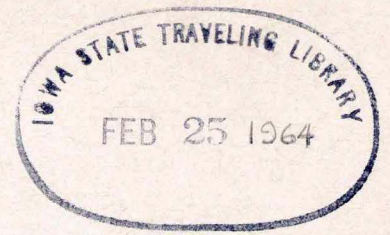


S  
61  
.E48  
No.35  
1963



# Use of Credit by Farm Families in Southern Iowa and Northern Missouri



by Gordon E. Bivens, A. Gordon Ball, Margaret I. Liston,  
Iowa State University of Science and Technology,

and Frank Miller,  
University of Missouri

Iowa Agricultural and Home Economics Experiment Station

and

Missouri Agricultural Experiment Station

cooperating

## Special Report No. 35

Agricultural and Home Economics Experiment Station

Iowa State University of Science and Technology

Ames, Iowa — December 1963

## CONTENTS

Summary .....	3
Introduction .....	5
Reasons for and purposes of study.....	5
Procedure .....	6
Source of data .....	6
Characteristics of sample .....	7
Classification factors .....	8
Statistical treatment of data .....	9
Total use of credit.....	9
Use of consumer credit .....	9
Extent of consumer credit use .....	9
Purposes for which consumer credit was used .....	9
Sources of consumer credit .....	10
Use of consumer credit in relation to selected factors .....	10
Use of production credit .....	14
Extent of farm production credit use .....	15
Purposes for which production credit was used.....	15
Sources of production credit.....	15
Use of production credit in relation to selected family and economic factors .....	15
Use of real estate credit .....	18
Extent of real estate credit use .....	18
Purposes for which real estate credit was used and sources of credit .....	18
Use of real estate credit in relation to selected family and economic factors .....	18

## SUMMARY

Changing economic and social conditions necessitate adjustment by farm families. For many families, increased farm size and rising levels of consumption have resulted in larger outlays for the farm business as well as for family living. Increasingly, farm families have turned to credit to augment their own funds. Therefore, more information is needed about the extent to which credit is used, the uses to which credit is put and the association, if any, between credit use and selected family and economic characteristics. Such information should be useful to extension educators working with farm families in educational programs, to governmental policymakers or legislators who influence the legal framework affecting lending practices and to lending institutions interested in providing greater service to their clientele.

This study was undertaken to provide information about the extent to which production, consumption and real estate credit was used, the specific purposes for which each of these types of credit was used, the sources from which credit was obtained and the differences in the use of these types of credit when families were classified by selected family and economic factors. Family and economic classification factors, selected because logic or previous research indicated their appropriateness, included the ages of farm homemaker and operator, number of years married, years of formal education of homemaker and operator, family composition, tenure situation, net worth, socio-economic status, knowledge of credit sources, size of farm, number of years farmed and willingness to assume debt.

Data in this report were collected in a field survey conducted during the summer of 1957. The area sampled was census economic subregion 71 of south-central Iowa and north-central Missouri. The Iowa State University Statistical Laboratory drew the sample by using area sampling techniques. Of the schedules obtained, 203 were usable. Statistical tests included Chi-square tests of independence for null hypotheses, regression analyses and standard deviations to establish confidence intervals. More than 7 out of 10 families (71.9 percent) had some type of credit outstanding in 1957. The 95-percent confidence interval was 63 to 79 percent. Unless the sample was so rare that it would occur only one time in 20, this interval would include the true percentage of farm families with credit outstanding in the sample area. The average debt was \$5,072 for farm families using credit.

Production credit was used by more families than any other type of credit. More than half (52.7 percent) of the 203 families had debts for

production purposes. Among those using production credit, the average debt was \$2,254.

Fewer families (37 percent) had real estate debts outstanding. The average debt was \$6,420. Still fewer families (27 percent) had consumer credit outstanding. Among those who had consumer credit outstanding, the average amount was \$583.

Nineteen of the 203 families (9.4 percent) were using a combination of all three types of credit. In these cases, the average amount of credit was \$7,423, of which \$4,788 was real estate credit, \$1,871 was production credit and \$764 was consumer credit.

Fifty-three families (26.1 percent) were using two types of credit: (a) 30 families (14.8 percent) were using both production and real estate credit with average credit of \$13,289—of this amount \$3,896 was production credit and \$9,393 was real estate credit; (b) 20 families (9.8 percent) were using both consumption and production credit; (c) 3 families (1.5 percent) were using both consumption and real estate credit.

Seventy-four families (36.4 percent) were using one type of credit only: 38 families (18.7 percent) were using production credit only; 23 families (11.3 percent), real estate credit only; and 13 families (6.4 percent), consumption credit only.

Consumer credit had been used most frequently to purchase an automobile. Other purposes, in order of descending frequency of use, were to: pay doctor and hospital bills, purchase a television set, remodel the house and buy furniture. Additional purposes included buying various consumer goods and paying automobile repair bills.

The average amount of production credit owed was \$2,254, with a range from \$75 to \$25,000. Amounts between \$75 and \$1,000 were owed most frequently. Banks were the most common source of production credit used. Merchants were the next most common source. Credit was obtained less frequently from production credit associations, individuals and FHA. The purposes for which production credit was used, in order of frequency of use, were: (1) general operating expenses, in which case funds were obtained mainly from banks and production credit associations; (2) new machinery and equipment, for which credit was obtained principally from merchants and banks; and (3) gas and oil, for which merchant credit was used in almost all cases. Other purposes for which credit was used, in decreasing order of use, were: breeder stock, feed, seed, feeder stock, building repair and improvement, machinery and equipment repair, fertilizer and lime, and fencing and tiling.

Real estate credit was used most frequently to purchase the farm on which the family was living. Sixty-one families (30 percent) had real estate credit outstanding for this purpose. Individuals were the predominant suppliers of such credit, with insurance companies the next most frequently used source of funds for this purpose. The second most common purpose for which real estate credit was used was to purchase land other than that on which the family lived. Fifteen families (7.3 percent) had credit outstanding for this purpose. Again, individuals were the source of funds most frequently used, with insurance companies a close second. Two families had used credit to refinance a loan which had come due. One of these families obtained the funds from an insurance company; the other family refused to reveal the source.

Selected factors analyzed in relation to the use of credit by farm families were: willingness to assume debt, farm size, total assets, years farmed by the operator, net worth, equity, tenure status, stage in the family cycle, level of education of operator, knowledge of sources of credit and socio-economic status of the family.

There was a positive association, significant at the 5-percent level, between:

1. the stage of family life cycle and whether production and real estate credit were used;
2. the formal education of (a) the farm operator and the amount of production credit used and (b) the homemaker and the amount of consumer credit used;
3. knowledge of credit sources and (a) the amount of consumer credit used and (b) whether production credit was used;
4. renting and whether production credit was used;
5. total assets and amount of production credit used;
6. net worth and the amount of real estate credit used;
7. number of years farmed with (a) amount of production credit used and (b) whether real estate credit was used; and
8. farm acreage and the use of real estate credit.

# Use of Credit by Farm Families in Southern Iowa and Northern Missouri<sup>1</sup>

by Gordon E. Bivens, A. Gordon Ball,  
Margaret I. Liston and Frank Miller

Credit is used increasingly by farm families. Expanded acreages, larger livestock enterprises and greater mechanization have increased the amount of funds necessary for production purposes. At the same time, desires for and availability of new and different household goods and services have expanded demands for funds to achieve and maintain consumption levels. Farm families can obtain these added goods and services for production and consumption (1) by outright purchase through use of current income, savings or credit, or through use of any combination of these; or (2) by rental, particularly of productive assets such as land, but also of some consumption items such as autos. Since current income and savings of most families are inadequate to meet their production and consumption needs and since rental of many goods is not possible, farm families turn to credit to augment their financial resources.

Credit obligations of farm families are larger than in the past, but farm family assets have increased in value, too. In fact, debts, expressed as a percentage of assets, have declined since just before World War II, as shown in table 1. However, because of declining farm numbers, the average amount of debt per farm in the United States

(crudely figured as total debt outstanding divided by numbers of farms) has risen (table 1). Thus, it appears in general that families remaining in agriculture use some credit rather extensively and, therefore, need a sound understanding of this resource to use it wisely.

## REASONS FOR AND PURPOSES OF STUDY

Past studies have determined amounts of credit used but have given little attention to reasons for borrowing. Few credit studies have been based upon relevant theory, and most have failed to recognize the substitutability of the various forms of credit. In addition, many of the studies are relatively old, and social and economic conditions have changed. For example, Young<sup>2</sup> and Korando<sup>3</sup>, in the early 1940's, studied farm family use of credit in certain areas of Missouri.

A few more recent studies have findings that bear on credit use but have had other objectives as their main purpose. For instance, Swanson<sup>4</sup> concluded that use of borrowed funds for farm production purposes was limited by the amount of other resources available to combine with more funds and by risk aversion. Heady and others<sup>5</sup> found age to be associated with attitudes toward credit. Younger farm operators were more inclined to use credit than were older operators.

Attitudes toward indebtedness have been reported by Hillman<sup>6</sup> in Ohio and Ernest<sup>7</sup> and

<sup>1</sup>Project No. 1349 of the Iowa Agricultural and Home Economics Experiment Station and Project No. 311 of the Missouri Agricultural Experiment Station; contributing projects to North Central Regional Project NC-32. The contribution of Dr. Ruth Cook, now of the Ohio Agricultural Experiment Station, during the time of field work is acknowledged. Gordon Bivens assumed major responsibility for preparation of a manuscript; he and A. Gordon Ball were co-leaders of the Iowa project. Margaret Liston was a leader of the project and initiated pilot work leading to this study. Frank Miller was co-leader of the Missouri project.

Table 1. U. S. farm debts in relation to total assets and number of farms for selected years, 1940-60.

Year	Total debts (billions)	Total assets (billions)	Debts as a percent of assets	Number of farms (thousands)	Average debt per farm
1940.....	\$ 10.0	\$ 53.0	18.9	6,350	\$1,575
1946.....	8.0	102.0	7.8	5,926	1,350
1951.....	13.1	149.6	8.7	5,535	2,367
1956.....	18.9	168.1	11.2	4,969	3,804
1957.....	19.5	176.3	11.1	4,856	4,016
1958.....	20.2	186.0	10.9	4,749	4,254
1959.....	23.3	202.3	11.5	4,641	5,020
1960.....	24.3	203.6	11.9	4,450	5,352

Source: Adapted from the Economic Report of the President of the United States transmitted to the Congress Jan. 18, 1961. (See especially tables C-70 and C-71, pages 207 and 208.)

<sup>2</sup>Louise Araminta Young. A study of the use of consumer credit by 188 farm families, Ralls County, Missouri. Unpublished M.S. thesis, University of Missouri Library, Columbia, Missouri. 1941.

<sup>3</sup>Sydney Korando. The use of consumer credit by 154 farm families, Lawrence County, Missouri. Unpublished M.S. thesis. University of Missouri Library, Columbia, Missouri. 1942.

<sup>4</sup>Earl R. Swanson. Agricultural resource productivity and attitudes toward the use of credit in southern Iowa. Unpublished Ph.D. thesis. Iowa State University Library, Ames, Iowa. 1951.

<sup>5</sup>Earl O. Heady, William B. Back and G. A. Peterson. Interdependence between the farm business and the farm household with implications on economic efficiency. Iowa Agr. Exp. Sta. Res. Bul. 398. 1953.

<sup>6</sup>Christine H. Hillman. Factors influencing the lives of a group of young farm families. Ohio Agr. Exp. Sta. Res. Bul. 750. 1954.

<sup>7</sup>Eva Rut Ernest. Factors related to family goals specified by farm operators and homemakers. Unpublished M.S. thesis. Iowa State University Library, Ames, Iowa. 1956.

Oommen<sup>8</sup> in Iowa. Oommen indicated "indebtedness" to be a major concern among farm families in north-central and south-central Iowa. Such attitudes may limit the financial resources used, resulting in less than optimum levels of family consumption and farm operation.

More recently, Bivens<sup>9</sup> analyzed the use of credit by farm families in one Iowa county. Purposes for which production, consumption and real estate credit were used and the sources from which this credit was obtained were determined. In addition, associations between the use of credit and factors such as age, tenure, willingness to assume debt, socio-economic status and knowledge about credit were studied. His data were part of a pilot study in Greene County, Iowa. Findings and experiences from this earlier study were used in planning and designing the more comprehensive investigation reported here.

Also, Corliss<sup>10</sup> and Venezian<sup>11</sup> have analyzed farm family use of consumption and production credit. In addition Coffman<sup>12</sup> investigated farm people's attitudes toward credit and the influence of these attitudes on use of credit. These individual studies were a part of the larger study reported in this bulletin, and selected findings from the individual studies are included in this report.

Since so little research has dealt with the total complex of credit use by farm families—that is, consumption, production and real estate credit—and since so little recent research has dealt with factors affecting use of borrowed funds, this research was undertaken to fill gaps in knowledge concerning the use of this resource. General objectives were to gain knowledge about farm family use of credit and factors associated with its use. Particular objectives were to determine the extent to which consumption, production and real estate credit<sup>13</sup> are used by farm families; the specific purposes for which farm families use credit; the sources of borrowed funds; attitudes toward credit; and differences in its use when families are classified by ages of farm homemakers and operators, number of years married, for-

mal education, family composition, tenure, net worth, socio-economic status, knowledge of credit sources, size of farm, number of years in farming and willingness to assume debt.

This study was based upon theories relevant to individual family use of credit, particularly in emphasizing the interrelatedness of consumption and production. The findings should be useful to educators, particularly in the extension service, interested in designing educational programs on this subject. Researchers may find certain techniques of interest—for example, the method of identifying attitudes toward credit. Governmental policymakers or legislators should find this information useful in determining or modifying laws and regulations pertaining to lending practices. The information may assist lending institutions in assessing their practices and in modifying their rules so that they can be of greater service to their clientele in addition to furthering their own interests.

## PROCEDURE

### Source of Data

Data reported here were obtained from a survey made by the agricultural experiment stations of Iowa and Missouri. The two experiment stations cooperated because of mutual interest in farm family use of credit. The study was designed to determine practices and attitudes toward the use of credit for consumption and production purposes and for purchase of real estate. South-central Iowa and north-central Missouri<sup>14</sup> were chosen as the sample areas because of similar social, economic and demographic characteristics. These areas include 19 southern Iowa counties and 40 northern Missouri counties.

The sample consisted of 89 clusters of five households, each drawn at random from the total number of clusters by the Statistical Laboratory of Iowa State University. The anticipated number of dwellings in the sample was 445, from which it was expected to obtain 300 usable schedules.

Interviews were conducted by experienced interviewers in 1957—during May and June in Iowa and during July and August in Missouri. Within the clusters, attempts were made to contact every household. If no contact resulted after three calls, however, no further attempt was made. Households which met the following eligibility requirements were interviewed: (1) The husband and wife had been married at least 1 year; (2) both husband and wife lived on the farm they operated; (3) the husband and wife were operating a farm at the time of interview and had been

<sup>8</sup>Anna K. Oommen. Goals of farm families in north-central and south-central Iowa. Unpublished M.S. thesis. Iowa State University Library, Ames, Iowa. 1958.

<sup>9</sup>Gordon E. Bivens. Firm-household interdependence and other factors in relation to use of credit by farm families in Greene County, Iowa. Unpublished Ph.D. thesis. Iowa State University Library, Ames, Iowa. 1957.

<sup>10</sup>Mary Jane Corliss. Social and economic factors related to use of consumer credit by farm families. Unpublished M.S. thesis. Iowa State University Library, Ames, Iowa. 1958.

<sup>11</sup>Eduardo Leigh Venezian. Use of production credit by farm families. Unpublished M.S. thesis. Iowa State University Library, Ames, Iowa. 1959.

<sup>12</sup>George W. Coffman, Jr. An analysis of the factors affecting farm people's attitude and use of credit. Unpublished M.S. thesis. University of Missouri Library, Columbia, Missouri. 1959. Personnel responsible for Project No. 1349 of the Iowa Agricultural and Home Economics Experiment Station and Project No. 311 of the Missouri Agricultural Experiment Station would like to express appreciation to Miss Corliss, Mr. Venezian and Mr. Coffman for their part in analysis and interpretation of the data reported here.

<sup>13</sup>Credit as used in succeeding statements of objectives refers to all three types of credit—production, consumption and real estate.

<sup>14</sup>Economic subregion 71, which coincides with Agricultural Census economic areas 3a and 3b in Iowa and 2a and 2b in Missouri.

farm operators the previous year; (4) at least half of the cash income was earned from farming; and (5) respondents were farming at least 30 acres.

Both husband and wife were interviewed. Different schedules were used with each, but the schedules had some parts in common. The one used with the wives included most of the information about family goals, family attitudes and opinions about credit, use of consumer credit and family characteristics. The schedule used in interviewing the husbands sought information about production credit, farm mortgage credit and family assets. Common to both schedules were sections posing hypothetical situations involving alternative purposes for the use of funds and sections dealing with the attitudes of husbands' and wives' parents toward credit.

Only 203 completed and usable schedules were obtained; 213 households failed to meet the eligibility requirements. In Iowa, the most frequent reasons for ineligibility were that the husband and wife had not operated a farm the preceding year and that less than half of the family income was obtained from farming. In Missouri, many houses in the clusters were unoccupied. In addition, 29 schedules were not completed for reasons other than eligibility, such as failure to contact the family after three attempts.

### Characteristics of Sample

#### Selected family characteristics

The median age of the men in the sample was 49 years; for women, 44 years. The age range for men was 21 to 79 years; for women, 18 to 77 years. The distributions of men and women by age (fig. 1) revealed a relatively large proportion of older men, which is consistent with census data<sup>15</sup> and other information for this area. The distribution of women's ages, however, revealed a different situation: Relatively few women were in the older age group, while notably more were found in the young group. About equal numbers of men and women were classified in the middle age grouping.

As many couples had been married 22 years or longer as had been married less than 22 years. Nearly two-thirds (64.5 percent) reported children living at home. Most families that reported children had two or three; the largest number of children in one family was 10. Thirteen families had extra persons in the household—that is, persons other than husband, wife and their children. Family compositions are shown in table 2.

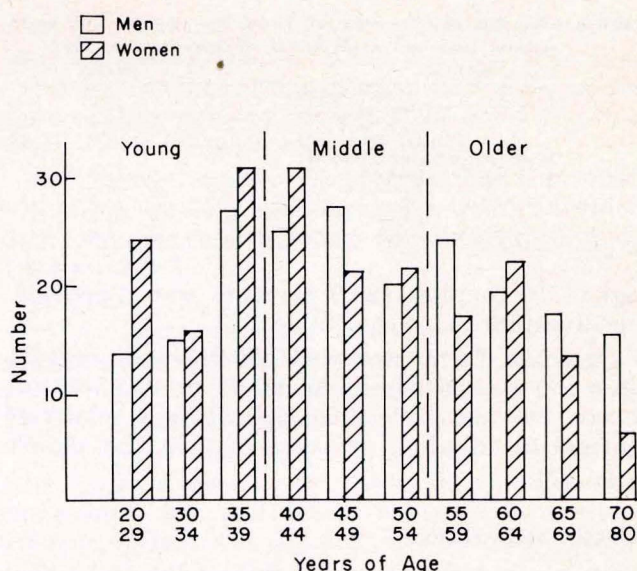


Figure 1. Frequency distribution of farm operators and homemakers by age.

Table 2. Composition of 203 farm families in south-central Iowa and north-central Missouri, 1957.

Family composition	Number of families	Percent of total
<b>Families without children at home</b>		
Wife under 35 years of age.....	2	.....
Wife 35 years or older.....	72	.....
Total .....	74	36.5
<b>Families with children at home</b>		
All pre-school and grade-school ages		
Under 6 and 6-13 years.....	22	.....
All under 6 years.....	20	.....
Ages 6-13 only.....	20	.....
Total .....	62	.....
All school-age, including high school age (6-13 and 14-18).....	13	.....
All high school age or older		
14-18 years only.....	17	.....
14-18 and 19 and older.....	6	.....
19 and older only.....	15	.....
Total .....	38	.....
In miscellaneous age groupings.....	16	.....
Total .....	129	64.5
<b>TOTAL .....</b>	<b>203</b>	<b>100.0</b>

Twelve years of schooling was the median educational level for women; for men, 9 to 11 years. This tendency for women to have more formal education than men is consistent in direction with 1950 Iowa Census data for rural farm people.

#### Selected farm characteristics

More than 80 percent of the families owned all or part of their land, as shown in table 3.<sup>16</sup> Almost half (48.8 percent) owned all the land they farmed, while nearly a third (32.5 percent) owned some and rented additional land.<sup>17</sup> Less than a fifth (18.7 percent) rented all their land. Eight

<sup>15</sup>U. S. Bureau of Census. U. S. Census of Population: 1950. Vol. II, Characteristics of the population, Part 15, Iowa, Ch. C. U. S. Govt. Print. Off., Washington, D. C. 1952.

<sup>16</sup>"Owned" is used to mean "title to ownership"; some who indicated they were owners may have had only small equities.

<sup>17</sup>Henceforth, families who owned some land and rented additional land will be referred to as part-owners.

**Table 3. Selected characteristics of farms operated by 203 south-central Iowa and north-central Missouri families, 1957.**

Characteristics	Percent
Tenure: Full or part owners.....	81.3
Own all .....	48.8
Own part .....	32.5
Full renters .....	18.7
Main source of farm income:	
General .....	42.4
Livestock .....	38.5
Grain .....	12.8
Dairy .....	5.4
Other .....	0.9

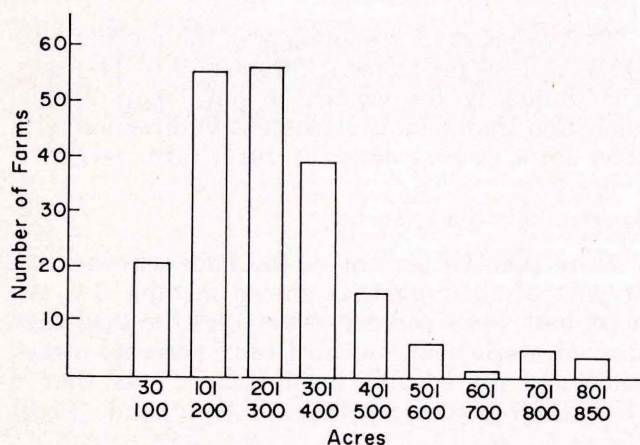
out of 10 families (80.9 percent) were "general" or "livestock" farmers (table 3).

Average farm size was 256.2 acres, ranging from 30 to 836 acres. Modal farm size was between 200 and 300 acres, indicating a relatively normal distribution of farm sizes in the sample (fig. 2).

### Classification Factors

Factors for classification purposes were chosen because logic, previous research, or both, suggested that they might be associated with the use of credit. Some of these factors—such as tenure, age, net worth, formal education, number of years married, size of farm and number of years farming—are readily measurable and were taken directly from answers on the schedule. Others, including socio-economic status, willingness to assume debt, family composition and knowledge of credit sources, were less precisely measurable and were determined by indirect procedures.

Ages of farm operators and homemakers were used as one indication of the stage in the family life cycle. Three age groupings were used: those under 40 years of age, to represent relatively young families; those between 40 and 54 years, to represent families which were well established but might have growing or maturing



**Figure 2. Frequency distribution of farms by size in acres.**

children in the household; and those over 55 years, to represent older families.

Number of years married was used as another indicator of stage in the family life cycle. Three groupings were used to represent younger, middle-aged and older families. These groupings consisted of couples married less than 15 years, couples married 15 to 29 years and couples married 30 years or longer.

Formal educational groupings for both men and women included: 8 years or less of schooling, 9 to 11 years, 12 years (high school graduates) and 1 or more years of college.

Family composition is another dimension of the family life cycle that affects the demands upon family resources. Families with children were classified as those with younger children only, those with young children as well as older ones, families with older children only and those with children in various age groupings. Families without children were classified into two groups: those in which the wife was under 35 years of age and those in which she was 35 years of age or older.

Traditional tenure classifications were used: all land owned; all land rented; and some land owned, some rented.

To create net worth groupings, a frequency distribution was divided approximately into thirds to represent families with relatively low, medium and high net worths.

Socio-economic status was indicated by a consumer possessions score. Reasons for using this instead of other measures of social or economic status included (a) difficulties in estimating farm income and its variability from year to year and (b) elusiveness of social status. By contrast, ownership of selected consumer goods is easily determined and is achieved over several years, thereby reflecting an income level of more than 1 year. Although use of consumer possessions scores seemed appropriate in general, it should be recognized that these scores include items which could be purchased with consumer credit.

Possession or nonpossession of 22 household facilities was indicated by the families interviewed. Items which were most commonly and least commonly possessed were eliminated as nondiscriminating, leaving 14 consumer items in the final list. These included: running water, kitchen sink with drain, septic tank or cesspool, flush toilet in house, installed bathtub or shower, central heat, telephone, automatic clothes washer, automatic clothes dryer, electric ironer, home food freezer, electric sewing machine, vacuum cleaner and television set. A simple addition of the items which a family possessed made up their consumer possessions score. Scores ranged from 0 to 14. A frequency distribution of these scores was divided approximately into thirds, roughly



indicating low, medium and high socio-economic status. Low scores ranged from 0 to 4, medium from 5 to 8, and high from 9 to 14.

Willingness to assume debt was indicated by a score combining respondents' answers to eight statements reflecting their attitudes toward debt for various purposes—farm, household or real estate. For each statement, five answers were possible, each indicating varying degrees of debt aversion. Accordingly, points were assigned ranging from 0 to 4; the higher the score, the more favorable the attitude toward assuming debt. Points for answers to individual statements were summed to arrive at an over-all score of willingness to assume debt. A frequency distribution of these scores was divided approximately into thirds to represent low, medium and high willingness to assume debt. Low included scores up to 14 points, medium consisted of scores of 15 to 19 points, and high was 20 points or more.

Knowledge of credit was restricted to knowledge of credit sources. Families were asked where they could borrow funds if needed for specific purposes, such as for a combine or a food freezer. The number of *different* sources was totaled, and this sum was used as a score to indicate knowledge of credit sources. A frequency distribution was divided approximately into thirds to represent relatively little knowledge of sources, an intermediate amount of information and a relatively high degree of knowledge of credit sources.

#### Statistical Treatment of Data

Data were coded and punched on IBM cards. Three statistical methods were used for analysis of data. Null hypotheses of associations between various attributes and the use of credit were appropriate for many factors. Here, Chi-square tests of independence were used to test the hypotheses.

A regression analysis was made of the relation between use of credit and selected quantifiable factors. Also, confidence intervals were established for the percentages of the farm population that had consumer credit outstanding at three points in time and for the mean amount of debt.

#### TOTAL USE OF CREDIT

More than 7 out of 10 families (71.9 percent; the 95-percent confidence interval was 63 to 79 percent) had some type of credit outstanding in mid-1957. The average debt was \$5,072 for those using credit.

Production credit was being used by more than half of the 203 families (52.7 percent).

Among those using this type of credit, the average debt was \$2,254.

Fewer families (37 percent) had real estate debts at the time of interview in mid-1957; for these, the average debt was \$6,420.

Still fewer families (27 percent) had consumer credit outstanding. Among those with consumer debt, the average amount outstanding in mid-1957 was \$583.

Nineteen families (9.4 percent) were using *all three* types of credit. In these cases, the average amount outstanding was \$7,423, of which \$4,788 was real estate credit, \$1,871 was for production purposes and \$764 was consumer debt.

Fifty-three families (26.1 percent) were using *two types* of credit. Of these, 30 families had production and real estate debts. The average amount of debt was \$13,289, of which \$3,896 was production credit, and \$9,393 was real estate debt. Twenty families had consumer and production credit outstanding, while three families were using real estate and consumer credit concurrently.

Seventy-four families (36.4 percent) were using *only one type* of credit. Production credit was used alone by more families than any other type of credit; 38 families (18.7 percent) were using only production credit. Twenty-three families (11.3 percent) had only real estate credit outstanding, and 13 families (6.4 percent) were using consumer credit only.

#### USE OF CONSUMER CREDIT

Relatively little information is available about the amounts of consumer credit that farm families use, where it is obtained and for what purpose it is used. This information was obtained along with data to indicate trends in the use of consumer credit.

#### Extent of Consumer Credit Use

In mid-1957, the average amount owed by the 55 families (27 percent) using consumer credit was \$583.<sup>18</sup> This was less than the average debt of \$785<sup>19</sup> on January 1, 1956, when only 30 families (15 percent) were using consumer credit. From this information, it appears that more farm families in this area were using consumer credit in mid-1957 than approximately 18 months earlier, but the average amount used had declined. That is, the use of consumer credit had become more common, but the average debt was less.

#### Purposes for Which Consumer Credit Was Used

Southern Iowa and northern Missouri farm families had used consumer credit more often to

<sup>18</sup>95-percent confidence interval: \$388 to \$788.

<sup>19</sup>95-percent confidence interval: \$482 to \$1,142.

Table 4. Uses and sources of consumer credit among 203 farm families in south-central Iowa and north-central Missouri, 1957.

Purpose	Families who had used consumer credit		Sources of consumer credit							
			Dealers		Banks		Finance companies		Individuals	
	N	%	N	%	N	%	N	%	N	%
Automobile .....	20	9.9	7	35.0	7	35.0	3	15.0	3	15.0
Doctor, hospital bills .....	17	8.4	4	23.5	4	23.5	0	0.0	9	52.9
Television set .....	10	4.9	8	80.0	2	20.0	0	0.0	0	0.0
"Other" <sup>a</sup> .....	8	3.9	7	87.5	0	0.0	0	0.0	1	12.5
Remodeling house .....	5	2.5	1	20.0	2	40.0	1	20.0	1	20.0
Furniture .....	4	2.0	3	75.0	1	25.0	0	0.0	0	0.0
Plumbing .....	3	1.5	2	66.7	0	0.0	0	0.0	1	33.3
Washing machine .....	3	1.5	3	100.0	0	0.0	0	0.0	0	0.0
Kitchen range .....	2	1.0	2	100.0	0	0.0	0	0.0	0	0.0
Clothes dryer .....	2	1.0	2	100.0	0	0.0	0	0.0	0	0.0
Central furnace .....	1	0.5	0	0.0	0	0.0	0	0.0	1	100.0
Refrigerator .....	1	0.5	1	100.0	0	0.0	0	0.0	0	0.0

<sup>a</sup>Included food freezers, sewing machines, other miscellaneous consumer goods and auto repair bills.

purchase an automobile than for any other purpose. Nearly 10 percent had credit outstanding for this purpose. In addition to being an important part of the family standard of living, an automobile is considered a productive asset by farm families, which may help to account for the more frequent use of consumer credit for the purchase of an automobile. Also, an automobile usually requires a larger outlay than most other consumption items. Therefore, it is more difficult to accumulate enough funds to buy an automobile with cash. In addition, credit is easily available for automobile purchase; in fact, its use is actively promoted, and this may have increased families' awareness of availability of sources of credit for this use.

Doctor and hospital bills were the next most frequent uses of consumer credit (table 4). Seventeen families (8.4 percent) had used consumer credit for these purposes.

Ten families (4.9 percent) had used consumer credit to purchase a television set. Although relatively few families had used credit for this purpose, the fact that this was the third most frequent purpose for which consumer credit was used may indicate farm family willingness to use credit for television to save on other types of recreation.

Consumer credit had been used by eight families (3.9 percent) for miscellaneous purposes. These included purchases of food freezers, sewing machines, and other miscellaneous consumer goods and payment of auto repair bills. Other uses of consumer credit as well as sources from which it was obtained are shown in table 4.

#### Sources of Consumer Credit

Banks and dealers were the sources from which credit was obtained most frequently to purchase an automobile (table 4). Individuals were the most frequent source of credit for payment of doctor or hospital bills. Dealers most frequently were the source of credit for all other purposes except remodeling of the house and installation of a central furnace. Banks were the predominant source of credit for house remodeling, and an in-

dividual supplied credit for the one family that used credit to purchase a central furnace.

#### Use of Consumer Credit in Relation to Selected Factors

Little information is available about the use of consumer credit in relation to selected family, social, economic and attitudinal factors. This study was designed to allow an investigation of farm family use of consumer credit in relation to selected factors, such as ages of farm operators and homemakers, formal education of homemakers and farm operators, number of years married, family composition, knowledge of sources of credit, willingness to assume debt, tenure, net worth and socio-economic status as indicated by consumer possessions scores.

#### Ages of farm operator and homemaker

Age, particularly the homemaker's, is an indicator of stage in the family life cycle. Younger married people are at a stage of heavy financial demands as they attempt to accumulate household possessions, as children are born, or both. Concurrently, financial needs for the farm business also are great at this period, and savings usually are limited. Therefore, it might be expected that young farm families would turn to credit to obtain the goods and services they desire.

Relatively more families headed by young men used consumer credit than families headed by men of other ages, as shown in table 5 and fig. 3. Thirty-four percent of the families with a young head had some consumer credit outstanding, compared with 29.2 percent of the families with middle-aged heads and 20.0 percent of the families headed by older men. Also, there was some tendency for families of younger men to use larger amounts of credit, particularly compared with families of men in the oldest age group. Although these tendencies appeared, the association between age of farm operators and use of consumer credit was not significant.

Similar tendencies were observable when families were classified on the basis of the age of the homemaker (table 5 and fig. 4). A larger

**Table 5. Distributions of amounts of consumer credit outstanding of 203 south-central Iowa and north-central Missouri farm families by age and education of farm operators and homemakers, 1957.**

Selected characteristic	Families in class		Families in each class which had				Percentage of families using consumer credit by amount outstanding		
			No credit		Credit outstanding		\$1 - \$100	\$101 - \$650	\$651 or over
	N	%	N	%	N	%			
<b>Age of farm operator</b>									
39 or under.....	56	27.5	37	66.0	19	34.0	21.0	47.4	31.6
40-54.....	72	35.5	51	70.8	21	29.2	33.3	38.1	28.6
55 or over.....	75	37.0	60	80.0	15	20.0	53.3	20.0	26.7
Total.....	203	100.0	148	-----	55	-----	X <sup>2</sup> = 5.59	(4 d. f.)	> P 0.30
<b>Age of homemaker</b>									
39 or under.....	71	35.0	44	62.0	27	38.0	25.9	40.8	33.3
40-54.....	74	36.4	57	77.0	17	23.0	29.6	35.2	35.2
55 or over.....	58	28.6	47	81.3	11	18.7	63.6	9.1	27.3
Total.....	203	100.0	148	-----	55	-----	X <sup>2</sup> = 5.97	(4 d. f.)	> P 0.30
<b>Education of farm operator</b>									
8 yr. or less.....	96	47.3	74	77.0	22	23.0	45.5	40.9	13.6
9-11 yr. ....	31	15.3	21	67.7	10	32.3	30.0	20.0	50.0
12 yr. ....	66	32.5	46	69.7	20	30.3	30.0	30.0	40.0
1 or more yr. of college.....	10	4.9	7	70.0	3	30.0	0.0	33.3	66.7
Total.....	203	100.0	148	-----	55	-----	X <sup>2</sup> = 8.03	(6 d. f.)	> P 0.20
<b>Education of homemaker</b>									
8 yr. or less.....	59	29.1	45	76.3	14	23.7	57.2	7.1	35.7
9-11 yr. ....	39	19.2	33	84.6	6	15.4	16.4	83.3	0.0
12 yr. ....	83	40.9	56	67.5	27	32.5	29.6	29.6	40.8
1 or more yr. of college.....	22	10.8	14	63.6	8	36.4	25.0	50.0	25.0
Total.....	203	100.0	148	-----	55	-----	X <sup>2</sup> = 14.02	(6 d. f.)	> P 0.05

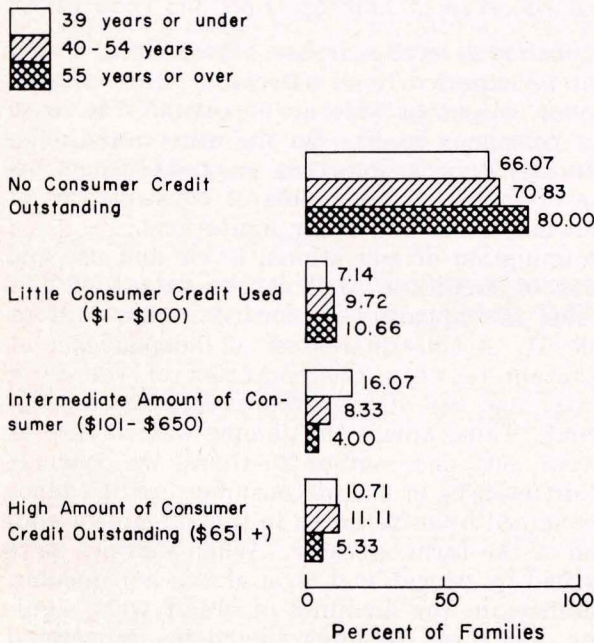
proportion of older families than of families of other ages were using small amounts of credit. This situation may indicate that older families sometimes had to use credit, but did so reluctantly. Associations between the age of the homemaker and the use or nonuse of credit were non-significant, as were associations between the age of the homemakers and the amounts of credit outstanding.

**Number of years married**

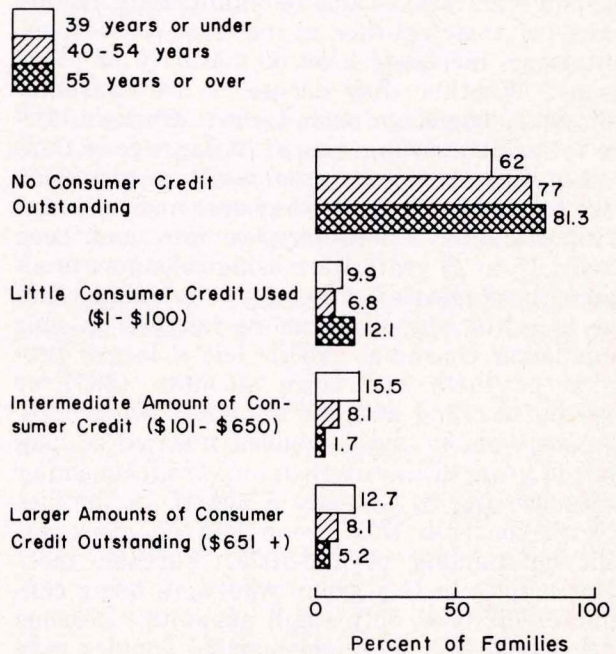
Age is one element indicating the stage of the

family life cycle. Number of years married might be considered another; that is, number of years married affects demands on the financial resources of the family.<sup>20</sup> Length of marriage may be more closely associated with changes in demands on financial resources resulting from progression through the family life cycle than age of either partner at time of marriage.

<sup>20</sup>R. L. D. Morse at Kansas State University, in a contributing project to NC-32, also has used the Morse-Johnston scale which differentiates families on the basis of number of children and age of the youngest child, or, for childless couples, by age of wife. Cleo Fitzsimmons, in work at Indiana which contributed to NC-32, has used age of oldest child as basis for family life cycle groupings.



**Figure 3. Amount of consumer credit outstanding by age of head.**



**Figure 4. Amount of consumer credit outstanding by age of farm homemaker.**

Marriages that have existed a relatively short time often represent families in the expanding phase of their life cycle. That is, they are attempting to accumulate household possessions, and, at the same time, new family members may be born. Therefore, number of years married might more accurately reflect the stage of the family cycle than age.

For purposes of this study, stage in the family life cycle is important because of its effect on demands for financial resources. These demands have to be interpreted in light of financial resources available. Therefore, classification by age and number of years married may give quite different results. For example, two couples may both have been married 5 years, but, in one case, the marriage partners may have been 20 years of age at marriage; in another case, they may have been 30. Therefore, the marriage partners who were older at the time of their marriage might have larger savings accumulated, reducing their need to use credit.<sup>21</sup>

Because of the heavy demands on financial resources occasioned by establishment of a home and family, it might be expected that young families would use consumer credit more than families established for a longer time. On the other hand, younger families may not have much equity to offer as security for borrowing, may not have much experience to indicate their ability to repay or for other reasons may be limited as to the funds they can borrow. Better established families, however, may be able to obtain credit readily because of their equities in material possessions, reputations, increased level of maturity or other reasons. Whether they choose to use consumer credit will depend on such factors as their attitude toward borrowing, size of family, age of family members and extent to which competition exists for funds to use in the home and business.

Proportionately more couples who had been married 15 to 29 years were using consumer credit than those married either fewer or more years (fig. 5). Not only were more families in this group using consumer credit, but a larger proportion of them had large amounts (\$651 or more) outstanding than did the other two groups.

Proportionately more couples married a long time (30 years or more) abstained from consumer credit use (fig. 5). Nearly 8 out of 10 families (77.8 percent) in this group had no consumer credit outstanding in mid-1957. Further, most of the couples in this group who were using consumer credit used only small amounts. Reasons for this behavior of longer-married couples may include culture traits affecting their attitudes toward consumer credit, feelings of insecurity

<sup>21</sup>Household possessions might also be accumulated during the longer period prior to marriage; this would lessen the demand on financial resources after marriage.

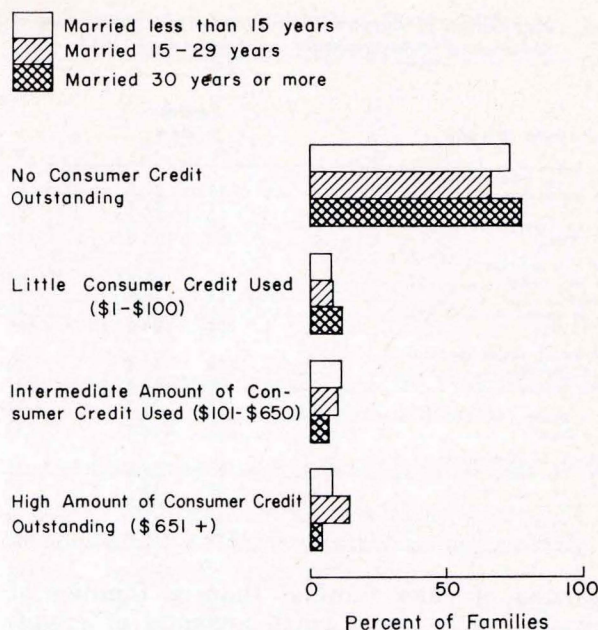


Figure 5. Amount of consumer credit outstanding by number of years married.

about their future financial situation or reduced needs for material goods because of inventories.<sup>22</sup> Although variations were observed in the credit behavior of couples married different lengths of time, these were not significant.

Formal education of farm operators and homemakers

Educational level and use of consumer credit might be expected to be associated, since courses in school might provide an opportunity to learn about consumer credit. On the other hand, education might be a deterrent to credit usage, because of increased awareness of consequences of its misuse, costs and other limitations.

Examination of educational levels and use and nonuse of credit, as well as the extent of use, revealed few apparent or consistent associations (table 5). A Chi-square test of independence of association between the education of the farm operator and use of consumer credit was nonsignificant. Thus, unless the sample was so rare as to occur only once out of 20 times, we conclude that differences in use of consumer credit cannot be explained by differences in the amount of education of the farm operator. When families were classified by educational level of the homemaker, differences in the amounts of credit were significant, but these findings should be interpreted cautiously since relatively few cases appeared in some cells of the contingency table.

<sup>22</sup>However, it should be kept in mind that older persons may have increased need for selected services, particularly medical and hospital services.

### Family composition

Numbers and ages of family members affect the use of family resources. Two families with equivalent planes of consumption per person but with one family consisting of two people only and the other of five obviously would make different demands on family resources.

Perhaps the broadest comparison of families by composition groupings is between those with children and those with no children (table 6). A larger proportion of farm families with children in the southern Iowa and northern Missouri area were using credit and tended to use larger amounts than families with no children. However, these differences were nonsignificant. Table 6 also shows whether credit was used and in what amounts by families grouped on the basis of the ages of the children. Again, differences were nonsignificant.

### Knowledge of credit sources

Better acquaintance with credit sources might be expected to lead to greater use of consumer credit, other things being equal. This hypothesis was not substantiated. Although relatively fewer families with little knowledge of credit sources were using consumer credit than families with moderate and high knowledge ratings (table 6), the differences between levels of knowledge about credit sources and use or nonuse of consumer credit were nonsignificant. A larger proportion of families with moderate knowledge of credit sources were using credit in larger amounts than were families with less or more knowledge of credit sources. These differences in amounts of credit outstanding by level of knowledge about credit sources were statistically significant.

### Willingness to assume debt

Families with equal borrowing power and equivalent desires as to levels of consumption may

differ in their use of consumer credit. Many factors bear upon a family's decision to borrow or defer a purchase until it can be made without using credit. A family's willingness to assume the uncertainties connected with debt affects its decision. For purposes of this study, the farm homemaker's responses to questions designed to reveal her perceptions of the family's feelings toward assuming debts for different purposes—farm business, family living and purchase of real estate—were combined into an over-all indicator of the family's willingness to assume debt.

Readiness to borrow, shown by a relatively high willingness to assume debt, might be expected to be associated with greater use of credit. But the extent to which credit actually is used also depends on many other factors, such as amounts of funds available without use of credit, present inventories of durable and other goods and services, and the family's desires for goods and services.

Willingness to assume debt was found to be significantly associated with use or nonuse of consumer credit (table 7). Proportionately fewer families with a low willingness to assume debt were using consumer credit than families with greater inclination toward borrowing. Willingness to assume debt was not significantly associated with the *amount* of consumer credit used—possibly because the indicator of willingness to assume debt may reflect disposition toward *taking on debt* rather than a measurement of the extent to which debt will be assumed.

### Tenure

More renter families were using consumer credit than were families who owned all or part of their farms. Although these tendencies were observed, the differences between tenure groupings (renters, owners, part-owners) were not statistically significant.

It might be expected that renter families, in general, would tend to use consumer credit more

Table 6. Distributions of amounts of consumer credit outstanding among 203 south-central Iowa and north-central Missouri farm families, by family composition and knowledge of credit sources, 1957.

Selected characteristic	Families in class		Families in each class which had				Percentage of families using consumer credit by amount outstanding		
	N	%	No credit		Credit outstanding		\$1 - \$100	\$101 - \$650	\$651 or over
			N	%	N	%			
<b>Family composition</b>									
Families without children.....	74	36.5	58	78.4	16	21.6	50.0	18.7	31.3
Families with children.....	129	63.5	90	69.8	39	30.2	28.2	38.5	33.3
Total.....	203	100.0	148	.....	55	.....	X <sup>2</sup> = 2.99 (2 d. f.)	>	P 0.30
All children under 14 yr.....	62	48.1	42	67.7	20	32.3	25.0	45.0	30.0
Children 6-13 and 14-18 yr.....	13	10.1	7	53.9	6	46.1	16.7	33.3	50.0
Children all 14 yr. or older.....	38	29.4	31	81.6	7	18.4	28.6	28.6	42.8
Children of misc. ages.....	16	12.4	10	62.5	6	37.5	50.0	33.3	16.7
Total.....	129	100.0	90	.....	39	.....	.....	.....	.....
<b>Knowledge of credit sources</b>									
Low.....	112	55.2	89	79.5	23	20.5	30.4	39.2	30.4
Medium.....	40	19.7	30	75.0	10	25.0	30.0	20.0	50.0
High.....	51	25.1	29	56.9	22	43.1	40.9	31.8	27.3
Total.....	203	100.0	148	.....	55	.....	X <sup>2</sup> = 11.83 (4 d. f.)	>	P 0.02

Table 7. Distributions of amounts of consumer credit outstanding among 203 south-central Iowa and north-central Missouri farm families, by willingness to assume debt, tenure, net worth and consumer possessions score, 1957.

Selected characteristic	Families in class		Families in each class which had				Percentage of families using consumer credit by amount outstanding		
	N	%	No credit		Credit outstanding		\$1 - \$100	\$101 - \$650	\$651 or over
			N	%	N	%			
Willingness to assume debt									
Low .....	58	28.6	44	75.9	14	24.1	42.8	50.0	7.2
Medium .....	76	37.4	64	84.2	12	15.8	33.3	25.0	41.7
High .....	69	34.0	40	58.0	29	42.0	31.0	27.6	41.4
Total .....	203	100.0	148	.....	55	.....	X <sup>2</sup> = 5.88	(4 d. f.)	> P 0.30
Tenure									
Rent all land.....	38	18.7	24	63.1	14	36.9	35.7	57.2	7.1
Own all land.....	99	48.8	70	70.7	29	29.3	37.9	20.7	41.4
Rent part, own part.....	66	32.5	54	81.8	12	18.2	25.0	33.3	41.7
Total .....	203	100.0	148	.....	55	.....	X <sup>2</sup> = 8.90	(4 d. f.)	> P 0.10
Net worth									
Low (less than \$15,000).....	64	32.5	38	95.4	26	4.6	42.3	38.5	19.2
Middle (\$15,000 - \$30,000).....	67	34.0	51	76.2	16	23.8	25.0	37.5	37.5
High (more than \$30,000).....	66	33.5	53	80.3	13	19.7	30.8	15.4	53.8
Total .....	197 <sup>a</sup>	100.0	142	.....	55	.....	X <sup>2</sup> = 5.82	(4 d. f.)	> P 0.30
Consumer possessions scores									
Low .....	61	30.2	45	73.8	16	26.2	56.2	25.0	18.8
Middle .....	65	32.2	47	72.3	18	27.7	33.3	44.5	22.2
High .....	76	37.6	56	73.9	20	26.1	15.0	30.0	55.0
Total .....	202 <sup>b</sup>	100.0	148	.....	54	.....	X <sup>2</sup> = 10.12	(4 d. f.)	> P 0.05

<sup>a</sup>Six cases were not usable.  
<sup>b</sup>One case was not usable.

than those who owned all or part of their land, because renter families tend to be somewhat younger than owner families. Although the tendency to use credit more often was shown, the amount of credit outstanding among renter families who used credit was relatively moderate. For example, only 7 percent had \$651 or more of consumer credit outstanding, whereas approximately 41 percent of both the owners and the part-owners had this much outstanding if they used credit at all. Although there were some observable differences in the amounts outstanding by tenure groupings, these differences were not statistically significant.

#### Net worth

A favorable asset-liability position might be expected to be associated with use of credit. Among families in this southern Iowa and northern Missouri sample, less than 5 percent (4.6 percent) of the low net worth families had consumer credit outstanding when interviewed. This contrasts to nearly a fourth (23.8 percent) of the families in the middle net worth grouping and about a fifth (19.7 percent) of those in the high net worth group. Further, low net worth families who had consumer debts were using consumer credit in relatively small amounts, which might indicate an emergency or debt of a short-term nature. On the other hand, families of middle or high net worths were using intermediate or larger amounts of consumer credit; for example, about two-fifths (37.5 percent) of the families in the middle net worth group were using \$651 or more of consumer credit. Over half (53.8 percent) of the families in the high net worth group were using this much credit. Although differences in the amounts of consumer credit outstanding by net worth levels were ob-

servable, these differences were not statistically significant.

#### Consumer possessions score

Possession or nonpossession of consumer durable items was taken as an indicator of socio-economic status.<sup>23</sup> Use or nonuse of consumer credit differed very little among families of low, middle or high socio-economic levels. However, among those who *did* use consumer credit, families with high socio-economic status tended to use relatively large amounts. For example, over half (55.0 percent) of the families with high consumer possessions scores were using \$651 or more of consumer credit; this contrasts with the low and middle consumer possessions score groups among whom about a fifth (18.8 and 22.2 percent, respectively) were using this much consumer credit.

Differences in the amounts of consumer credit outstanding by socio-economic level (as indicated by consumer possessions scores) were statistically significant. These findings should be interpreted with caution, however, since the items in the consumer possessions scores might actually have been purchased with the credit outstanding so there could be considerable interaction.

#### USE OF PRODUCTION CREDIT

Estimates of the amount of farm production credit outstanding are available from various sources. However, relatively little is known about the amounts used for specific purposes and the possible association of various family and farm characteristics with the use or nonuse of credit

<sup>23</sup>See section on classification factors. Also see: Olga Pechnick and Margaret Liston. Selected indicators as measures of economic status of farm families in the North Central Region. Jour. Home Econ. 45: 187-190. March 1953.

for production purposes. Such information would be useful to those who counsel farm families in an educational or lending capacity as well as to others who have an interest in the improvement of resource use by farm families.

#### Extent of Farm Production Credit Use

In mid-1957, 107 families (about 53 percent of those interviewed) were using production credit. The average amount owed was \$2,254; however, this average is affected by the very large loans of two families, each having more than \$10,000 of production credit outstanding. Most frequently families had production debt ranging from \$75 to \$1,000.

#### Purposes for Which Production Credit Was Used

Production credit was used most frequently for "general operating" expenses (table 8). Often farmers borrow a lump sum which is used for many different purposes.<sup>24</sup> Therefore, in several instances, the interviewee could not specify the amounts of credit that were used for particular purposes.

New machinery and equipment was the next most frequent purpose for which production credit was obtained. Such purchases require large outlays, making it necessary for many families to use borrowed funds.

Gasoline and oil purchases were the next most frequent use of production credit. The ease with which such credit is available, particularly from vendors of petroleum products may help to explain the widespread acceptance of credit for these purposes.

Production credit was used frequently for the purchase of livestock, followed in order by use for feed, seed, machinery and equipment repair, building repair and improvement, fertilizer and lime, and fencing and tiling (table 8).

<sup>24</sup>Portions of such loans may also be used for household and family purposes.

#### Sources of Production Credit

Production credit was frequently obtained from banks. General operating loans were obtained from banks more frequently than from any other source. More than two-thirds (68.4 percent) of the farm families that had such loans had borrowed from banks. Banks also were the predominant supplier of credit for purchases of fence and tile, feeder livestock, breeding livestock and seed.

Merchants were the predominant lenders for gasoline and oil, new machinery and equipment, and fertilizer and lime. For building repairs and improvements, a governmental agency, the Farmers Home Administration, was the predominant supplier of funds. This agency's special provisions for such loans and the favorable conditions under which credit is available for those purposes may help to explain its major role in supplying credit for building repairs and improvement.

#### Use of Production Credit in Relation to Selected Family and Economic Factors

Several factors could influence the use of farm production credit. Knowledge of the specific factors associated with the use or nonuse of credit would be helpful to lenders, educators, legislators and others. To obtain such information, the use of production credit was considered in relation to age and education of the farm operator, knowledge of sources of credit, willingness to assume debt, tenure, net worth, assets, number of years farmed and size of farm (in acres).

#### Age of farm operator

Young farm families might be expected to use production credit more often and in larger amounts than older families. This is because young families often are becoming established in farming at the same time that they are experiencing heavy financial demands for family living purposes. In addition, since they usually

Table 8. Uses and sources of production credit among 203 farm families in south-central Iowa and north-central Missouri, 1957.

Purpose	Families who had used production credit		Sources of production credit															
			Bank		FHA <sup>a</sup>		PCA <sup>b</sup>		Individual		Merchant		Bank and merchant		Bank and individual		Bank and FHA	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Seed .....	7	6.5	4	57.1	0	0.0	0	0.0	0	0.0	3	42.9	0	0.0	0	0.0	0	0.0
Feed .....	8	7.5	4	50.0	0	0.0	0	0.0	0	0.0	4	50.0	0	0.0	0	0.0	0	0.0
Fertilizer, lime .....	3	2.8	1	33.3	0	0.0	0	0.0	0	0.0	2	66.7	0	0.0	0	0.0	0	0.0
Machinery and equipment repair .....	4	3.7	1	25.0	0	0.0	0	0.0	2	50.0	1	25.0	0	0.0	0	0.0	0	0.0
Breeder stock .....	8	7.5	6	75.0	0	0.0	1	12.5	1	12.5	0	0.0	0	0.0	0	0.0	0	0.0
Feeder stock .....	5	4.7	4	80.0	0	0.0	1	20.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
New machinery and equipment .....	40	37.4	15	37.5	0	0.0	0	0.0	4	10.0	18	45.0	3	7.5	0	0.0	0	0.0
Gasoline and oil .....	14	13.1	1	7.1	0	0.0	0	0.0	0	0.0	13	92.9	0	0.0	0	0.0	0	0.0
Building repair and improvement .....	4	3.7	1	25.0	3	75.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Fencing, tiling .....	1	0.9	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
General operating expenses .....	59	55.1	38	68.4	2	3.4	10	6.9	4	6.8	1	1.9	0	0.0	3	5.1	1	1.7

<sup>a</sup>Farmers Home Administration.

<sup>b</sup>Production Credit Association.

Table 9. Distributions of amounts of production credit outstanding among 201<sup>a</sup> south-central Iowa and north-central Missouri farm families, by age and education of farm operator, knowledge of production credit sources and willingness to assume debt, 1957.

Selected characteristic	Families in class		Families in each class which had				Percentage of families using production credit by amount outstanding		
			No credit		Credit outstanding		\$1 - \$900	\$901 - \$2,600	\$2,601 or over
			N	%	N	%			
Age of farm operator									
39 or under.....	56	27.9	14	25.0	42	75.0	21.4	33.3	45.3
40-54.....	72	35.8	30	41.7	42	58.3	42.8	31.0	26.2
55 or over.....	73	36.3	50	68.5	23	31.5	43.5	30.4	26.1
Total.....	201	100.0	94	.....	107	.....	X <sup>2</sup> = 6.315 (4 d. f.) > P 0.20		
Education of farm operator									
11 yrs. or less.....	125	62.2	70	56.0	55	44.0	41.9	32.7	25.4
12 yrs. or more.....	76	37.8	24	31.6	52	68.4	26.9	30.8	42.3
Total.....	201	100.0	94	.....	107	.....	X <sup>2</sup> = 3.997 (2 d. f.) > P 0.20		
Knowledge of sources of production credit									
Acquainted with 3 or less sources.....	102	50.7	56	54.9	46	45.1	39.1	26.1	34.8
Acquainted with 4 or more sources.....	99	49.3	38	38.4	61	61.6	31.1	36.1	32.8
Total.....	201	100.0	94	.....	107	.....	X <sup>2</sup> = 5.051 (2 d. f.) > P 0.10		
Willingness to assume debt									
Low.....	57	28.4	29	50.9	28	49.1	42.9	39.3	17.8
Middle.....	75	37.3	37	49.3	38	50.7	26.3	28.9	44.8
High.....	69	34.3	28	40.6	41	59.4	36.6	29.3	34.1
Total.....	201	100.0	94	.....	107	.....	X <sup>2</sup> = 5.487 (4 d. f.) > P 0.30		

<sup>a</sup>Differs from sample size (203) since two schedules had to be eliminated because of incomplete production credit information.

do not have as much money saved, young farm families may be more dependent than older families on credit as a source of funds. In this study, age of the household head was significantly associated<sup>25</sup> with the use of production credit. Young farm families were using credit more frequently than those in which the household head was middle-aged or older. Three-fourths of the young farm families were using production credit compared with less than one-third of the older families (table 9). Further, among those young farm families using production credit, a greater proportion was using relatively large amounts (over \$2,600) than were older credit-using families.

Although this tendency for young families to have larger amounts of production credit outstanding was observed, the association between age of farm operator and *amount* of production credit outstanding was not statistically significant. Thus, it would appear that *age* of farm operator and *use or nonuse* of credit are associated, but that, among those using credit for production purposes, *age* and *amount* of production debt are not necessarily related.

Even though a larger proportion of young farm families were using production credit and tended to use it in larger amounts than older families, it may be that these young families do not always have access to the amounts of credit actually needed (in terms of economic efficiency) and the types of credit best adapted to their needs. The methods of financing that are prevalent—namely, loaning on the basis of equity—usually limit the amount of credit that young families can obtain. Further, legal regulations which govern lending institutions often serve to deter long-range planning.<sup>26</sup> In the light of the

amounts of other resources sometimes possessed by young farm families, such as labor and managerial ability, it may be that they could profitably use even greater amounts of credit.

#### Education of farm operator

Educational level achieved might be expected to be associated with the use of production credit. Farmers with more education might have greater understanding of credit and its potentialities and thus have a more favorable attitude toward credit; ignorance of the economics of resource use may lead to fear of or prejudice against borrowing. More education may contribute to greater managerial capacity which, in turn, may lead to more profitable and productive use of credit. To investigate this hypothesis, farm operators were classified according to whether or not they had completed high school. Farmers with less than 12 years of education tended more to refrain from using credit than those with 12 years or more of formal training (table 9). For example, more than half (56.0 percent) of those with less than 12 years of schooling were using no credit, while less than a third (31.6 percent) of those with 12 years or more of schooling were refraining from its use. This difference was statistically significant.<sup>27</sup> Such a finding is a challenge to educators since it may indicate that some of the obstacles to credit use can be overcome through education. If the use of credit leads to betterment of family financial conditions, educators have a powerful tool for improving the financial situation and security of farm families.

Those farm operators with less education were using credit in smaller amounts. However, this tendency for a positive association between education and *amount* of production credit used was not statistically significant.

<sup>25</sup>At the 1-percent level of confidence.

<sup>26</sup>For example, regulations sometimes make it difficult for lenders to extend credit for more than a short term. Thus, because of uncertainties about renewal of loans, borrowers may be forced to plan on a short-term basis which may or may not be in accordance with their intermediate or long-term interests.

<sup>27</sup>At the 1-percent level of confidence.



#### Knowledge of sources of production credit

Farm operators who had greater information about sources from which loans could be obtained might be expected to make greater use of credit, other things being equal.

Six out of 10 farm operators with relatively extensive knowledge of credit sources were using production credit at the time of interview, contrasted to 45.1 percent of those with a more limited acquaintance with credit sources. This difference was statistically significant.<sup>28</sup>

Although farmers who had relatively extensive information about sources were found to be more likely to use credit, the association between knowledge of credit sources and the amount of production credit outstanding was not significant (table 9). This may suggest that, even though farmers have a knowledge of other sources, they tend to concentrate their borrowing for production purposes at one place (usually a bank) and to be influenced by the attitude of the loan agent in this institution. In addition, those farm operators who had more information about sources of credit might not borrow because they might not need funds, or for other reasons. Other dimensions of knowledge (in addition to acquaintance with credit sources) affect credit use, too. Therefore, this finding needs to be interpreted cautiously.

#### Willingness to assume debt

Use of credit will be affected by a family's willingness or unwillingness to assume the uncertainties attached to debt. Families may recognize credit as a resource that can help them to obtain greater income, but they still may not use it because of their aversion to risk. Therefore, it might be expected that, other things being equal, families with a higher willingness to assume debt would use credit more often and in greater amounts than families with a lower willingness to assume debt.

Families in this study were classified according to a relatively high, intermediate or low willingness to assume debt. Although tendencies appeared that were in accord with the hypothesis that borrowing was positively associated with attitude toward debt, the association was not statistically significant (table 9). The index of willingness to assume debt, however, reflects attitudes toward *all* types of credit; thus, it needs to be cautiously interpreted when used in relation to a single type of credit.<sup>29</sup> For example, a family with a high willingness to assume debt might borrow for family living uses, possibly lowering

its equity position and limiting the amount it could borrow for production purposes even though it would be willing to borrow additional amounts.

#### Farm size, total assets and years farmed

Farm size in acres and assets structure might be expected to influence the amount of borrowed funds used by families. In addition, the number of years farmed might be expected to be associated with the use or nonuse of credit. To investigate the relationships of these factors with the use of production credit, regression analysis was used. The dependent variable,  $Y$ , was the amount of production credit used;  $x_1$  was the size of farm in acres;  $x_2$ , the value of total assets in current (1957) dollars; and  $x_3$ , the number of years farmed. The regression equation derived was:

$$\hat{Y} = 649.961509 + 2.223715 x_1 + 0.026039 x_2 - 38.286795 x_3.$$

A test of significance of the partial regression coefficients, using Student's  $t$ -distribution, revealed that regressions of  $x_2$  and  $x_3$  on  $Y$  were significant,  $x_2$  being significant at the 1-percent level and  $x_3$ , at the 5-percent level. However, the partial regression coefficient of  $x_1$  on  $Y$  was not significant. Therefore, it would be concluded that the regression of  $Y$  on  $x_2$  and  $x_3$ —that is, total assets and years farmed—had a significant association with the use farm families made of production credit. However, the association between use of production credit and farm size in acres was not significant. Conclusions have to be interpreted cautiously, however, since the correlations between each of the independent variables and the dependent variable as well as the over-all correlation ( $R = 0.38$ ), were low, leaving much of the variation unexplained.<sup>30</sup>

#### Net worth

The association between net worth position and use of production credit was investigated. A small proportion of families with high net worth used credit (table 10). Of families using credit, however, a larger proportion of those with high net worth used relatively large amounts of credit. That is, although larger proportions of families with low net worth used credit than did those with high net worth, the families with low net worth tended to use production credit in smaller amounts. This may simply be a reflection of lending practices; namely, lending primarily on the basis of equity. A Chi-square test of independence revealed a nonsignificant association between net

<sup>28</sup>At the 1-percent level of confidence.

<sup>29</sup>The association of willingness to assume debt and total amount of credit outstanding was significant at the 5-percent level.

<sup>30</sup>Partial correlation coefficients were:  $x_1$  on  $Y$ , 0.274090;  $x_2$  on  $Y$ , 0.279266;  $x_3$  on  $Y$ , -0.196661.

**Table 10. Distributions of amounts of production credit outstanding among 201<sup>a</sup> south-central Iowa and north-central Missouri farm families, by net worth and tenure, 1957.**

Selected characteristic	Families in class		Families in each class which had				Percentage of families using production credit by amount outstanding		
			No credit		Credit outstanding		\$1 - \$900	\$901 - \$2,600	\$2,601 or over
	N	%	N	%	N	%			
Net worth									
Low (less than \$15,000).....	52	26.5	19	36.5	33	63.5	42.4	30.3	27.3
Middle (\$15,000 - \$30,000).....	65	33.2	30	46.2	35	53.8	37.1	37.1	25.8
High (more than \$30,000).....	79	40.3	42	53.2	37	46.8	24.3	27.0	48.7
Total .....	196 <sup>b</sup>	100.0	91	.....	105	.....	X <sup>2</sup> = 5.82	(4 d. f.)	> P 0.30
Tenure									
Rent all .....	38	18.9	12	31.6	26	68.4	26.9	46.2	26.9
Rent part, own part.....	66	32.8	26	39.4	40	60.6	35.0	17.5	47.5
Own all .....	97	48.3	56	57.7	41	42.3	39.0	36.6	24.4
Total .....	201	100.0	94	.....	107	.....	X <sup>2</sup> = 8.905	(4 d. f.)	> P 0.10

<sup>a</sup>Differs from sample size (203) since two schedules had to be eliminated because of incomplete production credit information.

<sup>b</sup>Five schedules excluded from net worth grouping because of incomplete information.

worth and whether credit was *used* as well as the *amount* of production credit outstanding. Thus, it is presumed that these two factors are not closely associated.

#### Tenure

Farm family tenure status may help or hinder use of credit. Uncertainties resulting from leasing arrangements may restrict farm family use of credit because the family planning horizons may be short. On the other hand, farm owners, whose planning horizons are fairly long, may be restricted in the amount of production credit they can obtain because of few liquid assets and a heavy mortgage on their real estate. The hypothesis might be that there is an association between tenure status and the amount of production credit outstanding. The use of credit by tenure groupings is shown in table 10. A larger proportion of renters used production credit, and used it in larger amounts, than did owners. The part-owner group was in an intermediate position between the owners and the renters. These associations between tenure and use of production credit were statistically significant.<sup>31</sup>

#### USE OF REAL ESTATE CREDIT

Credit long has been used to purchase real estate in both farm and nonfarm situations. This use of credit for purchase of real estate and its improvement might be expected to result in greater acceptance of borrowed funds for this purpose. Although data of an over-all nature are available elsewhere on the amount of real estate credit outstanding, not much is known about the specific purposes for which the funds are used, or about the family and farm characteristics associated with this type of loan.

#### Extent of Real Estate Credit Use

At the time of interview (mid-1957), over two-fifths of the families (75 of the 203 families in-

terviewed) in this southern Iowa and northern Missouri area had debts currently outstanding in connection with the purchase of real estate. The average amount of real estate debt was \$6,420 for the 74 families who revealed the amount of their debts.<sup>32</sup>

#### Purposes for Which Real Estate Credit Was Used and Sources of Credit

Real estate credit was used most frequently to purchase the farm on which the family lived. Sixty-one families (30 percent of the total number interviewed; 81 percent of those with real estate debts) had credit outstanding for this purpose in mid-1957. Individuals were the dominant lenders; insurance companies were the next most frequently used source of funds (table 11).

The second most frequent use of real estate credit was to purchase land other than that on which the family lived. These purchases may have been made to enlarge the acreage of the farm operation; on the other hand, they may have been strictly for investment purposes. Fifteen families (a little over 7 percent of the total number interviewed; 20 percent of those with real estate debts) had used credit for this purpose. Again, individuals most frequently were the source of borrowed funds; insurance companies were a close second (table 11).

Two families had used credit secured by real estate to refinance loans that had come due. One family had obtained the funds from an insurance company; the other family refused to reveal the credit source used.

Only one family had used real estate as collateral for a loan to consolidate several short-term debts. In this case, the source of funds was not revealed.

#### Use of Real Estate Credit in Relation to Selected Family and Economic Factors

Family and economic factors considered in relation to the use of credit for real estate purchase

<sup>31</sup>Significant at the 1-percent level.

<sup>32</sup>One family with real estate debt was unwilling to reveal the amount.

Table 11. Uses and sources of real estate credit among 203 farm families in south-central Iowa and north-central Missouri, 1957.

Purpose	Families with real estate debt		Source of credit																	
			Bank		Ins. co.		Other private agency		FHA <sup>a</sup>		FLB <sup>b</sup>		Individual		Ins. co. and FLB		Other		No answer	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Purchase of farm on which family lived	61	30.0	5	8.2	13	21.4	1	1.6	10	16.3	10	16.3	20	33.0	0	0.0	1	1.6	1	1.6
Purchase of land other than that on which family lived	15	7.3	2	13.3	4	26.7	0	0.0	0	0.0	2	13.3	5	33.3	1	6.7	0	0.0	1	6.7
Refinance a loan which has come due	2	1.0	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	50.0
Consolidate several short-term debts	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0
Others <sup>c</sup>	4	2.0	1	25.0	1	25.0	0	0.0	0	0.0	0	0.0	1	25.0	0	0.0	0	0.0	1	25.0

<sup>a</sup>Farmers Home Administration.

<sup>b</sup>Federal Land Bank.

<sup>c</sup>Included: To get operating capital to get started farming (1 case), remodel home (1 case), build son a home (1 case) and no answer (1 case).

and the amounts of credit used included: age of farm operator, number of years farmed, willingness to assume debt, size of farm in acres and net worth.

#### Age of farm operator

Alternative hypotheses about the association of age of the family head and use of real estate credit could be formulated. For example, it might be expected that families with young heads would have higher real estate debts because of having had less time to reduce the amount they had borrowed. In addition, because of their relative youth and, for many, the prospect of increasing availability of family labor in coming years, it might be expected that young farm operators would be interested in enlarging their farm operations, possibly through the purchase of land. Contrasting to this would be the hypothesis that

older farm families, who have had more years in which to accumulate net worth, would be able to obtain more credit and, therefore, might have greater debts for real estate purchases. Essentially, the latter hypothesis concerns capital rationing among younger families.

The first hypothesis is more nearly substantiated by the data in this study. A higher proportion of families headed by young men had \$8,000 or more debt than either the middle- or older-aged groups; nearly half of the older families had low real estate debts—less than \$3,000. Even though these differences in amounts of real estate credit outstanding and age appeared, they were not statistically significant. Data in table 12 show the numbers and percentages, by age, of families that had credit outstanding. A contrast among young, middle-aged and older families is observed in the percentages with and without credit. More than three-fifths (62.1 percent) of the young families

Table 12. Distributions of amounts of real estate credit outstanding among 165 south-central Iowa and north-central Missouri farm families owning all or part of their land, by selected characteristics, 1957.

Selected characteristic	Families in class		Families in each class which had				Percentage of families using real estate credit by amount outstanding			
			No credit		Credit outstanding		\$1 - \$2,999	\$3,000 - \$7,999	\$8,000 or over	
	N	%	N	%	N	%				
Age of farm operator										
39 or under	29	17.6	11	37.9	18	62.1	22.3	33.3	44.4	
40-54	65	39.4	30	46.2	35	53.8	34.3	25.7	40.0	
55 or over	71	43.0	50	70.4	21	29.6	52.2	38.1	9.7	
Total	165	100.0	91		74		X <sup>2</sup> = 5.93	(4 d. f.)	> P 0.30	
Number of years farmed										
Less than 15	37	22.6	12	32.4	25	67.6	20.0	40.0	40.0	
15-29	65	39.6	35	53.8	30	46.2	36.7	26.6	36.7	
30 or more	62	37.8	43	69.4	19	30.6	52.6	26.3	21.1	
Total	164 <sup>a</sup>	100.0	90		74		X <sup>2</sup> = 5.82	(4 d. f.)	> P 0.30	
Willingness to assume debt										
Low	42	25.5	27	64.3	15	35.7	26.7	40.0	33.3	
Middle	67	40.6	38	56.7	29	43.3	37.9	27.6	34.5	
High	56	33.9	26	46.4	30	53.6	36.7	30.0	33.3	
Total	165	100.0	91		74		X <sup>2</sup> = 1.01	(4 d. f.)	> P 0.95	
Size of farm										
30-160 acres	62	37.6	41	66.1	21	33.9	57.2	19.0	23.8	
161-299 acres	48	29.1	21	43.8	27	56.2	40.8	33.3	25.9	
300 acres or more	55	33.3	29	52.7	26	47.3	11.5	38.5	50.0	
Total	165	100.0	91		74		X <sup>2</sup> = 11.69	(4 d. f.)	> P 0.02	
Net worth										
Low (less than \$15,000)	38	23.6	21	55.3	17	44.7	47.1	17.6	35.3	
Middle (\$15,000-\$30,000)	57	35.4	32	56.1	25	43.9	40.0	36.0	24.0	
High (more than \$30,000)	66	41.0	35	53.0	31	47.0	25.8	32.3	41.9	
Total	161 <sup>b</sup>	100.0	88		73		X <sup>2</sup> = 10.29	(4 d. f.)	> P 0.05	

<sup>a</sup>One respondent didn't know number of years farmed.

<sup>b</sup>Four net worth figures not usable.

had real estate debts compared with slightly over half (53.8 percent) of the middle-aged group and only about three out of 10 (29.6 percent) of the older families. These differences in use or nonuse of real estate credit were statistically significant at the 5-percent level of confidence.

#### Number of years farmed

When families were classified by whether they had farmed less than 15 years, 15 to 29 years or 30 or more years, the proportion of families who had farmed less than 15 years and had real estate debts was more than double that of families who had farmed 30 or more years (67.6 percent and 30.6 percent, respectively). Between these two groups, were families who had farmed an intermediate period, 15 to 29 years. These differences of occurrence of real estate debt by number of years farmed were statistically significant.

In addition, families who had farmed less than 15 years tended to have larger amounts of real estate debt outstanding than families who had farmed for a longer period. Approximately 80 percent of the families who had farmed less than 15 years had more than \$3,000 of real estate credit outstanding compared with only about 50 percent of the group who had farmed 30 or more years. This situation might be expected since the older families had had more opportunity to pay off their debts. Although there was a tendency for the number of years farmed to be associated inversely with the amount of real estate debt, this difference was not statistically significant.

#### Willingness to assume debt

Attitude toward debt might be expected to af-

fect the amount of real estate credit outstanding; however, the attitude might not be as much of a restricting force in the case of real estate credit as it might be for the less widely accepted (among farm families) consumer credit. As shown in table 12, there was little association between willingness to assume debt and the amount of real estate credit outstanding.

#### Size of farm (in acres)

Since credit might be used to purchase land for farm enlargement, the amount of real estate credit might be expected to be associated with the number of acres in the farm. This appeared to be the case. For example, among families who operated farms of 160 or fewer acres, less than one-fourth had real estate debts of \$8,000 or more. Half of the families who farmed 300 acres or more had debts on real estate of \$8,000 or more. These differences were statistically significant and suggest that real estate credit can be helpful in enlarging the size of farms as well as in facilitating a better "blend" of land and the other resources used in conjunction with land.

#### Net worth

Net worth of the farm family would be expected to affect the amount of real estate credit possible to obtain. As shown in table 12, nearly three-fourths of the families with high net worth had \$3,000 or more of real estate debt outstanding, compared with about 60 percent or less of those with low net worths. The differences in amounts of real estate credit outstanding, when families were classified by their net worths, were statistically significant.