	56027	58150	2123	116	127	11
Farms by Acres									
1-19	81	110	29	1084	1287	203	13	12	-2
20-39	121	114	-7	3452	3176	-276	29	28	-1
40-79	132	101	-31	7181	5317	-1864	54	53	-2
80-159	76	72	-4	8282	7673	-609	109	107	-2
160-319	39	31	-8	8794	7056	-1738	225	228	2
320 or more	35	30	-5	27234	33641	6407	778	1121	343
Farms by Income									
>\$2,500	218	196	-22	42970	48459	5489	197	247	50
1-19	7	8	1	92	s	n	13	n	n
20-39	39	34	-5	1186	991	-195	30	29	-1
40-79	59	49	-10	3323	2725	-598	56	56	-1
80-159	46	49	3	5204	5105	-99	113	104	-9
160-319	35	27	-8	8031	6267	-1764	229	232	3
320 or more	32	29	-3	25134	s	n	785	n	n
<\$2,500	266	262	-4	13057	9691	-3366	49	37	-12
1-19	74	102	28	992	n	n	13	n	n
20-39	82	80	-2	2266	2185	-81	144	27	-117
40-79	73	52	-21	3858	2592	-1266	53	50	-3
80-159	30	23	-7	3078	2568	-510	103	112	9
160-319	4	4	0	763	789	26	191	197	7
320 or more	3	1	-2	2100	n	n	700	n	n

DISTRICT 1 DATA	# of FARMS			TOTAL ACRES			AVE SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 7 Tree Frt/Nuts									
All Farms	880	918	38	40479	37633	-2846	46	41	-5
Farms by Acres									
1-19	386	469	83	3595	4137	542	9	9	0
20-39	191	179	-12	5253	4943	-310	28	28	0
40-79	161	147	-14	8547	7927	-620	53	54	1
80-159	97	78	-19	10163	8513	-1650	105	109	4
160-319	34	35	1	7328	7709	381	216	220	5
320 or more	11	10	-1	5593	4404	-1189	508	440	-68
Farms by Income									
>\$2,500	464	456	-8	32860	29189	-3671	71	64	-7
1-19	97	123	26	1105	1401	296	11	11	0
20-39	121	114	-7	3441	3155	-286	28	28	-1
40-79	114	112	-2	6207	6145	-62	54	55	0
80-159	87	67	-20	9186	7367	-1819	106	110	4
160-319	34	30	-4	7328	6717	-611	216	224	8
320 or more	11	10	-1	5593	4404	-1189	508	440	-68
<\$2,500	416	462	46	7619	8444	825	18	18	0
1-19	289	346	57	2490	2736	246	9	8	-1
20-39	70	65	-5	1812	1788	-24	26	28	2
40-79	47	35	-12	2340	1782	-558	50	51	1
80-159	10	11	1	977	1146	169	98	104	6
160-319	0	5	5	0	992	992	0	198	198
320 or more	0	0	0	0	0	0	0	0	0
GRP 10 Hort Spec									
All Farms	492	632	140	21806	22769	963	44	36	-8
Farms by Acres									
1-19	324	424	100	1923	2778	855	6	7	1
20-39	69	92	23	1869	2405	536	27	26	-1
40-79	36	58	22	1992	3169	1177	55	55	-1
80-159	36	32	-4	3511	3393	-118	98	106	9
160-319	13	16	3	3098	3655	557	238	228	-10
320 or more	14	10	-4	9413	7369	-2044	672	737	65
Farms by Income									
>\$2,500	416	514	98	20773	21827	1054	50	42	-8
1-19	256	322	66	1620	n	n	6	n	n
20-39	64	78	14	1761	2091	330	28	27	-1
40-79	35	56	21	1947	n	n	56	n	n
80-159	36	32	-4	3511	3393	-118	98	106	8
160-319	12	16	4	2898	3655	757	242	228	-14
320 or more	13	10	-3	9036	7369	-1667	695	737	42
<\$2,500	76	118	42	1033	942	-91	14	8	-6
1-19	68	102	34	303	n	n	4	n	n
20-39	5	14	9	108	314	206	22	22	1
40-79	1	2	1	45	n	n	45	n	n
80-159	0	0	0	0	0	0	0	0	0
160-319	1	0	-1	200	0	-200	200	0	-200
320 or more	1	0	-1	377	0	-377	377	0	-377

DISTRICT 1 DATA	# of FARMS			TOTAL ACRES			AVE SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 11 Gen Farms/Crps									
All Farms	200	285	85	39730	61122	21392	199	214	16
Farms by Acres									
1-19	25	60	35	305	797	492	12	13	1
20-39	25	49	24	717	1296	579	29	26	-2
40-79	43	44	1	2356	2370	14	55	54	-1
80-159	39	45	6	4178	4991	813	107	111	4
160-319	36	30	-6	8156	6985	-1171	227	233	6
320 or more	32	57	25	24018	44683	20665	751	784	33
Farms by Income									
>\$2,500	128	160	32	36510	56114	19604	285	351	66
1-19	0	10	10	0	s	n	0	n	n
20-39	9	6	-3	312	188	-124	35	31	-4
40-79	24	24	0	1422	1381	-41	59	58	-1
80-159	29	38	9	3167	4273	1106	109	112	3
160-319	35	27	-8	7991	6168	-1823	228	228	0
320 or more	31	55	24	23618	s	n	762	n	n
<\$2,500	72	125	53	3220	5008	1788	45	40	-5
1-19	25	50	25	305	n	n	12	n	n
20-39	16	43	27	405	1108	703	25	26	0
40-79	19	20	1	934	989	55	49	49	0
80-159	10	7	-3	1011	718	-293	101	103	1
160-319	1	3	2	165	817	652	165	272	107
320 or more	1	2	1	400	n	n	400	n	n
GRP 12 Ext Animal Grz									
All Farms	2527	3483	956	198789	186203	-12586	79	53	-25
Farms by Acres									
1-19	734	1450	716	7788	14016	6228	11	10	-1
20-39	602	852	250	16589	23188	6599	28	27	0
40-79	562	628	66	31333	33959	2626	56	54	-2
80-159	361	338	-23	38769	36260	-2509	107	107	0
160-319	170	130	-40	37324	27501	-9823	220	212	-8
320 or more	98	85	-13	66986	51279	-15707	684	603	-80
Farms by Income									
>\$2,500	1285	1389	104	144499	122058	-22441	112	88	-25
1-19	218	327	109	2262	3435	1173	10	11	0
20-39	266	319	53	7513	8817	1304	28	28	-1
40-79	329	350	21	18762	19313	551	57	55	-2
80-159	251	219	-32	26723	23971	-2752	106	109	3
160-319	138	101	-37	30758	21423	-9335	223	212	-11
320 or more	83	73	-10	58481	45099	-13382	705	618	-87
<\$2,500	1242	2094	852	54290	64145	9855	44	31	-13
1-19	516	1123	607	275	10581	10306	1	9	9
20-39	336	533	197	9076	14371	5295	27	27	0
40-79	233	278	45	12571	14646	2075	56	53	-4
80-159	110	119	9	12046	12289	243	110	103	-6
160-319	32	29	-3	6566	6078	-488	205	210	4
320 or more	15	12	-3	8505	6180	-2325	567	515	-52

DISTRICT 1 DATA	# of FARMS			TOTAL ACRES			AVE SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 13 Int Anim Husb									
All Farms	859	1276	417	45736	50771	5035	53	40	-13
Farms by Acres									
1-19	385	766	381	3390	6239	2849	1	8	7
20-39	179	248	69	4752	6478	1726	27	26	0
40-79	138	146	8	7469	8057	588	54	55	1
80-159	94	66	-28	10128	6979	-3149	108	106	-2
160-319	40	32	-8	8488	6816	-1672	212	213	1
320 or more	23	18	-5	11509	16202	4693	500	900	400
Farms by Income									
>\$2,500	417	457	40	33877	35717	1840	81	78	-3
1-19	132	193	61	1234	1695	461	9	9	0
20-39	82	98	16	2178	2573	395	27	26	-1
40-79	81	73	-8	4553	4058	-495	56	56	0
80-159	64	46	-18	7176	4947	-2229	112	108	-4
160-319	35	29	-6	7227	6242	-985	206	215	9
320 or more	23	18	-5	11509	16202	4693	500	900	400
<\$2,500	442	819	377	11859	15054	3195	27	18	-8
1-19	254	573	319	2156	4544	2388	8	8	-1
20-39	97	150	53	2574	3905	1331	27	26	-1
40-79	57	73	16	253	3999	3746	4	55	50
80-159	30	20	-10	2952	2032	-920	98	102	3
160-319	5	3	-2	1261	574	-687	252	191	-61
320 or more	0	0	0	0	0	0	0	0	0
GRP 14 Dairy Farms									
All Farms	206	211	5	35034	35557	523	170	169	-2
Farms by Acres									
1-19	25	34	9	210	346	136	8	10	2
20-39	19	25	6	501	677	176	26	27	1
40-79	44	37	-7	2537	2240	-297	58	61	3
80-159	59	42	-17	6631	4909	-1722	112	117	4
160-319	29	44	15	6605	9293	2688	228	211	-17
320 or more	30	29	-1	18550	18092	-458	618	624	6
Farms by Income									
>\$2,500	193	190	-3	34715	34808	93	180	183	3
1-19	19	20	1	s	230	n	s	12	n
20-39	14	21	7	s	572	n	s	27	n
40-79	43	37	-6	2488	2240	-248	58	61	3
80-159	58	40	-18	6528	s	n	113	n	n
160-319	29	43	14	6605	s	n	228	n	n
320 or more	30	29	-1	18550	18092	-458	618	624	6
<\$2,500	13	21	8	319	749	430	25	36	11
1-19	6	14	8	n	116	n	0	8	8
20-39	5	4	-1	n	105	n	0	26	26
40-79	1	0	-1	49	0	-49	49	0	-49
80-159	1	2	1	103	n	n	103	n	n
160-319	0	1	1	0	n	n	0	n	n
320 or more	0	0	0	0	0	0	0	0	0

DISTRICT 1 DATA	# of FARMS			TOTAL ACRES			AVK SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 15 Gen Frms/Lvstk									
All Farms	71	100	29	21279	9674	-11605	300	97	-203
Farms by Acres									
1-19	24	48	24	252	429	177	11	9	-2
20-39	11	21	10	302	597	295	27	28	1
40-79	11	11	0	594	585	-9	54	53	-1
80-159	13	9	-4	1400	1051	-349	108	117	9
160-319	7	5	-2	1534	1120	-414	219	224	5
320 or more	5	6	1	17197	5892	-11305	3439	982	-2457
Farms by Income									
>\$2,500	26	31	5	6288	6380	92	242	206	-36
1-19	2	10	8	8	88	n	8	9	n
20-39	5	7	2	8	178	n	8	25	n
40-79	8	4	-4	459	219	-240	57	55	-2
80-159	4	5	1	458	637	179	115	127	12
160-319	3	1	-2	700	8	n	233	n	n
320 or more	4	4	0	4500	8	n	1125	n	n
<\$2,500	45	69	24	14991	3294	-11697	333	48	-285
1-19	22	38	16	8	341	n	n	9	n
20-39	6	14	8	8	419	n	n	30	n
40-79	3	7	4	135	366	231	45	52	7
80-159	9	4	-5	942	414	-528	105	104	-1
160-319	4	4	0	834	n	n	209	n	n
320 or more	1	2	1	12697	n	n	12697	n	n

DISTRICT 2 DATA	# of FARMS			TOTAL ACRES			AVE SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 1 Cash Grns									
All Farms	497	500	3	102600	120032	17432	206	240	34
Farms by Acres									
1-19	35	47	12	453	645	192	13	14	1
20-39	60	63	3	1736	1808	72	29	29	0
40-79	115	112	-3	6577	6435	-142	57	57	0
80-159	100	79	-21	11085	8592	-2493	111	109	-2
160-319	93	88	-5	20997	20176	-821	226	229	3
320 or more	94	111	17	61752	82376	20624	657	742	85
Farms by Income									
>\$2,500	385	432	47	97335	118073	20738	253	273	20
1-19	5	17	12	71	255	184	14	15	1
20-39	30	40	10	903	1237	334	30	31	1
40-79	77	100	23	4518	5796	1278	59	58	-1
80-159	90	77	-13	9914	n	n	110	n	n
160-319	89	87	-2	20177	n	n	227	n	n
320 or more	94	111	17	61752	82376	20624	657	742	85
<\$2,500	112	68	-44	5265	1959	-3306	47	29	-18
1-19	30	30	0	382	390	8	13	13	0
20-39	30	23	-7	833	571	-262	28	25	-3
40-79	38	12	-26	2059	639	-1420	54	53	-1
80-159	10	2	-8	1171	n	n	117	n	n
160-319	4	1	-3	820	n	n	205	n	n
320 or more	0	0	0	0	0	0	0	0	0
GRP 2 Field Crops									
All Farms	974	991	17	416462	427400	10938	428	431	4
Farms by Acres									
1-19	60	101	41	780	1096	316	13	11	-2
20-39	117	151	34	3336	4081	745	29	27	-1
40-79	130	134	4	7236	7336	100	56	55	-1
80-159	144	131	-13	16658	14607	-2051	116	112	-4
160-319	167	132	-35	38247	30015	-8232	229	227	-2
320 or more	356	342	-14	350205	370265	20060	984	1083	99
Farms by Income									
>\$2,500	761	723	-38	403880	414842	10962	531	574	43
1-19	16	23	7	200	222	22	13	10	-3
20-39	42	58	16	1249	1642	393	30	28	-2
40-79	82	77	-5	4591	4340	-251	56	56	0
80-159	111	102	-9	12887	11726	-1161	116	115	-1
160-319	158	124	-34	36502	28280	-8222	231	228	-3
320 or more	352	339	-13	348451	368632	20181	990	1087	97
<\$2,500	213	268	55	12582	12558	-24	59	47	-12
1-19	101	78	-23	3136	874	-2262	31	11	-20
20-39	88	93	5	5987	2439	-3548	68	26	-42
40-79	48	57	9	2645	2996	351	55	53	-3
80-159	33	29	-4	3771	2881	-890	114	99	-15
160-319	9	8	-1	1745	1735	-10	194	217	23
320 or more	4	3	-1	1754	1633	-121	439	544	106

DISTRICT 2 DATA	# of FARMS			TOTAL ACRES			AVE SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 3 Veg Mellons									
All Farms	477	386	-91	113471	93320	-20151	238	242	4
Farms by Acres									
1-19	53	77	24	565	697	132	11	9	-2
20-39	49	49	0	1345	1367	22	27	28	0
40-79	72	55	-17	4124	3133	-991	57	57	0
80-159	77	40	-37	8604	4588	-4016	112	115	3
160-319	104	50	-54	24139	11826	-12313	232	237	4
320 or more	122	115	-7	74694	71709	-2985	612	624	11
Farms by Income									
>\$2,500	458	363	-95	113011	93083	-19928	247	256	10
1-19	36	58	22	422	n	n	12	n	n
20-39	47	46	-1	1283	1292	9	27	28	1
40-79	72	54	-18	4124	n	n	57	n	n
80-159	77	40	-37	8604	4588	-4016	112	115	3
160-319	104	50	-54	24139	11826	-12313	232	237	4
320 or more	122	115	-7	74694	71709	-2985	612	624	11
<\$2,500	19	23	4	460	237	-223	24	10	-14
1-19	17	19	2	143	n	n	8	n	n
20-39	2	3	1	62	75	13	31	25	-6
40-79	0	1	1	0	n	n	0	n	n
80-159	0	0	0	0	0	0	0	0	0
160-319	0	0	0	0	0	0	0	0	0
320 or more	0	0	0	0	0	0	0	0	0
GRP 4 Berries/Grapes									
All Farms	380	374	-6	13390	15838	2448	35	42	7
Farms by Acres									
1-19	214	220	6	1887	1958	71	9	9	0
20-39	87	70	-17	2308	1807	-501	27	26	-1
40-79	33	40	7	1744	2029	285	53	51	-2
80-159	31	28	-3	3555	3081	-474	115	110	-5
160-319	11	10	-1	2365	2227	-138	215	223	8
320 or more	4	6	2	n	4736	n	n	789	n
Farms by Income									
>\$2,500	322	276	-46	12604	14415	1811	39	52	13
1-19	166	141	-25	1549	n	n	9	n	n
20-39	79	60	-19	2122	1559	-563	27	26	-1
40-79	33	33	0	1744	1646	-98	53	50	-3
80-159	29	26	-3	3290	n	n	113	n	n
160-319	11	10	-1	2365	2227	-138	215	223	8
320 or more	4	6	2	n	4736	n	n	789	n
<\$2,500	58	98	40	786	1423	637	14	15	1
1-19	48	79	31	759	n	n	16	n	n
20-39	8	10	2	186	248	62	23	25	2
40-79	0	7	7	0	383	383	0	55	55
80-159	2	2	0	265	n	n	133	n	n
160-319	0	0	0	0	0	0	0	0	0
320 or more	0	0	0	0	0	0	0	0	0

DISTRICT 2 DATA	# of FARMS			TOTAL ACRES			AVE SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 7 Tree Frt/Nuts									
All Farms	637	705	68	34231	41518	7287	54	59	5
Farms by Acres									
1-19	322	354	32	2908	2889	-19	9	8	-1
20-39	112	137	25	3015	3652	637	27	27	0
40-79	96	108	12	5163	5865	702	54	54	1
80-159	53	63	10	5542	7134	1592	105	113	9
160-319	35	25	-10	7597	5152	-2445	217	206	-11
320 or more	19	18	-1	10006	16826	6820	527	935	408
Farms by Income									
>\$2,500	368	356	-12	28560	29658	1098	78	83	6
1-19	128	99	-29	1321	1040	-281	10	11	0
20-39	70	86	16	1908	2351	443	27	27	0
40-79	74	76	2	3983	4191	208	54	55	1
80-159	45	55	10	4703	6270	1567	105	114	9
160-319	33	23	-10	7104	s	n	215	n	n
320 or more	18	17	-1	9541	s	n	530	n	n
<\$2,500	269	349	80	5671	11860	6189	21	34	13
1-19	194	255	61	1587	1849	262	8	7	-1
20-39	42	51	9	1107	1301	194	26	26	-1
40-79	22	32	10	1180	1674	494	54	52	-1
80-159	8	8	0	839	864	25	105	108	3
160-319	2	2	0	493	n	n	247	n	n
320 or more	1	1	0	465	n	n	465	n	n
GRP 10 Hort Spec									
All Farms	256	319	63	16060	17538	1478	63	55	-8
Farms by Acres									
1-19	172	209	37	923	1218	295	5	6	0
20-39	28	45	17	782	1184	402	28	26	-2
40-79	26	28	2	1373	1490	117	53	53	0
80-159	15	14	-1	1823	1496	-327	122	107	-15
160-319	6	15	9	1174	3287	2113	196	219	23
320 or more	9	8	-1	9985	8863	-1122	1109	1108	-2
Farms by Income									
>\$2,500	207	264	57	15401	16885	1484	74	64	-10
1-19	129	163	34	733	s	n	6	n	n
20-39	26	41	15	717	1102	385	28	27	-1
40-79	24	26	2	1278	s	n	53	n	n
80-159	13	11	-2	1514	1245	-269	116	113	-3
160-319	6	15	9	1174	3287	2113	196	219	23
320 or more	9	8	-1	9985	8863	-1122	1109	1108	-2
<\$2,500	49	55	6	659	653	-6	13	12	-2
1-19	43	46	3	190	n	n	4	n	n
20-39	2	4	2	65	82	17	33	21	-12
40-79	2	2	0	95	n	n	48	n	n
80-159	2	3	1	309	251	-58	155	84	-71
160-319	0	0	0	0	0	0	0	0	0
320 or more	0	0	0	0	0	0	0	0	0

DISTRICT 2 DATA	# of FARMS			TOTAL ACRES			AVE SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 11 Gen Farms/Crps									
All Farms	254	301	47	94860	101699	6839	373	338	-36
Farms by Acres									
1-19	24	37	13	331	448	117	14	12	-2
20-39	33	32	-1	889	864	-25	27	27	0
40-79	31	33	2	1739	1856	117	56	56	0
80-159	42	43	1	5009	4837	-172	119	112	-7
160-319	39	53	14	9597	12994	3397	246	245	-1
320 or more	85	103	18	77295	80700	3405	909	783	-126
Farms by Income									
>\$2,500	180	205	25	91006	97096	6090	506	474	-32
1-19	4	2	-2	s	s	n	s	n	n
20-39	8	5	-3	232	186	-46	29	37	8
40-79	15	15	0	796	861	65	53	57	4
80-159	32	31	-1	3849	3597	-252	120	116	-4
160-319	37	51	14	9126	s	n	247	n	n
320 or more	84	101	17	76937	s	n	916	n	n
<\$2,500	74	96	22	3854	4603	749	52	48	-4
1-19	20	35	15	s	s	n	n	n	n
20-39	25	27	2	657	678	21	26	25	-1
40-79	16	18	2	943	995	52	59	55	-4
80-159	10	12	2	1160	1240	80	116	103	-13
160-319	2	2	0	471	n	n	236	n	n
320 or more	1	2	1	358	n	n	358	n	n
GRP 12 Ext Animal Grz									
All Farms	2972	3980	1008	362391	354274	-8117	122	89	-33
Farms by Acres									
1-19	740	1523	783	7744	14162	6418	10	9	-1
20-39	596	795	199	16565	21764	5199	28	27	0
40-79	611	720	109	34214	39757	5543	56	55	-1
80-159	496	462	-34	54989	50471	-4518	111	109	-2
160-319	295	289	-6	64094	62949	-1145	217	218	1
320 or more	234	191	-43	184785	165171	-19614	790	865	75
Farms by Income									
>\$2,500	1525	1735	210	283176	268266	-14910	186	155	-31
1-19	209	327	118	2201	3081	880	11	9	-1
20-39	223	292	69	6300	7947	1647	28	27	-1
40-79	333	377	44	18975	21090	2115	57	56	-1
80-159	323	328	5	36500	35968	-532	113	110	-3
160-319	235	245	10	51321	53713	2392	218	219	1
320 or more	202	166	-36	167879	146467	-21412	831	882	51
<\$2,500	1447	2245	798	79215	86008	6793	55	38	-16
1-19	531	1196	665	5543	11081	5538	10	9	-1
20-39	373	503	130	10265	13817	3552	28	27	0
40-79	278	343	65	15239	18667	3428	55	54	0
80-159	173	134	-39	18489	14503	-3986	107	108	1
160-319	60	44	-16	12773	9236	-3537	213	210	-3
320 or more	32	25	-7	16906	18704	1798	528	748	220

DISTRICT 2 DATA	# of FARMS			TOTAL ACRES			AVE SIZE FARM		
	1978	1982	+/-	1978	1982	+/-	1978	1982	+/-
GRP 15 Gen Frms/Lvstk									
All Farms	57	93	36	7078	6140	-938	124	66	-58
Farms by Acres									
1-19	21	46	25	187	371	184	9	8	-1
20-39	12	16	4	336	439	103	28	27	-1
40-79	11	12	1	648	628	-20	59	52	-7
80-159	3	7	4	s	735	n	s	105	n
160-319	8	8	0	1885	1827	-58	236	228	-7
320 or more	2	4	2	s	2140	n	s	535	n
Farms by Income									
>\$2,500	24	19	-5	2731	1880	-851	114	99	-15
1-19	2	5	3	s	48	n	s	10	n
20-39	4	2	-2	119	s	n	30	n	n
40-79	8	6	-2	487	325	-162	61	54	-7
80-159	3	4	1	s	388	n	s	97	n
160-319	6	1	-5	1453	s	n	242	n	n
320 or more	1	1	0	s	s	n	s	n	n
<\$2,500	33	74	41	4347	4260	-87	132	58	-74
1-19	19	41	22	s	323	n	n	8	n
20-39	8	14	6	217	s	n	27	n	n
40-79	3	6	3	161	303	142	54	51	-3
80-159	0	3	3	s	347	n	n	116	n
160-319	2	7	5	432	s	n	216	n	n
320 or more	1	3	2	s	s	n	n	n	n

"n" = data not available

"s" = suppression data

APPENDIX C

DISTRICT 1	MEAN ADJUSTED GROSS SALES(\$1000)			DISTRICT 2	MEAN ADJUSTED GROSS SALES(\$1000)		
	1978	1982	+/-		1978	1982	+/-
ALL FARMS TOTAL				ALL FARMS TOTAL			
>\$2,500	19.3	22.8	3.5	>\$2,500	25.6	31.0	5.3
1-19	7.6	8.3	0.8	1-19	6.8	5.5	-1.2
20-39	7.3	6.5	-0.7	20-39	4.6	6.7	2.1
40-79	11.7	10.3	-1.4	40-79	12.3	11.0	-1.3
80-159	22.8	21.5	-1.3	80-159	20.1	34.7	14.6
160-319	30.2	47.5	17.3	160-319	21.3	28.9	7.6
320 or more	69.4	108.5	39.1	320 or more	78.7	98.5	19.9
GRP 1 Cash Grns				GRP 1 Cash Grns			
>\$2,500	13.5	18.8	5.3	>\$2,500	12.7	21.2	8.5
1-19	-0.2	2.9	3.0	1-19	-1.0	1.5	2.5
20-39	1.1	4.4	3.3	20-39	1.6	4.2	2.5
40-79	3.0	-0.3	-3.2	40-79	2.1	4.2	2.0
80-159	3.9	11.3	7.3	80-159	4.5	n	n
160-319	13.6	8.1	-5.5	160-319	8.7	n	n
320 or more	35.5	36.7	1.3	320 or more	37.1	48.5	11.4
GRP 2 Field Crops				GRP 2 Field Crops			
>\$2,500	13.1	14.4	1.3	>\$2,500	57.3	70.6	13.3
1-19	-11.3	n	n	1-19	3.1	6.1	3.1
20-39	0.9	3.8	2.9	20-39	-0.6	6.9	7.5
40-79	1.2	1.0	-0.2	40-79	4.9	3.8	-1.1
80-159	6.1	5.1	-1.0	80-159	17.6	16.7	-0.9
160-319	10.5	-16.9	-27.3	160-319	30.4	36.1	5.7
320 or more	68.4	n	n	320 or more	103.4	129.7	26.3
GRP 3 Veg Mellions				GRP 3 Veg Mellions			
>\$2,500	38.2	55.3	17.1	>\$2,500	50.4	70.4	20.0
1-19	4.1	n	n	1-19	7.0	n	n
20-39	26.0	n	n	20-39	13.0	27.3	14.3
40-79	38.2	n	n	40-79	22.3	n	n
80-159	57.8	73.3	15.5	80-159	36.0	64.6	28.6
160-319	17.2	73.4	56.2	160-319	33.7	69.0	35.3
320 or more	92.6	158.3	65.7	320 or more	117.3	136.4	19.1
GRP 4 Berries/Grapes				GRP 4 Berries/Grapes			
>\$2,500	25.5	31.1	5.6	>\$2,500	13.2	16.8	3.5
1-19	7.4	n	n	1-19	6.0	n	n
20-39	6.9	15.1	8.2	20-39	13.1	17.5	4.4
40-79	24.5	22.7	-1.8	40-79	19.2	8.7	-10.5
80-159	71.7	n	n	80-159	39.1	n	n
160-319	80.1	54.2	-25.9	160-319	18.3	67.2	48.9
320 or more	110.2	373.1	262.8	320 or more	n	132.2	n

GRP 7 Tree Frt/Nuts

>\$2,500	15.1	13.4	-1.8
1-19	3.0	1.0	-2.0
20-39	5.9	3.1	-2.8
40-79	10.0	10.2	0.2
80-159	16.5	27.1	10.5
160-319	69.6	39.1	-30.5
320 or more	97.9	149.7	51.8

GRP 7 Tree Frt/Nuts

>\$2,500	16.0	7.0	-9.0
1-19	4.7	4.4	-0.3
20-39	5.7	2.2	-3.5
40-79	14.7	8.4	-6.2
80-159	18.7	1.7	-17.1
160-319	48.5	n	n
320 or more	75.7	n	n

GRP 10 Hort Spec

>\$2,500	58.2	66.1	7.9
1-19	22.5	n	n
20-39	31.5	32.7	1.1
40-79	62.1	n	n
80-159	121.6	125.5	3.9
160-319	209.8	394.0	184.2
320 or more	565.7	978.6	412.9

GRP 10 Hort Spec

>\$2,500	72.1	81.1	9.0
1-19	24.2	n	n
20-39	7.0	4.5	-2.5
40-79	102.7	n	n
80-159	405.9	1061.6	655.7
160-319	71.7	180.0	108.3
320 or more	383.9	331.5	-52.4

GRP 11 Gen Farms/Crp

>\$2,500	25.6	42.3	16.7
1-19	n	n	n
20-39	10.6	3.5	-7.1
40-79	2.0	7.8	5.7
80-159	11.4	-5.7	-17.1
160-319	22.1	17.2	-4.9
320 or more	66.7	n	n

GRP 11 Gen Farms/Crp

>\$2,500	54.1	61.4	7.3
1-19	n	n	n
20-39	-0.1	4.6	4.7
40-79	15.5	11.8	-3.7
80-159	4.3	21.3	17.0
160-319	28.7	n	n
320 or more	98.9	n	n

GRP 12 Ext Animal Gr

>\$2,500	2.3	0.4	-2.0
1-19	-0.8	3.8	4.6
20-39	-0.7	-2.4	-1.7
40-79	2.7	-2.1	-4.8
80-159	-0.1	-1.3	-1.1
160-319	4.6	9.1	4.5
320 or more	22.5	16.1	-6.5

GRP 12 Ext Animal Gr

>\$2,500	1.2	1.8	0.6
1-19	-1.4	-4.2	-2.8
20-39	0.0	3.8	3.8
40-79	0.3	3.3	3.0
80-159	1.8	0.2	-1.6
160-319	2.9	-5.6	-8.4
320 or more	3.6	20.7	17.1

GRP 13 Int Ania Husb

>\$2,500	17.6	15.3	-2.3
1-19	0.0	8.8	8.8
20-39	8.8	6.3	-2.5
40-79	16.2	-4.2	-20.4
80-159	23.1	11.4	-11.7
160-319	60.7	97.0	36.3
320 or more	74.0	92.1	18.1

GRP 13 Int Ania Husb

>\$2,500	7.8	17.0	9.2
1-19	4.6	n	n
20-39	1.9	1.2	-0.7
40-79	23.3	8.6	-14.7
80-159	0.8	33.6	32.8
160-319	2.9	79.6	76.7
320 or more	55.8	n	n

GRP 14 Dairy Farms

>\$2,500	42.8	78.0	35.1
1-19	n	27.6	n
20-39	n	33.0	n
40-79	19.0	24.2	5.2
80-159	67.2	n	n
160-319	n	n	n
320 or more	48.3	171.3	123.0

GRP 14 Dairy Farms

>\$2,500	64.3	99.8	35.4
1-19	27.9	n	n
20-39	26.3	n	n
40-79	40.3	56.4	16.0
80-159	70.7	144.0	73.3
160-319	63.8	78.9	15.1
320 or more	141.1	212.7	71.6

GRP 15 Gen Frns/Lvst

>42,500	12.9	5.5	-7.4
1-19	n	-5.1	n
20-39	n	3.9	n
40-79	18.0	-24.3	-42.3
80-159	-2.3	n	n
160-319	n	n	n
320 or more	35.8	n	n

GRP 15 Gen Frns/Lvst

>42,500	9.0	-26.6	-35.6
1-19	n	n	n
20-39	0.8	n	n
40-79	n	6.5	n
80-159	n	-172.5	n
160-319	n	n	n
320 or more	n	n	n