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Capacity to Pay *and* Farm Financing

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Capacity to Pay and Farm Financing

By L. J. NORTON, JOSEPH ACKERMAN, and C. R. SAYRE¹

CREDIT and financing are usually discussed from the point of view of lenders rather than of borrowers. Lenders look primarily to safety of principal, a good rate of return, and in some classes of short-term loans to liquidity, or the ready convertibility of the loans into cash. Borrowers, on the other hand, are interested in the adequacy of the loan, its adaptation to their own special needs, its cost, and the degree of risk it creates for the property which directly or indirectly may be involved as security for the borrowed funds. In the present bulletin the problems of farm credit and financing are discussed from the point of view primarily of borrowers.

In the matter of risk is found one of the most definite contrasts between the position of a lender and that of a borrower. A loan may involve comparatively little risk to a lender but at the same time be quite hazardous to a borrower. So long as he can get his money out of a loan, a lender is not risking loss of principal; but a borrower risks losing all his savings if his property must be sold to pay off a loan. This greater risk to the borrower is implicit in the nature of the transaction. A lender is looking for security of principal and a fixed rate of return; a borrower takes risks in order to make a profit or to improve his economic status. Among these risks is the chance of losing his accumulated capital, the possession of which makes it possible for him to obtain a loan. For the borrower the problem of financing involves the proper balancing of the possibility of profits from borrowed funds and the risk of losing accumulated capital if the venture fails.

BASES FOR CREDIT

Methods of Measuring the Bases

Consideration of the question of minimizing borrowers' risks involves an analysis of the bases used by lenders in extending credit. The bases for credit are frequently called the "Four C's": Character,

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Capital, Collateral, and Capacity to pay. Lenders measure these four "C's" in the following ways:

1. *Character*—by knowledge of or reports concerning such personal characteristics of the applicant for a loan as his honesty, industry, and reputation for paying his debts.

2. *Capital*—by a financial statement, which sets up an applicant's assets (what he owns) and his liabilities (what he owes).

3. *Collateral*—by appraisal of physical property, land, livestock, crops or whatever may be offered as security for a loan.¹

4. *Capacity to pay*—by analysis of income and expenses, both for farm and for family.

In addition to these four bases for credit, which relate directly to the borrower, a fifth basis, *endorsement*, by which a loan is made to one man on the strength of the signature of another, is frequently used by lenders. When it is used, the analysis must extend to the financial resources, capacity, and reputation of the endorser.

Emphasis on Different Bases

Collateral. Different types of credit agencies make varying uses of the five bases listed above. Lenders on farm real estate base their loans to a large extent on appraisal of specific collateral: land and buildings. Methods of appraisal vary, but all turn on the question how to determine the value of the property. Always there is in the mind of a lender on mortgage security the question: Can the land be sold for enough to pay the debt, if the borrower cannot pay?

Capital. Financial condition, as measured by financial statements of the borrower, is stressed in commercial banking. Key questions are: (1) Are there liquid assets on hand which could be sold to pay the debt? (2) Is property available which could be used to secure the debt if it is not paid otherwise?

Character. Personal characteristics, on the other hand, are given a great deal of attention by farmers who as members of boards of financing agencies pass upon loans. Is the borrower an honest man? Does he work hard? Does he pay his debts? These are the questions that arise first.

Endorsement. The use of endorsement as a basis for lending is at best a stopgap. The endorser is, in effect, a lender. He lends the security attached to his name. From his standpoint, endorsement can

¹Collateral is used here to mean any property or property rights mortgaged or pledged as security for a loan.

be justified only when he has a direct interest in the transaction being financed—for example, when he is a landlord endorsing a loan to a tenant.

Capacity to pay. Of these several bases for credit only one, capacity to repay the loan out of earnings, is of vital importance to a borrower. Debts incurred beyond the capacity of the borrower to pay them from earnings become permanent obligations. Eventually they put the borrower in a precarious financial situation and frequently lead to the loss of his property.

The capacity of a borrower to pay debts out of earnings can be measured only by analysis of his income and expenses, both farm and family. Farm income of course varies from year to year, and capacity to pay consequently cannot be measured by the income and expenses of any single year. Instead, net income over a cycle of years should be the measure.

Even tho some other basis may be used to determine whether or not a loan is to be made, the borrower's capacity to repay it out of income is also of prime importance to lenders and is recognized as such to a greater or less degree by most of them. Unless debts are paid from borrowers' incomes they must in most cases be paid by sale of property. Sale of property for such purpose causes added expense and trouble to lenders and often results in actual losses, since the property accepted for security may have depreciated in value to such a degree that it will not pay the debt. Wherever considerations of business or public policy tend to weaken strict foreclosure procedures, it is particularly important for lenders to base loans on the borrower's capacity to repay out of income if they wish to avoid losses. Unless the lender is willing and able to adopt a severe policy in collection and foreclosure, collateral lending will give him a false sense of security.

In actual practice the principle of basing lending operations on the capacity of the borrower to repay the loan out of income is frequently applied in reverse fashion. For example, a lender on farm mortgages says, "We require rapid repayment of our weak and full loans, and little or no repayment on our strong loans." And the Farm Credit Administration makes long-term, slowly amortized loans thru the federal land banks to the better farm risks, but requires more rapid amortization (usually 5 or 10 percent of principal annually) after three years on more liberal Land Bank Commissioner loans, which, all things considered, are poorer loans. It is clear that in both these cases the strength of the collateral securing the different loans, and not the paying capacity of the borrower, determines the policy.

As a basis for strictly short-term lending, capacity to pay is undoubtedly widely used. For example, a banker may make a short-term loan to a farmer with the understanding that the loan will be paid when the farmer sells the hogs he is feeding; or a farmer may arrange a line of credit to produce a crop with an understanding that he will pay when the crop is sold. Even tho security of one sort or another may be taken in connection with such loans, they are fundamentally based on the capacity of the borrower to pay. When the borrowed funds have actually been put into the production of crops or livestock for market in an area where farming is on a sound basis, and if the proceeds at the time of sale are applied to the debt, the loan will automatically be paid off, except perhaps in years of abnormally low incomes. This rule holds true, even for farmers of only average ability.

But for the broad classes of loans which may be designated as intermediate-term or chattel-capital loans, other bases than capacity to repay from earnings are more common; and in connection with these the borrower may easily get himself into a difficult position. If such loans are based on collateral alone, they may exceed the capacity of the borrower to repay them from income. Capacity to pay off such loans is just as difficult to estimate as capacity to pay off real-estate loans, since allowance must be made for living expenses and for maintenance of the capital of the operator. This difficulty will be discussed in greater detail in the following section.

Difficulties in Basing Credit on Capacity to Pay

One reason why character, capital, and collateral are more often used as bases for extending credit than repayment capacity is that they can be more easily used. A financial statement can be readily prepared. Even if records are not available, fairly accurate estimates can be made without much trouble. Collateral can be quickly looked at, and many men competent to estimate its current value can be found. But to measure income is more difficult. Comparatively few farmers keep satisfactory accounts; and reasonably accurate estimates of individual income cannot be made so readily as reasonably accurate property appraisals.

Income, moreover, is affected by changes in prices due to trends and cycles in prices and to vagaries of production. No one can tell exactly what a farmer's income will be over a period of several years. Contrast this uncertainty with the cool exactness of columns of figures setting out assets and liabilities, or with the specific objectiveness of

an appraiser's report which states that certain property is worth a certain sum. It is then easy to see why, as a routine matter, balance sheets and appraisal reports rather than income analyses are used as bases for extending credit, even tho income, rather than capital or collateral, will determine how a loan will work out.

For relatively short-term loans income analyses are used more extensively, since it is fairly easy to estimate income for short periods in advance.

Practical Methods of Determining Capacity to Pay

All farm-management studies show that differences in net income among individual farms are largely determined by a few main factors such as size of business, acre-yields of crops, pounds of milk per cow, returns per unit of feed, concentration on more profitable lines of farming. In measuring the repayment capacity of a borrower, a lender may find the use of such measures as these more satisfactory than an attempt to get an accurate picture of the receipts and expenses unless carefully kept farm accounts are available.

Borrowers have little difficulty in estimating how much they can pay, granted a given level of prices. They go astray chiefly because they cannot anticipate changes in general economic conditions. Methods of farming or living are not likely to be changed much because of a particular debt. Those habits are pretty well fixed.

DATA AVAILABLE FOR THIS STUDY

Very few data are available for measuring the relationships between the capacity of farmers to repay debts from income and their actual financial condition. Much information is readily obtainable concerning the total debt of agriculture and the earnings on individual farms; but because of its confidential nature information concerning debts has rarely been collected in connection with income studies. However, when summaries of the 1935 accounts kept by a group of Illinois farmers in cooperation with the Department of Agricultural Economics, University of Illinois, were returned in the summer of 1936, a statement as to the amount, source, and use of credit by 1,055 of these farmers was obtained. The form used is shown in the Appendix, page 223. Approximate financial statements were constructed for each farmer, with assets based upon the inventory values at the preceding December 31 and the debts as reported in the survey the following May and June. These financial statements were of

sheets in the farm account files of the Department of Agricultural Economics, University of Illinois. These "cash incomes" refer to the operators, not to the farms operated. For owners, they cover the entire farm income; for part owners or tenants, they cover only the part owner's or tenant's share of the total farm income. In calculating these and certain other factors, use was made of the office data sheet shown in the Appendix, page 225.

The tenure of the operator greatly affects the amount of capital needed. Furthermore the source of credit, the type of security given, and the interest charges all affect either the risk created by borrowing or the cost of such borrowing. Consequently in the following discussion the facts pertaining to these points in the debt situation on the 1,055 farms are described briefly.

Tenure Distribution of Farms

Of the 1,055 farms, 348 were operated by owner-operators here designated as owners, 278 by part owners,¹ and 429 by tenants. Thus 33 percent of all the operators were owners, 26 percent were part owners, and 41 percent were tenants. Of all farmers in Illinois in 1935, 38 percent were owners, 17 percent were part owners, and 44 percent were tenants. The farms included in the study were distributed by counties as shown on page 180. Most of them were located in the northern two-thirds of the state, where there are relatively more tenants and part owners than thruout the state as a whole.

Of the 1,055 farmers, how many were clear of debt, and how many were in the different debt-ratio groups? Were tenants, part owners, or owners carrying the heavier debt loads? Did farmers with low incomes or those with high incomes have the relatively higher debt loads? In which tenure group was the higher proportion of operators in debt? These questions are answered for this sample of farmers in Table 1.

Slightly over one-fourth of all these farmers reported no debts, about one-third had debts which ranged from 0.1 to 25 percent of the farm assets, another one-fourth had debts from 25 to 50 percent of the farm assets, and about one-eighth reported debts which were over 50 percent of the farm assets. The proportion of part owners in debt was highest; of tenants, lowest. Seventy-nine of the owners, or 23 percent, reported no debts, while 61 of them, or 17 percent, reported debt ratios in excess of 50 percent of property valuations. Sixteen percent of the part owners and 37 percent of the tenants were not in debt;

¹Part owners are operators who operate both owned and rented land.

TABLE 1.—DISTRIBUTION OF 1,055 ILLINOIS FARM OPERATORS ACCORDING TO TENURE, NET CASH INCOME, AND DEBT RATIO, 1935

Tenure status and net cash-income level	Number who had debt-to-property ratio of—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50.0 percent or over	
Owners, total.....	79	107	101	61	348
Under \$1,000.....	29	34	32	14	109
\$1,000-\$1,999.....	25	29	33	18	105
\$2,000 or more.....	25	44	36	29	134
Part owners, total.....	43	86	106	43	278
Under \$1,000.....	9	31	38	13	91
\$1,000-\$1,999.....	16	26	31	14	87
\$2,000 or more.....	18	29	37	16	100
Tenants, total.....	160	173	65	31	429
Under \$1,000.....	51	102	40	16	209
\$1,000-\$1,999.....	62	52	18	9	141
\$2,000 or more.....	47	19	7	6	79
All groups, total.....	282	366	272	135	1 055
Percentage of total in each debt-ratio group	27	34	26	13	100

whereas 16 percent of the part owners and 7 percent of the tenants had debts amounting to more than 50 percent of their property valuations.

Purposes for Which Credit Was Obtained

The purposes for which money had been borrowed by these 1,055 farmers are shown in Table 2, the data being grouped by the tenure of the farmers. About one-fourth of the farmers, 282, were not using credit at the time of the survey.

A large percentage of the borrowed funds, even of the funds borrowed by tenants, was used to finance the ownership of land or other capital items. The credit used in this way represented for owners 92.7 percent of their total debts; for part owners, 94.1 percent of their debts; and for tenants, 63.2 percent of their debts. Aside from land and refinancing the largest capital items being financed with borrowed funds were cattle, machinery and livestock other than cattle. Tenants used a higher percentage of borrowed funds for machinery than for cattle.

The amounts of credit used by these farmers were as follows:

	Amount	Percent of total
Long-term.....	\$3,965,056	82.8
Chattel capital.....	407,402	8.5
Short-term production.....	420,098	8.7
Total.....	\$4,792,556	100.0

TABLE 2.—PURPOSES FOR WHICH FUNDS WERE BORROWED BY 1,055 ILLINOIS FARM OPERATORS: DEBT STATUS AS OF JUNE, 1936

Purposes for which funds were borrowed	Owners		Part owners		Tenants		All farmers	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Number reporting.....	348	.....	278	.....	429	.....	1 055	.....
Number who reported borrowing and amount reported.....	269	\$2 677 586	235	\$1 786 021	269	\$328 949	773	\$4 792 556
Percent who reported borrowing.....	77.3	.....	84.5	.....	62.7	.....	73.3	.....
Ownership of land, total.....	324	\$2 375 176	283	\$1 576 330	6	\$ 13 550	613	\$3 965 056
Purchase of land.....	232	1 740 938	205	1 153 966	5	13 400	442	2 908 304
Refinancing.....	74	562 815	61	342 314	.....	.....	135	905 129
Improvements.....	18	71 423	17	80 050	1	.....	36	151 623
Other capital purposes, total.....	93	\$108 114	126	\$105 029	249	\$194 259	468	\$407 402
Cattle.....	32	58 844	38	57 913	46	60 426	116	117 183
Other livestock.....	12	24 721	15	12 075	25	18 193	52	54 989
Machinery.....	46	23 299	67	31 664	129	66 957	242	121 920
Auto.....	3	1 250	5	1 477	12	4 557	20	7 284
To start farming.....	.....	.....	1	1 900	16	23 670	17	25 570
For refinancing.....	.....	.....	.....	.....	21	20 456	21	20 456
Operation and consumption, total.....	139	\$194 296	119	\$104 662	188	\$121 140	446	\$420 098
Feed.....	11	3 865	9	2 505	13	5 709	33	12 079
Interest.....	9	7 735	8	4 010	3	875	20	12 620
Rent.....	.....	.....	5	1 140	21	12 872	26	14 012
Merchant credit.....	8	1 406	7	1 730	13	11 670	28	3 806
Miscellaneous.....	52	106 099	29	38 431	43	20 730	124	165 260
Operating.....	59	75 191	61	57 846	95	79 284	215	212 321

Sources of Borrowed Funds

The sources of funds borrowed by farmers in the different tenure groups are shown in Table 3. Most of the long-term credit was obtained from the Federal Land Bank of St. Louis and the Land Bank Commissioner, with insurance companies and private individuals ranking next in importance. By far the most important sources of short- and intermediate-term credit were individuals and banks, tho some of this type of credit was obtained from production credit associations and implement companies. Surprisingly little merchant credit was reported.

The importance of credit from individuals, which ranked third as a source of long-term loans and the chief source of short- and intermediate-term loans, is interesting. Does this prominence of individuals as lenders reflect a permanent situation, or only an outgrowth from the banking difficulties of 1930-1933? In any event, it is a question to which the various institutions financing farmers in Illinois might well give heed. If some practical method leading to the permanent investment of these private funds were devised and put into operation, a much larger volume of loans would be available to established lending agencies.

Security Given for Loans

The security given for credit was reported by the 1,055 farmers to be as follows:

<i>Class of security</i>	<i>Number of farmers reporting</i>	<i>Amount</i>	<i>Percent of total</i>
First mortgage on real estate.....	402	\$3,378,834	70.5
Second mortgage on real estate.....	92	300,960	6.3
Total mortgages on real estate.....	494	\$3,679,794	76.8
Chattel mortgages.....	196	236,969	5.0
Implement notes.....	157	69,916	1.5
Other secured notes (chiefly endorsements)....	139	151,200	3.2
Unsecured notes.....	428	625,405	12.8
Book accounts.....	69	11,104	0.3
Warehouse receipts.....	14	8,936	0.2
Class not reported.....	31	9,232	0.2
Total.....	1,527	\$4,792,556	100.0

Practically all long-term debts were secured by mortgage. The few real-estate debts reported to be unsecured were mostly family transactions.

A substantial part of the short- or intermediate-term credit was reported as unsecured. About two-thirds of this unsecured credit was furnished by individuals. Of the short- or intermediate-term

loans obtained from banks, about half were unsecured and the rest were secured by chattel mortgages or endorsement.

In this connection it should be borne in mind that the judgment note commonly used in Illinois can be converted into a secured loan very quickly and with little or no expense to the lender—a fact which partially explains the large amount of unsecured borrowing.

Interest Rates

The rates of interest most commonly reported for long-term loans were: $3\frac{1}{2}$ percent (249 loans), 5 percent (77 loans), $5\frac{1}{4}$ percent (10 loans) and $5\frac{1}{2}$ percent (11 loans).

The rate paid on federal land bank loans in 1935 was $3\frac{1}{2}$ percent, as established by action of Congress for 1935, and not the contract rate, which ranged from 4 to 5 percent.

The interest rates most commonly reported for short- and intermediate-term loans were: 4 percent (63 cases), 5 percent (282 cases), 6 percent (454 cases), and 7 percent (145 cases). Only five loans with rates higher than 7 percent were reported. Some of the lower rates on the short- and intermediate-term loans probably represented loans of a capital type.

COMPARISONS INVOLVING DIFFERENT TENURE GROUPS

Debts and Cash Incomes

Average net cash incomes of the owners, part owners, and tenants, classified according to debt ratios, are shown in Table 4. The net cash incomes of owners averaged \$1,870; of part owners, \$1,903; and of tenants, \$1,206. It should be borne in mind that these net cash incomes do not include inventory changes. During 1935 the inventory value of the working capital on these farms increased. Such increases are usual, except in periods of falling prices. In measuring the capacity of borrowers to repay debts from income, increases in inventories should be considered only when they are converted into cash.

Net cash incomes of owners were apparently affected very little by amount of indebtedness, altho there was a slight tendency for incomes to be higher on the more heavily indebted farms—as would be expected inasmuch as the owners with heavy indebtedness are under greater pressure than those who are out of debt. Among both tenants and part owners, however, the incomes of those who were out of debt were substantially higher than the incomes of those in debt.

TABLE 4.—GROSS AND NET CASH INCOMES OF 1,055 ILLINOIS FARM OPERATORS GROUPED ACCORDING TO TENURE AND DEBT RATIO, 1935

Tenure status and income factors	Income and expenses when debt-to-property ratio was—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50.0 percent or over	
<i>Owners</i>					
Gross cash farm income.....	\$4 541	\$5 017	\$5 153	\$5 029	\$4 951
Cash farm expenses.....	2 828	3 127	3 284	2 998	3 081
Net cash income.....	1 713	1 890	1 869	2 031	1 870
<i>Part owners</i>					
Gross cash farm income.....	\$5 450	\$5 120	\$5 605	\$5 212	\$5 369
Cash farm expenses.....	2 858	3 278	3 935	3 294	3 466
Net cash income.....	2 592	1 842	1 670	1 918	1 903
<i>Tenants</i>					
Gross cash farm income.....	\$4 282	\$3 654	\$3 771	\$3 308	\$3 881
Cash farm expenses.....	2 559	2 777	2 905	2 222	2 675
Net cash income.....	1 723	877	866	1 086	1 206

A probable explanation for the latter condition is that the tenant and the part-owner groups included many superior operators who had cleared from debt the comparatively small amount of capital needed.

Part owners earned as large incomes, on the average, as owners; and the part owners who were out of debt earned larger incomes than the owners who had no debts. It should be noted that tenants out of debt had net cash incomes as high as those of owners out of debt, the averages for the two groups being \$1,713 and \$1,723 respectively.¹ Full owners out of debt are not under pressure, and the out-of-debt group probably included many who do not try to farm as well as similarly situated tenants and part owners.

Debts and Capital

A summary of the capital items and debts of owners, part owners, and tenants is given in Table 5. The average inventory values of farm capital owned by the different tenure groups were: owners, \$30,445; part owners, \$23,430; and tenants, \$5,369. The average debts of these tenure groups were \$7,694, \$6,425, and \$767 respectively. Average differences between property and debt (net worth) were therefore as follows: owners, \$22,751; part-owners, \$17,005; and tenants, \$4,602. The tenants had the highest average percentage of ownership (equity) in the property to which they had title, and part owners had the lowest.

¹When these data were analyzed by farming-type areas, the same relationship was evident in each.

TABLE 5.—CAPITAL AND DEBTS OF 1,055 ILLINOIS FARM OPERATORS GROUPED ACCORDING TO TENURE AND DEBT RATIO, 1935

Capital and debt items by tenure status	Capital and debt when debt-to-property ratio was—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50 percent or over	
<i>Owners</i>					
Farm capital, total.....	\$26 273	\$30 782	\$34 112	\$29 185	\$30 445
Land and improvements.....	20 492	24 653	27 396	23 412	24 287
Working capital.....	5 781	6 129	6 716	5 773	6 158
Debts, total.....	0	\$ 3 014	\$12 183	\$18 435	\$7 694
Long-term debts.....	0	1 756	10 698	15 817	6 417
Short-term debts.....	0	1 258	1 485	2 618	1 277
Net worth.....	\$26 273	\$27 768	\$21 929	\$10 750	\$22 751
<i>Part owners</i>					
Farm capital, total.....	\$23 100	\$23 217	\$24 122	\$22 486	\$23 430
Land and improvements.....	16 541	16 524	17 024	16 211	16 668
Working capital.....	6 561	6 693	7 098	6 275	6 762
Debts, total.....	0	\$ 3 181	\$ 8 683	\$13 770	\$ 6 425
Long-term debts.....	0	2 117	7 366	11 241	5 202
Short-term debts.....	0	1 064	1 317	2 529	1 223
Net worth.....	\$23 100	\$20 036	\$15 439	\$ 8 716	\$17 005
<i>Tenants</i>					
Farm working capital.....	\$ 5 358	\$ 5 612	\$ 5 291	\$ 4 238	\$ 5 369
Debts.....	0	661	1 752	3 251	767
Net worth.....	\$ 5 358	\$ 4 951	\$ 3 539	\$ 987	\$ 4 602

Among the owners there appeared to be a fairly definite relation between debt-to-property ratios and values of land and improvements owned. Owners who had debt ratios of 25 to 50 percent owned property of somewhat greater value, on the average, than those whose debt ratios were lower. Evidently the owners with the higher ratios had used their long-term credit to increase the size of their farms. But with owners' debt ratios higher than 50 percent, the value of property owned was lower, indicating that not many of the owners use borrowed funds above a 50-percent ratio to increase their land holdings.

For the different groups of part owners, the value of land and improvements owned was about the same, regardless of debt ratio. Operators in this class adjust the size of their farming business by renting more or less additional land, and probably many of them buy land as a place to invest surplus earnings or inherited funds.

The part owners had larger amounts of working capital than the owners. Averages were: owners, \$6,158; part owners, \$6,762; and tenants, \$5,369. Owners with the higher debt ratios, up to 50 percent, had larger amounts of working capital and owned more real estate

than owners with lower debt ratios; where debt ratios were above 50 percent, the amounts of both working capital and real estate owned were lower. The substantial debt carried by the 61 farmers in this high-debt-ratio group probably limited their ability to expand further on borrowed capital. Differences in amounts of working capital owned by part owners paralleled those among the owners; but when the debt ratios of the tenants were above 25 percent, these tenants had no larger amounts of working capital than when their debt ratios were lower. Tenants are expected to have a higher percentage of equity than owners because their total capital is so much smaller. Only 96 of the tenants, or about 22 percent, had debt ratios of 25 percent or higher.

Number of Acres Operated and Value per Acre

The relative sizes of the farms operated by the farmers in the different tenure groups and the relative quality of land are shown in Table 6. Part owners operated the largest farms, 271 acres; the tenants next largest, 239 acres; and the owners the smallest, 208 acres. The averages for the different tenure groups illustrate the fact that a larger acreage is easier to operate if no attempt is made to finance the ownership of all the land operated.

Farms operated by owners in the different debt-ratio groups did not differ greatly in size, tho they averaged larger as the debt ratios were higher until the group with a debt ratio of 25 to 49.9 percent was reached. Farms operated by part owners in the different groups

TABLE 6.—ACREAGE OPERATED AND VALUE PER ACRE OF LAND OWNED BY 1,055 ILLINOIS FARM OPERATORS GROUPED ACCORDING TO TENURE AND DEBT RATIO, 1935

Tenure	Acreage operated and value of land owned when debt-to-property ratio was—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50 percent or over	
Number of acres operated					
Owners.....	204	209	216	195	208
Part owners.....	253	277	283	252	271
Tenants.....	235	249	233	211	239
Value, per acre, of land owned*					
Owners.....	\$81	\$98	\$103	\$100	\$96
Part owners.....	98	87	105	102	98

*Does not include value of buildings on the land.

differed in size somewhat more than those operated by the owners. Among the part owners, as among the owners, the largest farms were operated by those in the group whose debt ratios were from 25 to 49.9 percent of the property owned. Among the tenants, however, when debt ratios were above 25 percent, the farms operated were as a rule smaller than when the debt ratios were lower. This tendency is in harmony with the changes observed in working capital and net worth of tenants in the different debt-ratio groups.

As to quality of land, the farms of the operators who were free of debt ranked lowest among the owner groups, when measured by inventory values. The quality was progressively higher as debt ratios were higher until the debts reached or exceeded 50 percent of the property value. Such differences among those who were in debt, however, were not significant. For the part owners no definite relations between land values and debt ratios were indicated.

Acre-values given in Table 6 do not include the value of buildings. In general, the acre-values of the buildings on these farms varied with the variations in land values.

Influence of Debts on Working Capital

It has already been noted that when debt ratios of owners and part owners averaged above 50 percent and of tenants above 25 percent, fewer acres were operated and less working capital (equipment, etc.) was owned (page 189). How particular classes of working capital were affected by debt ratios is shown in Table 7. In each tenure group, work stock, machinery, and equipment varied roughly with the number of acres operated, and the operators who had the higher debts had the smaller farms and consequently less equipment and work stock.

On the farms of owners and part owners there were higher investments in productive livestock (cattle, hogs, sheep, and poultry) when debt ratios were from 25 to 49.9 percent than when they were either lower or higher. Value of feed and grain paralleled investments in productive livestock. Where debt ratios were above 50 percent, the farms were smaller, the pressure of debt forced quicker sale of farm products, and there was less salable livestock, feed, and grain on hand (Tables 6 and 7). For tenants the point where expansion was limited by debt was reached at lower debt ratios than it was for owners. Tenants whose debts ranged up to 25 percent of their property values had the highest investments in productive livestock. Tenants that had progressively higher debt ratios had correspondingly lower

TABLE 7.—AMOUNTS INVESTED IN DIFFERENT CLASSES OF WORKING CAPITAL BY 1,055 ILLINOIS FARM OPERATORS GROUPED ACCORDING TO TENURE AND DEBT RATIO, 1935

Tenure status and working capital items	Amounts invested when debt-to-property ratio was—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50 percent and over	
<i>Owners</i>					
Machinery and equipment.....	\$1 559	\$1 633	\$1 555	\$1 551	\$1 579
Work animals.....	424	456	518	356	449
Productive livestock.....	2 110	2 216	2 650	2 229	2 320
Feed and grain.....	1 689	1 824	1 992	1 636	1 809
Total.....	5 782	6 129	6 715	5 772	6 157
<i>Part owners</i>					
Machinery and equipment.....	\$1 848	\$1 947	\$2 033	\$1 762	\$1 936
Work animals.....	553	578	567	478	555
Productive livestock.....	2 098	2 272	2 536	2 243	2 341
Feed and grain.....	2 062	1 896	1 961	1 792	1 930
Total.....	6 561	6 693	7 097	6 275	6 762
<i>Tenants</i>					
Machinery and equipment.....	\$1 536	\$1 776	\$1 784	\$1 345	\$1 656
Work animals.....	513	449	395	318	455
Productive livestock.....	1 750	1 948	1 747	1 563	1 816
Feed and grain.....	1 455	1 411	1 337	991	1 386
Total.....	5 254	5 584	5 263	4 217	5 313

investments in productive livestock. Those who had no debts had the highest inventories of grain and feed. Those who had high debts were obliged to sell closer and sooner.

The value of these capital items per acre averaged as follows for the different tenure groups:

	<i>Owners</i>	<i>Part owners</i>	<i>Tenants</i>
Machinery and equipment.....	\$ 7.59	\$ 7.14	\$ 6.93
Work animals.....	2.15	2.05	1.90
Productive livestock.....	11.15	8.64	7.60
Feed and grain.....	8.70	7.12	5.80
Total.....	\$29.59	\$24.95	\$22.23

In every class of working capital, tenants had a lower investment per acre operated than part owners, and part owners had a lower investment than owners. The differences in values of productive livestock, feed, and grain owned by these groups were much greater than in the values of work animals and farm machinery.

Agencies Financing Different Groups

The extent to which different agencies financed owners, part owners, and tenants in this study is shown in Table 8.

For long-term credit the owners and part owners used the same sources in approximately the same proportions. Individuals furnished

TABLE 8.—PROPORTION OF CREDIT OBTAINED FROM DIFFERENT SOURCES BY 1,055 ILLINOIS FARM OPERATORS GROUPED ACCORDING TO TENURE, 1935

Source	Proportion obtained by owners	Proportion obtained by part owners	Proportion obtained by tenants
<i>Long-term loans</i>	<i>percl.</i>	<i>percl.</i>	<i>percl.</i>
Federal land bank.....	62.1	59.0	.....
Insurance companies.....	12.7	14.9	.....
Individuals.....	13.1	12.1	.....
Banks.....	6.4	7.7	.....
Land bank commissioner.....	5.6	4.8	.....
Other sources.....	.1	1.5	.....
Total.....	100.0	100.0	.....
<i>Short-term loans</i>			
Individuals.....	51.9	51.9	41.8
Banks.....	34.5	32.2	36.0
Production credit associations.....	4.0	5.8	7.4
Implement companies.....	1.4	4.4	9.2
Other sources.....	8.2	5.7	5.6
Total.....	100.0	100.0	100.0

more than half the short-term credit used by owners and part owners, but only about two-fifths of that used by tenants. Banks furnished about one-third of the short-term credit used by each class. Tenants were using the production credit associations more than were part owners, and part owners more than owners. Implement companies were financing tenants to a larger extent than they were financing owners or part owners.

ANALYSIS OF 1935 CAPACITY TO PAY

Description of Terms and Methods

The analysis of the capacity of owners, part owners, and tenants to make payments on their debts in 1935 took into consideration the net cash farm income, the family living expenses, and interest on debts. These terms and others used in the analysis, and some of the methods used in arriving at them, are discussed here. The data are given in Tables 9, 12, and 15; and one of these tables should be followed in connection with this discussion.

"Gross cash farm income" includes all cash receipts from the farm plus receipts from labor of operator off the farm. No data on cash income from sources other than the farm, such as outside investments, were available in this study, and consequently no item of that sort is included in the tables. For many farm families that type of income is an important item, and would of course be taken into consideration in computing the capacity of the family to pay its debts.

"Adjustment for debts included in expenses" is used to account

TABLE 9.—CAPACITY TO PAY AT DIFFERENT INCOME LEVELS AND DEBT-TO-PROPERTY RATIOS, 348 FARM OWNERS, 1935^a

Item	Income and expenses when debt-to-property ratio was—				
	0	0.1-24.9 percent	25-49.9 percent	50 percent or more	All groups
Net cash income less than \$1,000					
Number of farmers.....	29	34	32	14	109
Gross cash farm income.....	\$2 755	\$2 896	\$3 203	\$4 735	\$3 185
Adjustment for debts included in expense	0	205	138	1 039	238
Total income.....	2 755	3 101	3 341	5 774	3 423
Cash farm expense.....	\$2 449	\$2 990	\$3 067	\$4 302	\$3 038
Cash family expense.....	738	738	738	738	738
Interest paid.....	0	114	424	734	254
Total expense.....	3 187	3 842	4 230	5 774	4 030
Apparent capacity to pay.....	\$-432	\$-741	\$-889	0	\$-607
Net cash income \$1,000 to \$1,999					
Number of farmers.....	25	29	33	18	105
Gross cash farm income.....	\$3 196	\$3 732	\$4 367	\$2 625	\$3 615
Adjustment for debts included in expense	0	166	153	40	101
Total income.....	3 196	3 898	4 520	2 665	3 716
Cash farm expense.....	\$1 768	\$2 411	\$2 873	\$1 302	\$2 213
Cash family expense.....	1 083	1 083	1 083	1 083	1 083
Interest paid.....	0	110	396	574	254
Total expense.....	2 851	3 604	4 352	2 959	3 550
Apparent capacity to pay.....	\$ 345	\$ 294	\$ 168	\$-294	\$ 166
Net cash income \$2,000 or more					
Number of farmers.....	25	44	36	29	134
Gross cash farm income.....	\$7 954	\$7 504	\$7 606	\$6 663	\$7 433
Adjustment for debts included in expense	0	33	100	118	70
Total income.....	7 954	7 537	7 706	6 781	7 503
Cash farm expense.....	\$4 327	\$3 704	\$3 851	\$3 421	\$3 798
Cash family expense.....	1 532	1 532	1 532	1 532	1 532
Interest paid.....	0	168	658	965	441
Total expense.....	5 859	5 404	6 041	5 918	5 771
Apparent capacity to pay.....	\$2 095	\$2 133	\$1 665	\$ 862	\$1 732

^aThese data on incomes include only income from the farm business. Some farm families, however, have incomes from other sources (outside investments, etc.), and in computing the capacity of such families to pay debts such additional income should of course always be taken into consideration. Capacity to pay usually increases dollar for dollar with such additional income.

for purchases not paid for during the current year. In the farm accounts used as a basis for this study, purchases for the farm business made with borrowed funds are included in the cash farm expense, but since they do not actually reduce the cash available in that particular year unless paid for before the end of the year, an allowance must be made by adding to the income side of the capacity-to-pay statements the amounts of such items still owed when the debt information was obtained.

"Cash farm expense" includes all farm expenditures paid by the operator, both operating and capital expenditures. No data were available on the cash outgo in connection with any side-line enterprises not a part of the farm business. Where such ventures are carried on, the expense involved, as well as the income therefrom, should be considered in setting up capacity-to-pay statements.

"Cash family expense" represents the out-of-pocket expenditures of the family, including all items of living expense (except the value of food furnished by the farm to the family living), insurance, cash items in connection with the dwelling which are not included in farm expense, and half the cost of the farm automobile (the balance being charged to farm expense).

To determine the average cash family expenses at different levels of net cash income,¹ 103 home accounts were used. Forty-one of these were kept on farms where the net cash income was below \$1,000; 38 on farms where this item was between \$1,000 and \$1,999, and 24 on farms where it was \$2,000 or more. It was not feasible to classify these 103 farms by debt ratios because of the small number on which debt data were available. It is quite likely, however, that within any income class, living expense would be smaller where the debt burdens were higher. The cash living expenses in different tenure groups subdivided according to net cash income averaged as follows:

	Net cash income—							
	Less than \$1,000		\$1,000-\$1,999		\$2,000 and over		All income groups	
	Num- ber	Average	Num- ber	Average	Num- ber	Average	Num- ber	Average
Owners.....	8	\$745	8	\$ 942	11	\$1,555	27	\$1,133
Part owners.....	5	783	8	1,170	6	1,289	19	1,105
Tenants.....	28	728	22	1,102	7	1,704	57	992
All tenure classes....	41	738	38	1,083	24	1,532	103	1,050

Interest payments were included as an expense item in calculating capacity to pay, since they must be met before payments can be made on the principal. Rates of interest paid on various debt items were reported in the survey, and the interest bill for each farm was calculated.

The difference between the total income and the total expense items given in Table 9 and similar tables is considered to measure the capacity of a farmer in a given debt group to reduce his debts, (during the year for which the data were collected), whether they were short-

¹These data on family expenses were obtained from the Department of Home Economics, University of Illinois, by the courtesy of those in charge of the home-accounting project.

term capital debts carried over from previous years or long-term mortgage debts. It should be noted that the apparent repayment capacity was calculated from actual data from each farm, with the exception of cash family expense, for which item a uniform amount was assigned to the different debt groups at each income level.

Living costs actually varied, of course, from farm to farm, but from the information available it was not possible to determine what the differences were. It is likely that variation in this item is greatest at the higher income levels. There was, in fact, but little variation in living expenses within the groups of low-income families and much variation within the groups at the higher level of income.

Owner Operators

Data on the capacity of 348 owner operators to pay their debts are given in Table 9, grouped according to net cash income and debt-to-property ratios.

The chief differences among the different income groups, aside from the amounts of net income, of course, are in gross cash farm incomes, altho in the middle-income group the cash farm expenses were lower than in the low-income group. The averages for the different groups were:

	<i>Net cash income—</i>		
	<i>Less than \$1,000</i>	<i>\$1,000 to \$1,999</i>	<i>\$2,000 and over</i>
Gross cash farm income.....	\$3,185	\$3,615	\$7,433
Adjustment for debts included in expenses.....	238	101	70
Total.....	\$3,423	\$3,716	\$7,503
Cash farm expenses.....	3,038	2,213	3,798
Cash family expenses.....	738	1,083	1,532
Interest.....	254	254	441
Total.....	\$4,030	\$3,550	\$5,771
Capacity to pay.....	\$-607	\$166	\$1,732

Clearly the chief difference between the two lower-income groups and the high-income group was the difference in gross income. This is the general relationship to be expected in areas where differences in net incomes are largely associated with differences in total output per farm.

On the other hand, the chief difference between the middle-income group and the low-income group was in expenses rather than in gross income. Of the difference in net cash farm incomes (\$1,250) more than \$800 is accounted for by lower expenses in the middle-income

group, whereas only about \$430 is accounted for by higher gross incomes. Part of this higher expense was offset by the adjustment item, but only about \$140 can be accounted for in that way.

In the low-income group each of the four subgroups based on debt ratios had higher expense than similar subgroups in the intermediate-income class. Evidently, therefore, the difference in expenses was a general condition and was not due merely to the presence of a few exceptional cases. The relatively higher cash farm expense of those in the low-income group can be partly explained by the method used in calculating net income. Farm expenses, both for capital items such as machinery and livestock and for current operation, are deducted from gross income. If a farmer who has a low gross income is careless about his operating expenses, he is likely to have a low net income. Naturally among a fairly large group of farmers not rigidly selected there will be a few of this type. Probably, however, a more important reason for the relatively high expenses of this particular group is the influence of expenditures for capital purposes. Many of these men had evidently been liberal buyers of capital items during the year. Their inventories of machinery and equipment and of productive livestock were larger than those of the owners in the intermediate-income group and their grain sales were less because of the large amounts of productive livestock. As is pointed out on page 199, these same differences were found between the two low-income groups of part owners.

Some interesting differences between the high-income and the lower-income owners are brought out in Table 10. The high-income

TABLE 10.—AVERAGE FINANCIAL STATEMENTS OF OWNERS AT DIFFERENT LEVELS OF NET CASH INCOME, 1935

Item	Capital and debts when net cash income was—		
	Less than \$1,000	\$1,000-\$1,999	\$2,000 or more
Number of farmers.....	109	105	134
Acres operated.....	183	188	243
Value of land and improvements.....	\$20 344	\$18 369	\$32 130
Farm working capital, total.....	\$5 437	\$4 911	\$7 722
Machinery and equipment.....	1 441	1 257	1 945
Work stock.....	411	432	494
Productive livestock.....	2 130	1 825	2 863
Feed and grain.....	1 455	1 397	2 420
Total farm capital.....	\$25 781	\$23 280	\$39 852
Total debts.....	5 877	6 059	10 453
Net worth.....	19 904	17 221	29 399
Equity in farm capital, percent.....	77	74	74

owners operated larger farms located on better land and had more productive livestock, feed, and grain on hand per acre, than those in the two lower-income groups. The farmers in the high-income group had larger debts, and their equity in farm property was about 3 percent smaller than the equity of the farmers in the lowest-income group.

TABLE 11.—RATIO OF DEBTS TO CAPACITY TO PAY, 348 FARM OWNERS GROUPED ACCORDING TO DEBT RATIO AND NET CASH INCOME, 1935

Item	Debt-to-property ratio—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50 percent or more	
Net cash income less than \$1,000					
Apparent capacity to pay.....	\$ -432	\$ -741	\$ -889	0	\$ -607
Debts.....	0	2 282	9 917	\$17 549	5 877
Ratio of debts to capacity to pay.....	0	∞	∞	∞	∞
Net cash income \$1,000 to \$1,999					
Apparent capacity to pay.....	\$345	\$ 294	\$ 168	\$ -294	\$ 166
Debts.....	0	2 284	9 977	13 375	6 059
Ratio of debts to capacity to pay.....	0	8	60	∞	37
Net cash income \$2,000 or more					
Apparent capacity to pay.....	\$2 095	\$2 133	\$1 665	\$ 862	\$ 1 732
Debts.....	0	406	16 220	22 004	10 453
Ratio of debts to capacity to pay.....	0	2	10	26	6

This high-income group of operators, if their 1935 operations were typical, represent a class of farmers who can well afford to use credit in order to build up a business of adequate size.

The apparent capacity to pay, the amount of debt, and the ratio of repayment capacity to debts is summarized in Table 11 for the three income groups of owners. The 109 owners whose incomes were less than \$1,000 had no capacity to pay; on an average their incomes were \$607, or about \$50 a month *below* the point where repayment capacity would begin. In connection with this lack of repayment capacity, however, it should be borne in mind that at the end of 1935 these men had on hand, on the average, \$3,585 worth of productive livestock, feed, and grain (Table 10). Sales of these assets during the period before the debt information was collected would have wiped out the deficit. The 105 whose incomes were between \$1,000 and \$1,999 had an average annual repayment capacity of \$166; and the repayment capacity of the 134 whose incomes were \$2,000 or more averaged \$1,732 for the year.

TABLE 12.—CAPACITY TO PAY AT DIFFERENT INCOME LEVELS AND DEBT-TO-PROPERTY RATIOS, 279 PART OWNERS, 1935*

Item	Income and expenses when debt-to-property ratio was—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50 percent or more	
Net cash income less than \$1,000					
Number of farmers.....	9	31	38	13	91
Gross cash farm income.....	\$2 423	\$3 039	\$4 204	\$3 455	\$3 524
Adjustments for debts included in expense	0	222	464	85	282
Total income.....	2 423	3 261	4 668	3 540	3 806
Cash farm expense.....	\$1 818	\$2 671	\$4 142	\$2 851	\$3 227
Cash family expense.....	738	738	738	738	738
Interest paid.....	0	73	336	578	248
Total expense.....	2 556	3 482	5 216	4 167	4 213
Apparent capacity to pay.....	\$-133	\$-221	\$-548	\$-627	\$-407
Net cash income \$1,000 to \$1,999					
Number of farmers.....	16	26	31	14	87
Gross cash farm income.....	\$3 829	\$3 786	\$4 464	\$3 593	\$4 005
Adjustment for debts included in expense	0	122	137	201	117
Total income.....	3 829	3 908	4 601	3 794	4 122
Cash farm expense.....	\$2 298	\$2 288	\$3 038	\$2 042	\$2 517
Cash family expense.....	1 083	1 083	1 083	1 083	1 083
Interest paid.....	0	101	328	472	223
Total expense.....	3 381	3 472	4 449	3 597	3 823
Apparent capacity to pay.....	\$ 448	\$ 436	\$ 152	\$ 197	\$ 299
Net cash income \$2,000 or more					
Number of farmers.....	18	29	37	16	100
Gross cash farm income.....	\$8 405	\$8 539	\$7 997	\$8 056	\$8 237
Adjustment for debts included in expense	0	205	159	159	143
Total income.....	8 405	8 744	8 156	8 215	8 380
Cash farm expense.....	\$3 876	\$4 813	\$4 472	\$4 749	\$4 508
Cash family expense.....	1 532	1 532	1 532	1 532	1 532
Interest paid.....	0	223	436	764	348
Total expense.....	5 408	6 568	6 440	7 045	6 388
Apparent capacity to pay.....	\$2 997	\$2 176	\$1 716	\$1 170	\$1 992

*These data include only income from the farm business. Some farm families, however, have incomes from other sources (outside investments, etc.) and in computing the capacity of such families to pay debts such additional income should of course always be taken into consideration. Capacity to pay usually increases dollar for dollar with such additional income.

The farmers in the lowest-income group who had substantial debts had little or no capacity to pay capital debts in 1935. The farmers in the middle-income group had debts that averaged 37 times their 1935 capacity to pay; those whose debts exceeded 50 percent of their capital had no repayment capacity. On the other hand, those in the group having net cash incomes of \$2,000 or more had substantial repayment capacity; it averaged \$1,732 for the year, or about one-

sixth of their average debts. In this income class even those who were most heavily indebted had debts equal to only 26 times their repayment capacity for the year. Debts of this latter group could be amortized in around twenty years inasmuch as annual capacity would increase as the outstanding principal, and consequently the required interest payments, decreased.

In accordance with expectation, capacity to pay tended to decrease as debts increased, because the amount needed to pay interest increased. In all except the low-income groups, the amount available for debt payments was progressively lower as debt ratios were higher. The averages for the low-income groups, particularly those whose debt ratios were 50 percent or more, were distorted by the fact that some farmers were building up their inventories and temporarily reducing their net cash incomes.

Part-Owner Operators

Capacity of part owners at different net-cash-income levels to pay their debts is shown in Table 12. The data are similar to those for owners, altho average capacity-to-pay balances are larger for all groups of part owners than for owners. As was pointed out on page 189, the part owners operated larger business units, and with incomes as they were in 1935 the amounts paid as rent were apparently less than the fixed charges on property.

The tendency noted on page 196 for the cash expenses of owners in the low-income group to be higher than those of owners in the middle-income group was also true of the expenses of part owners. Part owners in the low-income group had slightly more than \$700 higher cash farm expense than part owners in the middle-income group, tho the gross cash income of those in the low-income group was nearly \$500 less. The averages for the three income groups were as follows:

	<i>Net cash income—</i>		
	<i>Less than \$1,000</i>	<i>\$1,000 to \$1,999</i>	<i>\$2,000 or more</i>
Gross cash farm income.....	\$3,524	\$4,005	\$8,237
Cash farm expenses.....	<u>3,227</u>	<u>2,517</u>	<u>4,508</u>
Net cash farm income.....	\$297	\$1,488	\$3,729

Farm income, expenses, and net cash income were all sharply higher in the highest-income group than in the other two, as would be expected.

The higher cash expense of those in the low-income group than

of those in the middle-income group was partly accounted for by the inclusion of \$165 more for items unpaid at the time of the debt survey. But this inclusion of debts in the cash expense items accounts for only a part of the higher expense of the lower-income group.

The comparative financial statements of these three groups are shown in Table 13. The higher expense of part owners in the lower-income group has the same explanation as that given in connection with owners (page 196). These part owners had about \$600 more invested in productive livestock than those in the middle-income group. Their investments in other capital items were, however, slightly less than those in the middle-income group, and they were operating slightly larger farms. Part owners in the highest-income group were operating the largest farms and had the most working capital of all classes.

The low-income group of part owners had no repayment capacity, the middle group had a capacity of \$299, and the highest group a capacity of \$1,992 (Table 14). Capacity to pay was lower where debt-to-property ratios were higher, for the reasons noted on page 199. Where the debt ratio exceeded 25 percent in the middle-income group, the repayment capacity was such that the debts could be paid only by long-term amortized loans. In the high-income groups, debts, even of those most heavily indebted, were only 15 times capacity to pay.

Tenant Operators

Tenant farmers have a simpler financing problem than owners, since they need less capital. All payment plans for credit required by tenants are set up on a short or intermediate basis. The capacity-to-pay analyses for tenant operators at different income levels are shown in Table 15.

As compared with other tenure groups, the tenants in the low- and the middle-income groups had greater capacity to pay than either the owners or the part owners in those income groups. By tenure groups and income levels, the comparative figures for capacity to pay were:

	<i>Net cash income—</i>		
	<i>Less than \$1,000</i>	<i>\$1,000 to \$1,999</i>	<i>\$2,000 and over</i>
Tenants.....	\$-242	\$461	\$1,713
Part owners.....	-407	299	1,992
Owners.....	-607	166	1,732

When net cash incomes were less than \$2,000, the tenants had the

TABLE 13.—AVERAGE FINANCIAL STATEMENTS OF 278 PART OWNERS AT DIFFERENT LEVELS OF NET CASH INCOME, 1935

Item	Capital and debts when net cash income was—		
	Less than \$1,000	\$1,000-\$1,999	\$2,000 or more
Number of farmers.....	91	87	100
Acres operated.....	252	240	316
Value of land and improvements.....	\$12 815	\$13 742	\$22 720
Farm working capital, total.....	\$6 086	\$5 667	\$8 329
Machinery and equipment.....	1 719	1 749	2 295
Work stock.....	498	532	625
Productive livestock.....	2 362	1 776	2 814
Feed and grain.....	1 507	1 610	2 595
Total farm capital.....	\$18 901	\$19 409	\$31 049
Total debts.....	5 606	5 200	8 235
Net worth.....	13 295	14 209	22 814
Equity in farm capital, percent.....	70	73	73

TABLE 14.—RATIO OF DEBTS TO CAPACITY TO PAY, 278 PART OWNERS, GROUPED ACCORDING TO DEBT RATIO AND NET CASH INCOME, 1935

Item	Debt-to-property ratio—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50 percent or more	
Net cash income less than \$1,000					
Apparent capacity to pay.....	\$ -133	\$ -221	\$ -548	\$ -627	\$ -407
Debts.....	0	1 716	7 614	12 894	5 606
Ratio of debts to capacity to pay.....	0	∞	∞	∞	∞
Net cash income \$1,000 to \$1,999					
Apparent capacity to pay.....	\$ 448	\$ 436	\$ 152	\$ 197	\$ 299
Debts.....	0	2 459	7 696	10 707	5 200
Ratio of debts to capacity to pay.....	0	6	51	54	17
Net cash income \$2,000 or more					
Apparent capacity to pay.....	\$2 977	\$2 176	\$1 716	\$ 1 170	\$1 992
Debts.....	0	5 393	10 607	17 164	8 235
Ratio of debts to capacity to pay.....	0	3	6	15	4

largest capacity to pay. Above the \$2000-income level the part owners had the highest capacity and the tenants and owners were very close together. With income conditions as they were in 1935, tenants had greater paying or saving capacity than owners.

Among the tenants there is the same tendency as among owners and part owners (pages 196 and 199) for the low-income group to have higher cash expenses than those in the middle group, the difference

TABLE 15.—CAPACITY TO PAY AT DIFFERENT INCOME LEVELS AND DEBT-TO-PROPERTY RATIOS, 429 TENANT FARMERS, 1935^a

Item	Income and expenses when debt-to-property ratio was—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50 percent or more	
Net cash income less than \$1,000					
Number of farmers.....	51	102	40	16	209
Gross cash farm income.....	\$2 177	\$3 036	\$3 526	\$2 434	\$2 874
Adjustment for debts included in expense	0	234	572	152	240
Total income.....	2 177	3 270	4 098	2 586	3 114
Cash farm expense.....	\$1 628	\$2 832	\$3 326	\$2 121	\$2 579
Cash family expense.....	738	738	738	738	738
Interest paid.....	0	26	78	142	39
Total expense.....	2 366	3 596	4 142	3 101	3 356
Apparent capacity to pay.....	\$-189	\$-326	\$- 44	\$-415	\$-242
Net cash income \$1,000 to \$1,999					
Number of farmers.....	62	52	18	9	141
Gross cash farm income.....	\$3 822	\$3 667	\$3 283	\$3 325	\$3 664
Adjustment for debts included in expense	0	199	154	222	106
Total income.....	3 822	3 866	3 437	3 547	3 770
Cash farm expense.....	\$2 317	\$2 245	\$1 788	\$1 882	\$2 196
Cash family expense.....	1 083	1 083	1 083	1 083	1 083
Interest paid.....	0	25	74	182	30
Total expense.....	3 400	3 353	2 945	3 147	3 309
Apparent capacity to pay.....	\$ 422	\$ 513	\$ 492	\$ 400	\$ 461
Net cash income \$2,000 or more					
Number of farmers.....	47	19	7	6	79
Gross cash farm income.....	\$7 174	\$6 936	\$6 419	\$5 609	\$6 931
Adjustment for debts included in expense	0	257	463	350	130
Total income.....	7 174	7 193	6 882	5 959	7 061
Cash farm expense.....	\$3 885	\$3 939	\$3 368	\$3 002	\$3 785
Cash family expense.....	1 532	1 532	1 532	1 532	1 532
Interest paid.....	0	41	104	152	31
Total expense.....	5 417	5 512	5 004	4 686	5 348
Apparent capacity to pay.....	\$1 757	\$1 681	\$1 878	\$1 273	\$1 713

^aThese data on incomes include only income from the farm business. Some farm families, however, have incomes from other sources (outside investments, etc.) and in computing the capacity of such families to pay debts such additional income should of course always be taken into consideration. Capacity to pay usually increases dollar for dollar with such additional income.

among the tenants being about \$380. Of this amount, about \$130 represents debts for items included in expenses but still unpaid at the time of the debt survey. Gross cash incomes were substantially lower in the low-income group than in the middle-income group.

Unlike the part owners and owners, the tenants in the lowest-income group had less operating capital than those in the middle group (Table 16). It is probable that a part of their higher expense,

TABLE 16.—AVERAGE FINANCIAL STATEMENTS OF TENANT FARMERS AT DIFFERENT LEVELS OF NET CASH INCOME, 1935

Item	Capital and debts when net cash income was—		
	Less than \$1,000	\$1,000-\$1,999	\$2,000 or more
Number of farmers.....	209	141	79
Acres operated.....	221	231	299
Value of land and improvements.....	\$ 48	\$ 59	\$ 71
Farm working capital, total.....	\$4 814	\$4 994	\$7 203
Machinery and equipment.....	1 489	1 600	2 199
Work stock.....	427	435	565
Productive livestock.....	1 663	1 635	2 543
Feed and grain.....	1 235	1 324	1 896
Total farm capital.....	\$4 862	\$5 053	\$7 274
Total debts.....	860	653	723
Net worth.....	4 002	4 400	6 551
Equity in farm capital, percent.....	82	88	91

nevertheless, went into increasing their working capital during the year.

The farms operated by the tenants in the high-income group were distinctly larger than in the other two groups, and the high-income tenants had, on the average, about 50 percent larger investments in working capital.

How rapidly could these tenants reduce their debts? Data on their capacity to pay are given in Table 17. Those whose net cash incomes

TABLE 17.—RATIO OF DEBTS TO CAPACITY TO PAY, 429 TENANT FARMERS, GROUPED ACCORDING TO DEBT RATIO AND CASH INCOME, 1935

Item	Debt-to-property ratio—				All groups
	0	0.1-24.9 percent	25-49.9 percent	50 percent or more	
Net cash income less than \$1,000					
Apparent capacity to pay.....	\$ -189	\$ -326	\$ - 44	\$ -415	\$ -242
Debts.....	0	611	1 795	2 847	860
Ratio of debts to capacity to pay.....	0	∞	∞	∞	∞
Net cash income \$1,000 to \$1,999					
Apparent capacity to pay.....	\$ 422	\$ 513	\$ 492	\$ 400	\$ 461
Debts.....	0	585	1 409	4 036	653
Ratio of debts to capacity to pay.....	0	1.2	2.9	10.0	1.4
Net cash income \$2,000 or more					
Apparent capacity to pay.....	\$1 757	\$1 681	\$1 878	\$1 273	\$1 713
Debts.....	0	1 133	2 386	3 150	723
Ratio of debts to capacity to pay.....	0	0.7	1.3	2.5	0.4

were less than \$1,000 had apparently no capacity to pay. Actually they may have spent less for living expenses than the amount credited to that purpose (page 194). Also, after the end of the year they may have sold grain or livestock and reduced their debts. In any event, this group of 209 tenants could not have made progress in reducing their debts in 1935. On the other hand, the group whose net cash incomes were from \$1,000 to \$1,999 had substantial repayment capacity, tho the nine farmers in this income class whose debt ratios were over 50 percent would require ten years to clear their capital. These nine were operating very largely with borrowed funds.

The 79 tenant farmers whose net cash incomes were over \$2,000 had substantial repayment capacity. On the average, their debts were equal to only 40 percent of their 1935 capacity to pay.

All Tenure Groups

Differences in capacity to pay among the different tenure groups with various ratios of debt to property are summarized in Table 18.

In all tenure groups the farmers whose net cash incomes were below \$1,000 had no capacity to pay debts in 1935. Those whose incomes were from \$1,000 to \$2,000, except the heavily indebted owners,

TABLE 18.—APPARENT CAPACITY TO PAY, FARMERS GROUPED ACCORDING TO TENURE, NET CASH INCOMES, AND DEBT RATIOS, 1935

Debt to property ratio	Apparent capacity to pay		
	Owners	Part owners	Tenants
Net cash income less than \$1,000			
No debts.....	\$ -432	\$ -133	\$ -189
0.1-24.9 percent.....	-741	-221	-326
25.0-49.9 percent.....	-889	-548	- 44
50.0 percent or more.....	0	-627	-415
All debt-ratio groups.....	-607	-407	-242
Net cash income \$1,000 to \$1,999			
No debts.....	\$345	\$448	\$422
0.1-24.9 percent.....	294	436	513
25.0-49.9 percent.....	168	152	492
50.0 percent or more.....	-294	197	400
All debt-ratio groups.....	166	299	461
Net cash income \$2,000 or more			
No debts.....	\$2 095	\$2 997	\$1 757
0.1-24.9 percent.....	2 133	2 176	1 681
25.0-49.9 percent.....	1 665	1 716	1 878
50.0 percent or more.....	862	1 170	1 273
All debt-ratio groups.....	1 732	1 992	1 713

had some capacity to pay, while all those whose net cash incomes were \$2,000 and over had substantial capacity to pay. Among all tenure groups the capacity to pay was of course lower as debts were larger, because interest payments had to be deducted from net cash income.

At net-cash-income levels below \$2,000, tenants had greater capacity to pay than part owners, and part owners greater capacity than owners; above that level, part owners had the highest capacity. Among the part owners and the owners the distinction between the group having incomes from \$1,000 to \$2,000 and those whose incomes were below \$1,000 was partly arbitrary, inasmuch as many in the group having net cash incomes below \$1,000 were building up working capital, the cost of which was included in cash expenses. Classifying this cost as an expense item placed these farmers in the group having low net cash incomes. However, between these lower-income groups and those whose incomes were \$2,000 and over, there was a very real difference—the farms of those in the high-income group were larger and had more equipment and livestock in all tenure groups.

ADJUSTING FINANCING PLANS TO CAPACITY TO PAY

A financial plan that is sound from the standpoint of the borrower requires adaptation to the borrower's capacity to pay off his debts from income. If a plan provides for too rapid repayment in relation to income, it is impossible to carry it out; and if repayment is too slow, the borrower may divert to other less desirable purposes income which might be used to repay debts.

Borrowed Working Capital

It is to the advantage of farmers to do much of their financing on a strictly short-term basis (maturity up to 12 months). To prevent the accumulation of short-term debts until they become capital debts, any credit for farm operation should be repaid not later than the time when the resulting marketable product is sold. For example, when a farmer borrows to buy feed, the debt should logically be repaid upon the sale of the livestock if he is a stock feeder, or from the proceeds of milk sales if he is a dairyman. Farmers with even comparatively low net cash incomes can pay back such debts if advances are confined to the expenses of production, and if proceeds of sale are applied to the debt. If such debts are not repaid with proceeds from the sale of the commodities which they helped to produce, they tend to become permanent capital debts. An exception to this general rule is a debt

incurred for producing a crop on which the profits vary considerably from year to year, but which will repay costs over a period of two or more years—for example, orcharding in a region where the industry is on a sound basis. Carry-over debts need not become capital debts under such circumstances.

Not all of a farmer's credit for working capital, however, can be handled on a short-term basis, extending the meaning of short-term to include maturities up to 12 months. Permanent working capital can be paid for only out of surplus, after farm and family expenses are met. There can be apparent payment before such expenses are met, but such apparent payments involve either the using up of capital or the shifting of the debt to other creditors.

Unless a borrower has an income that yields over a period of years a surplus above expenses, both for farm and family, there is no justification for his incurring a capital debt, for he will not be able to repay it. Most farmers with low incomes have no such surpluses. Many of them, in practice, earn the working capital they need by outside labor.

Tenants. Most of the tenants included in this study owned at least 75 percent of their working capital (page 189). Of the 429, only 15 percent had debts equal to more than 25 percent of their property, and only 8 percent had debts equal to more than 50 percent of their property. In an area where farming yields only a living and produces no surplus cash income above operating and living expenses, a tenant makes a serious mistake when he goes into debt for his working capital. He should accumulate it, as savings, before starting to farm, or earn it by off-the-farm labor. This limitation does not in general apply to the cash-grain, livestock, or dairy sections of Illinois, where farming is sufficiently profitable to permit a surplus to tenants who farm well.

Even tho a tenant cannot expect to pay off a capital debt in one year, the obligation should mature annually. The necessity of renewing the debt stimulates reduction of it. A definite plan for applying surplus income also is desirable, for farm income varies from year to year. All surplus income should be applied, for it is well to have basic capital clear of debt.

Owners and part owners. The same rule, that operating credit should be paid for out of the proceeds of the product being financed, applies to owners as well as to tenants.

Apparently, however, as a matter of practice, landowners do not have the capacity or the incentive to clear up their short-term debts

that tenants have. The average short-term debt of the tenants in this survey was \$767; of the part owners, \$1,223; and of the owners, \$1,277.

Owners and part owners use short-term debts to finance their credit needs until the debts become of sufficient size to require that real estate be mortgaged. For example, owners whose net cash incomes were less than \$1,000 had debt ratios as follows:

<i>Debt ratios</i>	<i>Short-term debts as percent of working capital</i>	<i>Long-term debts as percent of real estate</i>
0.....	0	0
0.1-24.9 percent.....	29.4	3.6
24.9-50.0 percent.....	23.4	38.0
50 percent and over.....	29.1	64.1

The group whose debt ratios ranged from 24.9 to 50 had a lower ratio of short-term debts to working capital than the group whose debt ratios were from 0.1 to 24.9. This means that this group did practically none of their financing on a long-term basis. By using short-term rather than long-term credit, farmers with small indebtedness avoid the expenses incurred in connection with real-estate debts.

Long-Term Debts

The data in the foregoing tabulation show that where owners had debt ratios that were above 25 percent of the property owned, both long- and short-term debts were greater than where debt ratios were lower. This was also true of part owners' debts and debt ratios. Consequently both long- and short-term debts must be looked upon more or less as a unit.

A heavily indebted owner or part owner will find it to his best interests to pay back his production credit annually, but if he makes payment on his real-estate debt, he will be likely to stay rather constantly in debt for various items of working capital. For example, he will apply surplus income on a mortgage, rather than accumulate it to pay cash for a tractor. When he needs a tractor, he will probably go into debt for a part of it. By this process real-estate mortgages will be reduced, but short-term capital debt will be more or less continuous. Where the mortgage payments are normally higher than capacity to pay, the necessity of paying the mortgage will prevent the replacing of some of the working-capital items. There will thus be a gradual reduction in working capital, and consequently a decline in net cash income.

Borrowers who assume real-estate mortgages may be divided into three groups—those who require a very long time to pay the debt, those who require an intermediate time, and those who can pay in a relatively short time (Tables 11 and 14).

In the group of those who require a very long time to pay are those whose debts are 40 to 60 or more times their annual capacity to pay. All owners and part owners included in this study, except those whose annual net cash incomes were \$2,000 or over, or whose debt ratios were less than 25 percent and whose net cash incomes were \$1,000 to \$2,000, were in this class. Amortized mortgages could be retired by these owners and part owners in about forty years.

The second group consists of those who would require about twenty years to retire amortized mortgages. Even the highest-debt-ratio group of the high-income farmers in this study would fit into this group.

In the third group are those who can pay in five to ten years. Owners and part owners in the high-income group whose debt ratios were less than 50 percent would be in this group.

A comprehensive system of mortgage financing would provide plans calling for amortization over different periods of time according to the needs of borrowers in the three foregoing groups. These three general plans would be:

1. Amortization in 10 years or less—for borrowers having high repayment capacity and light debts.
2. Amortization in 20 to 25 years—for borrowers having high repayment capacity and heavy debts.
3. Amortization in 35 to 40 years—for borrowers having low or medium repayment capacity and heavy debts.

Each plan should provide further that if a borrower demonstrates a capacity to meet a more rapid schedule of payments than that stipulated, he should be permitted to pay more rapidly.

All plans should provide that a borrower may make additional payments, at least up to a certain percentage of the debt, at any interest date, and that in case farm income falls below a certain level such pre-payments might apply on principal installments currently due. Under Plan 3, in order to avoid placing the borrowers in an untenable position, there should be an "escape" clause in the payment provision to permit postponement or reduction of payment on principal whenever gross cash income per acre of money crops raised falls below a certain stated number of dollars. A figure for this purpose that might

be used and could be readily determined would be the acre-value which pays cash operating costs, plus an amount which, multiplied by the number of acres in cash crops on the farm, will maintain a moderate scale of living. To illustrate: On a farm having 200 acres of crops, assume the cash costs of operation to be \$1,250. Adding \$1,000 for living expenses and \$400 for interest gives a total of \$2,650, or \$13 per acre. When the gross income per acre of crops falls below \$13 because of either low yields or low prices, the principal payments under Plan 3 should not be due. This principle can be applied to any type of farming.

The burden of proof that the scheduled payment cannot be met should rest on the borrower. Practical forms for records and evidence of income could readily be developed for this purpose. In Plans 1 and 2, principal payments should never be postponed except under the most difficult circumstances, since the only way in which these loans can be paid is by sustained payment.

Twenty years ago the lump-sum, five-year mortgage was the rule in farm-mortgage financing. It represented too short a repayment period for the great majority of borrowers. The federal land banks adopted from European practice the long-time mortgage amortized over a period of thirty to forty years. This program was popular with farmers in large areas of the country and was seized upon by many who had little or no repayment capacity, along with many others who could repay. Its use in areas of high incomes and high repayment capacity caused some borrowers to repay their debts too slowly and permitted many of them to use for outside investments (including purchase of too much land in many cases) surplus which should have been applied to principal payments. In 1933 Commissioner loans were authorized under the Farm Credit Administration, providing, after an interim of three years, for annual payments usually equal to 5 or 10 percent on the principal. This plan was applied as a stopgap measure in emergency refinancing to meet conditions growing out of the price decline of 1929-1933. Loans up to 75 percent of the normal value of the applicant's farm were made. Peculiarly enough, this plan would be adaptable to the best class of loans, such as those that should be based on Plan 3; but it is utterly unadapted, from the basic repayment standpoint, to the class of loans to which it was most commonly applied. According to Table 11 no group of owners having debt ratios over 50 percent, could have met in 1935 the repayment schedule required. It is likely that among the farmers who have Commission-

er's loans, a small percentage have incomes high enough to meet these payments, but that the great majority cannot meet them. Most of these borrowers need a loan such as outlined in Plan 1 above.

These illustrations are included, not by way of criticism, but rather to point out that a really sound system for financing long-term credit cannot be developed around a single plan. There should be available at least the three basic plans just discussed.

LAND OWNERSHIP AND CAPACITY TO PAY

The operation of a farm by its owners is set up as a desirable goal by many, altho from the standpoint of adequate income and standards of expenditure, ownership is not necessary under corn-belt conditions. Tenants in the area studied here were just about as well off in these respects as owners (Tables 10 and 17). Moreover, from the standpoint of financing, a farmer short of capital, in an area of high-priced land, is better off as a tenant than as an owner heavily burdened with debt. Nevertheless, in spite of these facts, there are good reasons why it is desirable that a high percentage of the farms in a community be operated by the owners. Ownership adds stability, not only to farming, but to farm families.

Over a period of years a large percentage of the farmers in even the high-priced areas in Illinois could acquire the ownership of their farms if the following practices were observed:

1. If farms were so operated that in normal times they would yield a surplus income.
2. If savings were carefully conserved and poor investments in land and other things avoided.
3. If caution were exercised in buying land when prices are too high, and the pitfalls of speculative land values were avoided by confining purchases to periods when prices are reasonable, as measured by long-term earning capacity. Periods of high farm earnings should be interpreted as abnormal, and efforts should be made in such periods to improve the individual financial position rather than to expand the farm business too rapidly.
4. If farms were transferred from one generation to the next at a valuation based on earning capacity rather than at market prices.
5. If a mortgage system were used which would encourage savings and repayment of debts, and would allow for different levels of repayment capacity.

WAS 1935 CAPACITY TO PAY TYPICAL

How typical was 1935 from the standpoint of farmers' capacity to pay? In general, crop yields were good in Illinois in 1935, and prices had recovered from the low depression levels. It was therefore not a depression year. For the ten-year period 1927-1936 the average net cash income on the farms in the Farm Bureau Farm Management Service averaged \$2,778.¹ In 1935 the figure was \$3,117, or 10 percent better than the average during those ten years. When these average yearly net cash incomes were ranked in order, that of 1935 was fourth, being exceeded only by those of 1928, 1929, and 1936. Leaving out the three depression years 1931 to 1933, the average was \$3,696, or nearly 20 percent better than in 1935.

By 1935 prices in the United States had become adjusted to the devalued dollar adopted early in 1934, but prices were at a long-time low when measured in gold. It is quite possible that the 1935 price-level was below the average that can be expected over the next decade. Hence estimates of capacity to pay based on 1935 income figures may be somewhat under actual capacity during the next few years. However, regardless of the *level* of income, farmers will continue to have widely different incomes and debt ratios, and there will be need for at least the three mortgage plans outlined above if a sound mortgage system is to be available.

Incomes Higher in 1936

In any area in Illinois in 1936 where crops were even fair, incomes were high in comparison with those over a long previous period. In the Farm Bureau Farm Management Service, for example, the average cash farm income was \$4,392, compared with the ten-year average of \$2,778. These figures are for the entire farm and include returns to both landowners and tenants. Hence they are not comparable to the net cash incomes to operators for 1935 as used in this study, but they do indicate that the capacity to pay was much higher in 1936 than in 1935.

The higher incomes in 1936 than in 1935 were due in part to the high level of grain prices in the latter part of the year. These prices proved to be temporary, for when the larger crops of 1937 were available, prices went back to around the 1935 level. However, the fact

¹Twelfth Annual Report of the Farm Bureau Farm Management Service on 424 Farms of the Higher-Valued Lands of North Central Illinois, M. L. Mosher and others, Mimeo. rpt., College of Agriculture, University of Illinois, 1936.

TABLE 19.—INTEREST PAYMENTS, AND INVESTMENTS AND PAYMENTS ON PRINCIPAL OF DEBTS, 240 ILLINOIS FARM FAMILIES^a

Net cash income	Number of families in group		Interest payments		Investments and payment on principal of debts	
	Owners	Tenants	Owners	Tenants	Owners	Tenants
Under \$1,000.....	31	52	\$ 17	\$ 1	\$ 24	\$ 28
\$1,000-\$1,499.....	25	30	32	9	176	85
\$1,500-\$1,999.....	25	20	101	42	245	302
\$2,000-\$2,499.....	10	10	208	59	291	645
\$2,500 or more.....	10	7	293	97	1 330	921
Total or average.....	121	119	\$122	\$21	\$447	\$193

^aThe data in this table are from R. C. Freeman, and V. W. Randall "1936-37 Summary of Illinois Home Accounts," mimeo. pub., Home Economics Extension, University of Illinois, p. 4.

that there are periods now and then when incomes reach the levels of 1936, supports the view that repayment schedules for some classes of borrowers should require heavier payments than some of our standard mortgage plans require.

A study¹ made by the Home Economics Department of the University of Illinois, dealing with the use of incomes of farm families in 1936, throws some light on how farm families use income for paying debts in a year when incomes are high. Figures for owners and part owners designated as "owners" and "tenants," respectively are shown in Table 19.

All groups made some investments or payments on debts. These were comparatively small, however, unless net cash incomes were \$1,500 or more. Tenants whose incomes were over \$2,000, and owners whose incomes were over \$2,500 made substantial payments on investments.

IS DEBT REPAYMENT DESIRABLE

This study assumes that it is desirable for a farmer to get out of debt, provided the farm business is large enough to make efficient use of available labor and to return an amount of net income large enough to meet the needs for family living and savings. This assumption is questioned by some people, but it is nevertheless a generally recognized principle of good financing, particularly in an industry where incomes are subject to such variations as in agriculture. It is sound business practice for a farmer, assuming normal economic conditions, to use

¹1936-37 Summary of Illinois Home Account Records, R. C. Freeman and V. W. Randall, Mimeo. rpt., Home Economics Extension, University of Illinois.

credit available at reasonable cost for expanding his business to an adequate size, provided that he is an efficient operator and that the farming in his community ordinarily yields a surplus. But after such an adequate size is reached, it is also sound business practice for him to retire his debts.

Even the exception must be followed with caution, for a farm business can readily be expanded too rapidly by use of credit. At all times a safe balance should be maintained between debts, property, and conservatively calculated net income. It is better from the standpoint of risks for an individual to develop a business gradually up to an optimum size and to pay as he goes along for a substantial part of the property needed, than it is for him to expand rapidly on credit.

In actual practice there are two stages in the operating span at which many farm operators find it necessary to expand their debts beyond a conservative level. The first is when a young man begins farming as a tenant. Usually his capital is rather meager, and to obtain the increased earnings which come from management and capital, he must make use of additional capital and take certain risks. Frequently at this stage considerable amounts of debt are incurred. It would seem to be desirable, in such cases, for these debts to be reduced to a safe ratio to property before much further expansion of the business is made by means of credit.

The second situation in which unusually high debts in relation to property may be advisable is when a farm is purchased. As has been pointed out previously, the amount of capital required for ownership of a farm is substantially higher than that required for successful tenant operation. While good business policy dictates that an individual should have sufficient savings to make a substantial down payment in financing the shift from tenant to owner, nevertheless it is frequently necessary for a substantial debt to be incurred. Many individuals bridge this gap by becoming part owners at first, rather than full owners, and continuing to operate as tenants after some land is purchased. The earnings from both the rented and the owned land can be used to pay for a substantial debt on the owned land. In other words, the earnings from rented land help to cushion the added risk incurred by purchasing land.

Whether the step from tenant to owner is made by the purchase of additional land to supplement the rented land, or by the purchase of an entire farm, good credit principles require that the debt be reduced to manageable proportions as rapidly as possible. Particular caution needs to be exercised when prices are high.

CAPITAL AND CAPACITY TO PAY

Net Cash Farm Incomes Over \$2,000

Some of the operators in each of the three tenure groups had high net cash incomes. Eighteen percent of the tenants, 36 percent of the part owners, and 39 percent of the owners had net cash incomes of \$2,000 or more. The owners and part owners had, of course, more capital invested. Some comparisons of the financial positions of the three tenure groups are shown in Table 20.

In this income class the part owners operated the largest farms (316 acres), and the owners the smallest (243 acres). The part owners had the largest investment in working capital, as would be expected, since their farms were larger. The tenants had less productive livestock, feed, and grain than either of the other two groups.

The tenants had only about \$7,300 invested in farm capital, whereas part owners had \$31,000 and owners had \$39,800. After adjustments for living expenses and interest are made, the capacity of the tenants to pay indebtedness out of income was practically the same as that of the owners. Superior tenants can make substantial incomes on comparatively small amounts of capital. The part owners had somewhat larger net cash incomes than either of the other two groups.

As would be expected, the tenants had lower debt ratios than the part owners or the owners; on the average, their debts were equivalent to 10 percent of property values, whereas the debts of part owners and owners were slightly over 25 percent of property values.

Net Cash Farm Incomes, \$1,000-\$1,999

Thirty-three percent of the tenants, 31 percent of the part owners, and 30 percent of the owners had net cash incomes ranging from \$1,000 to \$1,999 (Table 20). Tenants in this income group operated about the same size of farms as the part owners (231 and 240 acres respectively), but owners had smaller farms (188 acres). In general, the farms operated by farmers in this income group were smaller than those operated by farmers in the high-income group. Working capital also was smaller. Part owners had the largest and owners the smallest investments in working capital. Owners had more invested in productive livestock than either of the other two groups.

Altho the farmers in this income group had less capital than those in the high-income group, their debt ratios were no higher, except those of the tenants, which were 13 percent in this group and 10 percent in the high-income group. In order to operate larger businesses,

TABLE 20.—FINANCIAL POSITION OF 1,055 ILLINOIS FARM OWNERS, PART OWNERS, AND TENANTS GROUPED ACCORDING TO NET CASH INCOME

Item	Tenants	Part owners	Owners
Net cash income less than \$1,000			
Number of operators.....	209	91	109
Acres operated.....	221	252	183
Value of land and improvements.....	\$ 48 ^a	\$12 815	\$20 344
Farm working capital, total.....	\$4 814	\$6 086	\$5 437
Machinery and equipment.....	1 489	1 719	1 441
Work stock.....	427	498	411
Productive livestock.....	1 663	2 362	2 130
Feed and grain.....	1 235	1 507	1 455
Value of total farm capital.....	\$4 862	\$18 901	\$25 781
Total debts.....	860	5 606	5 877
Net worth.....	4 002	13 295	19 904
Debts as percentage of farm capital.....	18%	30%	22%
Capacity to pay.....	\$-242	\$-407	\$-607
Net cash income \$1,000 to \$1,999			
Number of operators.....	141	87	105
Acres operated.....	231	240	188
Value of land and improvements.....	\$ 59 ^a	\$13 742	\$18 369
Farm working capital, total.....	\$4 994	\$5 667	\$4 911
Machinery and equipment.....	1 600	1 749	1 257
Work stock.....	435	532	432
Productive livestock.....	1 635	1 776	1 825
Feed and grain.....	1 324	1 610	1 397
Value of total farm capital.....	\$5 053	\$19 409	\$23 280
Total debts.....	653	5 200	6 059
Net worth.....	4 400	14 209	17 221
Debts as percentage of farm capital.....	13%	27%	26%
Capacity to pay.....	\$ 461	\$ 299	\$ 166
Net cash income \$2,000 or more			
Number of operators.....	79	100	134
Acres operated.....	299	316	243
Value of land and improvements.....	\$ 71 ^a	\$22 720	\$32 130
Farm working capital, total.....	\$7 203	\$8 329	\$7 722
Machinery and equipment.....	2 199	2 295	1 945
Work stock.....	565	625	494
Productive livestock.....	2 543	2 814	2 863
Feed and grain.....	1 896	2 595	2 420
Total farm capital.....	\$7 274	\$31 049	\$39 852
Total debts.....	723	8 235	10 453
Net worth.....	6 551	22 814	29 399
Debts as percentage of farm capital.....	10%	27%	26%
Capacity to pay.....	\$1 713	\$1 992	\$1 732

^aValue of improvements owned by tenants.

the farmers in the high-income group had, on the average, expanded their capital by borrowing additional funds.

Because in this income group interest was a relatively more important item in comparison with income, than it was for the high-

income group, and because the interest burden is lightest on the tenants, the tenants at this income level had greater capacity to make payments on indebtedness than the part owners, and the part owners greater capacity than the owners.

Net Cash Farm Incomes Less Than \$1,000

In the group having net cash incomes of less than \$1,000 were included 49 percent of the tenants, 33 percent of the part owners, and 31 percent of the owners (Table 20). Half the tenants and a third of the owners were in this low-income group.

The farms operated by the farmers in this group averaged about the same size as those operated by the farmers in the middle-income group. Owners operated the smallest and part owners the largest farms. Measured by investments in working capital, the businesses of the part owners were largest and those of the tenants smallest.

Except for the tenants, the low-income farmers had larger investments in working capital than those of the middle-income group. As noted above (page 196), this difference explains why some farmers were in the low-cash-income group—they were building up inventories, particularly of productive livestock.

Except for debts of the owners, the average debts of the farmers in the low-income group were larger and net worth was lower than in the middle group. Tenants and part owners in this low-income group had higher debt ratios than the tenants and part owners in the other two income groups, and owners had lower debt ratios than owners in other groups, a condition which is in agreement with the data in Table 4, where owners out of debt are shown to have had somewhat lower net cash incomes than those who were in debt.

At the low-income level, no one of these three groups of farmers had any surplus income with which to pay debts. The average income would not cover the amount allowed for living costs and interest charges. Owners were the most lacking of all three groups in ability to make payments on indebtedness; part owners were next; and tenants came nearest being able to pay something.

PROGRAM FOR FARMERS WITH LIMITED CAPITAL

That the tenants at different income levels had net cash incomes as good as or better than owners, even tho they owned much less capital than the owners, is brought out clearly in the above analysis. Tenants who had these relatively high incomes operated larger farms than the owners. It should be noted, of course, that a larger proportion of

tenants than of either part owners or owners were in the low-income groups, in part because the tenants had less capital.

What bearing do these comparative positions have on the problem of planning a financial program? Four conclusions would seem to be suggested as being applicable where farming conditions are similar to those in the area covered by this study:

1. Farm operators who have limited capital are better off financially as tenants than as owners.

2. Such operators can improve their position most rapidly by concentrating on being efficient tenants and using their earnings to build up enough working capital for a farm of good size. During this process, the use of credit is justified, but it should be maintained at a conservative ratio to accumulated capital.

3. The purchase of land should be looked upon as a method of investing savings after adequate working capital has been built up, rather than as a means of materially increasing earnings.

4. Savings accumulated under this plan of operation can be used to retire debts and buy added land until a farm of adequate size has been acquired. Then the operator can continue in the status of full owner.

The advantage of proceeding in this manner instead of rushing into full ownership by means of credit is evident in a comparison of capacity to pay, net worth, and working capital of owners and tenants who had net cash incomes ranging from \$1,000 to \$1,999.

	<i>Annual capacity to pay</i>	<i>Net worth</i>	<i>Working capital</i>
Owners.....	\$166	\$17,221	\$4,911
Tenants.....	461	4,400	4,994

At this level both groups had some capacity to save or to pay debts. But it is obvious that, at this income level, an average tenant can save more than an average owner, after maintaining an equivalent standard of living. Both groups had lower investments in working capital than the farmers in the higher-income group. The logical place for a tenant to invest his savings would therefore seem to be in working capital unless his supply is already adequate.

Similar data for tenants and owners in the high-income group (net incomes of \$2,000 or more) were the following:

	<i>Annual capacity to pay</i>	<i>Net worth</i>	<i>Working capital</i>
Owners.....	\$1,732	\$29,399	\$7,722
Tenants.....	1,713	6,551	7,203

While the owners at this high-income level had repayment capacity comparable to that of the tenants, nevertheless a superior tenant will accumulate more rapidly the capital he needs for the purchase of land if he does not burden himself too soon with the ownership of land.

It is obvious, of course, that ordinary managers with incomes in the lower or middle groups are better off as tenants than as owners if they have any substantial amount of debt, for as tenants they will have a higher capacity to pay or to save.

In actual practice individual situations are modified by inheritance and by additional income from sources other than the farm business. A farmer who receives capital from such sources may find it wise to change his tenure status more rapidly than is outlined above. Also situations are modified by variations in family expenses during different stages in the family cycle.

Even tho a man is a tenant on a family-owned farm, the rules stated above hold good. Usually he will do well to operate as a tenant until he has accumulated adequate working capital, and then to buy the land gradually rather than too rapidly. This procedure could be made possible in some cases by a trust arrangement.

There is one general situation where the procedure recommended here might properly be modified: At a time when land values have dropped to a very low level and a reversal in the price trend is obviously near, as it was in 1932 and 1933, an operator who has adequate working capital can afford to run heavily into debt to buy land.

SUMMARY

1. **Source of data.** For the purpose of discovering just what capacity to pay debts from current income farmers in different tenure classes and at different income levels have, and on the basis of this information to suggest policies both for lending and for borrowing, an analysis was made of the 1935 financial and income statements of 1,055 Illinois farmers. These farmers were enrolled in the farm accounting service conducted by the College of Agriculture, University of Illinois. Most of them were located in the northern two-thirds of the state. The financial statements included data on debts, farm property, and gross and net incomes.

2. **Credit.** Most of the credit obtained by these 1,055 operators was used for capital purposes: buying land, productive livestock, or work stock and machinery. The most important source of credit for long-term loans was the federal land bank, and for short-term loans, individuals and other banks. The different sources of credit were used to about the same extent by these operators, whether they were owners, part owners, or tenants, tho individuals were a somewhat more important source of credit for owners and part owners than for tenants. Interest rates on the bulk of the long-term loans were between $3\frac{1}{2}$ and 5 percent, and on the short-term loans between 4 and 7 percent.

Debt-to-property ratios varied partly according to the tenure status of the operators, partly according to income level. Thus tenants who had low incomes had, on the average, higher debt-to-property ratios than tenants whose incomes were higher; and, on the other hand, owners whose incomes were low had lower debt ratios than owners whose incomes were high. Evidently the low-income group of tenants included many who were young or somewhat less competent than the others, and the low-income group of owners included many who were not in debt and were consequently under no particular pressure to farm well.

3. **Income.** The average net cash farm incomes (returns for labor, management, and capital) of the owners in this group of 1,055 farmers was \$1,870; part owners, \$1,903; and tenants, \$1,206. After interest charges were paid, net cash incomes of owners averaged \$1,543; part owners, \$1,628; and tenants, \$1,172. Among both the owners and the part owners those who had the highest net cash incomes had the largest farms, the highest priced land, and the most working capital. On the other hand, these owners and part owners who had the lowest net cash incomes had more working capital and higher expenses than owners and part owners in the middle-income

group. However, the reason why part of the farmers in the low-income group had net cash incomes low enough to place them in this group was that they were building up their inventories and the cost was charged to expense.

4. Farm property and net worth. Part owners operated larger farms, on the average, than owners or tenants; owners operated the smallest. The averages were: owners, 208 acres; tenants, 239 acres; and part owners, 271 acres. Part owners of course operate a more flexible type of unit than owners or tenants. On the other hand, the owners had the most working capital per acre operated and the tenants the least. The averages were: owners, \$29.60; part owners, \$24.90; and tenants, \$22.20 per acre. The most pronounced differences in amounts of working capital were in productive livestock, and reflected the efforts of owners to build up larger businesses on smaller acreages than were operated by the part owners or tenants. Owners without debts and those heavily in debt operated less valuable land, on the average, than that operated by owners who had debt-to-property ratios up to 50 percent.

Size of farm, amount of working capital per acre, and value of productive livestock were all lower when debt-to-property ratios were above certain points. These were: for owners and part owners, 50 percent; and for tenants, 25 percent. Apparently these debt ratios represented ceilings above which it was difficult to expand the business on borrowed money.

Net worth of farm capital averaged for owners \$22,751; for part owners, \$17,005; and for tenants, \$4,602.

5. Capacity to pay. The term "capacity to pay" as used here means the amount of money available from income in a given year for savings or for payments on the principal of debts. It represents the difference between gross cash income from the farm (including receipts for labor performed off the farm, and adjustment for debts for capital items included in expenses) and the sum of (1) cash farm expense, (2) cash family expense, estimated according to income level, and (3) interest paid. In general, the capacity of operators in all tenure classes to pay their debts was lower when the debts were higher, because of the necessity of using more of their income for interest payments.

Capacity of the farmers in all three tenure classes to pay their debts varied of course directly according to net cash income. Among those in the high-income groups (net cash incomes of \$2,000 or more) the part owners had the highest repayment capacity (\$1,992 a year) and

the owners and tenants had about the same (\$1,732 and \$1,713 respectively). In the high-income group the tenants had as high repayment capacity as the owners, even tho the net worth of the owners in this class averaged about \$23,000 higher than the net worth of the tenants. The proportion of owners in this high-income group was, however, more than twice as high as the proportion of tenants. Among those in the middle-income groups (net cash incomes from \$1,000 to \$1,999), the tenants had the highest repayment capacity (\$461), the part owners next (\$299), and the owners least (\$166). Those in the low-income groups (net cash incomes under \$1,000) had, on the average, no repayment capacity at all, regardless of tenure class. Owners, part owners, and tenants alike at this low-income level were using up their capital or going further into debt,—the owners to the greatest extent (\$607), the part owners next (\$407), and tenants least (\$242).

One reason why the owners in the high-income group had no higher capacity to pay than the tenants in that group, and why the owners in the middle-income group had a lower capacity than the tenants in that group, was that the debt ratios of the owners were higher. Debt ratios of owners averaged slightly over 25 percent, whereas those of the tenants were only about 10 percent.

In general, part owners could clear their debts in fewer years than owners, and tenants in fewer years than part owners. In the high-income groups the debts of the owners averaged about six times their yearly capacity to pay; those of the part owners about four times their yearly capacity to pay; and those of the tenants about four-tenths times their yearly capacity. In the middle-income groups the debts of owners were thirty-eight times their capacity; the debts of the part owners fourteen times their capacity; and the debts of the tenants one and four-tenths times their capacity. In the low-income groups there was no capacity to pay any indebtedness, and unless these farmers improved their positions they could never pay their debts without sacrificing their capital for that purpose.

CONCLUSIONS

1. The capacity of farmers to pay their debts from earnings varies greatly even among farmers having assets of about the same value. It increases with income, but decreases with debts. At any given income level until net cash income reaches the \$2,000 level, tenants in the area represented by this study tend to have greater repayment capacity than either part owners or owners. Then part owners forge ahead.

2. The time required by borrowers to retire debts by payments from income differs greatly, and any repayment plans should take these differences into account. In mortgage lending, according to this analysis, three plans involving different lengths of time for retiring debts are needed in order to fit a loan to the capacity of the borrower to pay it:

Amortization in 10 years or less—for farmers having high capacity to pay and light debts.

Amortization in 20 to 25 years—for farmers having high capacity to pay and heavy debts.

Amortization in 35 to 40 years—for farmers having low or medium capacity to pay and heavy debts.

A comprehensive mortgage system would include these three alternative plans to fit different circumstances.

3. A mortgage system with repayment plans adapted to the repayment capacity of different borrowers would help a borrower to conserve earnings and divert them to debt payment, and would thus in the long run tend to encourage the ownership of land by the families operating it.

4. A capable individual or family in the grain and livestock sections of Illinois, wishing to keep repayment or saving capacity at a maximum and eventually to own land, should adopt some such program as the following:

Operate a rented farm and concentrate on doing a good job of it.

Use savings to build up working capital to a point where it is adequate for successful operation. Credit may be used moderately in building up working capital, but care should be exercised to keep debts in balance with accumulated capital.

When working capital is adequate, apply savings to the purchase of land and operate as a part owner. Debts should not be allowed to become too high in relation to total capital.

As earnings accumulate, purchase additional land as a place to invest savings.

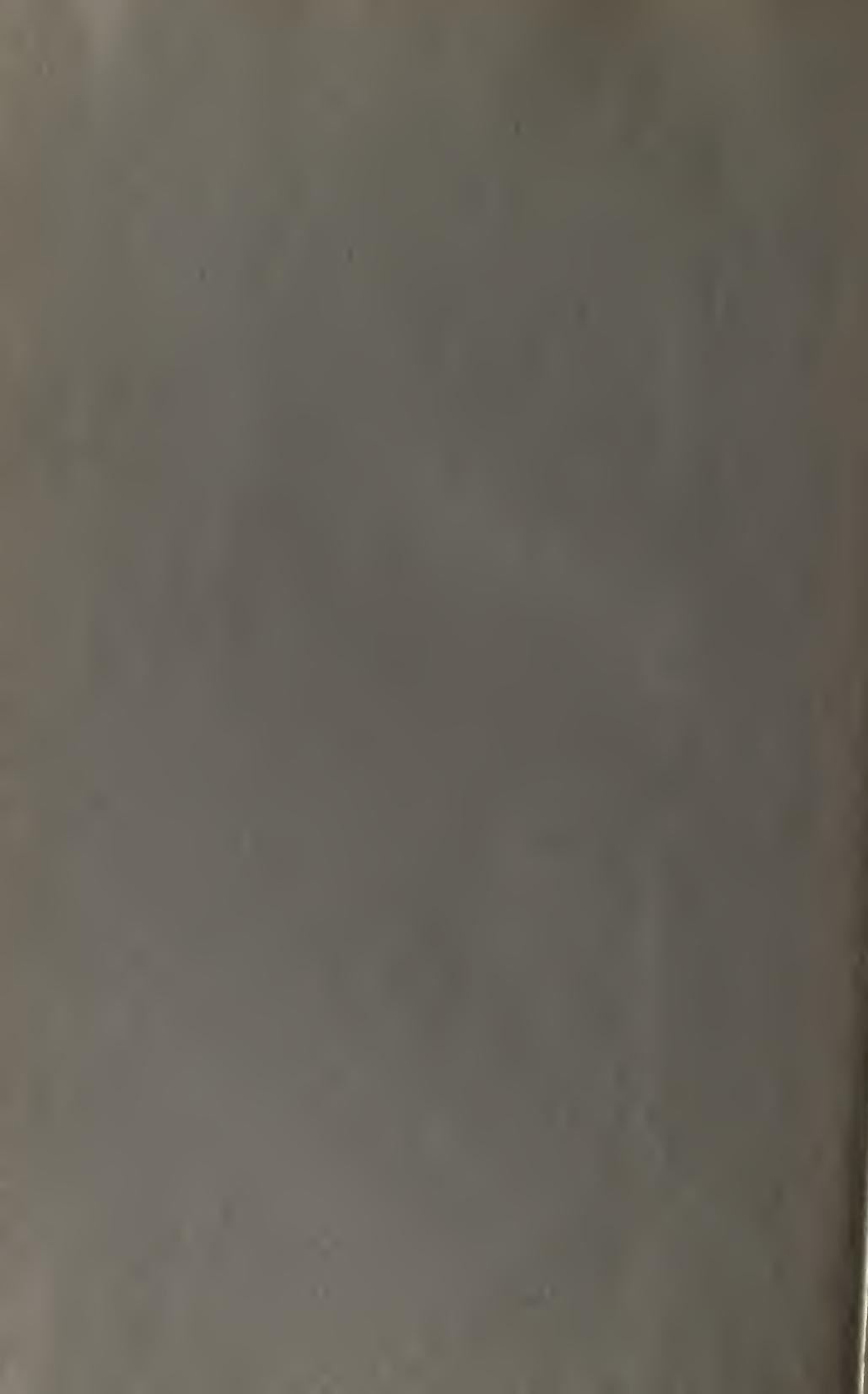
Do not undertake operation as a full owner until a farm of adequate size can be purchased without incurring excessive debt.

5. A tenant who is capable of farming only moderately well will be better off to continue as a tenant than to go into debt heavily in order to purchase land.

Form B
DEPARTMENT OF AGRICULTURAL ECONOMICS
ILLINOIS AGRICULTURAL EXPERIMENT STATION

AGRICULTURAL CREDIT STUDY—ANALYSIS SHEET

County.....	Name.....	Number.....
Farm assets, Jan. 1, 1936.....	\$.....	\$.....
Land owned.....
Improvements.....
(House \$.....)
Total fixed assets.....	\$.....	\$.....
Machinery and equipment.....
Horses.....
Productive livestock.....
Feed and grain.....
Total current assets.....	\$.....
TOTAL FARM ASSETS.....	\$.....
Acres owned.....
..... rented.....
Net income per acre.....	\$.....
Net income per acre as percent of average in area.....%
Net worth as percent of total debts.....%
Long-term debts per acre owned.....	\$.....
Long-term debts as percent of total fixed assets.....%
Current debts as percent of current assets..%
Chattel debts as percent of machinery.....%
Total receipts and net increases.....	\$.....
Total expenses and net decreases.....
Receipts less expenses.....
Net income from investments, 1935.....	\$.....	\$.....
First mortgages on land.....
Second mortgages on land.....
Other mortgage on land.....
Total long-term debts.....	\$.....	\$.....
Chattel mortgages.....
Other secured notes.....
Implement notes.....
Unsecured notes.....
Other merchant credit.....
Delinquent interest.....
Delinquent rent.....
Total current debts.....	\$.....	\$.....
TOTAL DEBTS (FARM).....	\$.....
Net worth (farm).....	\$.....	\$.....
Cash income 1935.....	\$.....
Cash expense, 1935.....
Net cash income, 1935.....	\$.....	\$.....
Calculated annual interest.....
Net cash after interest payments.....
Adjustments for current debt used for 1935 expenses.....
Net cash adjusted.....	\$.....	\$.....



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