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Amounts and Cost of Credit
Extended by Cooperative
Exchanges

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FOREWORD

This is the third of a series of bulletins of this station dealing with the status and operations of farmers' cooperative associations in Missouri. The others are:

Farmers' Cooperative Marketing and Purchasing Associations in Missouri. E. G. Schiffman and Herman M. Haag. Mo. Agr. Exp. Sta. Bul. 389.

Operating Expenses of Cooperative Elevators and Exchanges. Herman M. Haag. Mo. Agr. Exp. Sta. Bul. 401.

Since cooperative marketing and purchasing associations play an important part in handling farm products and supplies in Missouri, this experiment station feels obligated to conduct research studies which may be of assistance to them in doing their jobs efficiently.

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FIG. 1.—GEOGRAPHIC SECTIONS OF MISSOURI AS USED IN THIS STUDY.

Amounts and Cost of Credit Extended by Cooperative Exchanges

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Some of the important problems faced by the managements of cooperative exchanges in this state are those arising from the extension of credit to patrons by allowing them to buy farm supplies "on time." Extension of credit in this manner is expensive in all instances and can be extremely so unless handled with great care.

The solution of this problem appears simple for it would seem that associations could discontinue the extension of credit at any time. The practice, however, has been followed so long by the associations and is so generally adopted by other similar merchandizing organizations that any exchange attempting to sell only for cash probably would suffer an immediate loss in patronage. The managers of 87 associations, interviewed to obtain data for this study, estimated that their immediate loss in patronage would be from 2 to 50 per cent of present sales if they should discontinue credit sales. The average of these estimates was 15 per cent. Whether this drop in patronage would materialize and continue for any period of time has not been determined but as long as this opinion prevails, the managements of such associations are not likely to adopt a strictly cash policy.

Furthermore, managers and directors of many associations point out that the patrons are the actual owners of the business and, therefore, the associations are required to provide those services which patrons want and can pay for. Credit is one such service.

Because it is so generally conceded that the extension of credit is difficult to avoid, the managements of cooperative associations are interested in knowing the actual costs of providing credit service and ways and means of reducing such costs. This study was made to provide such information and also to point out ways in which the costs of credit service may be charged to those patrons who use it.

*The data for this study were furnished principally by the managers of Missouri cooperative associations, for whose cooperation the authors wish to express their sincere appreciation.

Description of Associations

The discussion in this publication is based upon an analysis of data from 87 cooperative exchanges¹ located throughout the state. These make up about one-fourth of the total number of such associations in the state. Their sales varied from \$13,000 to \$430,000 and averaged \$133,000 per association. The size distribution of associations in this study was not representative of all associations in the state because relatively few small associations were included. It was difficult to obtain satisfactory records for this study from associations with less than \$50,000 of sales. Also, relatively more of the associations in Southwestern and South Central Missouri were visited than in other sections of the state. On the other hand, the age of associations included, the classes of supplies and products handled by them and their financial conditions were considered to be fairly typical of all associations in the state.

The information from each association was collected by means of a survey schedule.² This was completed by an enumerator from the association's audit reports and other financial records and from replies of the manager or some other well-informed employee to questions asked by the enumerator. The data are for the calendar year, 1937, unless otherwise stated.

AMOUNT OF CREDIT OUTSTANDING

The credit extended patrons appeared on the books of cooperative exchanges as accounts and notes receivable.³ The monthly average amount of receivables outstanding during 1937 was \$388,919, or \$4,470 per association, (Table 1). Of the latter, \$3,998, or 89.4 per cent, was accounts and \$472, or 10.6 per cent, was notes. The monthly average for each association is the average of the 12 monthly aver-

TABLE 1.—TOTAL RECEIVABLES, BY TYPE, 87 ASSOCIATIONS, 1937.

Type of Receivable	Total Amount	Average per Association	Per Cent of Total
Accounts	\$347,803	\$3,998	89.4
Notes	41,116	472	10.6
Total	\$388,919	\$4,470	100.0

¹Since one association was not doing any credit business, only 86 exchanges are included in many of the tables in this publication. The term "exchange" is used throughout this publication to designate a type of cooperative organization which buys, from farmers, eggs, poultry, cream, and other farm products produced in the community and sells to them feed, groceries, machinery and other farm supplies they need. This type of association is more fully described in "Farmers' Cooperative Marketing and Purchasing Associations", Missouri Agricultural Experiment Station Bulletin 389, in the section dealing with "Produce Exchanges and Elevators".

²A copy of the schedule is available from the Department of Agricultural Economics, University of Missouri, Columbia, Missouri.

³Some associations kept their credit sales on sales tickets and recorded each ticket as a sale only after the goods it represented had been paid for. Such associations did not have sufficient records to permit their use in this study.

ages which were obtained by averaging the amounts outstanding at the beginning and end of each month.

Relation of Receivables to Total Assets

Receivables represented a very large proportion of total assets in many of the 87 exchanges studied. This means that a large part of their capital, some of which had been obtained by borrowing, was being used to provide credit service for patrons. In many instances, exchanges were using funds for this purpose which could have been used more effectively in other ways.

In 1937, the average amount of receivables outstanding was equal to 22.8 per cent of the average amount of assets⁴ or property owned by the 87 associations, (Table 2). The proportion which receivables were of total assets, however, varied from 3.4 to 66.9 per cent among the associations and was 40 per cent or more in 15, or more than one-sixth of them.

TABLE 2.—NUMBER OF ASSOCIATIONS, BY PERCENTAGE WHICH RECEIVABLES WERE OF TOTAL ASSETS, 87 ASSOCIATIONS, 1937.

Range	Receivables as Per Cent of Total Assets Average	Associations	
		Number	Per Cent
Less than 20	11.9	37	42.5
20 - 40	27.7	35	40.2
40 - 60	48.8	14	16.1
60 or more	66.9	1	1.2
All	22.8	87	100.0

Relation of Receivables to Net Worth

The average amount of receivables held by the 87 associations during 1937 was equal to 33.8 per cent of their net worth at the end of the year, (Table 3). Thus, more than one-third of the capital

TABLE 3.—NUMBER OF ASSOCIATIONS, BY PERCENTAGE WHICH RECEIVABLES WERE OF NET WORTH, 87 ASSOCIATIONS, 1937.

Range	Receivables as Per Cent of Net Worth Average	Associations	
		Number	Per Cent
Less than 20	12.9	25	28.7
20 - 40	28.1	23	26.5
40 - 60	47.5	14	16.1
60 - 80	73.0	7	8.0
80 - 100	86.5	6	6.9
100 or more	223.2	12*	13.8
All	33.8	87	100.0

*Includes 4 associations with net deficits.

⁴To obtain the average total assets used in this section, the monthly average amount of receivables was combined with the average of the values of all other assets at the beginning and the end of the year, since monthly averages of assets other than receivables were not available.

of the associations obtained from members through the sale of capital stock and from earnings not distributed to patrons, had been used to provide credit service. Receivables amounted to less than 40 per cent of net worth in 55 per cent of the exchanges but were greater than net worth in 12 associations.

Seasonable Variation in Receivables

The amount of receivables outstanding at the end of each month varied considerably during the year, being highest at the close of March, April, May, and June and lowest at the end of the year, (Table 4). The sharpest reduction in the amount of credit out-

TABLE 4.—INDEXES OF SEASONAL VARIATION OF RECEIVABLES OUTSTANDING AT THE END OF EACH MONTH, 87 ASSOCIATIONS, 1937.

Month	Index*	Month	Index*
January	104	July	98
February	104	August	93
March	114	September	92
April	111	October	96
May	108	November	88
June	110	December	82

*The indexes of seasonal variations were obtained by dividing the amount of receivables outstanding at the end of each month by the monthly average amount for the entire year and expressing the results as percentages.

standing occurred during July. The largest increase in receivables occurred in January and March. Another smaller increase occurred in October. Because of the extremely low seasonal index for December 31, 1937, it might be assumed that part of the decline from June 30 to December 31, may have been due to a downward trend in receivables during the year but such was not true for the amount of receivables outstanding on December 31, 1936, was not appreciably different from that on December 31, 1937.

Volume of Supply Sales and Receivables

One of the causes of differences in amounts of receivables outstanding is the volume of sales made by the associations. In this case not all sales influenced receivables because Missouri exchanges handled both farm products and farm supplies. Sales of farm supplies, which included all commodities normally sold to farmers, are the only sales from which receivables arise because farm products are sold to wholesalers and others on a cash basis. Farm products included commodities such as wheat, cream, eggs, and poultry which normally are bought from, instead of sold to, farmers.

In this study, the average amount of accounts and notes receivable increased as the volume of supply sales increased. In exchanges selling less than \$30,000 of supplies, total receivables

amounted to only \$1,399 per association whereas they averaged \$7,838 in associations with \$120,000 or more of supply sales, (Table 5). Accounts receivable increased from \$1,308 in the smallest associations to \$6,366 in the largest ones. Notes receivable increased more rapidly than accounts receivable as supply sales increased, for the larger associations apparently required notes for a larger percentage of their receivables than did small exchanges. Notes were nearly 19 per cent of receivables in the largest associations, compared with 6.5 per cent in the smallest ones, (Table 5).

TABLE 5.—RELATION OF ACCOUNTS, NOTES AND TOTAL RECEIVABLES TO AMOUNT OF SUPPLY SALES, 87 ASSOCIATIONS, 1937.

Supply Sales in Thousands of Dollars*	Number of Associations	Receivables			Notes as Per Cent of Total Receivables
		Accounts	Notes	Total	
Range	Average				
Less than 30	20.9	17	\$ 91	\$1,399	6.5
30 - 60	42.1	19	94	2,748	3.4
60 - 90	72.1	22	398	5,200	7.7
90 - 120	103.3	13	421	5,624	7.5
120 or more	184.7	16	1,472	7,838	18.8
All	80.9	87	\$ 472	\$4,470	10.6

*Since supply sales were 60 per cent of all sales, this grouping corresponds to the groups of all sales in \$50,000 units.

Relation of Receivables to Supply Sales

The amount of receivables outstanding depends on the credit policy of the association and its ability to collect as well as its size. To eliminate the effect of size and therefore to measure the effect of credit policy and collection efficiency, it is common practice in credit studies to express the amount of credit outstanding in terms of the volume of sales made. For this purpose, a ratio known as "number of days of sales outstanding" has been developed, which is the result of dividing the amount of receivables by daily average sales. In most studies, this ratio has been based on total sales, because the stores or merchandising organizations studied were engaged in a type of business in which receivables originated from all classes of sales. As pointed out above, receivables in Missouri exchanges originate only from sales of farm supplies which amounted to only 60 per cent of total sales in 1937. Thus, it seemed more logical to relate receivables to supply sales rather than total sales for the purposes of this study. This ratio, which will be termed "days of supply sales outstanding" was obtained by dividing the monthly average amount of receivables for 1937 by the daily average of supply sales for that year. The actual number of calendar days in 1937, which was 365, was used in calculating daily sales.

Among the 87 associations, the number of days of supply sales

outstanding ranged from none to 77.5 and averaged 20.2. Nearly 12 per cent had 40 or more days of supply sales outstanding, (Table 6).

TABLE 6.—NUMBER OF ASSOCIATIONS, BY DAYS OF SUPPLY SALES OUTSTANDING, 86 ASSOCIATIONS, 1937.

Days of Supply Sales Outstanding		Associations	
Range	Average	Number	Per Cent
Less than 10	6.8	10	11.6
10 - 15	11.8	16	18.6
15 - 20	17.7	22	25.6
20 - 30	25.1	16	18.6
30 - 40	35.9	12	14.0
40 or more	45.8	10	11.6
All	20.2	86*	100.0

*One association on a strictly cash basis is omitted.

Although, as pointed out earlier, credit outstanding increased as the volume of supply sales increased, this increase resulted more from the larger volume of sales than from a more liberal credit policy or a lower efficiency in collections. Actually, the days of supply sales outstanding declined as sales increased, indicating that the largest associations had less credit outstanding in relation to sales than did the smaller ones, (Table 7).

TABLE 7.—RELATION OF DAYS OF SUPPLY SALES OUTSTANDING TO AMOUNT OF SUPPLY SALES, 87 ASSOCIATIONS, 1937.

Supply Sales in Thousands of Dollars		Number of Associations	Days of Supply Sales Outstanding
Range	Average		
Less than 30	20.9	17	24.4
30 - 60	42.1	19	23.8
60 - 90	72.1	22	26.3
90 - 120	103.3	13	19.9
120 or more	184.7	16	15.5
All	80.9	87	20.2

Relation of Receivables to Location of Association

The average amount of credit outstanding varied with the location of the association. Both total receivables and days of supply sales outstanding were largest in associations located in West Central Missouri,⁵ (Table 8). Total receivables were smallest in

TABLE 8.—RELATION OF TOTAL RECEIVABLES AND DAYS OF SUPPLY SALES OUTSTANDING TO GEOGRAPHIC DISTRICT, 86 ASSOCIATIONS, 1937.

Geographic District	Number of Associations	Supply Sales per Association	Total Receivables per Association	Days of Supply Sales Outstanding
Northeast	13	\$66,825	\$ 3,386	18.5
West Central	7	78,444	7,462	34.7
East Central	14	79,496	3,764	17.3
Southwest	33	96,218	4,830	18.3
South Central	19	69,574	4,150	21.8
All	86*	\$81,719	\$ 4,502	20.1

*One association in Northwest Missouri is not included.

⁵The counties included in each district are shown in Figure 1 on page 4.

Northeast Missouri, but the amount of credit outstanding was low relative to supply sales in the East Central and Southwestern districts of the state, as well as the Northeastern. Much of this variation probably was due to differences in the type of farming rather than differences in the attitude toward credit sales among the areas.

Causes of Variation in Credit Outstanding

A large amount of credit outstanding in relation to sales, as measured by the days of supply sales outstanding, can result from a too liberal extension of credit or from a poor collection record. An association which sells only a very small proportion of its supplies on credit but allows these accounts to remain unpaid for an average of several months may have more credit outstanding than the association selling a large part of its supplies on credit but making most collections within 10 to 15 days. On the other hand, if two associations are equally effective in making collections, the one making relatively more sales on credit will have the most credit outstanding in relation to sales.

For the purpose of this study, it was desirable to distinguish between the association's policy as to the extension of credit which is measured by the percentage which credit sales were of supply sales and the effectiveness of collections as indicated by the average age of the credit outstanding. The age of the credit usually is measured by the "days of credit sales outstanding." This was calculated by dividing the average amount of receivables outstanding during 1937 by the "daily average credit sales" for the year. The daily average of credit sales was obtained by dividing the total sales on credit⁶ in 1937 by 365, the number of calendar days in 1937.

Effect of Credit Policy on Credit Outstanding:—Credit policies and age of credit were closely interrelated in the associations studied. As the proportion of supply sales on credit increased, the average age of receivables (days of credit sales outstanding) declined. The amount of credit outstanding in relation to supply sales (days of supply sales outstanding), therefore, increased relatively slowly as associations became more liberal in the extension of credit. For example, the days of supply sales outstanding increased from 12 to 30 days, or $2\frac{1}{2}$ times, as the proportion of supply sales increased from 6 to 70 per cent, or more than 11 times, due

⁶Credit sales as used in this study were the amounts of sales recorded as "debits" to accounts receivable on the books of the association. The "debits" to notes receivable were not used because it was found that in practically all instances notes were obtained only after the credit had been extended for some time as a book account.

to the fact that the average age of receivables declined from 206 to 43 days, (Table 9).

TABLE 9.—RELATION OF DAYS OF SUPPLY SALES OUTSTANDING TO PERCENTAGE OF SUPPLY SALES ON CREDIT, 86 ASSOCIATIONS, 1937.

Percentage of Supply Sales on Credit		Number of Associations	Days of Credit Sales Outstanding	Days of Supply Sales Outstanding
Range	Average			
Less than 10	5.8	11	205.6	11.9
10 - 20	13.8	18	157.7	21.8
20 - 30	26.1	27	73.9	19.3
30 - 40	33.8	12	52.4	17.7
40 - 50	44.8	9	63.7	28.6
50 - 60	54.8	5	49.6	27.1
60 or more	69.7	4	43.2	30.1
All	29.2	86*	69.2	20.2

*One exchange on a strictly cash basis is omitted.

Effect of Age of Credit on Credit Outstanding:—The same situation existed when the days of credit sales outstanding were increased. As is apparent from Table 10, the amount of credit outstanding increased very little when the age of receivables was increased greatly. This illogical relationship, however, was due to the fact that the percentage of supplies sold on credit declined as the age of the credit outstanding increased. For example, the days of supply sales outstanding increased only from 10.7 to 27 as the average number of days of credit sales outstanding increased from 26 to 342 days, because the proportion of supply sales on credit dropped from 41.8 to 7.9 per cent, (Table 10).

TABLE 10.—RELATION OF DAYS OF SUPPLY SALES OUTSTANDING TO DAYS OF CREDIT SALES OUTSTANDING, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding		Number of Associations	Percentage of Supply Sales on Credit	Days of Supply Sales Outstanding
Range	Average			
Less than 30	25.7	7	41.8	10.7
30 - 60	47.9	24	33.4	16.0
60 - 120	83.6	28	29.7	24.9
120 - 240	158.9	21	17.0	27.0
240 or more	342.5	6	7.9	27.0
All	69.2	86*	29.2	20.2

*One exchange on a strictly cash basis is omitted.

Net Effect of Credit Extension and Collection on Credit Outstanding:—Because of the high degree of interrelationship between credit policy and age of credit, it was necessary to attempt to show the effect of variations in one influence while the other remained relatively constant or unchanged. To do this, the associations were sorted into three groups according to the proportion of supplies sold on credit and then each of these groups was broken into smaller groups according to the age of receivables, or days of credit sales outstanding. When this was done, it was

found that the days of supply sales outstanding increased proportionally as the associations became more liberal in making sales on credit and also as the age of the accounts increased. For example, among associations selling 20 to 40 per cent of supplies on credit, days of supply sales outstanding increased from 6 to 40 as the age of receivables increased from less than 30 days to 120 days or more, (Table 11). On the other hand, among exchanges in which the age of receivables averaged from 60 to 120 days, the days of supply sales outstanding increased from 14 to 40 as the proportion of supply sales on credit increased from less than 20 per cent to 40 per cent or more.

TABLE 11.—RELATION OF DAYS OF SUPPLY SALES OUTSTANDING TO PERCENTAGE OF SUPPLY SALES ON CREDIT AND DAYS OF CREDIT SALES OUTSTANDING, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding	Percentage of Supply Sales on Credit		
	Less than 20	20 - 40	40 or more
	(Days of Supply Sales Outstanding)		
Less than 30	...	6.4	16.7
30 - 60	8.0*	14.6	25.7
60 - 120	13.5	24.4	40.2
120 - 240	14.8	39.6	70.5*
240 or more	27.0	...	...

*Less than 3 associations.

The number of associations in each group in Table 11 is given in Table 12.

TABLE 12.—NUMBER OF ASSOCIATIONS, BY PROPORTION OF SUPPLY SALES ON CREDIT AND BY DAYS OF CREDIT SALES OUTSTANDING, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding	Percentage of Supply Sales on Credit			All
	Less than 20	20 - 40	40 or more	
	(Number of Associations)			
Less than 30		3	4	7
30 - 60	2	16	6	24
60 - 120	10	12	6	28
120 - 240	11	8	2	21
240 or more	6	..	..	6
All	29	39	18	86*

*One association on a strictly cash basis is omitted.

VARIATIONS IN CREDIT POLICY AND AGE OF CREDIT

As pointed out earlier, the amount of credit which associations have outstanding depends on their volume of supply sales, their credit policies and their abilities to collect outstanding accounts and notes. Credit policy and ability to collect varied widely.

The amount of credit sales of the 87 exchanges totaled \$2,041,440 or \$23,465 per association. This amounted to 29 per cent of supply sales. Assuming that the supply sales of all exchanges in 1937

totalled as much as in 1935,⁷ when last estimated, and that the proportion of supply sales on credit was as high in all exchanges as in the 87 studied, the total amount of credit extended by all co-operatives in the state would have been nearly \$5,000,000. Thus they constituted an important source of short-term credit for Missouri farmers.

Among the 87 exchanges, however, the amount of credit sales varied from none to \$165,000 and the proportion of supply sales on credit ranged from none to 80 per cent. Thus some associations had extremely liberal credit policies whereas one association was on a strictly cash basis. There were also great differences between exchanges in their abilities to collect as indicated by the age of receivables outstanding. The average age of receivables was 69.5 days or nearly 10 weeks, but among the associations, this varied from 19.3 to 471 days, or more than 15 months.

Although most variations in credit and collection practices undoubtedly are due primarily to differences in policies established individually by associations without regard to their type, location or size of business, some differences might be expected to result from these latter conditions. For example, the larger associations are able to pay higher salaries to managers who are better trained in the extension and collection of credit. Or, in areas where farmers' incomes depend largely on products which are sold seasonally, the relative amount and term of credit obtained by them would be expected to be greater than if their incomes were from products sold throughout the entire year.

Effect of Amount of Supply Sales

The volume of supplies sold by an association apparently had little effect on its credit policy. Although the credit policy as indicated by the percentage of supply sales on credit varied appreciably among the various size groups of associations, the variations showed little or no relationship with changes in size, (Table 13). The age of receivables, however, did decline as supply sales increased, particularly among associations with \$30,000 or more of supply sales. Associations with \$30,000 to \$60,000 of supply sales in 1935 had 114 days of credit sales outstanding, compared with 52 days for exchanges with \$120,000 or more of such sales, (Table 13). Thus, the size of the supply business apparently had little effect on the amount of credit extended but the larger as-

⁷The sales of supplies by the 313 cooperative exchanges in Missouri were estimated at \$16,824,000 in 1935. *Farmers' Cooperative Marketing and Purchasing Associations in Missouri*, E. G. Schiffman and H. M. Haag, Mo. Agr. Exp. Sta. Bul. 389.

sociations evidently were more effective in collecting outstanding accounts to reduce the average age of receivables.

TABLE 13.—RELATION OF PROPORTION OF SUPPLY SALES ON CREDIT AND AVERAGE AGE OF RECEIVABLES TO VOLUME OF SUPPLY SALES, 87 ASSOCIATIONS, 1937.

Supply Sales in Thousands of Dollars		Number of Associations	Percentage of Supply Sales on Credit	Days of Credit Sales Outstanding
Range	Average			
Less than 30	20.9	17	26.7	91.4
30 - 60	42.1	19	20.9	113.9
60 - 90	72.1	22	33.0	79.8
90 - 120	103.3	13	27.5	72.2
120 or more	184.7	16	30.0	51.7
All	80.9	87	29.0	69.5

Effect of Location

The geographical location of exchanges had considerable influence both on the amount of credit extended and the average age of receivables. Associations in Southwest Missouri made less than one-fourth of their supply sales on credit whereas the 7 West Central associations sold 38 per cent of their supplies on time, (Table 14). The proportion of sales on credit was also relatively low in the South Central district. This variation in credit policy probably was due more to the differences in types of farming between the areas than to other influences. Farm income in the South Central and Southwestern sections of the state depends more on produce, such as poultry, eggs and cream, which provide a relatively steady income, whereas that in the East and West Central areas is derived chiefly from grains and meat animals which are marketed seasonally. Thus, farmers in the East and West Central districts would be expected to require relatively more credit than those in Southwest and South Central Missouri.

TABLE 14.—RELATION OF PROPORTION OF SUPPLY SALES ON CREDIT AND AVERAGE AGE OF RECEIVABLES TO DISTRICT, 86 ASSOCIATIONS, 1937.

Geographic District	Number of Associations	Supply Sales per Association	Percentage of Supply Sales on Credit	Days of Credit Sales Outstanding
Northeast	13	\$66,825	30.8	60.0
West Central	7	78,444	38.2	91.0
East Central	14	79,496	34.3	50.4
Southwest	33	96,218	24.7	74.1
South Central	19	69,574	29.8	73.1
All	86*	\$81,719	29.0	69.3

*One association in northwest Missouri is omitted.

The age of receivables averaged highest in the West Central district and next highest in the Southwestern and South Central sections of the state, (Table 14). Receivables held by exchanges in the East Central area had been outstanding the shortest average period.

Effect of Class of Farm Products Purchased

The kind of products which farmers sell to cooperative exchanges apparently did affect the credit policy and collection efficiency of their exchanges. The two principal classes of such products were produce, which includes eggs, poultry, cream, wool and similar products, and grains which was mainly wheat. Among the 86 associations, those whose purchases from farmer-patrons were chiefly produce extended relatively less credit but that extended was outstanding for a larger average period. For example, exchanges in which produce was 75 per cent or more of total purchases of farm products, sold only one-fourth of their supplies on credit but such credit sales were outstanding an average of 80 days, (Table 15). On the other hand, credit sales were 39 per cent of supply sales but were outstanding an average of only 53 days, in those associations in which less than one-half of their purchases from farmers was produce.

TABLE 15.—RELATION OF PROPORTION OF SUPPLY SALES ON CREDIT AND AGE OF RECEIVABLES TO THE PROPORTION WHICH PRODUCE WAS OF THE TOTAL AMOUNT OF FARM PRODUCTS BOUGHT, 86 ASSOCIATIONS, 1937.

Produce as Per Cent of Farm Products Bought	Number of Associations	Supply Sales per Association	Percentage of Supply Sales on Credit	Days of Credit Sales Outstanding
Less than 50	20	\$88,090	38.6	53.2
50 - 75	14	93,175	28.8	69.4
75 or more	52	75,652	25.0	80.1
All	86*	\$81,398	29.2	69.2

*One association on a strictly cash basis is omitted.

Effect of Type of Business

Differences in the proportion which supply sales were of the total sales of the 86 exchanges apparently had little effect on the proportion of supply sales on credit, (Table 16). The average age of receivables, however, tended to increase as the percentage which supply sales were of total sales increased.

TABLE 16.—RELATION OF PROPORTION OF SUPPLY SALES ON CREDIT AND AGE OF RECEIVABLES TO THE PROPORTION WHICH SUPPLY SALES WERE OF TOTAL SALES, 86 ASSOCIATIONS, 1937.

Supply Sales as Per Cent of Total	Number of Associations	Supply Sales per Association	Percentage of Supply Sales on Credit	Days of Credit Sales Outstanding
Less than 50	16	\$ 59,646	30.0	59.9
50 - 60	23	72,258	33.4	65.0
60 - 70	21	75,934	24.8	76.7
70 or more	26	107,279	28.8	71.6
All	86*	\$ 81,398	29.2	69.2

*One association on a strictly cash basis is omitted.

Classification of Credit and Collection Practices

Most of the variation in the relative amount of credit extended and in the age of receivables was due to individual practices not directly associated with size, location, type of business, and similar factors. An exact description of these individual practices was extremely difficult to obtain but the managers and other employees gave some information about such practices in answer to questions on the survey schedule. From these replies it was possible to classify the associations into seven different groups according to credit and collection practices. These groupings are: strict collection, interest on accounts, security requirement, limit on amount, limit on term, manager's judgment, and others. A brief discussion of each follows:

Strict collection:—The 12 associations in this group stressed the fact that a strong collection policy was highly important in the effective handling of credit. These associations followed such practices as personal visits to patrons not paying promptly, the use of directors to assist in collecting difficult accounts, the sending of collection letters regularly to all patrons owing accounts, and the acceptance of crops and livestock not ordinarily bought as payment on accounts. Not all these practices were followed by all exchanges in this group but each followed certain of these policies which tend to stress the collection of receivables.

Interest on accounts:—The charging of interest on old accounts, usually those over 30 days old, was practiced by 5 associations in 1937. This was a relatively new practice but was favorably regarded by those using it. The rate of interest charged was 8 per cent per year in each case.

Security requirement:—A small number of associations made attempts to obtain some form of security for a large part of the credit extended to patrons. The types of security required were chattel mortgages, crop liens, and notes. When secured by a chattel mortgage on livestock, the amount of credit extended generally was about 60% to 70% of the value of the livestock. The use of notes apparently has declined in recent years for the greater portion of notes on the records of associations at the end of 1937 were relatively old and of questionable value.

Limit on amount:—The managers of associations within this group reported that they had established a limit on the amount of credit that would be extended to certain individuals. The limit set depended largely upon the individual desiring credit, the amount desired, the term for which it was to be outstanding, and the finan-

cial condition of the association. This limit was not rigidly set and often was changed by the manager for various reasons.

Limit on term:—Seventeen associations reported a time limit as the important factor in their credit policy. The most common time limit was two weeks, especially among associations located in the southwestern part of the state. In this section the sale of dairy products is one of the principal sources of farmer's cash income. Since farmers are paid every 2 weeks for milk delivered to processing plants, the majority of associations tried to clear up their accounts every 2 weeks. This time limit was not always adhered to, for certain patrons often were not required to pay within the time limit set by an exchange.

Manager's judgment:—These associations had no limit on either the time or the amount of credit extended. Their credit policies were left to the judgment of their managers who attempted to estimate each credit patron's ability to pay for supplies bought on time. Fifteen associations, or 17 per cent of the total, were in this group.

Other:—The managers of the 19 associations included in this group reported that their exchanges had no definite credit or collection procedure. These associations apparently were extremely lax in the extension and collection of credit.

Although the above classification may not be as clearcut as desirable, it should at least provide a means of indicating the effect of certain practices on the extension and collection of credit.

Effect of Various Practices on the Extension and Collection of Credit

Certain of the above groups of practices apparently were effective in reducing the proportion of supplies sold on credit as well as the average age of accounts. Among the definite credit policies, the security requirement was most effective in reducing the proportion of sales made on credit probably because farmers dislike to give security for credit purchases, particularly if chattel mortgages and crop liens are required. The associations requiring security made only 25.5 per cent of their supply sales on credit, compared with an average of 29.2 per cent for all exchanges, (Table 17). The associations without a definite credit policy, however, extended the least credit, for their credit sales were only 22.2 per cent of supply sales. On the other hand, those 11 associations placing a limit on the amount of credit extended to each individual actually made more than the average percentage of supply sales on credit in 1937.

TABLE 17.—RELATION OF PROPORTION OF SUPPLY SALES ON CREDIT AND AGE OF RECEIVABLES TO VARIOUS CREDIT AND COLLECTION PRACTICES, 86 ASSOCIATIONS, 1937.

Credit or Collection Practices	Associations		Supply Sales per Association	Per Cent of Supply Sales on Credit	Days of Credit Sales Outstanding
	Number	Per Cent			
Strict collection	12	14.0	\$111,074	32.6	53.0
Interest on accounts	5	5.8	143,265	30.9	40.2
Security requirement	7	8.1	91,471	25.5	61.5
Limit on amount	11	12.8	75,856	35.5	56.5
Limit on term	17	19.8	78,283	29.7	77.4
Manager's judgment	15	17.4	60,455	28.1	74.4
Other	19	22.1	65,190	22.2	119.5
All	86*	100.0	\$ 81,398	29.2	69.2

*One association on a strictly cash basis is omitted.

The effect of these practices on the average age of receivables was much more pronounced, for the average age of accounts varied from 120 days, or 4 months, in associations without a definite credit procedure to 40 days in those charging interest on accounts, (Table (17)). Those groups of practices which should encourage collections, namely: strict collection, interest on accounts, and security requirement, each, resulted in a relatively low average number of days of credit sales outstanding. Age of receivables in associations having a limit on the amount of credit also was lower than the average for all associations. Exchanges in which the credit policy is left up to the managers' judgments and those having a limit on the term of credit had receivables whose average age was about the same as that of all associations. It is apparent from Table 17, however, that each of the groups of credit practices used by the 67 associations was successful in keeping the average age of receivables far below that of associations without definite credit procedures.

Seasonal Variation in Percentage of Supplies Sold on Credit

The proportion of supplies sold on credit showed considerable variation by months. For all exchanges, it was highest, 36.2 per cent, in January and lowest, 22.1 per cent, in August, (Table 18). The low and peak months, however, were not the same for all areas of the state, although the differences were not great. The proportion of supplies sold on credit was highest in October in the West Central and South Central areas and lowest in May in the East Central district, (Table 18). In general, the most credit in relation to sales was extended in the spring when needs for farm supplies are largest and farm incomes are relatively low and the least in the summer and fall when needs are smaller and incomes are larger.

TABLE 18.—PERCENTAGE OF SUPPLY SALES ON CREDIT, BY GEOGRAPHIC DISTRICT, 86 ASSOCIATIONS, 1937.

Month	Geographic District					
	Northeast	West Central	East Central	Southwest	South Central	All
Jan.	36.3	39.8	51.0	31.3	32.2	36.2
Feb.	32.7	36.1	30.6	23.4	32.3	28.1
Mar.	33.3	33.9	28.8	31.3	31.4	31.3
Apr.	35.1	35.0	32.1	23.1	27.8	27.9
May	31.8	31.3	26.6	21.8	27.6	25.6
June	32.2	36.9	35.1	24.1	29.3	28.8
July	21.5	43.1	31.2	19.5	28.5	25.6
Aug.	18.7	30.5	27.9	18.4	23.6	22.1
Sept.	30.0	41.7	47.1	24.4	27.8	30.1
Oct.	29.8	60.7	43.6	26.6	34.7	33.0
Nov.	34.6	44.5	31.3	22.6	30.2	28.3
Dec.	35.9	39.2	31.7	23.4	29.5	28.1
All	30.8	38.2	34.3	24.7	29.8	29.0

COSTS OF CREDIT SERVICE

For the 86^s exchanges providing credit service, the total cost of providing such service amounted to \$720 per association in 1937, or more than 3 cents per dollar of credit sales. Since the average age of receivables was 69.2 days, more than 2 months, an interest charge of 16 per cent per year for the term of the credit extended would have been necessary to pay the entire cost of the credit service.

Comparison with Other Studies

When compared with costs for similar organizations in other states, the average credit cost for Missouri cooperatives of 3 cents per dollar of credit sales was relatively low. The interest-equivalent,⁹ however, was highest in Missouri, being 16 per cent per year. In 1931-32, credit costs averaged 6 cents per dollar of credit sales in 311 retail stores operating in New York and 4 cents for the 62 feed stores included within the 311 stores, (Table 19). The average term of credit in these two groups of stores was 175 and 120 calendar days, respectively, making interest-equivalents of 12.5 and 12.1 per cent per year. A study of Southwestern Kansas cooperatives revealed credit costs of 5.4 cents per dollar of credit sales. Since the average age of receivables was 123.6 sales days, the interest-equivalent was 13.6 per cent. Most of the difference between the interest-equivalent in Missouri and that in the other studies may be due to the fact that the average term of credit extended by Missouri cooperatives was shorter than that of the others. As will be shown later, the interest-equivalent decreases as the average term of credit increases.

⁸One of the 87 associations was on a strictly cash basis.

⁹Interest-equivalent is the interest rate per year required to cover the cost of extending credit. It involves not only the cost of credit per dollar of credit sales but also the average term of the credit. If it costs 4 cents to extend credit for an average of 3 months, the interest equivalent is 16 per cent, for it would take 16 per cent interest on a dollar for three months to cover the cost of 4 cents.

TABLE 19.—COST OF CREDIT EXTENDED BY MERCHANDISING ORGANIZATIONS IN MISSOURI, KANSAS, AND NEW YORK.

State	Year of Study	Type of Store	Number	Average Term of Credit in Days ¹	Cost in Cents per Dollar of Credit Sales	Interest-equivalent ²
Missouri	1937	Cooperative	86	69.2	3.03	16.0
Kansas ³	....	Cooperative	51	123.6	5.38	13.6
New York ⁴	1931-1932	Feed	62	120.0	4.00	12.1
New York ⁴	1931-1932	All retail	311	175.0	6.00	12.5

¹Days of credit sales outstanding is used as average term of credit. Sales days were used for the Kansas study, and calendar days for the Missouri and New York studies as the basis for calculating this ratio.

²Interest-equivalent is the interest rate per year, for the term of the credit, required to cover the cost of credit.

³*Summary and conclusions of a study of retail credit in southwestern Kansas Cooperative Associations.* (Mimeographed) Summary of a thesis written by Glenn S. Fox, then of the Kansas State College of Agriculture. Date not given.

⁴*The Cost of Store Credit*, Orlo H. Maughan, Cornell University Extension Bulletin 349.

Classes of Expense

The total cost of credit included four classes of expense: interest on receivables outstanding, costs of accounting necessitated by the extension of credit, collection expenses, and losses from bad debts or uncollectible accounts and notes. Of the total cost, bad debts were one-half; interest was nearly one-third; and accounting, one-tenth, (Table 20). This distribution of costs differs significantly from those found for retail stores in New York in which interest amounted to 48 per cent of the total credit cost; bad debts, 18.6; accounting, 16.9; and collection, 16.5.¹⁰

TABLE 20.—CREDIT EXPENSE, 86 ASSOCIATIONS, 1937.

Class of Expense	Expense per Association	Per Cent of Total	Cents per Dollar of Credit Sales
Interest	\$225	31.3	.95
Accounting	78	10.9	.33
Collection	53	7.3	.22
Total, excluding bad debts	356	49.5	1.50
Bad debts	364	50.5	1.53
Total	\$720	100.0	3.03

Because the other items of credit expense do not appear separately as such on the operating statements of the exchanges, the directors and managers of these associations too often regard bad debt losses as their only expense in extending credit. For this reason, expense other than bad debts, which accounted for nearly one-half of the total, is shown as a separate total in Table 20. Associations with a relatively low bad debt loss still may have a relatively high credit cost per dollar of credit sales because considerable time is devoted to the extension and collection of accounts in order to hold down credit losses.

¹⁰*The Cost of Store Credit*, O. H. Maughan, Cornell University Extension Bulletin 349. April, 1936.

Interest

Interest at 5 per cent on the average amount of receivables outstanding during the year was included as a cost of providing credit service. Since receivables averaged \$4498, this charge was \$225 per association and amounted to nearly one cent per dollar of credit extended. When an exchange sells goods on credit, it is allowing its patrons to use funds which would otherwise be used to purchase a new stock of supplies for sale. Thus, it must obtain cash elsewhere, usually by borrowing, for replacing its inventory. Because most exchanges were obtaining some of their capital by borrowing, the amount of which could have been reduced if credit service had not been given, it seemed reasonable that the credit service should be charged for the capital it used. Since loans at 5 per cent interest or less can be obtained by most exchanges, this rate was used in determining the interest charge.

Credit Accounting Expense

The amount of accounting or record-keeping which an exchange requires is increased by the extension of credit to patrons, for individual credit sales and payments must be posted to each credit patron's account. Also books of record for this purpose must be obtained. Thus, credit service increases the expenditures for labor and accounting supplies. In 1937, employees of the 86 exchanges providing credit service spent an average of 265 hours, or 5 hours per week, on credit accounting. Since the average hourly wage was about 23 cents, the cost of accounting labor was \$61.18 per exchange, or 79 per cent of total credit accounting expense, (Table 21). The cost of accounting supplies averaged \$16.43 per association or 21 per cent of the total cost of credit accounting. Accounting labor averaged one-fourth of a cent per dollar of credit sales and total accounting, one-third of a cent.

TABLE 21.—EXPENSE FOR CREDIT ACCOUNTING, 86 ASSOCIATIONS, 1937.

Item	Expense per Association	Per Cent of Total	Cents per Dollar of Credit Sales
Labor	\$61.18	78.8	.26
Office Supplies	16.43	21.2	.07
Total	\$77.61	100.0	.33

Collection Expense

The 86 associations providing credit service also had considerable expense for labor, supplies, travel and legal aid in collecting accounts and notes. In 1937, the average amount of time of the manager and other employees devoted to collections was 100 hours

per exchange, or nearly 2 hours per week. At an average rate of nearly 26 cents per hour, this amounted to \$25.66 per exchange, or 48 per cent of the collection expense, (Table 22). The hourly rate for collections was higher than for accounting because managers, who receive higher salaries than bookkeepers, spent relatively more time in collecting accounts than in bookkeeping. Postage, stationery and other supplies used in collecting outstanding receivables amounted to 25 per cent of total collection expense; travel of the manager and employees in collecting accounts and notes, 12 per cent; and payments to attorneys and collection agencies for aid in collecting notes and accounts, 15 per cent. Travel in the

TABLE 22.—COLLECTION EXPENSE, 86 ASSOCIATIONS, 1937.

Item	Expense per Association	Per Cent of Total	Cents per Dollar of Credit Sales
Labor	\$25.66	48.4	.11
Office Supplies	13.12	24.7	.05
Travel	6.25	11.8	.03
Legal service	7.99	15.1	.03
Total	\$53.02	100.0	.22

collection of accounts averaged more than 200 miles at 3 cents per mile in 1937.

Bad Debts

Considerable difficulty was experienced in arriving at a representative figure for bad debts, despite the fact that bad debt losses appeared on the accounting records of the exchanges, because there was such a wide variation in the practices of associations with reference to charging off old accounts and to setting up allowances for bad debts. For that reason, the net amount of recorded losses and recoveries on accounts charged off for any one year would not have been representative of average conditions for many exchanges. Consequently, it was decided to use average losses for the last 10 years as the estimate of bad debts for this study. It is recognized that if the credit and collection practices in 1937 were significantly different from those of the previous 9 years, the 10-year average would not be representative of 1937 losses, but few exchanges indicated any significant change in such practices in recent years. Because of this possibility, however, bad debts will be shown as a separate item of cost in all analyses of costs in this study.

Bad debt losses of the 86 exchanges averaged \$364 per association or more than one-half of total credit costs. Such losses were equal to 1.5 cents per dollar of credit sales in 1937. During the 10 years, 1928-1937, these exchanges lost more than \$300,000, or \$30,000 per year, in uncollectible accounts and notes.

VARIATIONS IN CREDIT EXPENSE

The total cost of the credit service per dollar of credit sales varied from 0.9 cents to 34.5 cents among the 86 associations providing such service. It was less than 2 cents in 22 per cent of the associations and less than 3 cents in 43 per cent of them, (Table 23). On the other hand, 4 associations had costs in excess of 20 per cent of credit sales. The close interrelationship between amount of credit sales and credit expense, previously mentioned, is also apparent in Table 23.

TABLE 23.—NUMBER OF ASSOCIATIONS, BY CREDIT EXPENSE PER DOLLAR OF CREDIT SALES, 86 ASSOCIATIONS, 1937.

Credit Expense in Cents Per Dollar of Credit Sales Range	Average	Supply Sales per Association	Credit Sales per Association	Associations	
				Number	Per Cent
Less than 2	1.36	\$132,348	\$49,434	19	22.1
2 - 3	2.39	101,362	33,882	18	20.9
3 - 5	3.85	59,267	16,598	14	16.3
5 - 7	5.62	49,302	11,012	10	11.6
7 - 10	8.69	48,488	7,686	11	12.8
10 - 20	13.35	40,566	3,993	10	11.6
20 or more	26.53	99,813	6,337	4	4.7
All	3.03	\$ 81,398	\$23,738	86	100.0

Effect of Volume and Age of Credit

Most differences in the cost of credit service were explained by two factors, the amount of credit sales and the period of time the receivables were permitted to remain outstanding. Credit expense per dollar of credit sales increased as the age of receivables increased but declined as the volume of credit sales increased. For example, among associations with less than \$10,000 of credit sales in 1937, credit expense increased from 4.1 to 19.2 cents per dollar of credit sales as the age of receivables increased from less than 60 days to 240 days or more, (Table 24). On the other hand, among associations whose receivables averaged between 30 and 60 days in age, credit expense declined from 4.1 to 1.6 cents per dollar of credit expense as the amount of credit sales per association increased from less than \$10,000 to \$30,000 or more, (Table 24).

TABLE 24.—RELATION OF TOTAL CREDIT EXPENSE PER DOLLAR OF CREDIT SALES TO VOLUME OF CREDIT SALES AND AGE OF RECEIVABLES, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding	Credit Sales in Thousands of Dollars		
	Less than 10	10 - 30	30 or more
	(Total credit expense in cents per dollar of credit sales)		
Less than 30	...	1	1.29
30 - 60	4.09	2.52	1.60
60 - 120	7.91	3.68	2.88
120 - 240	9.83	5.87	1
240 or more	19.18	1	...

¹One association only.

The above complex classification of associations was necessary because of the strong interrelationship between the volume of credit sales and the age of receivables. If the associations had been classified simply by age of credit, the true relationship between age of credit and credit expense would not have been revealed, because the average amount of credit sales, which also affects costs, declined as the age of credit increased. This fact is disclosed in the distribution of associations in Table 25.

TABLE 25.—NUMBER OF ASSOCIATIONS, BY VOLUME OF CREDIT SALES AND AGE OF RECEIVABLES, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding	Credit Sales in Thousands of Dollars			All
	Less than 10	10 - 30	30 or more	
	(Number of Associations)			
Less than 30	..	1	6	7
30 - 60	3	10	11	24
60 - 120	9	12	7	28
120 - 240	14	6	1	21
240 or more	5	1	..	6
All	31	30	25	86*

*One association on a strictly cash basis is omitted.

In order to point out those classes of expense which are responsible for the above variations in total expense, the analysis was extended to each class of credit expense.

Losses from bad debts:—Losses from bad debts relative to credit sales, increased sharply as the age of receivables increased. Among associations with less than \$10,000 of credit sales, losses rose from 2.6 to 12.2 cents per dollar of credit sales as the days of credit sales outstanding were increased from less than 60 to 120 or more, (Table 26). This was to be expected because a high average age of receivables indicates a lax collection policy and perhaps poor judgment in granting credit, both of which are likely to result in a large percentage of uncollectible accounts.

Losses per dollar of credit sales also declined as the volume of credit sales increased. Among associations in which the average age of receivables was between 30 and 60 days, the losses dropped from 2.6 to 0.6 cents as the volumes of credit sales increased from less than \$10,000 to \$30,000 or more, (Table 26). This probably

TABLE 26.—RELATION OF BAD DEBT LOSSES PER DOLLAR OF CREDIT SALES TO VOLUME OF CREDIT SALES AND AGE OF RECEIVABLES, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding	Credit Sales in Thousands of Dollars			
	Less than 10	10 - 30	30 or more	
	(Bad debt losses in cents per dollar of credit sales)			
Less than 30	...	1		.45
30 - 60	2.59	1.33		.62
60 - 120	4.91	1.66		1.52
120 - 240	5.68	3.15		1
240 or more	12.16	1		...

¹One association only.

was due to the fact that the larger associations, which extend the larger volumes of credit, have more experienced managers who give greater attention to the extension and collection of credit.

Interest Expense:—As a result of the method of calculating the interest charge for credit service, interest expense per dollar of credit sales increased only with the age of receiveables, (Table 27). The small variation in interest expense between groups of associations within the same range of days of credit sales outstanding, but having different volumes of credit sales, was due to the fact that the average age of receivables was not exactly the same within each such age group.

TABLE 27.—RELATION OF INTEREST EXPENSE PER DOLLAR OF CREDIT SALES TO VOLUME OF CREDIT SALES AND AGE OF RECEIVABLES, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding	Credit Sales in Thousands of Dollars		
	Less than 10	10 - 30	30 or more
	(Interest expense in cents per dollar of credit sales)		
Less than 30	...	¹	.35
30 - 60	.64	.70	.64
60 - 120	1.42	1.25	1.03
120 - 240	2.47	2.01	¹
240 or more	4.01	¹	...

¹One association only.

Accounting Expense:—Accounting expense per dollar of credit sales declined appreciably as the volume of credit sales increased, (Table 28). This relationship was to be expected because less time per account is required to keep records on a large number of accounts than on a smaller number. Among the exchanges with less than \$10,000 of credit sales, expense for accounting per dollar of credit sales increased as the age of receivables increased but no relationship between cost and age was apparent in associations with larger amounts of credit sales.

TABLE 28.—RELATION OF ACCOUNTING EXPENSE PER DOLLAR OF CREDIT SALES TO VOLUME OF CREDIT SALES AND AGE OF RECEIVABLES, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding	Credit Sales in Thousands of Dollars		
	Less than 10	10 - 30	30 or more
	(Accounting expense in cents per dollar of credit sales)		
Less than 30	...	¹	.24
30 - 60	.53	.29	.18
60 - 120	1.00	.50	.19
120 - 240	1.16	.41	¹
240 or more	2.08	¹	...

¹One association only.

Collection Expense:—The expense of collecting accounts per dollar of credit extended declined as the amount of credit sales increased,

(Table 29). There appeared, however, to be little relationship between collection expense per dollar of credit sales and age of receivables, except in associations with a small volume of credit sales.

TABLE 29.—RELATION OF COLLECTION EXPENSE PER DOLLAR OF CREDIT SALES TO VOLUME OF CREDIT SALES AND AGE OF RECEIVABLES, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding	Credit Sales in Thousands of Dollars		
	Less than 10	10 - 30	30 or more
	(Collection expense in cents per dollar of credit sales)		
Less than 30	..	¹	.24
30 - 60	.32	.19	.16
60 - 120	.57	.28	.14
120 - 240	.52	.30	¹
240 or more	.93	¹	...

¹One association only.

Summary of Effects of Volume and Age of Credit on Credit Expense.—From the above analysis, it is apparent that total credit expense per dollar of credit sales increased with the age of receivables in the cooperative exchanges studied, because bad debt losses and interest expense logically increased as receivables became older. Thus it can be concluded that any policy or practice of an association, such as a strict collection policy, which reduces the average age of receivables, will be instrumental in reducing credit expense per dollar of credit sales.

Also, credit expense per dollar of credit sales declined as the volume of credit sales increased. When expressed in cents per dollar of credit sales, bad debt losses, accounting expense, and collection costs, each, declined as credit sales increased. Since the reduction in the accounting and collection expense was not large and since the decline of bad debt losses probably was due to the greater attention given the credit problem in associations with large credit sales, it is doubtful whether any exchange can reduce its credit expense per dollar of credit sales greatly by increasing its volume of such sales, especially if this means a substantial increase in the proportion of supply sales on credit. What this relationship really means is that the large associations which extended a large volume of credit without making an unduly large proportion of sales on credit had a lower credit expense per dollar of credit sales than the smaller associations making a similar proportion of sales on credit.

The associations with largest volumes of credit sales did attain those volumes by a more liberal extension of credit as well as from the size of their supply businesses. Exchanges with \$50,000 of credit sales sold more than five times as many supplies as those with less than \$5,000 of credit sales, but they also made 41 per

cent on their supply sales on credit, compared with only 9 per cent in the associations extending the smallest amounts of credit, (Table 30). The percentage of supply sales on credit, however, was not unduly large, even in the associations with large credit sales.

TABLE 30.—RELATION OF SUPPLY SALES AND PERCENTAGE OF SUPPLY SALES ON CREDIT TO VOLUME OF CREDIT SALES, 86 ASSOCIATIONS, 1937.

Credit Sales		Number of Associations	Supply Sales per Association	Percentage of Supply Sales on Credit
Range	Average			
Less than \$5,000	\$ 3,163	19	\$ 35,394	8.9
\$ 5,000 - 10,000	6,926	12	50,638	13.7
10,000 - 20,000	14,040	17	55,602	25.3
20,000 - 30,000	23,657	13	98,149	24.1
30,000 - 40,000	35,283	10	99,636	35.4
40,000 - 50,000	46,732	6	126,390	37.0
50,000 or more	79,864	9	193,798	41.2
All	\$23,738	86	\$ 81,398	29.2

Percentage of Supplies on Credit

It might be expected that among associations with a similar volume of credit sales, those which obtained that volume by making a large proportion of their supply sales on credit would have higher costs, particularly from bad debts, than those selling a smaller proportion of supplies on credit. Such a relationship, however, was not revealed by an analysis of these associations, probably because very few associations were making a very large proportion of their sales on credit. As shown earlier, (Table 9), only 9 associations sold more than one-half of their supplies on credit.

Importance of Bad Debts and Interest in Causing High Credit Expense

An analysis of the distribution of total credit cost among the various classes of expense reveals that, among the associations having high credit expense per dollar of credit sales, bad debt losses and interest expense made up a very high proportion of the total cost. Among associations having a credit expense of less than 2 cents per dollar of credit extended, losses from bad debts amounted to only 36.8 per cent of total expense, whereas they were 72 per cent in the associations with highest costs in relation to credit sales, (Table 31). Although the relative importance of interest as a credit expense declined as the total credit expense per dollar of credit sales increased, interest expense per dollar of credit sales was 10 times as much in the high-cost associations as in the low-cost ones. On the other hand, accounting and collection costs

TABLE 31.—RELATION OF BAD DEBT LOSSES AND INTEREST EXPENSE AS PER CENT OF TOTAL CREDIT EXPENSE TO CREDIT EXPENSE PER DOLLAR OF SALES, 86 ASSOCIATIONS, 1937.

Credit Expense in Cents per Dollar of Credit Sales	Number of Associations	Credit Expense in Cents per Dollar of Credit Sales				As Per Cent of Total Expense	
		Total	Bad Debts	Interest Expense	Other Expense	Bad Debts	Interest Expense
Less than 2	19	1.36	.50	.53	.33	36.8	39.0
2 - 3	18	2.39	1.04	.84	.51	43.5	35.1
3 - 5	14	3.85	1.78	1.41	.66	46.2	36.6
5 - 7	10	5.62	2.95	1.77	.90	52.5	31.5
7 - 10	11	8.69	5.25	1.90	1.54	60.4	21.9
10 - 20	10	13.35	9.02	2.80	1.53	67.6	21.0
20 or more	4	26.53	19.11	5.12	2.30	72.0	19.3
All	86	3.03	1.53	.95	.55	50.5	31.3

were 2.3 cents per dollar of credit sales in associations with highest credit costs, compared with one-third cent in the low-cost associations. Thus accounting and collections costs were responsible for little of the increase in credit costs. The fact that bad debts and interest expense make up a much larger proportion of credit costs in associations with high costs stresses the importance of a strong collection policy which would reduce the age of receivables and, hence, bad debt losses and interest expense.

Summary on Variations in Credit Expense

In the preceding sections of this publication, it has been pointed out that the extension of credit to patrons is, on the average, expensive but that this cost varied widely among the associations. The variations in total credit expense were largely due to variations in bad debt losses and interest expense which resulted from differences in the age of receivables. According to this study, the associations with high costs of providing credit service were those which had been inefficient in the collection of accounts and notes rather than those which had extended a large amount of credit to patrons. It is apparent, then, that associations wishing to hold credit expense to the minimum should adopt policies and practices which facilitate the collection of credit outstanding. Among such practices are the requirement of credit statements from credit patrons to substantiate their verbally-expressed ability to pay their bills, the use of notes and chattel mortgages to secure credit accounts, the active follow-up of accounts with periodic statements and visits, the use of directors to collect old bills in their communities, the setting of limits on the amount of credit which each patron may obtain, the requirement that each bill must

be cleared up within a certain time limit, and above all the careful selection of patrons who may be considered satisfactory credit risks.

METHODS OF CHARGING FOR THE CREDIT SERVICE

In nearly all 86 associations providing credit service, the cost of this service was spread over the business done with patrons who paid cash for their supplies as well as that done with patrons who charged part or all of their purchases. Credit expense in these exchanges was regarded as a part of the total cost of doing business to be met by the margins taken on all products and supplies, which were the same for both cash and credit business.

Credit Expense per Dollar of Total Sales

When credit expense for 1937 was spread over the total sales of all associations, it amounted to slightly more than one-half cent per dollar of sales, because credit sales were only 17.8 per cent of the total volume of business. Thus on the average, one-half cent of the average margin taken by the 86 exchanges was required to cover the cost of the credit service. By associations, this varied from 0.1 to 2.1 cents. The required margin was less than 0.2 cent in two associations and less than 0.6 cent in more than one-half of them, (Table 32). On the other hand, it was one cent or more in 15 exchanges.

TABLE 32.—NUMBER OF ASSOCIATIONS, BY CREDIT EXPENSE PER DOLLAR OF ALL SALES, 86 ASSOCIATIONS, 1937.

Credit Expense in Cents per Dollar of All Sales	Associations	
	Number	Per Cent
Less than 0.2	2	2.3
.2 - .4	17	19.8
.4 - .6	25	29.1
.6 - .8	18	20.9
.8 - 1.0	9	10.5
1.0 - 1.2	5	5.8
1.2 - 1.4	4	4.6
1.4 or more	6	7.0
All	86	100.0

It should also be pointed out that when credit expense is spread over all sales, the margins necessary to cover this cost did not reveal the wide variation among associations in credit cost relative to the amount of credit extended. For example, in the 4 associations with highest credit expense per dollar of credit sales, the margin on all sales necessary to cover credit expense was only 1.2 cents compared with one-third of a cent in those 19 associations with lowest credit expense, (Table 33). Thus, by spreading credit costs

TABLE 33.—RELATION OF CREDIT EXPENSE PER DOLLAR OF ALL SALES TO CREDIT EXPENSE PER DOLLAR OF CREDIT SALES, 86 ASSOCIATIONS, 1937.

Credit Expense in Cents per Dollar of Credit Sales	Number of Associations	Credit Expense in Cents per Dollar of All Sales		
		Bad Debts	Other	Total
Less than 2	19	.12	.11	.33
2 - 3	18	.21	.27	.48
3 - 5	14	.30	.36	.66
5 - 7	10	.40	.36	.76
7 - 10	11	.41	.27	.68
10 - 20	10	.51	.24	.75
20 or more	4	.86	.33	1.19
All	86	.27	.27	.54

over all sales, the relative efficiency or inefficiency of associations in handling credit is not likely to be apparent to the managements of the exchanges because costs of doing business are affected by many other influences.

Credit Expense per Dollar of Supply Sales

It is likely, however, that the cost of the credit service is borne by an increased margin on supply sales rather than on total sales. The exchanges must compete with specialized buyers of eggs, poultry, cream and other farm products, whose expenses do not include a similar credit expense. Private dealers in farm supplies, however, do provide a credit service and, thence, attempt to maintain a margin sufficient to cover the cost of such service. Thus, it is likely that the credit expense of the cooperative exchanges has been met by an increase in the margins taken on farm supplies rather than by a general increase on margins on all sales.

Credit expense amounted to 0.88 cents per dollar of supply sales in 1937. Thus if supply sales were bearing the cost of the credit service, seven-eighths of a cent of the average margin on supply sales was required to meet this expense. Among associations, this varied from 0.3 to 3.9 cents. The required margin was less than one-half cent in 15 associations, and less than one cent in nearly one-half of them, (Table 34). It was more than 2 cents in only 8 exchanges.

TABLE 34.—NUMBER OF ASSOCIATIONS, BY CREDIT EXPENSE PER DOLLAR OF SUPPLY SALES, 86 ASSOCIATIONS, 1937.

Credit Expense in Cents per Dollar of Supply Sales	Associations	
	Number	Per Cent
Less than .50	15	17.4
.50 to .75	13	15.1
.75 to 1.00	14	16.3
1.00 to 1.50	24	27.9
1.50 to 2.00	12	14.0
2.00 or more	8	9.3
All	86	100.0

Even if the cost of credit expense were distributed over supply sales only, the margin required on such sales to cover credit cost would not disclose the great differences among associations in credit expense per dollar of credit sales. The necessary margin on supply sales in the 4 associations with highest credit expense in relation to credit sales was only 1.7 cents, compared with one-half cent for those 19 associations with lowest relative costs, (Table 35). Associations, therefore, are not likely to become aware of their high cost of handling credit if this cost is spread over supply sales, because the average cost of doing business is influenced by many factors other than credit costs.

TABLE 35.—RELATION OF CREDIT EXPENSE PER DOLLAR OF SUPPLY SALES TO CREDIT EXPENSE PER DOLLAR OF CREDIT SALES, 86 ASSOCIATIONS, 1937.

Credit Expense in Cents per Dollar of Credit Sales	Number of Associations	Credit Expense in Cents per Dollar of Supply Sales		
		Bad Debts	Other	Total
Less than 2	19	.19	.32	.51
2 - 3	18	.35	.45	.80
3 - 5	14	.50	.58	1.08
5 - 7	10	.66	.59	1.25
7 - 10	11	.83	.55	1.38
10 - 20	10	.89	.42	1.31
20 or more	4	1.21	.47	1.68
All	86	.45	.43	.88

Means of Charging Credit Patrons for the Credit Service

Since the credit extended to patrons is a special service for which they would have to pay, if obtained from the specialized credit institutions, the exchanges should charge the cost of this service to the patrons who use it. There are three ways in which this may be done, namely: by charging interest on receivables, by making a flat charge for credit, or by giving a discount on cash purchases.

Interest on receivables:—As stated earlier, five associations in 1937 were charging interest at 8 per cent on accounts after they reached a certain age, usually one month. Although this rate will shift some of the credit expense to the patrons using credit, it is not sufficient to cover the total expense for most associations. If an interest rate sufficient to cover the entire credit cost had been charged by associations in 1937, it would have averaged 16 per cent per year. Among the groups of exchanges classified according to their volume of credit sales and their average age of receivables, the interest rate required to cover costs would have averaged from 12.5 to 31.7 per cent, (Table 36). Although this interest-equivalent had the advantage of being much less variable among

TABLE 36.—RELATION OF INTEREST-EQUIVALENT TO VOLUME OF CREDIT SALES AND AGE OF RECEIVABLES, 86 ASSOCIATIONS, 1937.

Days of Credit Sales Outstanding	Credit Sales in Thousands of Dollars		
	Less than 10	10 - 30	30 or more
		(Interest-equivalent ¹)	
Less than 30		²	18.3
30 - 60	31.7	17.9	12.5
60 - 120	27.9	14.7	14.0
120 - 240	19.9	14.6 ²	²
240 or more	23.9		...

¹Interest-equivalent is the interest rate per year for the term of the credit which would be required to cover the credit expense.

²One association only.

associations than credit expense per dollar of sales, it is too high to be of practical use. No association could charge as much as 12 per cent interest on accounts and retain the good will of its credit patrons. Thus, the charging of interest on receivables sufficient to pay the cost of the credit service seems impracticable.

The principal advantages of this practice are that the charge for credit varies with the length of time it is outstanding and that the credit patron is made aware of the fact that he is paying for the credit service he receives. The interest charge, however, is more difficult to calculate and apply than the flat charge or the cash discount.

Flat charge on credit sales:—Although no exchange was doing so in 1937, an association could make credit patrons pay for credit service by charging a flat percentage on credit sales equal to its credit expense per dollar of such sales. In 1937, an association with average costs of 3 cents per dollar of credit sales could have added 3 per cent to the amount of each credit sale to pay for this service. Among associations, such a charge would have varied from less than 1 per cent in one association to more than 20 per cent in 4 exchanges, (Table 31). The advantages of the flat charge are its ease of calculation and application as contrasted to the interest charge and the fact that it makes credit patrons aware that they are paying for a credit service. It, however, does not vary with the age of the account unless an additional percentage is added after an account reaches a certain age. Thus, patrons obtaining credit for a short period would be paying a relatively higher charge for credit than those who let their accounts run for longer periods.

Discount on cash sales:—A common practice among business organizations is to give a discount on cash purchases. If the discount is approximately equal to the cost of credit service per dollar of credit sales, credit expense in these organizations is shifted to the customer who uses this service. If the cooperative exchanges

who are now spreading credit expense over total sales or supply sales were to put this practice into effect, it would be necessary for them to raise their average mark-up on supply sales in order to obtain their present average margin after cash discounts were deducted. For example, an association whose supply sales totaled \$100,000 of which \$30,000 were on credit, whose average margin on supplies was 8 per cent and whose credit expense was \$900 or 3 cents per dollar of sales, would have to raise its present mark-up from an average of 8.7 per cent on all supply sales to 11.0 per cent on credit sales of supplies. Thus, the average mark-up on cash sales would be only 7.7 per cent. For this association, the average margin on credit sales of supplies under this practice, then, would be 9.9 per cent and on cash sales, 7.1 per cent, instead of the previous 8 per cent. The advantage of cash discounts is their ease of calculation and application.

CONCLUSIONS

In view of the relative high cost of the credit service provided by Missouri exchanges compared with that of credit available from specialized credit institutions, it seems that the exchanges should make a determined effort to divorce themselves from the credit service. Before such a policy can be adopted, however, the boards of directors and patrons of these associations will have to be convinced that the credit service is expensive to the exchange and, under present methods of paying for the credit service, expensive to the patrons who pay cash or pay their accounts promptly.

If the credit service is not discontinued, those associations providing the service should instigate policies which will reduce the credit expense and adopt some means of charging credit patrons for the cost of the service. Some policies which will reduce credit expense are strict collection practices, use of chattel mortgages and crop liens to secure credit extended, and increased assistance of members of the board of directors in collecting accounts.

Any of the three means of shifting the cost to the credit service to patrons, mentioned above (pages 32 to 34) might be used, but the flat charge for credit seems to have more advantages and fewer disadvantages than the others.

SUMMARY

Receivables in cooperative exchanges represent the amount of credit extended to patrons. The average amount of receivables outstanding during 1937 in the 87 exchanges studied was \$4470,

of which 11 per cent was notes and 89 per cent was accounts. These receivables averaged 23 per cent of the average total assets and 34 per cent of the average net worth of the 87 exchanges.

Receivables were seasonally largest in the spring and smallest at the end of the year.

The amount of receivables outstanding increased as the exchanges became larger in size but the proportion of supply sales outstanding, as measured by "days of supply sales outstanding," was smallest in the largest associations.

Variations among associations in the amount of credit outstanding were due largely to differences in the relative amount of credit extended and to differences in the effectiveness of collection practices. As a result, credit outstanding was more closely related to individual credit policies and collection practices of associations than to such external influences as size of association, geographic location, and type of business.

Associations with definite credit policies had relatively less credit outstanding than those apparently without definite policies regarding the extension and collection of credit.

The average cost of extending credit to patrons was 3 cents per dollar of sales on credit. Since the average term of the credit outstanding was 69 days, it would have been necessary to charge 16 per cent interest on receivables to defray this cost.

Of the total credit cost, one-half was losses from bad debts and one-third was interest. Accounting and collection expenses made up the other one-sixth.

Variations in the amount of credit sales and the period of time receivables were outstanding accounted for most of the differences among associations in credit expense per dollar of credit sales.

As the age of credit increased, the proportion of credit expense represented by bad debts increased sharply.

Although not a common practice, exchanges may make credit patrons pay for the credit service by any one of three methods, namely: by charging interest on receivables outstanding, by making a flat charge on credit sales or by giving a discount on cash sales. The flat charge for credit probably is most practicable.

Since few exchanges were making a charge for the credit service, credit expense was being paid from the margins taken on all sales or from those taken on supply sales. Credit expense amounted to one-half of a cent per dollar of all sales and seven-eighths of a cent per dollar of supply sales. It is probable that the credit expense was actually paid from margins taken on supply sales.