

ECONOMIC STUDY OF THE ORGANISATION,
FINANCE AND OPERATIONS OF
FARMERS' BUSINESS CO-OPERATIVES
IN VERMONT

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AN ECONOMIC STUDY OF THE ORGANIZATION, FINANCE AND OPERATIONS OF FARMERS' BUSINESS COOPERATIVES IN VERMONT

1796.

By H. C. GRINNELL



(In cooperation with the Federal Farm Board)

Vermont commercial cooperative organizations, engaged primarily in marketing dairy products, have been actively at work from about 1875 to date. Approximately 130 farmer-owned butter and cheese factories were in operation in 1905, nearly all of which have now disappeared. Since statutory definition of cooperatives in 1915, 36 local dairy marketing, two maple marketing, and six purchasing associations have been organized. There were 22 cooperative creameries and four purchasing associations in 1929.

Although the number of dairy cooperatives has declined since 1922 their business has increased. The 1929 sales of 21 associations operating plants averaged \$530,000, their assets \$135,000 and their stockholders' equities \$77,000. They received approximately 30 percent of the deliveries to all Vermont plants. Their patrons, 90 percent of whom were stockholders, numbered 5,547. Eighty percent of their receipts was in the form of milk and 20 percent in cream; 55 percent was shipped as milk, 32 percent as cream and 13 percent as butter and other manufactured products.

The sales made by the purchasing associations averaged \$248,000, their investment \$28,000 and their operating costs 4.3 cents per dollar of sales. They served 2,240 farmers, 46 percent of whom were stockholders. Their unit operating costs were inversely related to sales volume.

The operating costs of the cooperative creameries averaged 13.6 cents per dollar of sales and 43 cents per hundredweight of milk. These costs at butter factories were lower than at milk shipping stations, but their net sales per hundredweight and the prices they paid patrons were likewise lower. Among 14 associations which shipped milk in bulk to metropolitan markets those which shipped a large proportion in fluid form operated at a relatively low unit cost. The costs of the large associations were higher than those of the relatively small ones, their failure to operate economically apparently being due to the fact that they carried more than their proportionate share of surplus and to the extension of their operations over wide areas.

Average selling prices and prices paid patrons depended largely on the percentage of the total product which was sold as fluid, although the large associations sold to better advantage than the smaller ones which carried the same percentage of surplus.

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BULLETIN 346: AN ECONOMIC STUDY OF THE ORGANIZATION, FINANCE, AND OPERATIONS OF FARMERS' BUSINESS COOPERATIVES IN VERMONT

By H. C. GRINNELL

CONTENTS

Purpose	
Scope and method.....	
Development of farmers' organized business associations	-18
Dairy marketing associations.....	7
Out-of-state cooperatives operating in Vermont.....	14
Maple products marketing associations.....	16
Purchasing associations.....	17
Other farmer-owned corporations.....	18
Status of agricultural cooperation, 1929.....	18-27
Volume and type of business in 1929.....	20-27
Dairy marketing associations.....	20
Purchasing associations.....	27
Legal and economic aspects of organization.....	27-43
Capital structure.....	27
Purposes of organization.....	28
Cooperative features.....	30
Membership relations.....	32
Personnel and management.....	35
Business policies.....	39
Balance sheet items.....	43-55
Purchasing associations.....	43
Dairy marketing associations.....	46
Operating items.....	55-57
Purchasing associations.....	55
Dairy marketing associations.....	56
Current tendencies among Vermont cooperatives.....	57-71
Purchasing associations.....	57
Dairy marketing associations.....	59
Factors affecting service to member-patrons.....	71-90
Purchasing associations.....	71
Dairy marketing associations.....	72
Summary	91-95
Appendixes A-D	97-103
A. Adjustment of auditors' statements.....	97
B. Chapter 210, General Laws, Sec. 4897 (Vermont).....	98
C. "Capper-Volstead Act" (Federal).....	98
D. Tables 1-7.....	100

¹ Former Acting Agricultural Economist.

The study, the results of which are embodied in this bulletin, was initiated at the instance of the Federal Farm Board which allotted a considerable sum to the Northeastern Experiment Stations for the fiscal year 1930-1931 wherewith to inquire into the workings of the several agricultural cooperative enterprises extant in their respective states.

Realizing that the proper conduct of such a task in Vermont would involve an expenditure much in excess of the allotment made by the Farm Board and that such a study had important bearings upon the well-being of Vermont agriculture, a so-called Purnell project was set up and approved and station funds set apart and used as a supplement to the original federal allotment.

The data were collected and collated and the original manuscript prepared by Mr. H. C. Grinnell, the author of the bulletin. Mr. J. A. Hitchcock, Associate Station Agricultural Economist from 1925 to 1930 and Station Agricultural Economist since July 1, 1931, spent much time from June to October, 1932, on this project and had much to do with the latter stages of the preparation of the manuscript for publication.

The Station is under many obligations to the officers and managers of the several cooperative associations and stock companies which courteously opened their records to Mr. Grinnell's inspection. It is also indebted to Hon. Edward H. Jones, State Commissioner of Agriculture, and to Mr. H. E. Bremer, State Supervisor of Creamery Inspection, who similarly gave him free access to the multitudinous records in their offices.

J. L. HILLS, Director.

PURPOSE

As a business man the farmer is interested not only in efficient farm production but also in the purchase of supplies at minimum cost and in an effective marketing procedure. Until recently the production phases of agriculture have been mainly stressed and the farmer has devoted most of his attention to them. However, efficient buying and selling through farmer-owned organizations are now eliciting increased interest. These agencies are rapidly growing in importance. In the earlier years the "cooperatives" were organized as local or community affairs. Many such still exist and some are still being organized. Many have failed and some have merged with or been sold to others of a similar type. These mergers have frequently led to the formation of federations, regional rather than local in their scope, and great central cooperatives have been organized, some of them colossal enough to be termed "super-cooperatives." Nevertheless many scattered local cooperatives are still functioning. The development of large marketing organizations both in the cooperative and proprietary fields inevitably raises a question as to their effectiveness in the present-day scheme of efficient marketing and buying. The question thus raised has not sole application to Vermont nor to New England as a unit, nor, indeed, to the nation. The development of large marketing organiza-

tions dealing with all sorts of agricultural products, some stable, some perishable, some narrowly consumed, some sold in world markets, is a world-wide phenomenon and the problems pertaining thereto are constantly changing in kaleidoscopic fashion.

The measure of the success of any cooperative is its ability to increase the farm income of its members. To be successful it should be properly organized, soundly financed and efficiently managed. An examination of the situation in Vermont with respect to these three aspects of cooperation forms the major portion of this bulletin. The analysis of the data aims to exhibit the present status of these locals, to show in what direction they are moving and to point out the sources of their strength and weaknesses, all to the end that they may be enabled to render more effective service to their farmer-owners.

SCOPE AND METHOD

During the summer of 1930, visits were made to the offices of all Vermont farmers' business organizations operating on any form of a cooperative basis, in so far as their existence was on record in state offices. Cooperatives of a non-business type were not included. Information pertaining to their organization, finance and operations was obtained. The data included detailed balance sheets and operating statements for as many years as could readily be secured from available auditors' statements, account books, secretaries' books, income tax reports and such other records as were pertinent to the business. Copies were made of the by-laws and certificates of incorporation of each organization. Additional information supplementary to the current balance sheets was obtained and questionnaires completed covering volume and type of business, organization and set-up, membership, labor and other similar data. Initial consideration was given to those associations which were actively engaged in business as farmers' cooperatives throughout any fiscal year which ended between July 1, 1929 and June 30, 1930. Thirty-four dairy marketing associations and four purchasing associations comprised this group.

The most important group of farmers' cooperatives in Vermont is that composed of these 34 selling associations. Their major business is the marketing of dairy products, but many also purchase farm supplies for their members or are engaged in some outside business. However, the sales of only four of those interested in such auxiliary operations exceed four percent of the total business. Two of them purchase

feeding stuffs for their patrons and two operate retail stores (groceries, dairy products, provisions). Their accounting systems are such that these subsidiary activities can be separated from the major business with sufficient accuracy to make the statement of their operations comparable with those of other creameries. The profit or loss resulting from these supplementary transactions has been carried to the operating statement as "other income," in order to leave the net income unaltered.

Previous to the passage by the General Assembly of 1915 of a law defining cooperatives (Chapter 210, G. L.), numerous farmers' dairy companies existed and a number of them are still in operation. Some 18 of these were visited and partial or complete records were obtained from 13 which were operating in some measure as cooperatives. Their selection was based on their history and apparent intent with respect to distribution of profits rather than upon the exact method of voting employed at their meetings or upon their present ownership. These are included in the 34 associations mentioned above.

This older type of cooperative differs in many respects from those organized under the cooperative law. In general they are smaller, handling less business and extending their operations over a more limited territory. Most of them are butter factories and are located at a distance from railroads. As the years have passed their capital stock has become concentrated into fewer hands and to a considerable extent into those of non-patrons. A smaller proportion of patrons are members and, as a rule, the voting is not on the one-man one-vote basis. Stock ownership and dividends on capital stock are not generally limited to the extent that they are in the case of the cooperatives. On account of these wide and varying differences, they have been treated as a separate group in much of the following discussion and in many of the tables and charts. The associations which are incorporated under the provisions for cooperatives as set forth in Chapter 210, G. L. will be referred to hereafter as "cooperatives." Those which continue to operate in the same manner as they did prior to the enactment of 1915 will be referred to as "stock companies," the name by which they are generally known. The financial statements of the latter are based to a larger extent on estimate and less on careful accounting than are those of the former. In a few cases no statement could be deduced from the information which was available.

Certain additional information concerning the operations of dairy marketing associations was secured. Such organizations are required

by Section 5938, G. L. to file with the State Commissioner of Agriculture annual reports setting forth the amount of business done during the year, together with other information relative to receipts of milk and cream and their disposal. Copies were made of these reports for all farmer associations from 1924 through 1929 and some summary sheets were obtained for the years 1915, 1920 and 1921.

The annual statements used in this study have been grouped according to the closing dates of their fiscal years. Statements referred to as of 1929 deal with those whose fiscal years ended between July 1, 1929 and June 30, 1930. A similar grouping is used for preceding years. As a matter of fact the fiscal years of all dairy corporations end between August 31 and December 31, and 22 have adopted the calendar year as the fiscal year. The fiscal years of two purchasing associations ended during the last six months and of two during the first six months of the year.

Auditors do not arrange balance sheets and operating statements in a uniform manner; however, all statements have been adjusted as nearly as may be to a comparable basis. A detailed description of these adjustments may be found in Appendix A, page 97.

DEVELOPMENT OF FARMERS' ORGANIZED BUSINESS ASSOCIATIONS

Because of its climate, topography, soil and its location relative to large consuming centers, Vermont is naturally an intensive dairy state. Its dairy cow population in 1925 was 30.6 per square mile compared with 5.9 for the United States as a whole and 28.8 for New York State. Franklin County supported 52 cows per square mile. The average Vermont farm carried 10 cows. In 1929 milk accounted for 41 percent of the total farm value of all crops and livestock and livestock products, 54 percent of the gross income and 60 percent of the cash income from all products.¹ Because of the preponderant importance of dairying to Vermont farmers, their cooperative efforts have largely centered around the marketing of dairy products.

DAIRY MARKETING ASSOCIATIONS

The first attempt to bring dairymen together in a formal state-wide association in Vermont, and it is believed in the United States, was the organization of the Vermont Dairymen's Association in 1870. It has been in continuous and vigorous existence since that time. Its function

¹ U. S. Dept. Agr., Bu. Agl. Econ., Farm Value, Gross Income and Cash Income from Farm Production, 1929-1930; Part III, Summary of Income Estimates (Separate for Vermont).

is primarily educational, its annual meeting providing a forum for the discussion of the problems of the industry. At no time has it engaged in marketing activities.

The available records do not show just when farmer-owned corporations were first organized, but the names of the manufacturers would indicate that some of the early cheese and butter factories were of this type. According to Walton's Vermont Register, the first cheese factories started up in 1867 and the earliest butter factories in 1879. In 1899 there were 107 farmers' and 148 proprietary dairy plants

TABLE 1.—NUMBER OF DAIRY PLANTS OPERATED ON PROPRIETARY AND ON NON-PROFIT BASES IN VERMONT, 1899-1914*

Year	Non-profit associations	Proprietary	Total	Non-profit associations as percentage of total
1899	107	148	255	42
1904	130	115	245	53
1909	85	157	242	35
1914	58	177	235	25

* Annual reports, Vermont Dairymen's Association.

in operation (table 1). During the next five years the number of farmer-owned associations increased both absolutely and relative to the number of proprietary plants. By 1904 53 percent of all the dairy plants were operated on a non-profit basis. However, from that date onwards they gradually decreased until in 1914 only 25 percent of the plants were so operated. The total number of plants decreased at the rate of 0.8 per year. Proprietary plants increased at the rate of 3.5 plants per year compared with a decrease of 4.3 plants for the non-profit associations.

Forty-five, or more than one-sixth, of the 250 dairy plants existing in 1900 were located in Rutland county and approximately one-half of them in Addison, Chittenden, Rutland, and Windsor counties (table 2 and figure 1). Only 15 percent of the plants in Rutland, Lamoille and Franklin counties were stock companies compared with 82 percent in Bennington, Caledonia, Essex, and Windham counties. Stock companies to a greater extent than proprietary concerns tended to organize in off-rail areas, only 36 percent of the stock company plants being located on rail or in railroad villages as compared with 44 percent of the proprietary plants. Of the 119 farmer-owned plants 92 (77 percent) were creameries and 27 (23 percent) cheese factories; of the 131 proprietary plants, 94 (72 percent) were creameries and 37 (28 percent) cheese factories.

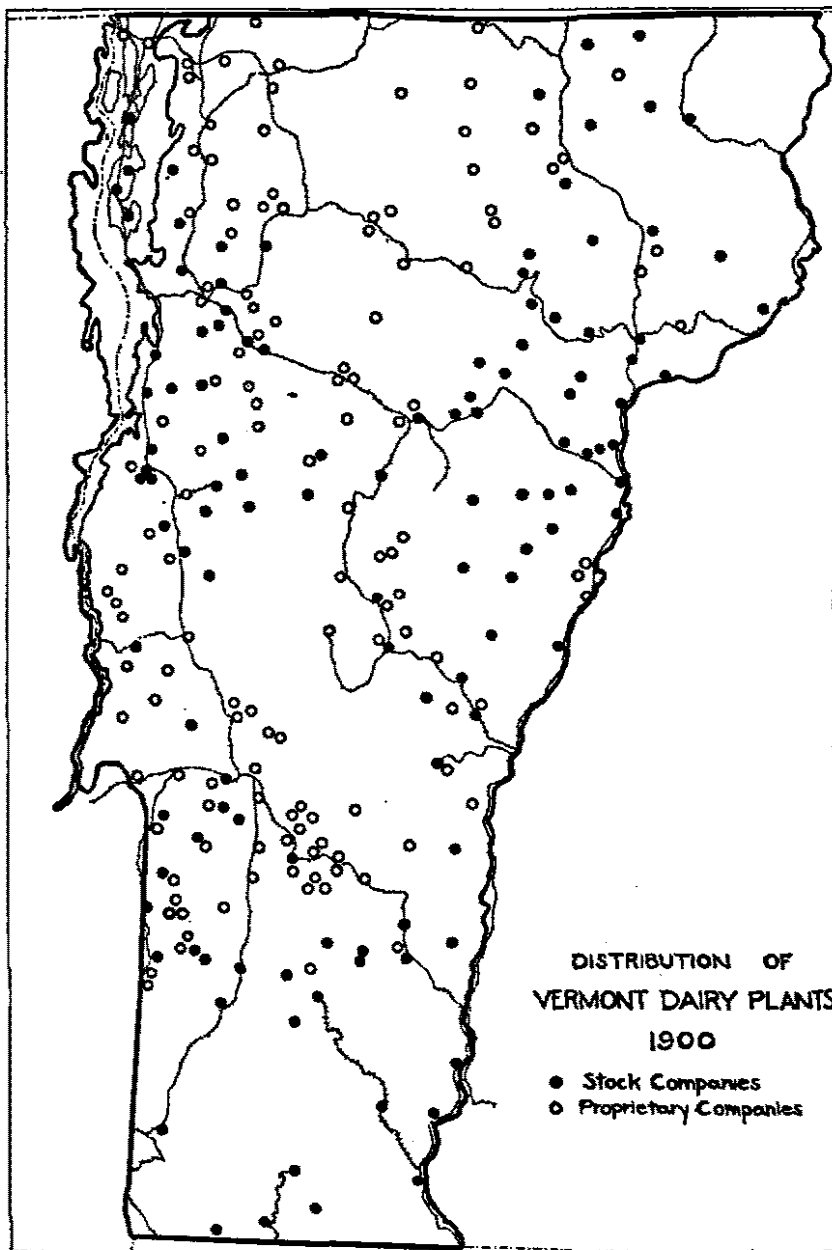


FIG. 1

TABLE 2.—NUMBER OF CREAMERIES AND CHEESE FACTORIES OPERATED ON NON-PROFIT AND PROPRIETARY BASES, BY COUNTIES, 1900

County	Non-profit associations			Proprietary			Total of all plants
	Creameries	Cheese factories	Total	Creameries	Cheese factories	Total	
Addison	11	2	13	9	3	12	25
Bennington	3	7	10	..	4	4	14
Caledonia	16	..	16	2	..	2	18
Chittenden	12	2	14	12	1	13	27
Essex	3	..	3	1	..	1	4
Franklin .....	..	1	1	11	3	14	15
Grand Isle	4	..	4	2	..	2	6
Lamoille .....	..	..	..	7	..	7	7
Orange	13	..	13	8	1	9	22
Orleans	7	..	7	9	1	10	17
Rutland	1	8	9	15	21	36	45
Washington ...	10	..	10	8	..	8	18
Windham	7	..	7	1	..	1	8
Windsor	5	7	12	9	3	12	24
Total	92	27	119	94	37	131	250

Between 1900 and 1915 the number of stock company plants decreased from 119 to 58 but that of the proprietary plants increased from 131 to 177 (table 3). Seventy-seven percent of the non-profit plants were creameries in 1900 compared with 90 percent in 1915. Cheese factories made up 23 and seven percents respectively of the non-profit plants at the two dates. The proportion of the proprietary dairy plants operated as creameries decreased from 72 to 55 percent and of cheese factories from 28 percent to 13 percent during these 16 years. There were no shipping stations or condensaries in Vermont in 1900, but in 1915 there were 56 shipping stations and three condensaries, all but two of which—both shipping stations—were operated as proprietary plants.

TABLE 3.—NUMBERS OF DIFFERENT TYPES OF DAIRY PLANTS OPERATED ON NON-PROFIT AND PROPRIETARY BASES, 1900 AND 1915

Type of plant	1900				1915			
	Non-profit		Proprietary		Non-profit		Proprietary	
	Number of plants	Percentage	Number of plants	Percentage	Number of plants	Percentage	Number of plants	Percentage
Creameries	92	77	94	72	52	90	97	55
Cheese factories....	27	23	37	28	4	7	23	13
Shipping stations...	..	..	..	..	2	3	54	30
Condensaries .....	..	..	..	..	..	..	3	2
Total	119	100	131	100	58	100	177	100

These older cooperatives, most of which were organized previous to 1900, received in the main whole milk until sometime after that date. This was separated at the plant and the patrons took their proportionate shares of the skimmilk home for feeding on the farm. Some dairy-men separated their own milk at the farm and delivered cream at the plants, a practice which expanded rapidly after 1900. The main business of these associations has been for many years and still is the manufacture of butter. However, one association has always shipped more or less sweet cream and another has dealt only in sweet cream since 1922. Still another has marketed some fluid milk since 1927 and another began shipping it in 1930. Only 11 plants, all organized prior to 1915, were being operated as farmers' stock companies in December, 1930, three of which were shipping fluid milk or cream and eight manufacturing butter.

When these stock companies were first organized most of their patrons were members. The authorized capital stock (usually \$5,000 or less) was all or nearly all sold and in most cases the proceeds were sufficient to finance immediate needs for organization, land, buildings and equipment. The authorized capital was not commonly increased and hence no more was for sale. In the course of time, as the farms of patrons have changed hands through sale or inheritance, the stock in these companies has tended to drift into the hands of non-patrons and to accumulate into those of a relatively few owners. In the case of the 13 whose records are discussed in this bulletin the non-profit feature of their organizations has been retained.

Immediately following legislative provision for cooperative corporations in 1915 farmers again began to organize. At about this time the so-called "leased car" system was done away with by the decision of the Interstate Commerce Commission of July 16, 1916. Vermont then began to become an important factor in supplying metropolitan Boston and other southern New England cities with fluid milk and cream. The increase in total deliveries to all plants from 1917 to 1927 was at the rate of 1,350,000 pounds of butterfat per year (table 4 and figure 2). Only 22 percent was sold as fluid milk in 1917 compared with 52 percent in 1929; 38 percent was manufactured into butter in 1917 as compared with 10 percent in 1929. The decline in manufacturing has been especially rapid since 1921. Thus it was that farmers began organizing for a purpose somewhat unlike that which heretofore

TABLE 4.—DAIRY PRODUCTS HANDLED BY VERMONT PLANTS, 1917-1929

Year	Pounds of butterfat received (thousands)	Disposal			
		Shipped as milk %	Shipped as cream %	Manufactured into butter %	Manufactured into other dairy products %
1917	25,561	22	29	38	11
1918	25,645	27	26	36	11
1919	29,104	28	24	34	14
1920	32,042	28	28	35	9
1921	35,102	26	31	36	7
1922	35,430	30	34	32	4
1923	36,573	33	34	28	5
1924	36,582	34	32	25	9
1925	36,086	41	31	20	8
1926	38,122	40	38	15	7
1927	39,056	45	37	14	4
1928		Not available			
1929	38,653	52	34	10	4

had actuated them and mainly in order that they might compete to better advantage with proprietary agencies in shipping fluid milk and cream to these central markets.

The plants operated by cooperative corporations increased from 1916 to 1922 from four to 40, at the rate of six per year, and there-

BUTTERFAT
(Millions of Pounds)

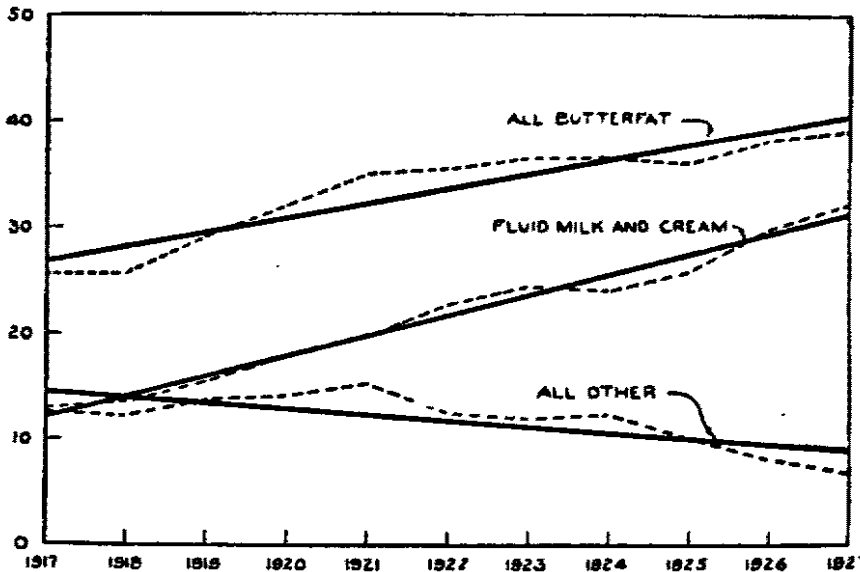


FIG. 2.—Amount and form of disposal of butterfat delivered to Vermont dairymen, 1917-1927.

after remained approximately constant in number (table 5). The total number of plants and of those operated by farmers' stock companies and by proprietary concerns declined steadily throughout the entire period from 1916 to 1930.

TABLE 5.—NUMBER OF VERMONT DAIRY PLANTS OPERATED BY COOPERATIVES, BY STOCK COMPANIES AND BY PROPRIETARY CONCERNS, 1916-1930

Year	Cooperative associations	Stock companies	Proprietary concerns	Total plants
1916	4	54	181	239
1917	8	60	168	236
1918	15	46	163	224
1919	21	41	163	225
1920	25	36	164	225
1921	36	36	152	224
1922	40	35	146	221
1923	39	35	136	210
1924	40	30	135	205
1925	41	29	135	205
1926	42	25	147	214
1927	42	21	134	197
1928	39	21	149	209
1929	42	13	144	199
1930	41	11	116	168

The largest number of cooperative dairy corporations organized in any one year was 11 in 1921 (table 6), probably as a result of the rapid decline in agricultural prices which occurred at that time. Only five have been organized since 1921 and none since 1925. The largest number operating in any one year was 32 in 1922; in 1923 they began selling to other organizations or closing their plants. From 1923 to 1930 six sold to or merged with other cooperatives, five sold to and one leased its plant to proprietary concerns, three dissolved after closing or losing their plants by fire and one reorganized in 1930 as a private business corporation. The average age of 20 local cooperatives operating plants on December 31, 1930, was 11.7 years. The average length of life of the 16 which had ceased operation as cooperatives was 5.8 years. Of the 20 operating plants in 1930, 14 were over 10 years old, six under 10 and none under five. Of the 16 not operating plants in 1930, eight lasted less than five years and two over 10.

Many of the cooperative dairy corporations were organized for the specific purpose of shipping fluid milk and cream. For the most part the surplus milk, cream, and non-returned skimmilk have been manufactured in their own country plants which are equipped for that purpose. The average number of dairy products manufactured by

TABLE 6.—COOPERATIVE DAIRY CORPORATIONS ORGANIZED AND OPERATING 1915-1930; DISPOSAL OF THOSE NOT OPERATING AS COOPERATIVES IN 1930

	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	Total
Incorporated	2	3	3	5	4	3	11	1	3	..	1	..	..	..	..	..	36
Began business.....	..	4	2	6	5	2	10	3	3	..	1	..	..	..	..	..	36
Cumulative number organized	4	6	12	17	19	29	32	35	35	36	36	36	36	36	36	..
Disposal:																	
Closed or burned..	1	1	..	..	1	..	..	..	3
Sold to or merged with other co-operatives	2	..	..	..	1	3	..	..	6
Sold to proprietary plant.....	2	..	1	..	..	1	1	..	5
Leased to proprietary plant..	1	..	..	1
Reorganized under business corporation law.....	1	1
Total not operating	5	1	1	..	2	5	1	1	16
Cumulative total....	5	6	7	7	9	14	15	16	..
Net number of co-operatives operating plants.....	..	4	6	12	17	19	29	32	30	29	29	29	27	22	21	20	..

21 cooperative creameries increased from 1.6 in 1920 to 2.1 in 1929, but the proportion of all deliveries manufactured has decreased.

Two groups of the local cooperatives have for some time been united into federations and one of these functions as an active agent in marketing, maintaining a Boston office.

OUT-OF-STATE COOPERATIVES OPERATING IN VERMONT

In addition to the local dairy marketing associations two out-of-state cooperatives function in Vermont, the New England Milk Producers' Association with offices in Boston and the Dairymen's League Cooperative Association with offices in New York.

The New England Milk Producers' Association (better known locally as N. E. M. P. A.) operates throughout New England (other than Connecticut) and the Boston milkshed, of which Vermont forms an integral part. It was organized in 1917 at Boston. It is a bargaining association, adopting as its main marketing function the holding of periodic conferences with private milk dealers, the purpose of which is the fixing of a fair price for its producers' milk. This milk is sold not only to distributors in Boston but also to distributors in a number of other southern New England cities located within the confines of the Boston milkshed. The total annual value of the members' product averaged

approximately \$14,600,000 from 1926 to 1930 (table 7). The total membership increased from 19,718 in 1926 to 21,727 in 1930, slightly more than one-third of which was composed of Vermonters. The ratio of the Vermont membership to the total was practically constant during these five years. It has been estimated that in 1930 approximately 70 percent of all the market milk produced by farmers in the Boston milkshed was sold through the N. E. M. P. A., that 27 percent was sold by some 15 cooperative creameries, most of them located in Vermont and that only three percent came from unorganized groups.

TABLE 7.—ESTIMATED VALUE OF MEMBERS' PRODUCT AND MEMBERSHIP OF NEW ENGLAND MILK PRODUCERS' ASSOCIATION, 1926-1930

Year	Estimated value of members' product	Membership		
		Total	Vermont	Vermont as percentage of total
1926	\$13,800,000	19,718	6,842	35
1927	14,200,000	20,123	6,812	34
1928	15,200,000	20,399	7,087	35
1929	15,600,000	21,074	7,220	34
1930	14,100,000	21,727	7,392	34

An overhead marketing organization with a membership composed of cooperative associations, the New England Dairies, Inc., was incorporated in New Hampshire in 1930 and reincorporated in Vermont in 1931. Representation on the board of directors is divided equally between the New England Milk Producers' Association and the local cooperatives. In its original form its contract with members provided for the pooling of returns, the expressed policy of the organization being "to pay the same price for all milk, delivered at the market, that is of equal quality, equal butterfat content and produced in equal seasonal adjustment to demand." The functioning of the corporation was made contingent upon the adherence of the N. E. M. P. A. and of 10 local cooperatives. The requisite number of contracts was not secured. However it began operation in April, 1932, under the terms of a temporary contract, expiring December 31, 1932, under which it acts as the sole sales agent of its members but which makes no provision for the pooling of returns.

The Dairymen's League was incorporated in New York in 1921. It operates throughout the milkshed of metropolitan New York and of up-state New York cities. It owns country plants and holds title to the dairy products which it markets and manufactures for its members, whereas the N. E. M. P. A. acts only as the agent of its members. The

price paid its members is a monthly pool price, each member receiving his proportionate share of the total receipts for milk sold in all classes, allowing for freight and quality differentials. The Dairymen's League in 1929 owned four country plants in western Vermont and has since purchased a number of proprietary plants in the same area. All deliveries to these plants were shipped as fluid milk until 1928, when some American cheese was manufactured and a small amount of sweet cream shipped (table 8). In 1929 over two million pounds of milk were manufactured into American cheese. The total value of the business done in Vermont, April 1, 1929 to March 31, 1930, amounted approximately to \$360,000.

TABLE 8.—OPERATIONS OF THE DAIRYMEN'S LEAGUE IN WESTERN VERMONT, 1924 TO 1929

Year	Number of plants reporting	Average number of patrons	Pounds of milk received	Paid patrons for milk	Pounds fluid milk shipped	Pounds fluid milk made into American cheese	Pounds sweet cream shipped
			(thousands)		(thousands)	(thousands)	
1924	1	50	3,073	\$ 62,674	2,636	....	....
1925	1	31	2,434	59,323	2,427	....	....
1926	2	98	7,175	161,312	7,166	....	....
1927	2	106	9,622	235,341	9,590	....	....
1928	3	129	10,811	288,516	10,212	491	5,794
1929	4	159	13,555	362,185	11,439	2,060	....

MAPLE PRODUCTS MARKETING ASSOCIATIONS

The first efforts to unite maple producers into any formal association appears to have been made in 1893 when the Vermont Sugar Makers' Association was organized, mainly for promotional and educational purposes. This state-wide organization still exists and until recently has met annually. As the marketing of maple products became more complex, the association interested itself in the proposition and assisted in the organization of two cooperatives, the Vermont Sugar Makers' Market in 1901 and the Vermont Maple Products Cooperative Exchange in 1922. The former is still in existence, but has long since lost all cooperative character. The latter was in active operation for only five years. In general, attempts to market maple products cooperatively have not been fortunate.¹

In 1931 there was formed a new state-wide organization, the Vermont Maple Cooperative, Inc., which contracts with its patrons to grade, handle, process and sell their maple products. During its first

¹ Vt. Sta., Buls. 227, p. 23 (1922), and 285, pp. 15-16 (1928).

year of operation it is successfully marketing about 45,000 gallons, dealing only in pure maple goods. The greater part of its No. 1 grade syrup has been put up in glass half pints and marketed through dairy and grocery chain-store organizations.

PURCHASING ASSOCIATIONS

Local cooperative purchasing associations have not been numerous in Vermont. Six were organized during the years 1916-1918, immediately following the passage of the cooperative law. This was a period of rapidly rising feed prices. In December, 1930, only two were still functioning as cooperatives. Two have been inactive for several years and two were sold to proprietary managements during 1930. Grain and feed, fertilizer and lime, and seeds have been the major lines handled. During the earlier years they marketed a considerable amount of farm produce for their members, mostly on a commission basis, more particularly maple products, hay, livestock, grain and potatoes. The nature and value of these transactions do not appear in the regular financial statements and were not available for this study.

Two managers expressed the opinion that the need for local purchasing associations has declined with the development of the Eastern States Farmers' Exchange of Springfield, Mass., organized in 1918 and now successfully operating throughout New England. This organization has cooperated with local farm organizations by appointing them its local agents or representatives, to serve in the same capacity as other agents. The Exchange has no capital stock or membership contracts. Working capital is obtained by short term bank loans using the members' purchase orders as collateral. From 1923 to 1929 the Exchange sold approximately 28,000 tons of feed and 3,500 tons of fertilizer in Vermont annually (table 9). During this period feed and fertilizer sales were fairly constant in volume, but seed sales showed a rapid

TABLE 9.—VERMONT SALES OF THE EASTERN STATES FARMERS' EXCHANGE, 1923-1929

Year	Grain and feed	Fertilizer	Seed
	(tons)	(tons)	(pounds)
1923	30,268	3,663	89,463
1924	29,847	3,063	42,440
1925	25,219	3,714	66,695
1926	25,063	3,136	100,199
1927	26,654	3,650	124,387
1928	29,520	4,240	473,863
1929	30,500	3,234	499,458

increase, rising from a low of 42,000 pounds in 1924 to nearly 500,000 pounds in 1929.

OTHER FARMER-OWNED CORPORATIONS

Local organization among farmers has not been entirely limited to cooperatives or to organized marketing and purchasing. There are at the present time two real estate holding companies, the members of which are nearly all farmers. One owns property which is occupied by a cooperative creamery and store; the other owns a canning factory which is leased to outside interests. In 1930 a painting company was organized under the auspices of a local Farm Bureau to own and operate a spray machine for painting and whitewashing farm buildings. There is also an electric light and power company, the majority of whose members are farmers. It owns distribution lines and buys current and supplies at wholesale, reselling them to its members at low rates. These companies are not organized under the cooperative law, but there is one association of nine members so organized. Its primary function is to provide for common ownership of farm machinery, especially threshing and silo-filling equipment, but it has at times bought grain, fertilizer and lime for its members.

STATUS OF AGRICULTURAL COOPERATION, 1929

Thirteen stock companies and 22 local cooperatives owned 28 percent of the Vermont dairy plants in 1929. They received 33 percent of the milk and cream delivered to all plants. Their fluid milk sales amounted to 31 percent and their cream sales to 29 percent of all sales. They manufactured 61 percent of the butter and 18 percent of the other dairy products made in all plants. The average volume of business of the 22 cooperatives was larger than that of the stock companies and proprietaries, since their milk and cream receipts were equivalent to 29 percent of the total deliveries throughout the State, whereas they constituted barely one-fifth of the total number of plants.

The location of stock companies, cooperative and proprietary dairy plants in 1930 is shown in figure 3. Three of the 11 stock companies in operation in 1930 are located on a railroad or in a railroad village. One-half of the plants owned by cooperative dairy corporations and two-thirds of those owned by proprietary concerns are located on rail. Many of the off-rail cooperative owned plants are simply receiving stations from which milk is trucked to central plants.

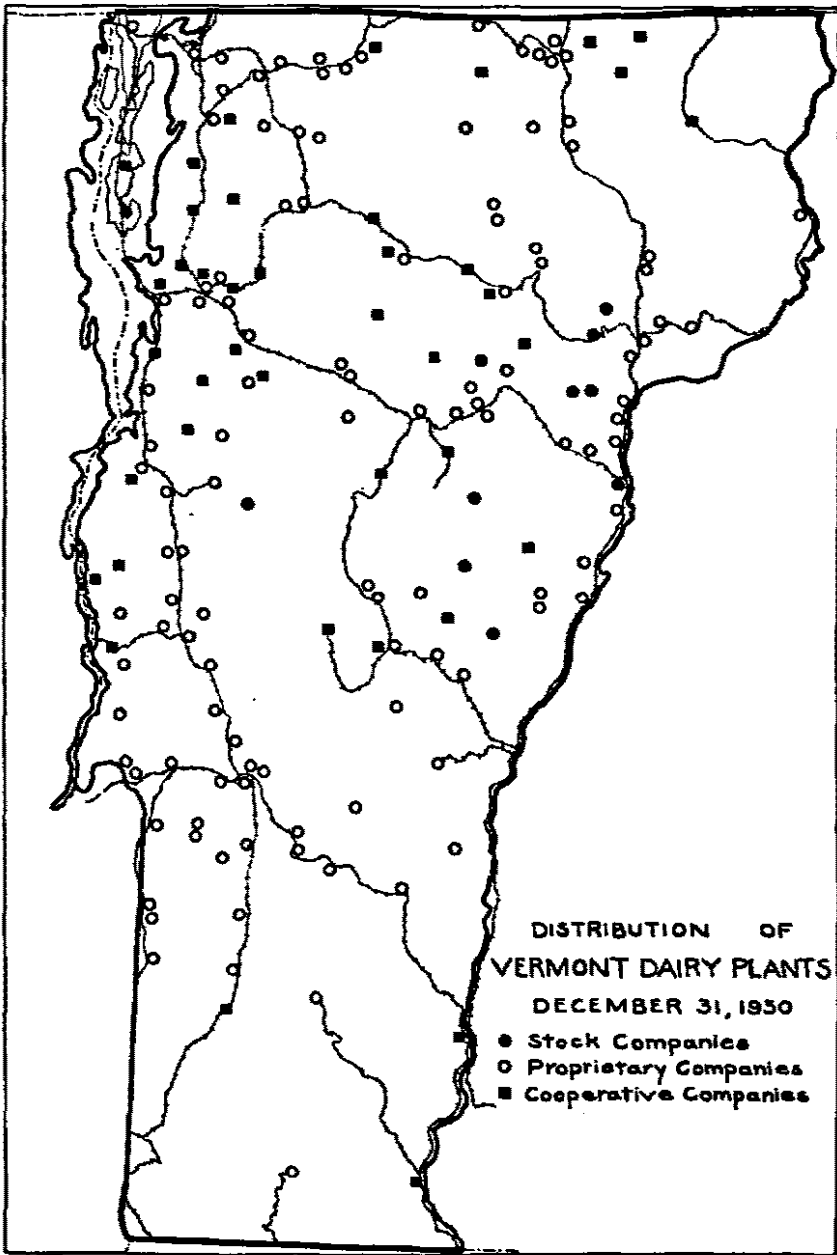


FIG. 3

As a rough measure of the importance of these associations in their own communities, an estimate was secured from a well-informed representative of each organization of the proportion of the total output of each product in its operating territory delivered to or sold by his association and of the percentages delivered to or sold by proprietary concerns and other cooperatives. The dairy marketing associations claimed to handle on the average 72 percent of the milk and cream purchased within their respective areas (table 10). The overlapping of territory among the farmer-owned dairy plants amounted to three percent. Sales of such farm supplies as grain and feed, seeds and fertilizer were about evenly divided between the cooperatives and proprietary concerns. Three cooperatives selling spray materials did 65 percent of the community business in this line. Sales of potatoes marketed by cooperatives amounted to four percent of the total in the two communities represented.

TABLE 10.—PERCENTAGE OF THE BUSINESS HANDLED BY 38 ASSOCIATIONS IN 1929 WITHIN THEIR RESPECTIVE OPERATING TERRITORIES

Product marketed or purchased	Number of associations	Percentage of product handled			
		By stock companies and cooperatives		By proprietaries	
		Range	Average	Range	Average
Milk and cream.....	34	10- 98	72*	0-90	25*
Cans, strainers, etc...	10	50-100	64	0-50	36
Gas and oil.....	4	5- 15	9	85-95	91
Fertilizer	5	25- 70	46	30-75	54
Grain and feed.....	6	20- 75	53	25-80	47
Seed	4	20- 95	51	5-80	49
Spray materials.....	3	40- 80	65	20-60	35
Sundries	2	10- 50	30	50-90	70
Potatoes	2	2- 5	4	85-98	96

* There is an overlapping of territory among cooperatives amounting to three percent.

VOLUME AND TYPE OF BUSINESS IN 1929

DAIRY MARKETING ASSOCIATIONS

Three cooperative creameries averaged over \$1,000,000 worth of business in 1929 (table 11); four others averaged over \$600,000; and only six did less than \$200,000 of business apiece. None of the stock companies sold more than \$200,000 worth of product. The sales of three purchasing associations ranged between \$200,000 and \$400,000 and one sold less than \$200,000 worth. The average value of net sales for cooperatives (21 active) was \$530,000, for stock companies \$70,000 and for purchasing associations \$248,000.

TABLE 11.—DISTRIBUTION OF 38 ASSOCIATIONS ACCORDING TO VOLUME OF BUSINESS DONE IN 1929

Volume of business (thousands of dollars)	Dairy corporations			Total
	Cooperatives	Stock companies	Purchasing associations	
Less than 200.....	6	13	1	20
200 to 399.....	7	..	3	10
400 to 599.....	1	..	..	1
600 to 799.....	3	..	..	3
800 to 999.....	1	..	..	1
1,000 and over.....	3	..	..	3
Total	21	13	4	38

The gross sales of the 34 active local dairy marketing associations amounted to more than \$13,000,000 in 1929 (table 12). The major item of fluid milk constituted 56 percent fluid milk, cream and butter sales 91 percent and all dairy products 97.6 percent of the gross sales. The remaining 2.4 percent consisted of farm supplies.

TABLE 12.—GROSS VALUE OF SALES; 34 DAIRY MARKETING ASSOCIATIONS, 1929

Product	Gross value of sales	Percentage of total	Cumulative percentage
Fluid milk	\$7,366,576	55.9	55.9
Cream	2,959,808	22.5	78.4
Butter	1,691,576	12.9	91.3
Ice cream and mix	518,131	3.9	95.2
Condensed and evaporated	137,268	1.	96.2
Casein	73,556	0.6	96.8
Cheese	61,894	0.5	97.3
Other dairy products	43,952	0.3	97.6
Supplies purchased	314,415	2.4	100.
Total business	\$13,167,176	100.	...

There were 16 associations in 1929, the major portion of whose income was derived from the sale of fluid milk (table 13). They manufactured their surplus into a variety of products. Eleven also shipped cream and 12 manufactured butter. The gross sales of milk, cream and butter amounted to 93 percent of the total business. Two associations made a good deal of ice cream. Other manufactured products, such as casein, sundry cheeses, condensed and evaporated milks were of comparatively little consequence. There were only four associations which were primarily engaged in shipping sweet cream. Their secondary products were relatively of more importance than in the case of the group whose major source of income was the sale of fluid milk. Buttermaking represented the least diversified business.

Ninety-four percent of the gross sales of 14 associations (10 stock companies and four cooperatives) which made buttermaking their main enterprise were thus derived. One shipped some fluid milk and five sold cream.

TABLE 13.—GROSS SALES OF 34 DAIRY MARKETING ASSOCIATIONS, 1929, GROUPED ACCORDING TO MAJOR PRODUCT MARKETED

Product marketed or purchased	Number of associations	Gross value of product	Percentage of total business	Cumulative percentage
Fluid milk				
Fluid milk	16	\$6,683,777	72.1	72.1
Cream	11	1,360,576	14.7	86.8
Butter	12	549,926	5.9	92.7
Ice cream and mix	2	189,671	2.	94.7
Casein	7	73,556	0.8	95.5
Cheeses	6	61,472	0.7	96.2
Condensed and evaporated..	2	36,050	0.4	96.6
Other dairy products	3	18,786	0.2	96.8
Supplies sold to patrons....	9	294,715	3.2	100.
Total	16	\$9,268,529	100.	...
Cream				
Cream	4	\$1,571,816	57.3	57.3
Fluid milk	2	645,823	23.6	80.9
Ice cream and mix	2	328,460	12.	92.9
Condensed and evaporated..	1	101,219	3.7	96.6
Butter	3	50,605	1.8	98.4
Other dairy products	3	24,218	0.9	99.3
Supplies sold to patrons....	3	19,368	0.7	100.
Total	4	\$2,741,509	100.	...
Butter				
Butter	14	\$1,091,045	94.3	94.3
Fluid milk	1	36,977	3.2	97.5
Cream	5	27,415	2.4	99.9
Other dairy products	3	1,370	0.1	100.
Supplies sold to patrons....	1	331	...	100.
Total	14	\$1,157,138	100.	...

Many plants were located in regions where small dairies were the rule. Thirteen associations received less than 135 pounds (approximately 1.5 cans) of 3.7 milk equivalent per day per dairy and only six more than 200 pounds. The range was from 64 pounds (0.7 cans) to 326 pounds (3.8 cans) per day per dairy, averaging 151 pounds (1.8 cans). Wide differences occurred in respect to seasonal variations of deliveries, ranging among the associations from 33 to 110 pounds of 3.7 milk equivalent received in November for each 100 pounds received in June and averaging 66 pounds. Thirteen associations received less

than 60 pounds and eight more than 80 pounds in November for each 100 pounds received in June.

The average deliveries per day per dairy at 14 associations (chiefly butter factories) which shipped no fluid milk were 124 pounds, which was less than three-fourths the average delivery at 19 associations which sold all or a part of their receipts in fluid form (table 14). These fourteen were usually located in the less readily accessible areas characterized by narrow valleys and somewhat rough topography. There was comparatively little difference in this respect between the 12 which shipped most of their product (69 percent) in fluid form and the seven whose fluid sales (35 percent) were less important.

TABLE 14.—AVERAGE DELIVERIES PER DAY PER DAIRY; 33 ASSOCIATIONS GROUPED ACCORDING TO PERCENTAGE OF DELIVERIES SHIPPED AS FLUID MILK, 1929

Percentage of total deliveries sold as fluid milk	Number of associations	Average percentage shipped as fluid	Average deliveries per day per dairy
None	14	..	124
50 or less	7	35	177
Over 50	12	69	167

Differences in the seasonal variation in deliveries to these three groups of plants are indicated in table 15 and figure 4. In all cases the peak of deliveries came in June. Receipts of the 14 associations which shipped no fluid milk held at a higher level through the winter months than did those of the others which rose less in June and fell to a lower level in the fall, reaching their lowest point in September. There was less difference between the two groups of fluid milk shippers than between either of these and the non-shippers. In general the deliveries at the plants which shipped more than half of their product in fluid form held up better through the fall and winter than did those to plants whose fluid shipments were less important and did not increase as early in the spring.

TABLE 15.—SEASONAL VARIATIONS OF AVERAGE DELIVERIES; 33 ASSOCIATIONS, 1929

Percentage of total deliveries sold as fluid milk	Index of average monthly deliveries per patron (monthly average = 100)											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
None ...	104	111	107	115	116	126	107	82	72	78	84	98
50 or less	85	91	101	115	129	135	117	96	84	84	78	85
Over 50..	88	92	96	104	118	134	113	97	87	89	88	94

INDEX OF DELIVERIES

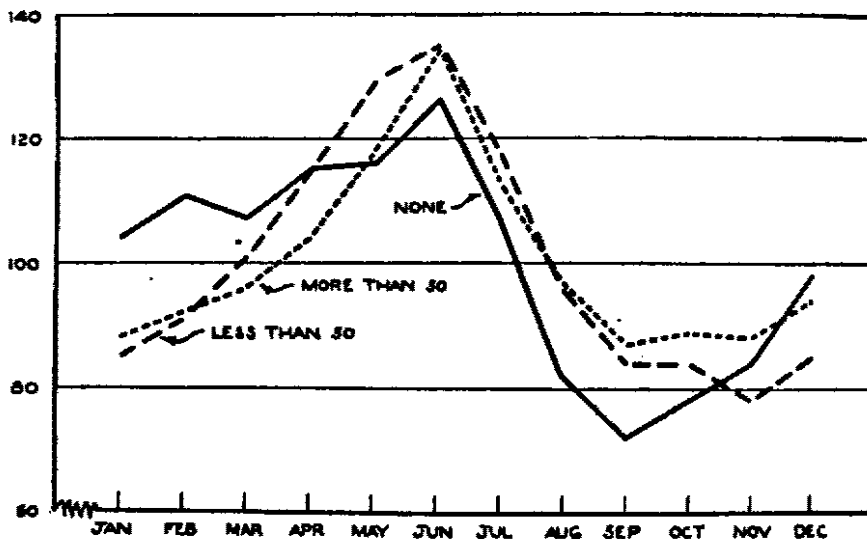


FIG. 4.—Percentage of receipts shipped as fluid milk and seasonal variation in patrons' deliveries, 33 associations, 1929.

(Deliveries adjusted to 30-day month. Monthly average = 100.)

INDEX OF DELIVERIES

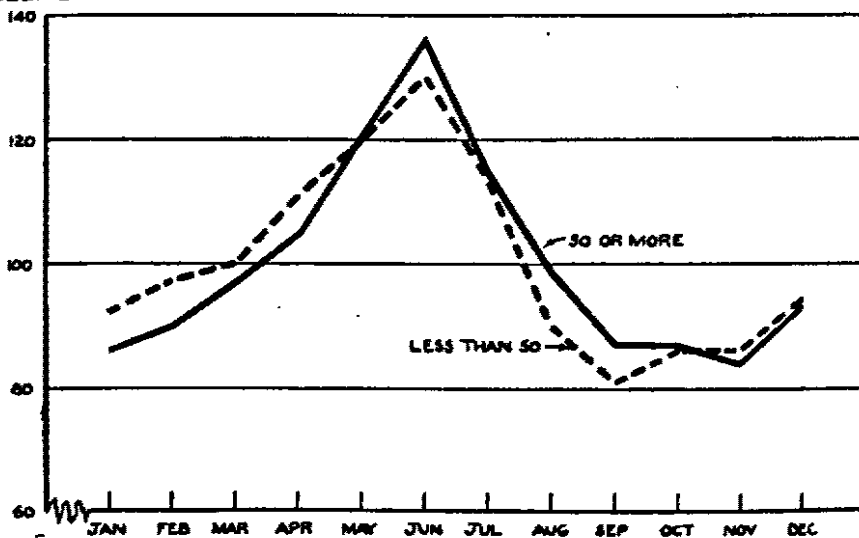


FIG. 5.—Seasonal variation in deliveries, 1929. Eleven cooperatives which shipped 50 percent or more and 10 cooperatives which shipped less than 50 percent of their receipts as fluid milk during the five-year period, 1924-1929.

(Deliveries adjusted to 30-day month. Monthly average = 100.)

The patrons of 11 cooperatives which on the average shipped less than 50 percent of their total receipts as fluid milk during the five years from 1924 to 1929, delivered to their respective plants a larger proportion of their 1929 production during the winter months and a smaller proportion during the summer and fall months than did the patrons of 10 cooperatives which on the average had shipped over 50 percent of their receipts as fluid milk during the same period (figure 5). September was the low production month with the former and November with the latter group.

Thirteen cooperatives shipped over 40 percent of all their receipts as fluid milk (bottled and bulk) to metropolitan Boston and other southern New England cities. The low points in the ratio of total receipts for the month to average monthly receipts occurred in September

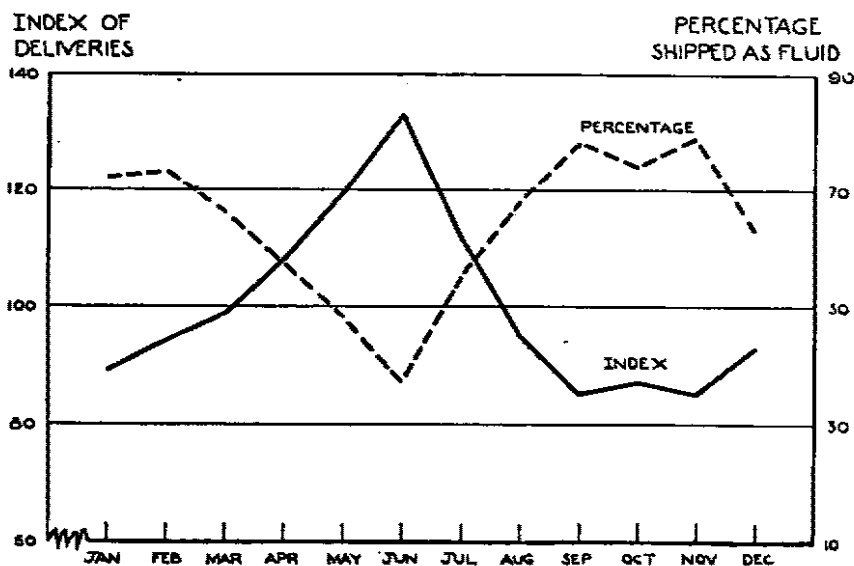


FIG. 6.—Seasonal variation in deliveries and percentage of receipts shipped as fluid milk, 1929. Thirteen cooperatives which shipped more than 40 percent of their receipts to southern New England markets in fluid form.

(Deliveries adjusted to 30-day month. Monthly average = 100.)

ber and November, both of which were 85 percent of the year's monthly average (figure 6). June receipts at the other extreme were 133 percent of the monthly average and 156 percent of the September and November receipts. Seventy-eight and 79 percents respectively of the September and November product were sold as fluid, but only 37 per-

cent of the June deliveries. Two associations found it necessary to buy fluid milk from other plants in November in order to supply their customers. Five associations shipped more than 85 percent of their November receipts as fluid.

A comparison of the seasonal variations of two cooperatives representing respectively the most nearly even and least even average deliveries per patron appears in figure 7. Of course June was the high production month in both cases, while September was the low month with one and January with the other. The average low month deliveries stated as percentages of those in the high month were respec-

INDEX OF DELIVERIES

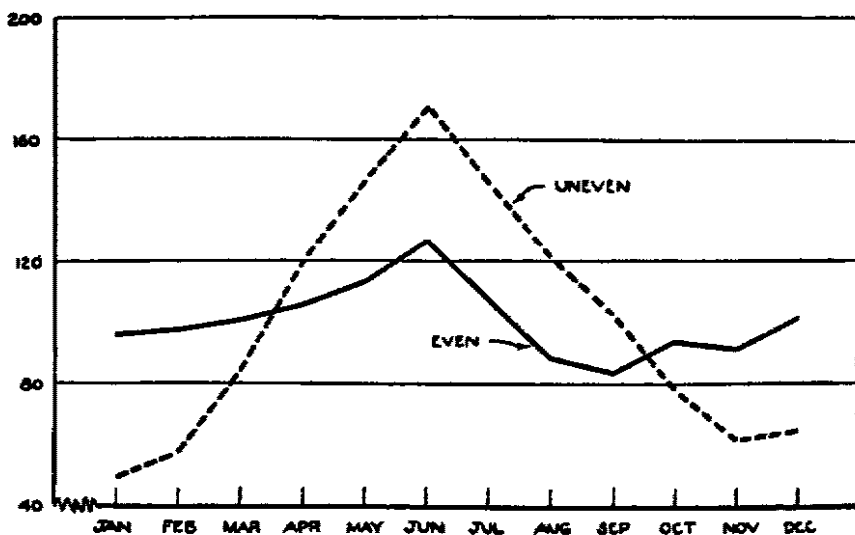


FIG. 7.—The extremes in seasonal variation in patrons' deliveries, two cooperatives, 1929.

(Deliveries adjusted to 30-day month. Monthly average = 100.)

tively 66 and 29 percents. The patrons of the plant where deliveries fluctuated widely were the heavier producers, their average monthly deliveries being 4,788 pounds of 3.7 milk equivalent compared with 3,910 pounds at the plant where the supply was more uniform. The cooperative showing the least seasonal variation has sold a large part of its product as fluid milk ever since its organization. It is located near the market, in an area of narrow valleys and of comparatively rough topography. The cooperative manifesting the highest seasonal variation has been engaged chiefly in shipping sweet cream and in manufac-

turing. It is located far from the market and in a wide valley in which there are relatively large areas of open pasture.

PURCHASING ASSOCIATIONS

The gross sales of the four cooperative purchasing associations amounted approximately to \$1,000,000 in 1929-30 (table 16). The trade in grain and feed (18,072 tons) was much the most important branch of the business, accounting for 88 percent of the gross sales; fertilizer and lime (1,488 tons) sales amounted to five percent, of seed four percent, while marketing of potatoes for members comprised one percent of the total business.

TABLE 16.—GROSS VALUE OF PRODUCTS HANDLED BY FOUR COOPERATIVE PURCHASING ASSOCIATIONS, FISCAL YEARS ENDING BETWEEN JULY 1, 1929 AND JUNE 30, 1930

Product purchased or marketed	Gross value of sales	Percentage of total	Cumulative percentage
Grain and feed	\$872,097	87.8	87.8
Fertilizer and lime.....	49,977	5.	92.8
Seed	39,075	3.9	96.7
Gas and oil	6,767	0.7	97.4
Spray materials	5,970	0.6	98.
All other supplies	10,041	1.	99.
Potatoes marketed	9,615	1.	100.
Total	\$993,542	100.	...

LEGAL AND ECONOMIC ASPECTS OF ORGANIZATION

CAPITAL STRUCTURE

None of the stock companies were capitalized at more than \$10,000 and nine of the 13 at less than \$5,000 (table 17). None of the cooperatives were capitalized at less than \$5,000, only four at less than \$10,000, nine at \$50,000, and five at over \$100,000. The authorized capital of three of the four purchasing associations was \$50,000 and of one \$5,000. Cooperative creameries had issued 60 percent of their authorized capital, stock companies 68 percent and purchasing associations 20 percent. Some of the stock companies had bought in a portion of the outstanding stock. Large investments in improved buildings and equipment and the growth in volume of business which has accompanied an increasing membership have been the important factors behind the need for large amounts of capital in the case of the cooperative creameries.

TABLE 17.—AUTHORIZED CAPITAL OF 39 FARMER-OWNED ORGANIZATIONS, 1930

Authorized capital	Dairy corporations			Total
	Stock companies	Cooperative	Purchasing associations	
Less than \$5,000	9	..	..	9
\$5,000 to \$10,000	4	4	1	9
\$11,000 to \$20,000 .....	..	2	..	2
\$50,000 .....	..	9	3	12
\$100,000 .....	..	2	..	2
Over \$100,000 .....	..	5	..	5
Total	13	22	4	39

The share par values of capital stock of most of the associations are small, usually \$10 and \$25 for the stock companies and cooperative creameries and \$5 for the purchasing associations (table 18). One stock company and two cooperative creameries have adopted a par value of \$100 per share.

TABLE 18.—PAR VALUE OF STOCKS; 39 ASSOCIATIONS

Par value of stock	Dairy corporations			Total
	Stock companies	Cooperative	Purchasing associations	
\$ 2	1	..	..	1
5 .....	..	1	3	4
6 .....	..	1	..	1
10	5	9	1	15
20 .....	..	2	..	2
25	4	7	..	11
50	2	..	..	2
100	1	2	..	3
Total	13	22	4	39
Average par value	\$27	\$23	\$6	\$23

PURPOSES OF ORGANIZATION

The statements in the certificates of incorporation and by-laws relative to the purpose or purposes for which the members are organized vary widely between associations engaged in similar businesses, as well as between those of different types. The statements of purpose also vary in some cases between the charter and by-laws of the same association. It is generally considered good policy so completely to state the purpose of organization in the charter that it will include all operations of marketing and purchasing in which the association conceivably might engage. The advantages of this procedure are due to the difficulties frequently encountered when an organization wishes to amend

its articles. It has often happened, when an association has expanded its business over a large territory or when its capital stock has accumulated in the hands of non-residents, that it is almost impossible to secure a meeting of a sufficient number of members to enable the amendment of the charter. Section 4901 G. L. provides that ". . . the amendment may be made by such vote of the stockholders or members as is provided in the articles of association, or, if provision is not so made, then by the vote in meeting assembled of the holders of two-thirds of the outstanding stock, . . ." Only one of the 39 charters contained an amendment clause, this stating that a two-thirds vote of the stockholders present was required to amend the articles. The other 38 are required by law to obtain a two-thirds vote of all the outstanding stock in case charter amendment is contemplated.

By-laws are more easily amended. Twenty-four cooperatives and three stock companies require for such change a two-thirds vote of the members present; one cooperative requires only a majority vote of the members present and one has no amendment clause in its organic law. Five stock companies require only a majority of the stock voting and three make no provision concerning amendments.

As has been noted these statements of purpose differ widely among themselves. Eighteen cooperative dairy corporations reserve a fairly broad field of operations for themselves by mention in their charters of the marketing of all agricultural products and the purchasing of farm supplies. Six of these also allude to other possible services. Four others limit their marketing activities to the sale of dairy products, only one of this group referring to the purchasing of farm supplies.

None of the stock companies provide for marketing "all agricultural products," limiting their marketing services to the sale of dairy products. Only one association mentions the purchase of farm supplies. The four purchasing associations, according to their charters, are organized to market all agricultural products as well as to purchase farm supplies.

The more recently organized cooperatives have usually been careful in their statements of purpose in their charters to allow for a wide range of activity. The stock companies are more limited in their operations and services, if they function within the stated purpose of organization and within their legal rights. Their by-laws are also less complete in this respect, but, as has been indicated, this fact is of minor significance.

COOPERATIVE FEATURES

All of the organizations included in this study are incorporated with capital stock and formed under the general corporation law, Chapter 210, G. L. They are required to set forth in their articles the name of the corporation, its purpose or purposes, the location of its principal place of business, the amount and share par value of its capital stock and signature of its incorporators. The cooperatives organized since 1915 are further required to include in their articles of association all the provisions set forth in Sec. 4897, G. L., "Provisions as to Cooperative Associations" (Appendix B, page 98). All cooperatives may come under the provisions of the federal "Capper-Volstead Act" (Appendix C, page 98), but this does not in any respect modify or supersede the state law. Cooperatives, organized and operating in accordance with state provisions, meet both the first and second requirements of the Capper-Volstead Act, that voting be based on membership and dividends be limited to eight percent. Nineteen of the 21 active cooperative creamery associations did over 50 percent of their business with members and thereby met the third requirement. However, for a cooperative to come strictly within the purview of this Act all of its stockholders must be "engaged in the production of agricultural products." This requirement, of 100 percent producer membership, was met by only three cooperatives.

Limitation of Stock Ownership.--The cooperative law (Section 4897, Par. 5, G. L.) provides that "not more than 10 percent of the capital stock of such corporation shall be owned by any one member," and all true cooperatives include this statement, or a slight modification thereof, in their certificates of incorporation. One cooperative dairy corporation limits the capital stock to be owned by any one member to 10 percent of the amount outstanding and another to a stated amount in dollars, this amount being 10 percent of the original authorization. By later increasing the capital stock without increasing its limitation of ownership, this association by its charter limits the ownership by any one member to an amount the par value of which is only two percent of the authorized capital. The 13 stock companies, all having been organized prior to 1915, are not limited by their charters as to the amount of stock that can be owned by any one member, but five of them have placed similar provisions in their by-laws. One restricts the amount any individual may hold to 10 percent of the capital stock and four specify definite monetary limits, varying from two to 11 percent of the authorized capital.

Distribution of Profits.—The terms in which Sec. 4897, G. L. prescribes the manner of distribution of profits is rather indefinite. The order of disbursement is not set forth but the phraseology is usually held to mean that after declaration of dividends at a rate not to exceed six percent on the paid-up capital stock, a reserve fund of not less than 10 percent of the remaining net profits shall then be set aside until there has been accumulated an amount equal to 50 percent¹ of the paid-up capital stock. At this point the law definitely states that the remainder of the earnings shall be distributed by a uniform patronage dividend. This order of dividing profits has been adopted by and provided for in the charters of 22 of the 26 cooperatives organized under the provisions of the state law. Contrary to the generally accepted order of division of profits, four cooperatives first set aside 10 percent of the earnings as required by law and then set aside a sinking fund to apply on the mortgage. From the remainder of the earnings they provide for dividends on stock not to exceed six percent and, finally, a uniform patronage dividend.

The stock companies, not being subject to Sec. 4897, G. L., divide the monthly returns from sales on a different basis. Their by-laws usually provide that the corporation shall set aside monthly a reserve sufficient to pay all overhead expenses, including taxes, insurance, depreciation and dividends on stock, and then pay the residue to the patrons according to the quantity and quality of the product delivered. Some base this deduction on a specified amount per pound of fat. As a matter of fact in recent years competition of the fluid milk market has caused considerable variation from this procedure, resulting in some cases in the omission of dividend payments on stock so that the payments to patrons for milk and cream might more nearly meet prices paid by competing buyers.

Voting.—The charters of all true cooperatives provide for membership voting on the "one-man one-vote" principle (Sec. 4897, G. L.). The 13 stock companies make various provision for voting in their by-laws. Three practice membership voting, but one of these permits any member to demand a stock vote, limited to 10 shares per member. In the other 10, voting is in accordance with stock ownership, one vote per share, but with limits of 10 and five votes per member in two companies.

Provision for voting by proxy has been made by only four of the 22 cooperative creameries and by none of the purchasing associations. Ten of the 13 stock companies permit voting by proxy and by mail.

¹ No. 81 of the Acts of 1929 amended Sec. 4897, 13, G. L., to read "50 percent," whereas it previously was "30 percent." Cooperatives have not amended their articles to comply with this change.

MEMBERSHIP RELATIONS

The requirements as to membership differ widely both between the three groups of organizations and among the constituents of each group. In general the stock companies are less exacting than are the dairy cooperatives or purchasing associations, only one requiring all members to be engaged in agriculture. All four purchasing associations and 20 of the 22 cooperative dairy corporations insist that at time of joining all members must be engaged in agricultural enterprises. The purchasing associations made their members pay in full for capital stock and require residence within a stipulated area of one or more neighboring counties. Indeed three go so far as to demand that their constituents be County Farm Bureau members. Seven of the cooperative dairy organizations require that capital stock shall be fully paid for, while 15 simply provide that all members shall subscribe to capital stock. Nine demand that members deliver to the corporation all their product except such as is needed for home use. Another group of 10 provides that applications for membership must be approved by their boards of directors. It may be assumed that such a provision serves as a substitute for that of 100 percent deliveries at the plant. The by-laws of eight cooperatives require residence within an area restricted to one or more contiguous counties or within the vicinity of the place of business.

Member contracts, apart from the by-laws and articles of association, have not played an important part in the workings of Vermont cooperatives. Only three dairy cooperatives now employ such contracts. Two associations permit cancellation between January 15 and February 15, the other permits withdrawal for reason at any time after 60 days' notice and subject to the approval of the directors. These contracts are largely a repetition of similar articles in the by-laws, which in most organizations constitute a contract. Fifteen of the 19 associations which do not employ separate contracts require a patron who wishes to withdraw to give at least a month's notice. Eighteen of 22 cooperative dairy corporations stipulate that their patrons deliver all of their product to the corporation and 16 penalize failure to comply with this provision, the penalty in 13 cases being forfeiture of stock and other interests at the discretion of the board. The by-laws of two associations reserve to the corporation the privilege, after 30 days' notice, of rejecting the product of any member, of calling in the stock at book value and of exacting an additional penalty of \$10 per cow.

The by-laws of one association provide that when a patron fails to deliver all his product to the corporation for 15 days he shall forfeit \$3 per cow. In order to keep the outstanding capital stock in the hands of producer patrons, 11 dairy cooperatives provide in case a stockholder moves from the corporate territory or ceases to be a producer that the corporation shall purchase, or retain the right to purchase, the stock at par value.

During the five years from 1925 to 1929 only four associations regularly enforced the forfeiture provisions of their by-laws. The amount charged against member patrons was approximately \$20,000 or \$1,000 per association per year.

All of the 13 stock companies and the four purchasing associations require the purchase of only one share of stock to become a member, resulting in an average minimum contribution of \$27 for the stock companies and of \$6 for the purchasing associations. The range for the stock companies was from \$2 to \$100, and for the purchasing

TABLE 19.—MINIMUM CONTRIBUTION PER MEMBER AT TIME OF JOINING; 22 CO-OPERATIVE DAIRY CORPORATIONS

Minimum capital stock requirements for membership	Number of associations adopting each plan	Average par value of shares	Average minimum member contributions
1 share	12	\$30	\$ 30
5 shares	2	10	50
10 shares	1	10	100
1 share per cow	4	19	188*
2 shares per 5 cows	3	19	75*

* Assumes a herd of 10 cows.

associations from \$5 to \$10. Twelve of the cooperative creameries require purchase or subscription to one share, two to five shares and one to 10 shares (table 19). These minimum contributions range from \$5 to \$100. In the associations thus far considered the minimum contribution at the time of joining is the same for all members irrespective of the amount of business transacted. In contrast with this usual practice, seven cooperative creameries vary the contribution according to the number of cows owned, four requiring the purchase of stock at the rate of one share per cow and three at the rate of two shares for each five cows owned, the average minimum investment being \$188 and \$75 respectively, assuming a herd of 10 cows. The average of all dairy cooperatives is \$70, ranging from \$5 to \$250.

All dairy cooperatives provide for the payment for subscribed stock through periodic deductions from patrons' milk and cream checks.

In five cases this deduction represents a certain percentage, either five or 10 percent, of the check; in three it varies directly with the deliveries, amounting to 10 cents per hundredweight of milk or one cent per pound of butterfat; and in the other 14 it is adjusted to suit the situation of the subscriber. Fourteen require the execution of a note to cover the stock subscription and eight do not. These notes bear interest at six percent and the corporation in turn pays dividends on the subscribed stock at the same rate.

Only four of the stock companies have adopted any partial payment plan for the purchase of stock. None of these require any security, but they make periodical deductions from milk or cream checks according to some mutually agreed upon plan. The four purchasing associations provide that their capital stock be paid for in full.

Only two organizations, both cooperative creameries, have included either in their articles or by-laws a statement relative to the ownership of subscribed or partially paid for capital stock. These two provide that it shall be the property of the corporation until fully paid for.

The total membership of all 39 associations in 1930 was 8,475, 80 percent of whom were patrons (table 20 and Appendix D, table 1, page 100). There were a total of 9,252 patrons of which 72 percent were

TABLE 20.—MEMBERS AND PATRONS; ALL ORGANIZATIONS, 1930

	Dairy corporations							
	Cooperatives		Stock companies		Purchasing associations		All associations	
	Number	Percent- age	Number	Percent- age	Number	Percent- age	Number	Percent- age
Patron members.....	5,485	82	182	35	1,020	80	6,687	79
Non-patron members..	1,203	18	335	65	250	20	1,788	21
Total members....	6,688	100	517	100	1,270	100	8,475	100
Member patrons.....	5,485	90	182	22	1,020	44	6,687	72
Non-member patrons..	625	10	662	78	1,278	56	2,565	28
Total patrons.....	6,110	100	844	100	2,298	100	9,252	100

stockholders. The relationship between membership and patronage was closer among the cooperative creameries than among the stock companies or purchasing associations. Eighty-two percent of their members were patrons and 90 percent of their patrons were members, compared with 35 and 22 percents respectively for the stock companies and 80 and 44 percents respectively for the purchasing associations. This closer relationship in the case of cooperative creameries has been largely brought about by requiring new patrons to subscribe to the stock of the

corporation and by requiring old members to turn in their stock at the termination of their patronage. In 15 of these organizations all patrons are members. In the case of 11 stock companies, three cooperative creameries and three purchasing associations less than half of the patrons are members. In the case of only three associations, all cooperative creameries, are all stockholders also patrons. In 10 of the stock companies less than a half of the members are patrons. This is true of none of the cooperative creameries or purchasing associations.

Acquaintance of members with the business policies and operations of the cooperative creameries has been carried on to some extent through the media of circular letters and local newspapers, but mainly through the annual stockholders' meetings. No periodicals have been published by the local organizations. A large and increasing number of cooperative creameries publish and distribute leaflets containing the annual financial statements. One cooperative provides in its by-laws for an educational fund.

PERSONNEL AND MANAGEMENT

As is the case with all corporations the general management of these farmer-owned organizations is entrusted to a board of directors elected by the stockholders. Thirty-three of the 39 elect the entire board annually; the other six elect such part thereof each year as is necessary to complete the directorate, the term of office being in some cases two and in some three years. The size of the board varies from five to 14. Fifteen and 14 associations respectively elect seven and five directors. The average for all associations is 6.5.

As a rule the stockholders elect the clerk and the board elects the other officers from among its own number and appoints a manager; however, two associations elect all officers at the annual meeting. All officers and such appointments as are made by the officers and managers are on an annual basis. Election or appointment to more than one office was frequent in 1930 (table 21). Five managers were also secretaries, one was treasurer, four secretary and treasurer and three were presidents.

TABLE 21.—DUPLICATION OF OFFICE, 1930

Office	President	Secretary or clerk	Treasurer	Manager
President .....	..	1	1	3
Secretary or clerk....	1	..	16	9
Treasurer	1	16	..	5
Manager	3	9	5	..

Attendance at stockholders' and directors' meetings gives some indication of the interest of members in the management of corporation affairs. The average member attendance at the last annual meeting was 46 percent for cooperative creameries, 31 percent for stock companies and 30 percent for purchasing associations (table 22). The average

TABLE 22.—DISTRIBUTION OF 39 ASSOCIATIONS ACCORDING TO PERCENTAGE OF MEMBERS ATTENDING LAST ANNUAL MEETING

Type of organization	Percentage of members attending last annual meeting					Total	Average percentage
	0-20	21-40	41-60	61-80	81-100		
	Number of associations						
Dairy corporations:							
Cooperatives	3	6	8	4	1	22	46
Stock companies...	3	8	2	..	..	13	31
Purchasing associations	1	2	..	1	..	4	30
Total	7	16	10	5	1	39	39

of all associations was 39 percent. The smaller attendance at the meetings of the purchasing associations may be attributed to the distribution of their members over a wider territory and to the smaller investment per member; that of the stock companies to the existence of a considerable number of non-resident and non-patron stockholders who are affected only by variations in the dividend rate. The financial interest of patron members, who form a larger proportion of the total among the cooperatives than among the stock companies, is affected not only by the dividend rate but also by the prices paid for milk. This closer relationship between the administration of the business and the financial return of the patron than of the non-patron members is reflected in the attendance at the meetings (table 23).

TABLE 23.—RELATION OF THE PERCENTAGE OF MEMBERS THAT ARE PATRONS TO ATTENDANCE AT THE ANNUAL STOCKHOLDERS' MEETING; 39 ASSOCIATIONS, 1929

Percentage of members that are patrons	Number of associations	Average percentage attendance at annual meetings
20 or less	3	23
21-40	6	30
41-60	3	40
61-80	10	38
Over 80	17	46
All associations	39	39

Many of the boards of the cooperative creameries meet monthly to determine prices to producers, the average number of meetings for this group being twice that of stock companies and purchasing associations

(table 24). The dairy cooperatives had larger directorates than the stock companies but not as large as the purchasing associations. Their directors' meetings were also better attended, averaging 88 percent in 1929 compared with 65 and 79 percent respectively for the other groups. Sixteen of the cooperative dairy corporations pay their directors from \$1 to \$5 for each meeting attended, averaging \$2.88 while three purchasing associations averaged to pay \$3.50. Only one stock company pays directors' fees.

TABLE 24.—DIRECTORS' MEETINGS AND FEES, 1929

Factor	Dairy marketing associations			All associations
	Cooperatives	Stock companies	Purchasing associations	
Number of directorates.....	22	13	4	39
Average number of directors..	7	5	9	7
Average number of meetings..	10	5	5	8
Number of associations compensating directors	16	1	3	20
Average fee paid	\$2.88	\$1.00	\$3.50	\$2.88
Average percentage of directors present at meetings....	88	65	79	79

It is difficult to allocate the compensation paid to occupants of the various positions owing to the numerous duplications in offices held. Thus when the president is also manager he may be paid for his services as manager, but receive no wage as president. Estimates were secured touching the time devoted to the several official duties and the pay received. Twenty-two presidents of cooperative creameries worked a total of 11 months, an average of 0.5 months each, while the heads of the 13 stock companies gave practically no time or oversight to the management of their organizations. As a rule the stock companies did not hire bookkeepers and hence their secretary-treasurers did the work, averaging 2.6 months' time as compared with only 0.3 month for the cooperatives. The latter averaged to pay their officers \$260 per month worked, the stock companies \$109.

Two cooperative dairy corporations and four stock companies employed no manager during 1929. One organization had leased its plant and the other five employed buttermakers who, although they carried considerable managerial responsibility, were not as a rule given as much control of the operations of their organizations as were the association managers.

The educational history of the 33 managers is summarized in table 25. Nineteen had completed high school and seven were college grad-

uates. One-third had had more or less agricultural training in a state school or college. The previous experience was rather varied. Sixteen of the creamery managers had been associated with proprietary creameries, four of them as owners. Fourteen managers had had

TABLE 25.—EDUCATIONAL EXPERIENCE OF MANAGERS

Education	Number of managers	Number of managers having four years of high school training
Common school	9	..
One to three years' high school	3	..
Four years' high school	4	4
Business school	2	1
Agricultural school	3	2
College short course	5	5
Agricultural college graduate	3	3
Graduates of other colleges	4	4
Total	33	19

farmer experience. Two had been salesmen, two merchants and one each a farm bureau agent, a state creamery inspector and an accountant. Seven had served their respective organizations for more than 10 years, 22 from five to 10 years and only four for less than five years.

The expenditure for managers' salaries ranged from less than \$500 for six to over \$3,500 in the case of six others (table 26). The managers of nine of the 11 associations which paid \$1,500 or less worked less than 12 months; all receiving more than \$1,500 were full-time employees.

TABLE 26.—MANAGERS' SALARIES

Annual salaries	Number of managers	Median average annual salary	Average months worked	Median average monthly salary
\$ 500 or less	6	\$ 275	3	\$100
501-\$1,500	5	1,200	9	125
1,501- 2,500	5	1,800	12	150
2,501- 3,500	11	3,000	12	250
Over \$3,500	6	3,700	12	308
All managers	33	\$3,000	10	\$250

The three groups of associations differ considerably in the average salaries paid (table 27). The dairy cooperatives paid their officers at a rate approximately double that paid by the stock companies and purchasing associations and their managers nearly three times as much as the stock companies and nearly a half more than the purchasing associations. The wages paid plant and miscellaneous labor were lowest

among the purchasing associations and highest among the stock companies, chiefly because of the differences in the proportions of skilled labor employed. Due to their smaller size and to the character of their business the purchasing associations employ less common labor than do the cooperative creameries and, consequently, the average pay of all employees, managers and help combined, is some 20 percent higher. Similarly the average wage paid by the stock companies was only slightly less than that of the cooperatives despite the much higher salaries received by the managers of the latter.

TABLE 27.—AVERAGE MONTHLY SALARIES; ALL ORGANIZATIONS, 1929

Type of employment	Average salaries per month worked		
	Dairy corporations		
	Cooperatives	Stock companies	Purchasing associations
Officers and directors	\$238	\$101	\$ 99
Managers	333	126	238
Office help	102	80	109
Administrative and clerical	\$170	\$114	\$190
All other employees	105	112	93
Total	\$118	\$113	\$142

The employees of seven of the larger dairy cooperatives receive benefits additional to those represented by money wages. These are mostly in the form of insurance, the corporation paying all or part of the premium on a life insurance policy, usually for \$1,000, or on an accident and health policy.

BUSINESS POLICIES

Buying.—There has been a distinct tendency among the dairy marketing organizations, especially among the stock companies, toward increase in the proportion of the purchases of milk and cream delivered by non-members. During the first year of operation (table 28) nine of the 13 stock companies did more than 50 percent of their business with members and four of them bought only from members. In 1930 there was only one left in which the purchases from members exceeded those from non-members. Nineteen of the 21 cooperatives bought exclusively from members during their first year and none received more than half their product from outsiders. In 1930 the number of those whose patrons were all stockholders had fallen to 15, four bought between one and 50 percent from non-members and two did more than half of their business with outsiders. None of the purchasing associa-

tions have ever dealt exclusively with stockholders. During their first year two did more than half and two less than half of their business with members and the situation was unchanged in 1930.

TABLE 28.—DISTRIBUTION OF ASSOCIATIONS ACCORDING TO PERCENTAGE OF BUSINESS DONE WITH MEMBERS DURING FIRST YEAR OF OPERATION AND DURING 1930

Percentage of business done with members during first year of operation	Percentage of business done with members during 1930			
	100	50 to 99	Less than 50	Total
Twenty-two cooperative dairy corporations				
100	15	2	2	19
50 to 99	2	..	2
Less than 50
Total	15	4	2	21
Thirteen stock companies				
100	4	4
50 to 99	1	4	5
Less than 50	4	4
Total	1	12	13
Four purchasing associations				
100
50 to 99	2	..	2
Less than 50	2	2
Total	2	2	4

All dairy marketing associations operate on a pooling basis. The proceeds of sales are distributed among the patrons in accordance with the amount and test of the product delivered without regard to the form in which or the price at which the milk or cream of any particular individual is sold. Payments to patrons are, of course, subject to deductions for special services rendered, such as milk hauling and for purchases from the plant. However, prices depend in part on competitive conditions. As a rule the various associations distribute each month to their patrons all the funds available after the deduction of expenses and reserves, but at times some have exceeded that amount, reducing their surplus in order to meet competitive prices and thereby to retain their patrons. Under other circumstances, when the amount available for payment to patrons exceeds that needed to meet competitive prices, some associations retain a portion to be distributed as a patronage dividend at the end of the fiscal year.

Prices to patrons were computed in various ways at the several plants. Cream deliveries were paid for on a straight butterfat basis,

lower prices being paid for fat in sour than in sweet cream. Fluid milk purchases at butter factories and cream shipping plants were likewise paid for on a butterfat basis, the skim milk usually being returned to the farmer. Only one association paid its patrons on a straight butterfat basis for milk shipped as fluid and in this case the price for fat in milk was higher than that for fat in cream. Eleven corporations paid their fluid milk patrons on a "fat-skim" basis, quoting prices at so much per pound of fat and so much per hundredweight of skim contained in the milk. Seven associations quoted prices on the basis of a hundredweight of milk of a specified test with differentials for variations in fat content.

Selling.—The various outlets through which the dairy marketing associations dispose of their products and the relative importance of each to the corporations using it are indicated in table 29. The most important buyers were retailers who bought an average of 64 percent of the product of 26 associations. In addition eight associations shipped

TABLE 29.—THE NUMBER OF DAIRY CORPORATIONS SELLING PRODUCTS TO VARIOUS TYPES OF DEALERS, 1929

Customers	Number of associations	Percentage of total sales	
		Range	Average
Wholesalers	16	1-100	40
Retailers	26	5-100	64
Wholesale and retail	8	50-100	88
Consumers	24	2-100	25
Commission	6	1-100	38
Others	3	25-100	72

from 50 to 100 percent of their output to dealers who sold in both the wholesale and the retail markets. There were nearly as many—24—who sold direct to consumers, but these were in the main the smaller associations and only a fourth of their product on the average went into that channel. The only other group with whom any large number of the associations dealt was that of dealers who resold at wholesale and who took an average of 40 percent of the product of 16 associations. The minor markets include commission men, jobbers and chain stores.

Losses due to bad debts have not been large among the dairy marketing associations. Some say they "have not lost a dollar in several years." The associations which ship milk and cream carry large accounts but these are normally collectible within 30 days. Under such conditions a dealer's failure would mean a severe loss to the association. Such losses have occurred, but they are not frequent. Selling in large quantities, assuming heavy risks through large accounts, the dairy

cooperatives carefully investigate all new customers. Cash sales are small. A few grant discounts for payment within 30 days. In general sales of butter and supplies to patrons are carried as receivables until they can be deducted from milk or cream checks.

The credit risks of the purchasing associations are of a somewhat different character. The individual accounts are small and, unlike the sales to patrons of the creameries, there are no patronage liabilities from which such indebtedness can be deducted. The more successful purchasing associations have restricted credit sales, a fact which is reflected in a much stronger financial condition. The cash sales of the four associations included in this study vary from 75-100 percent of the total business. One operates solely on a cash basis, two limit car-door sales to cash and warehouse sales to 30 days while the fourth has had no definite credit policy. At one time it attempted to charge 10 percent for credit but abandoned the arrangement after a brief trial.

Accounting.—Most of the smaller associations have not installed complete double-entry accounting systems but have kept only such accounts as seemed absolutely necessary. Nineteen of the 22 cooperative dairy marketing associations maintained a complete set of books in accordance with a well planned double-entry system. Fifteen employed competent outside auditors at regular intervals, while the books of the other four were audited by committees appointed at the annual meetings or by outside auditors at irregular intervals. The books of three of the four purchasing associations were adequate and were systematically audited. The situation is summarized in table 30.

TABLE 30.—DISTRIBUTION OF ASSOCIATIONS ACCORDING TO THE NUMBER OF COMPETENT OUTSIDE AUDITS DURING THE FIVE-YEAR PERIOD, 1925-1929

Number of competent outside audits, 1925-1929	Number of associations			
	Dairy marketing			Total
	Cooperatives	Stock companies	Purchasing associations	
5 or more	14	..	3	17
4	1	1	..	2
3	1	..	..	1
1	1	..	..	1
None	5	12	1	18
Total	22	13	4	39

Cost accounting for special operations was done only to a very limited extent. Many of the larger corporations, especially those whose operations are diversified, might well establish more detailed systems of cost accounts.

ADVANTAGES AND DISADVANTAGES OF ORGANIZATION

The officers and managers were asked to express themselves as to the advantages and disadvantages of their own associations. The advantages, listed according to the frequency with which they were mentioned, were: (1) the guaranty of a year-round market, (2) the ability to manufacture and store products of the members when deprived of a fluid market, (3) the partial elimination of middlemen, (4) savings through large volume operations, and (5) saving on hauling expense. The handicaps most frequently mentioned were: (1) competition of fluid milk market, (2) small volume of business, (3) lack of members' support, (4) distance from railroad, (5) scattered capital stock, and (6) lack of organization in the industry.

BALANCE SHEET ITEMS

PURCHASING ASSOCIATIONS

The size and the relative importance of the various items in the balance sheet of a purchasing organization vary considerably with the season of the year to which it refers. In particular the merchandise inventory tends to be higher relative to the total investment during the winter months than during late spring and summer. For this reason the balance sheets of the four purchasing associations included in this study are not strictly comparable although, because of proportionately larger car door sales, the merchandise inventories of two associations whose fiscal years ended respectively on December 31 and March 31 were less relative to total assets or to sales than those of the others whose fiscal years ended respectively on September 15 and June 30.

Diversities in the type of business conducted by the purchasing associations and by the creameries are reflected in differences in the distribution of the assets and liabilities. The former require relatively large amounts of cash and working capital for economic operation but less elaborate buildings are needed and a relatively small portion of the capital is tied up in fixed assets. The importance of the investment in trade accounts and notes receivable depends on the credit policy and this also largely determines the status of accounts and notes payable to trade creditors through its effect upon the ability of the association to pay cash for purchases.

Assets.—Current assets represented four-fifths of an average total investment of \$28,000 (table 31) and land, buildings and equipment only one-fifth. The percentage that current assets were of the total

varied from 59 to 99 among the different associations. Cash averaged \$7,000, approximately one-third of the current and one-fourth of the total assets, but this item was an exceedingly variable one, being less than 10 percent in two cases and approximately 60 percent in the other two.

TABLE 31.—CONSOLIDATED ASSET VALUES; FOUR COOPERATIVE PURCHASING ASSOCIATIONS, 1929-1930

Asset item	Amount		Percentage		
	Total	Average	Of group	Of total	Cumulative
Cash	\$ 28,471	\$ 7,118	31.3	25.6	25.6
Accounts receivable	41,110	10,277	45.2	36.9	62.5
Merchandise inventory	21,092	5,273	23.2	18.9	81.4
Other current assets	322	80	0.3	0.3	81.7
Total current assets	\$ 90,995	\$22,748	100.	81.7	81.7
Deferred assets	272	68	100.	0.2	81.9
Office equipment	\$ 661	\$ 165	3.3	0.6	82.5
Delivery equipment	1,324	331	6.6	1.2	83.7
Warehouse equipment	146	37	0.7	0.2	83.9
Buildings	17,175	4,294	85.4	15.4	99.3
Land	800	200	4.	0.7	100.
Total fixed assets	\$ 20,106	\$ 5,027	100.	18.1	100.
Total assets	\$111,373	\$27,843	....	100.	....

The supplies inventory, averaging 19 and 23 percents of the total and of the current assets respectively, was another extremely variable item. In three cases in which the association handled a large portion of their business on a car door basis, the inventory was less than 30 percent of the current assets, but in the other it was 90 percent. Grain and feed, representing 76 percent of the total, constituted much the most important item, while agricultural seed makes up 11 percent and gasoline and oil, hardware, tires and miscellaneous items 13 percent.

Net accounts receivable represented 37 percent of the total investment and 45 percent of the current assets. One association had no accounts outstanding, in another 72 percent of the current assets were of this nature, while in the other two cases they averaged 25 percent. There were a total of 655 accounts outstanding with a gross value of nearly \$43,000, three-fourths of which were confined to one association. A seventh of them had been on the books for more than a year and a third from six to 12 months (table 32). The managers estimated that less than six percent of these accounts over six months old were of doubtful value. Thirty-two percent of the accounts were less than one month old and of these only 0.4 percent were deemed to be of doubtful

value. The total estimated value of doubtful accounts was but three percent of the gross value.

All notes receivable, to a total face value of \$8,600, had been discounted. Only one percent was considered to be of questionable worth,

TABLE 32.—ANALYSIS OF 655 ACCOUNTS RECEIVABLE; COOPERATIVE PURCHASING ASSOCIATIONS, 1929-1930

Period	Total amount	Percent- age of total	Average per asso- ciation	Doubtful accounts		
				Total amount	Percent- age of all ac- counts	Percent- age of total doubtful
Over 12 months ...	\$ 6,208	14	\$ 1,552	\$ 355	5.7	28
6-12 months	13,444	32	3,361	667	5.	53
1- 6 months	9,521	22	2,380	172	1.8	14
Less than 1 month.	13,539	32	3,385	59	0.4	5
Total	\$42,712	100	\$10,678	\$1,253	2.9	100

although nearly one-half of them had been renewed from one to three times. The usual duration of these notes was three months or less, the interest rate uniformly six percent.

One association owned all the real estate employed in its business, two had erected or purchased warehouses on land leased from railroad companies and one rented all the real estate it occupied. One warehouse was built of cement blocks, all others were frame buildings. This item of real estate was the only one of consequence in the fixed asset group, representing 90 percent of the fixed assets and 16 percent of the total investment. In only one case did such investment exceed 25 percent of the total capital.

Equities.—Some 43 percent of the total equity in these purchasing associations was represented by indebtedness to outsiders (table 33). These liabilities were almost entirely short term obligations, mortgages amounting only to five percent of the total assets. Open accounts were the outstanding source of credit in the current group, constituting 59 percent of the total and, together with trade notes payable, amounted to 65 percent of the current liabilities, this latter percentage varying from 20 to 100. The other third consisted of bank credit. Furthermore, as was pointed out above, there existed a contingent liability for patrons' notes discounted of \$8,600, equivalent to nearly eight percent of the assets and nearly 14 percent of the members' net worth.

The stockholders' equity in their associations, amounting to 57 percent, was about equally divided between capital stock, representing their original investment, and surplus and reserves which had been

TABLE 33.—CONSOLIDATED EQUITY VALUES; COOPERATIVE PURCHASING ASSOCIATIONS, 1929-1930

	Amount		Percentage		
	Total	Average	Of group	Of total	Cumulative
Trade accounts payable	\$ 25,086	\$ 6,272	59.1	22.5	22.5
Trade notes payable	2,500	625	5.9	2.2	24.7
Bank notes payable, unsecured	14,560	3,640	34.3	13.1	37.8
Other current liabilities	317	79	0.7	0.3	38.1
Total current liabilities.	\$ 42,463	\$10,616	100.	38.1	38.1
Mortgages	5,250	1,312	100.	4.7	42.8
Total liabilities	\$ 47,713	\$11,928	....	42.8	42.8
Capital stock	\$ 29,525	\$ 7,381	46.4	26.5	69.3
Contingent reserves	4,692	1,173	7.4	4.2	73.5
Undivided profits	29,443	7,361	46.2	26.5	100.
Total net worth	\$ 63,660	\$15,915	100.	57.2	100.
Total equities	\$111,373	\$27,843	....	100.	....

built up through earnings, the latter ranging from 10 to 75 percent of net worth. The average amount of stock outstanding per member ranged from \$20 to \$40, averaging \$24.

Solvency.—Although the total liabilities averaged 43 percent of the total investment, they were less than the total value of cash and merchandise inventories. In two cases, cash alone was more than sufficient to liquidate all claims of outsiders. The other two, however, had less than two dollars in current assets for each dollar of current liabilities. Thus while the working capital in two associations was less than that commonly regarded as requisite for efficient operation the other two showed evidence of idle funds. The equity of the members of the same two associations whose current position was strong was over 80 percent of the total investment; in a third it was 60 percent; and in the fourth less than the 50 percent which is commonly regarded as necessary for sound financing.

Turnover.—The ratio of the average merchandise inventory at the beginning and end of the year to the cost of goods sold indicates that on the average slightly less than one week's sales were kept on hand. The turnover of the total assets in net sales averaged 8.7, ranging from four to 14.

DAIRY MARKETING ASSOCIATIONS

Assets.—The assets of the 35 dairy marketing associations represented in 1929 an estimated total investment of over \$3,000,000 (table 34). The total investment for cooperatives ranged from \$8,000 to

\$435,000, that of the stock companies only from \$2,500 to \$27,000. The average total investment of six cooperatives exceeded \$200,000 and of three others ranged from \$100,000 to \$200,000. On the other hand the assets of eight totalled less than \$50,000 each, but in only two cases

TABLE 34.—CONSOLIDATED ASSET VALUES; 35 DAIRY MARKETING ASSOCIATIONS, 1929

Asset items	Twenty-two cooperatives		Thirteen stock companies		All associations	
	Total value	Average value	Total value	Average value	Total value	Average value
Cash	\$ 226,025	\$ 10,274	\$ 40,315	\$ 3,101	\$ 266,340	\$ 7,610
Net trade accounts receivable	849,929	38,633	37,137	2,857	887,066	25,345
Other accounts receivable	18,585	845	460	35	19,045	544
Net notes receivable..	69,326	3,151	.....	.....	69,326	1,981
Merchandise inventory	190,807	8,673	7,191	553	197,998	5,657
Accrued income items	381	17	81	6	462	13
Total current assets	\$1,355,053	\$ 61,593	\$ 85,184	\$ 6,552	\$1,440,237	\$41,150
Supplies	\$ 68,727	\$ 3,124	\$ 6,704	\$ 516	\$ 75,431	\$ 2,155
Prepaid items	10,026	456	.....	.....	10,026	286
Total deferred assets	\$ 78,753	\$ 3,580	\$ 6,704	\$ 516	\$ 85,457	\$ 2,441
Investments	\$ 147,683	\$ 6,713	\$ 1,040	\$ 80	\$ 148,723	\$ 4,249
Other assets	1,533	70	1,300	100	2,833	81
Office equipment	\$ 18,896	\$ 859	\$	\$	\$ 18,896	\$ 540
Delivery equipment...	56,152	2,552	1,342	103	57,494	1,643
Plant equipment	565,151	25,689	24,187	1,861	589,338	16,838
Buildings	560,085	25,458	31,483	2,422	591,568	16,902
Land and improvements	105,885	4,813	2,825	217	108,710	3,106
Total fixed assets.	\$1,306,169	\$ 59,371	\$ 59,837	\$ 4,603	\$1,366,006	\$39,029
Total assets.....	\$2,889,191	\$131,327	\$154,065	\$11,851	\$3,043,256	\$86,950

were the figures less than \$20,000. In contrast to this situation it is to be noted that the total investment of only two of the stock companies exceeded \$20,000 and in six cases it was less than \$10,000.

In general a slightly larger proportion of the investment of the cooperatives was in the form of fixed assets and a smaller proportion in liquid form than in the case of the stock companies (table 35).

The more important current asset items were cash and trade accounts receivable, which comprised 37 percent of the total investment and 80 percent of current assets (figure 8). Buildings and plant equipment, which were of approximately equal importance, were the two major items in the fixed asset group, comprising 86 percent of the total. The cooperatives had invested a larger percentage of their capital in plant equipment than the stock companies. The investment in real estate

TABLE 35.—ASSET PERCENTAGES; 35 DAIRY MARKETING ASSOCIATIONS, 1929

Asset items	Twenty-two cooperatives			Thirteen stock companies			All associations		
	Percentage			Percentage			Percentage		
	Of group	Of total	Cumulative	Of group	Of total	Cumulative	Of group	Of total	Cumulative
Cash	16.7	7.8	7.8	47.3	26.2	26.2	18.5	8.7	8.7
Net trade accounts receivable	62.7	29.4	37.2	43.6	24.1	50.3	61.6	29.2	37.9
Other accounts receivable	1.4	0.7	37.9	0.5	0.3	50.6	1.3	0.6	38.5
Net notes receivable.....	5.1	2.4	40.3	.....	.....	50.6	4.8	2.3	40.8
Merchandise inventory...	14.1	6.6	46.9	8.5	4.7	55.3	13.8	6.5	47.3
Accrued income items....	.....	.....	46.9	0.1	.....	55.3	.....	.....	47.8
Total current assets..	100.	46.9	46.9	100.	55.3	55.3	100.	47.3	47.8
Supplies	87.3	2.4	49.3	100.	4.4	59.7	88.3	2.5	49.8
Prepaid items	12.7	0.3	49.6	.....	.....	59.7	11.7	0.3	50.1
Total deferred assets	100.	2.7	49.6	100.	4.4	59.7	100.	2.8	50.1
Investments .....	.....	5.1	54.7	.....	0.7	60.4	.....	4.9	55.1
Other assets .....	.....	0.1	54.8	.....	0.8	61.2	.....	0.1	55.1
Office equipment	1.4	0.6	55.4	.....	.....	61.2	1.4	0.6	55.7
Delivery equipment	4.3	1.9	57.3	2.3	0.9	62.1	4.2	1.9	57.6
Plant equipment	43.3	19.6	76.9	40.4	15.7	77.8	43.1	19.4	77.1
Buildings	42.9	19.4	96.3	52.6	20.4	98.2	43.3	19.4	96.4
Land and improvements..	8.1	3.7	100.	4.7	1.8	100.	8.	3.6	100.
Total fixed assets....	100.	45.2	100.	100.	38.8	100.	100.	44.9	100.
Total assets .....	.....	100.	.....	.....	100.	.....	.....	100.	.....

ASSETS

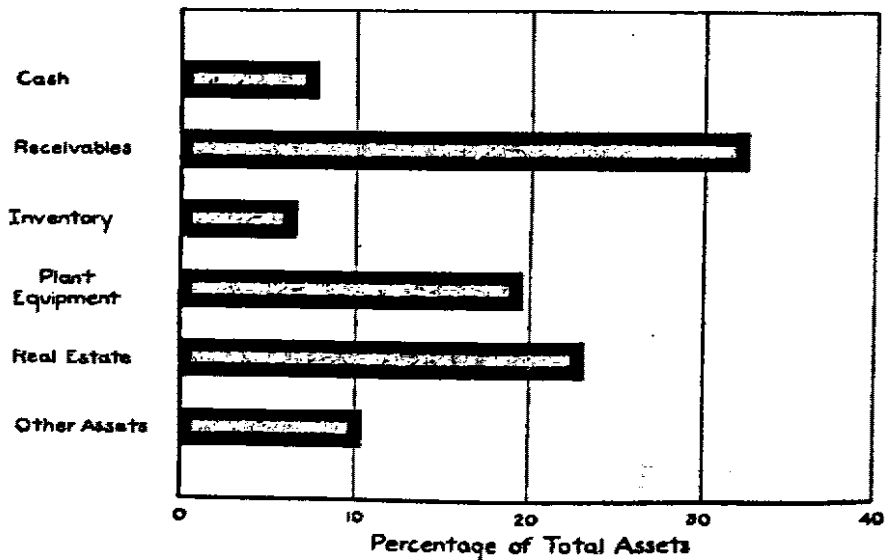


FIG. 8.—Distribution of asset values, 22 cooperatives, 1929.

exceeded 50 percent of the total capital in the case of five cooperatives and of three stock companies and was less than 40 percent in the case of nine and six respectively.

There were 2,228 trade accounts receivable appearing in the ledgers at the close of the several fiscal years, an average of 64 accounts per association. The gross value was \$915,673 (table 36). Four-fifths of these accounts were less than a month old; only a twentieth over six months old. The accounts of doubtful value totaled \$31,085 or 3.4 percent of the gross amount outstanding. This is slightly less than half of the amount charged off in the balance sheets, an indication that ample allowance had been made therein for doubtful accounts. Approximately seven-eighths of the accounts over a year old were held to be of doubtful value. Practically all of the accounts less than six months of age were deemed to be collectible.

TABLE 36.—ANALYSIS OF 2,228 TRADE ACCOUNTS RECEIVABLE; 35 DAIRY MARKETING ASSOCIATIONS, 1929

Months outstanding	Trade accounts receivable					
				Doubtful accounts		
	Total amount	Percent- age of total	Average per associa- tion	Total amount	Percent- age of group	Percent- age of total doubtful
Over 12	\$ 31,452	3.4	\$ 899	\$27,738	88.2	89.2
6 to 12	15,658	1.7	447	2,945	18.8	9.5
1 to 6	125,394	13.7	3,583	230	0.2	0.7
Less than 1	743,169	81.2	21,233	172	...	0.6
Total	\$915,673	100.	\$26,162	\$31,085	3.4	100.

None of the stock companies held any notes receivable but the cooperatives held 449 such notes with a total face value of \$85,200 at the close of their 1929 fiscal years, an average of \$190 per note. This was equivalent to 5.1 percent of current assets and to 2.4 percent of the total investment. Notes of doubtful worth amounted to \$5,254 or 6.2 percent of the total face value of all the notes. Most of these are members' notes given to cover subscriptions to capital stock. With the exception of two associations, which charged five percent on members' notes, the interest rate was six percent. Two stated that on the average notes were renewed twice and two reported them renewed once; the others reported no renewals. Of these notes \$15,874 worth, less than a fifth, had been discounted. Apparently cash requirements were generally being met without difficulty.

The gross amount and the relative importance of the investment in plant equipment varied with the size and type of business of the asso-

ciations. In general the machinery investment of the butter factories was not only much smaller than that of the associations which shipped milk and cream, in keeping with their smaller size, but was less relative to other items because of the less diverse character of their operations.

In both groups the real estate investment amounted on the average to a little more than a fifth of the total (table 35). In keeping with their larger size the cooperatives owned an average of 4.5 acres of land (exclusive of 220 acres of outside farm land) as compared with only 0.8 acres for the stock companies. The number and type of construction of the buildings owned by these associations are given in table 37. Ninety-one were of wood-frame construction, nine brick, three tile, and five concrete and steel. The stock companies owned only wood-frame buildings. Twelve of the central plants of the cooperatives were located on railroad sidings and 10 off rail at an average distance of 4.8 miles. Only one of the 13 stock companies was located on rail and the other 12 were placed at an average of 5.8 miles from rail facilities.

TABLE 37.—TYPE OF BUILDINGS; 34 DAIRY MARKETING ASSOCIATIONS, 1930

Buildings	Concrete and steel	Tile	Brick	Wood frame	Total
Twenty-one cooperatives					
Central plant	4	2	5	10	21
Outside plants .....	..	1	2	18	21
Dwelling houses .....	..	..	2	10	12
Other	1	..	..	26	27
Total	5	3	9	64	81
Thirteen stock companies					
Central plant .....	..	..	..	13	13
Outside plants .....	..	..	..	2	2
Dwelling houses .....	..	..	..	4	4
Other .....	..	..	..	8	8
Total .....	..	..	..	27	27

Among the minor items of investment the merchandise inventory, which accounted for 6.5 percent of the total, consisted very largely (92 percent) of dairy products, the balance of eight percent being made up of farm supplies. Outside investments, which appeared on 13 balance sheets, represented almost exclusively (97 percent) ownership of the common stock of subsidiaries. Office appliances did not appear in the inventories of the stock companies nor of some of the smaller cooperatives and was a rather insignificant item on the whole, although some of the large organizations used a considerable amount of mechanical

equipment to facilitate their bookkeeping and other office work. Ownership of delivery trucks also was largely confined to the larger cooperatives, 54 of a total of 63 belonging to 14 associations with a volume of business in excess of \$200,000.*

Equities.—Claims against the dairy marketing associations were equal to 43 percent of the total value of their assets (tables 38 and 39 and figure 9). Roughly half of these liabilities represented amounts owed patrons, a large proportion of whom, 90 percent in the case of cooperatives and 21 percent in that of the stock companies, were like-

TABLE 38.—CONSOLIDATED EQUITY VALUES; 35 DAIRY MARKETING ASSOCIATIONS, 1929

Equity items	Twenty-two cooperatives		Thirteen stock companies		All associations	
	Total value	Average value	Total value	Average value	Total value	Average value
Accounts payable—patrons..	\$ 659,410	\$ 29,973	\$ 45,683	\$ 3,514	\$ 705,093	\$20,146
Accounts payable—trade....	145,250	6,602	2,164	166	147,414	4,212
Notes payable—trade and individual	27,904	1,268	.....	....	27,904	797
Notes payable to banks—unsecured	84,888	3,859	5,000	385	89,888	2,568
Notes payable to banks—collateral demand	69,473	3,158	.....	....	69,473	1,985
Accrued expenses	31,092	1,413	423	33	31,515	900
Other current liabilities....	10,856	494	267	20	11,123	318
Total current liabilities.	\$1,028,873	\$ 46,767	\$ 53,537	\$ 4,118	\$1,082,410	\$30,926
Fixed liabilities	231,950	10,543	1,750	135	233,700	6,677
Total liabilities	\$1,260,823	\$ 57,310	\$ 55,287	\$ 4,253	\$1,316,110	\$37,603
Capital stock	\$1,013,003	\$ 46,046	\$ 39,385	\$ 3,030	\$1,052,388	\$30,068
Statutory reserve	259,591	11,800	.....	....	259,591	7,417
Reserve for contingencies...	125,168	5,689	2,070	159	127,238	3,636
Reserve for dividends	18,176	826	.....	....	18,176	519
Surplus and undivided profits	212,430	9,656	57,323	4,409	269,753	7,707
Total members' net worth	\$1,628,368	\$ 74,017	\$ 98,778	\$ 7,598	\$1,727,146	\$49,347
Total equities	\$2,889,191	\$131,327	\$154,065	\$11,851	\$3,043,256	\$86,950

wise members. The rest of the current liabilities amounted to 12 percent and the fixed liabilities, mainly mortgages on real estate, to eight percent of the total assets. Liabilities other than those to patrons for milk and cream were relatively unimportant among the stock companies. Only one was using short term bank credit and only one had mortgaged its fixed property. Among the cooperatives 12 reported commercial borrowings and nine real estate mortgages.

Net Worth.—The stockholders of both groups of associations have more than a 50 percent equity in the assets of their organizations. The stock companies have built up their surpluses to a greater extent than

TABLE 39.—PERCENTAGE DISTRIBUTION OF EQUITIES; 35 DAIRY MARKETING ASSOCIATIONS, 1929

	Twenty-two cooperatives			Thirteen stock companies			All associations		
	Percentage			Percentage			Percentage		
	Of group	Of total	Cumulative	Of group	Of total	Cumulative	Of group	Of total	Cumulative
Accounts payable—patrons	64.1	22.8	22.8	85.3	29.7	29.7	65.2	23.2	23.2
Accounts payable—trade..	14.1	5.	27.8	4.1	1.4	31.1	13.6	4.8	28.
Notes payable—trade and individual	2.7	1.	28.8	...	...	31.1	2.6	0.9	28.9
Notes payable to banks— unsecured	8.3	2.9	31.7	9.3	3.2	34.3	8.3	3.	31.9
Notes payable to banks— collateral demand	6.8	2.4	34.1	...	...	34.3	6.4	2.3	34.2
Accrued expenses	3.	1.1	35.2	0.8	0.3	34.6	2.9	1.	35.2
Other current liabilities..	1.	0.4	35.6	0.5	0.2	34.8	1.	0.4	35.6
Total current liabilities	100.	35.6	35.6	100.	34.8	34.8	100.	35.6	35.6
Fixed liabilities	100.	8.	43.6	100.	1.1	35.9	100.	7.7	43.3
Total liabilities .....	...	43.6	43.6	...	35.9	35.9	...	43.3	43.3
Capital stock	62.2	35.1	78.7	39.9	25.6	61.5	60.9	34.6	77.9
Statutory reserve	15.9	9.	87.7	...	...	61.5	15.	8.5	86.4
Reserve for contingencies	7.7	4.3	92.	2.1	1.3	62.8	7.4	4.2	90.6
Reserve for dividends....	1.1	0.6	92.6	...	...	62.8	1.1	0.6	91.2
Surplus and undivided profits	13.1	7.4	100.	58.	37.2	100.	15.6	8.8	100.
Total members' net worth	100.	56.4	100.	100.	64.1	100.	100.	56.7	100.
Total equities .....	...	100.	...	...	100.	...	...	100.	...

EQUITIES

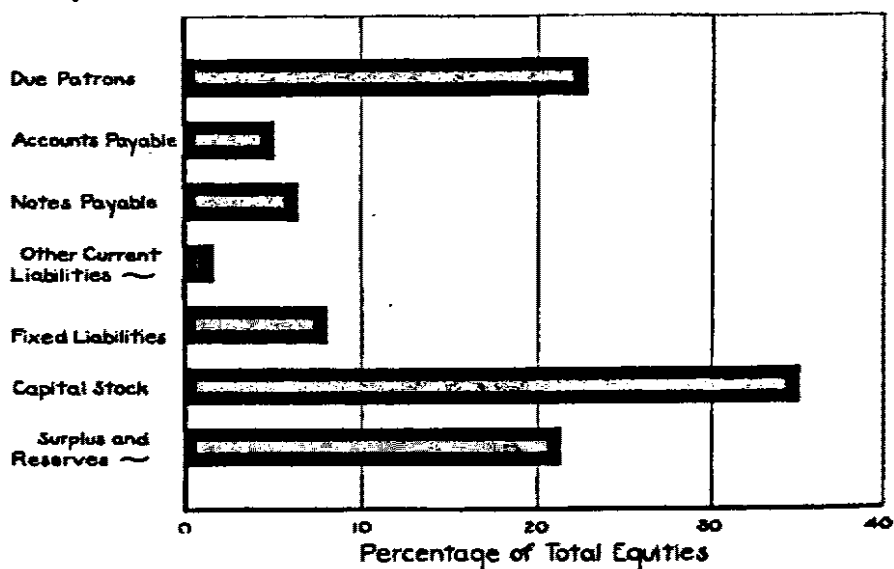


FIG. 9.—Distribution of equities, 22 cooperatives, 1929.

have the cooperatives, but practically none has been definitely set aside in reserve accounts. The cooperatives on the other hand have not only retained the reserves required by law, which are now on the average about half of the ultimate requirement of equivalence to 50 percent of the paid-up capital stock, but have set apart an additional reserve for contingencies amounting to approximately \$6,000 per association.

The par value of the average holding of stock per member among the cooperatives varied from \$23 to \$312 with an average of \$162, and the corresponding figures for the stock companies were \$23 to \$294 and \$101. The average book values of members' holdings for the two groups were \$260 and \$253 respectively.

Solvency.—Due to their larger size the excess of the current assets of the cooperatives over their current liabilities, that is to say, their working capital, was roughly six times that of the stock companies (table 40), but as is indicated by its ratio to total assets and by the ratio between current assets and current liabilities (current ratio), the

TABLE 40.—CURRENT SOLVENCY; 35 DAIRY MARKETING ASSOCIATIONS, 1929

Organizations	Working capital			Current ratio	Cash as percentage of current liabilities
	Average amount	Percentage of total assets	Percentage of fixed assets		
Cooperatives	\$14,826	11	25	1.32	22
Stock companies	2,434	20	53	1.59	75
All associations	\$10,224	12	26	1.33	25

latter group was in a more liquid position. Considerable differences existed within each group. The current position of two cooperatives and of three stock companies was definitely weak, their current liabilities exceeding their current assets. At the other end of the scale the working capital of five cooperatives and of three stock companies represented more than 30 percent of the total investment.

Current ratios varied from 0.4:1 to 7.5:1, the common figure lying between 1 and 1.5 (table 41). These rather low ratios, averaging 1.3 and 1.6 in the two groups (2:1 is a commonly accepted rough standard), are primarily due to the character of the business, to the fact that milk and cream are received from patrons and shipments are made daily while settlement is commonly made at 30-day intervals, with a resultant periodic building up of large accounts payable to patrons and

large accounts receivable from buyers. If the indebtedness to patrons be deducted from each side of the balance sheet the ratios, now representing the relationship between the excess of current assets over the amount due patrons and the liabilities to outsiders, become 1.9:1 for cooperatives and 5:1 for stock companies.

TABLE 41.—CURRENT RATIO; 35 DAIRY MARKETING ASSOCIATIONS, 1929

Organization	Current ratio	Number of associations with a current ratio of:			
	Range	Less than 1	1 to 1.5	1.6 to 2	Over 2
Cooperatives	0.8-3.4	2	12	3	5
Stock companies	0.4-7.5	3	4	1	5
Total	0.4-7.5	5	16	4	10

The cash position of the stock companies was likewise strong. Indeed there is indication of loss due to idle funds, the cash on hand being sufficient to liquidate 75 percent of the current liabilities. In the majority of cases the cash balances of the cooperatives were adequate, the average being 22 percent of current liabilities. In nine cooperatives and one stock company cash on hand was less than 10 percent of the current obligations.

The ultimate ability to discharge debts is largely determined by the members' equity in the business, 50 percent being usually regarded as a minimum. Twenty-six of the 35 associations were above, and nine, six cooperatives and three stock companies, below this standard (table 42). In no case among the 35 associations did the total liabilities exceed the total assets. The fact that the net value of real estate exceeded the funded debt in only two cases is further evidence of ultimate financial soundness.

TABLE 42.—ULTIMATE SOLVENCY; 35 DAIRY MARKETING ASSOCIATIONS, 1929

Organization	Members' net worth as percentage of total investment		Number of associations whose members' net worth in percent of total investment was:			
	Range	Average	Less than 40	40 to 49	50 to 59	60 and over
Cooperatives	30-85	58	3	3	6	10
Stock companies..	18-97	66	2	1	2	8
Total	18-97	61	5	4	8	18

Turnover.—Various measures of the ratio between the volume of sales and investment items are given in table 43. The slower rates of turnover of the cooperatives are due to the proportionally larger equip-

ment investment which their more diverse operations make necessary and to a larger investment in accounts receivable. This latter item is also reflected in the fact that the cooperatives had more than twice as many days' sales outstanding in accounts receivable than did the stock companies. This is due to differences in type of business and customary trade practices between milk and cream shippers on the one hand and butter factories on the other rather than to laxity in the extension of credit on the part of the cooperatives.

TABLE 43.—TURNOVER; 33 DAIRY MARKETING ASSOCIATIONS, 1929

	Cooperatives	Stock companies	All associations
Number of associations	21	12	33
Turnover of total investment	4.4	6.6	5.2
Turnover of investment in fixed assets	10.4	16.1	12.5
Percentage of net sales required to yield 10 percent on members' net worth	1.6	1.2	1.4
Percentage of net sales required to yield 6 percent on outstanding capital stock	0.6	0.3	0.5
Days' sales outstanding in accounts receivable	23.4	10.2	18.6

OPERATING ITEMS

PURCHASING ASSOCIATIONS

The consolidated operating statement of the purchasing associations (table 44) indicates that average operating expenses were equivalent to 4.3 percent of the net sales. Salary and wage payments account

TABLE 44.—CONSOLIDATED OPERATING STATEMENT; FOUR COOPERATIVE PURCHASING ASSOCIATIONS, 1929-1930

Operating item	Average amount	Percentage of sales	Percentage of gross margin
Net sales	\$248,366	100.	...
Cost of goods sold	237,071	95.5	...
Gross margin	\$ 11,295	4.5	100
Salaries and wages	\$ 5,500	2.2	49
Real estate expense	830	0.3	7
Office and general expense	4,452	1.8	39
Total operating expense	\$ 10,782	4.3	95
Net operating income	\$ 513	0.2	5
Other income	1,979	0.8	17
Net income for distribution..	\$ 2,492	1.	22
Distributed income	759	0.3	7
Undivided surplus	\$ 1,733	0.7	15

for slightly more than half of this figure. Of the total net income available for distribution, amounting to one percent of net sales, three-tenths were paid out in dividends and seven-tenths were retained in the business as undivided surplus.

DAIRY MARKETING ASSOCIATIONS*

The marked differences in the size and type of business of the two groups are again manifest in their operating items (table 45). It cost twice as much to run a pound of butterfat through the average cooperative plant as it did through the average stock company plant. However, the former sells in a far better market, enough better to enable it to make up the extra plant costs several times over. Their

TABLE 45.—CONSOLIDATED OPERATING STATEMENT; DAIRY MARKETING ASSOCIATIONS, 1929

Operating item	Cooperatives			Stock companies*		
	Average amount	Percent- age of sales	Per 100 pounds 3.7 milk equivalent	Average amount	Percent- age of sales	Per 100 pounds 3.7 milk equivalent
Number of associations	21	21	20	11	11	11
Net sales	\$529,741	100.	cents 367	\$69,743	100.	cents 244
Cost of goods sold.....	461,111	87.	319	62,917	90.2	220
Gross margin	\$ 68,630	13.	48	\$ 6,826	9.8	24
Salaries and wages	\$ 25,971	4.9	18**	...*
Real estate expense	3,894	0.7	3	.....	.....	...
Office and general expense	43,192	8.	30	.....	.....	...
Total operating expense	\$ 73,057	13.6	51	\$ 7,176	10.3	25
Net operating income	\$-4,427	-0.8	-3	\$-350	-0.5	-1
Other income	9,494	1.8	7	824	1.2	3
Net income for distribution	\$ 5,067	1.	4	\$ 474	0.7	2
Total distributed income	5,083	1.	4	217	0.3	1
Undivided surplus..	\$ -16	....	...	\$ 257	0.4	1

* The accounting records of the stock companies were not detailed enough to make distribution of expenses possible.

net sales amounted to \$1.23 more per hundredweight than those of the stock companies and they paid their patrons an average of \$0.99 a hundred more. This differential in favor of the cooperatives is partially offset by the fact that the stock companies received a much larger

* For a more detailed analysis of the operating costs of cooperative creameries see Camburn, O. M.: Cooperative Creamery Operation in Vermont, Vt. Exp. Sta., Bul. 335 (1931).

percentage of their purchases in the form of cream, their patrons retaining the skimmilk for feeding purposes.

The distribution of the associations with respect to certain operating ratios is indicated in table 46). The operating costs of a majority of the stock companies amount to less than 10 percent of net sales and of practically all of them are less than 30 cents per hundredweight of milk equivalent; the expenses of a majority of the cooperatives are over 12 percent of net sales and of nearly all are over 30 cents a hundred. On the other hand the net sales of none of the stock companies are over \$3 per hundred, while those of two-thirds of the cooperatives exceed that figure.

TABLE 46.—OPERATING RATIOS

	Total expense in percentage of net sales			
	Less than 10	10 to 11.9	12 to 13.9	14 and over
21 cooperatives	2	5	6	8
11 stock companies	6	2	1	2
Total	8	7	7	10

	Total expense per 100 pounds 3.7 milk (cents)			
	Less than 30	30 to 39	40 to 49	50 and over
20 cooperatives	2	9	6	3
11 stock companies	8	2	1	..
Total	10	11	7	3

	Salaries and wages in percentage of net sales			
	Less than 4	4 to 4.9	5 to 5.9	6 and over
21 cooperatives	6	9	3	3

	Net sales per 100 pounds 3.7 milk			
	Less than \$2.50	\$2.50 to \$2.99	\$3 to \$3.49	\$3.50 and over
20 cooperatives	2	4	10	4
11 stock companies	6	5	..	..
Total	8	9	10	4

CURRENT TENDENCIES AMONG VERMONT COOPERATIVES

PURCHASING ASSOCIATIONS

The five-year period from 1926 to 1930 was one of growth for the group of purchasing associations (table 47). The volume of sales increased steadily until 1929 but fell off slightly with the declining prices

TABLE 47.—NET SALES; COOPERATIVE PURCHASING ASSOCIATIONS, 1925-1926 TO 1929-1930

Year	Value of net sales		Percentage of 1925-1926
	Total	Average	
1925-1926	\$ 780,245	\$195,061	100
1926-1927	853,351	213,338	109
1927-1928	937,322	234,331	120
1928-1929	1,046,810	261,703	134
1929-1930	993,464	248,366	127

of the following year. The increase during the five years amounted to 27 percent. It was accompanied by a tendency to place less emphasis on the marketing of miscellaneous farm products and more on the purchase of grain and feed.

These organizations have likewise grown steadily in financial strength since the 1920-21 period of declining prices which left them in a weakened condition (table 48 and Appendix D, table 2, p. 101). Roughly speaking liabilities have held constant while assets have doubled, with a resultant increase of the average net worth from 8 to 57 percent of the total equities. Over four-fifths of the increase in invest-

TABLE 48.—AVERAGE BALANCE SHEET VALUES; COOPERATIVE PURCHASING ASSOCIATIONS, 1921 AND 1929

	1921-1922		1929-1930	
	Average value	Percentage of total	Average value	Percentage of total
Assets				
Cash	\$ 2,478	19	\$ 7,118	26
Receivables	3,210	24	10,278	37
Inventory of merchandise.....	3,578	27	5,273	19
Real estate	3,337	25	4,494	16
Other assets	666	5	680	2
Total assets	\$13,269	100	\$27,843	100
Equities				
Trade accounts and notes payable	\$ 7,303	55	\$ 6,896	25
Bank notes payable, unsecured	3,860	29	3,640	13
Mortgages payable	500	4	1,312	5
Other liabilities	558	4	80	..
Total liabilities	\$12,221	92	\$11,928	43
Capital stock	\$ 5,351	40	\$ 7,381	26
Surplus and reserves.....	—4,303	—32	8,534	31
Total net worth	\$ 1,048	8	\$15,915	57
Total equities	\$13,269	100	\$27,843	100

ment was the result of plowing earnings back into the business and only 13 percent was derived from the sale of capital stock (table 49).

TABLE 49.—SOURCES AND APPLICATION OF FUNDS; PURCHASING ASSOCIATIONS, 1921-1929

Item	Source of new funds		Application of new funds	
	Average amount	Percentage	Average amount	Percentage
	Decrease		Increase	
Cash .....	.....	...	\$ 4,640	30
Receivables .....	.....	...	7,068	45
Merchandise inventory ....	.....	...	1,695	11
Real estate .....	.....	...	1,157	7
Other assets .....	.....	...	14	...
Total assets .....	.....	...	\$14,574	93
	Increase		Decrease	
Trade accounts and notes payable .....	.....	...	\$ 407	3
Unsecured bank notes payable .....	.....	...	220	1
Mortgages payable	\$ 812	5	.....	...
Other liabilities .....	.....	...	478	3
Capital stock	2,030	13	.....	...
Surplus and reserves	12,837	82	.....	...
Total equities	\$15,679	100	\$ 1,105	7
Totals	\$15,679	100	\$15,679	100

Average operating costs declined with the rising volume of business from \$5.18 in 1925-26 to \$4.51 in 1928-29 per \$100 of sales but rose again to \$5.16 with the declining prices and dollar volume of 1929-30.

Two of the four local associations active in 1929 were sold in 1930. The two remaining associations are firmly established and in sound financial condition. However, there seems little reason to anticipate any considerable development in this particular field of cooperative endeavor in the immediate future. The experience of some of those which have ceased operation has been calculated to discourage similar attempts, and the facilities of the Eastern States Farmers' Exchange are available to any who wish to purchase supplies through a cooperative agency.

DAIRY MARKETING ASSOCIATIONS

The stock companies have been declining in numbers and in importance since 1904 and this tendency continues unabated. During the five years from 1925 to 1929 their numbers were reduced from 29 to 13 and their receipts of butterfat from 11 to 4 percent of the total (table 50). Their disappearance as cooperative organizations is the result sometimes of sale to proprietaries, sometimes of the accumulation

TABLE 50.—DAIRY PRODUCTS DELIVERED TO VERMONT PLANTS, 1924-1929

Year	Thousands of pounds of butterfat delivered to:							
	Local cooperatives			Stock companies			All others	
	Number of associations	Amount	Percent- age of total	Number of associations	Amount	Percent- age of total	Amount	Percent- age of total
1925	29	9,685	27	29	3,876	11	22,525	62
1926	29	10,811	29	25	2,788	7	24,523	64
1927	27	11,570	30	21	2,473	6	25,013	64
1928	22	11,848	..	21	2,285	..	.....	..
1929	21	11,260	29	13	1,496	4	25,897	67

of their stock in the hands of a few individuals and sometimes of abandonment. Although, as has been previously indicated, most of those that still exist are in excellent financial condition, perhaps as a result of a process of the survival of the fittest, they seem to be definitely on the way to complete extinction. Ten of the 13 operating in 1929 were butter factories located in the less accessible areas of the State. They are small enterprises and ill adapted to present-day market conditions. Their patrons tend to transfer their business as the opportunity offers to fluid milk shipping companies, cooperative or proprietary, with whose prices the butter factories can not compete. Such as may survive are still subject to the tendency, manifest throughout their history, to discard their cooperative features.

The number of cooperatives reached its peak in 1922. From 1925 to 1929 the number of active associations declined from 29 to 21 (table 50); but half of this reduction was due to mergers among cooperatives (table 6, p. 14) and was accompanied by an increase of approximately 16 percent in the volume of receipts and a slight increase in importance relative to other agencies. No new local associations have been incorporated since 1925, nor does there seem to be any likelihood of further expansion of this kind. A considerable number of those now functioning were organized in order to secure access to southern New England fluid markets. All important dairy sections are now shipping fluid milk and that incentive to new cooperative organization is no longer operative. The important present tendency is a movement toward more effective cooperation among cooperatives. This has taken the form of an attempt to establish an overhead sales agency, the New England Dairies, Inc. Whether or not this will be its final form it is obviously impossible to say, but the pressure for unified action in the metropolitan Boston milk shed is unmistakable.

Type of Business.—Both cooperative and proprietary groups increased the proportion of total product handled which was shipped as

fluid milk during the five years from 1925 to 1929, the latter at a more rapid rate than the former (table 51). At the beginning of this period the cooperatives were handling 51 percent and the proprietaries 42 percent of their respective products as fluid, while at its end the proportion of fluid was approximately the same in each case. The more rapid change exhibited by the privately owned group is in part due to the absorption into the milk shed area of territory formerly tributary to proprietary butter factories.

TABLE 51.—DISPOSAL OF DAIRY PRODUCTS; VERMONT PLANTS, 1924-1929

Year	Disposal of dairy products					
	Percentage shipped as fluid milk			Percentage shipped as cream		
	Local cooperatives	Stock companies	All others	Local cooperatives	Stock companies	All others
1925	51	7	42	31	9	35
1926	50	5	40	32	11	44
1927	51	1	47	33	10	41
1928	50	2	..	34	10	..
1929	55	3	53	32	12	36
Index of percentages (1925 = 100)						
1925	100	100	100	100	100	100
1926	98	71	95	103	122	126
1927	100	14	112	106	111	117
1928	98	29	...	110	111	...
1929	108	43	126	103	133	103

An increasing proportion of the skimmilk separated in the plants has been manufactured into casein and a decreasing proportion has been made into condensed and evaporated skimmilk, cheeses and other products (table 52). The percentage fed or returned to farmers has also decreased and is rapidly reaching the zero point. The total amount of skimmilk used was about 8,000,000 pounds greater and the amount manufactured more than 7,000,000 pounds greater in 1929 than was the case in 1926. Since the increase of the excess of fluid milk deliveries over shipments in the same period was at a far lower rate than this, a larger proportion of the available skimmilk must have been manufactured during the later years and less of it thrown away as was all too commonly the custom in the past.

The form in which the product is delivered to the plant depends primarily on the form in which it is marketed. Accordingly the percentage taken in by the cooperatives as fluid has increased as their fluid sales have been augmented (table 53). The stock companies buy cream almost exclusively.

TABLE 52.—DISPOSAL OF SKIMMILK; LOCAL COOPERATIVES AND STOCK COMPANIES, 1926-1929

	1926	1927	1928	1929
Thousands of pounds				
Manufactured into:				
Casein	12,827	24,191	28,449	29,471
Condensed and evaporated	7,963	6,917	4,383	5,373
Cheeses	6,947	2,735	1,363	299
All other	162	.....	239	129
Total manufactured	27,899	33,843	34,434	35,272
Shipped*	6,513	2,970	4,834	10,737
Fed or returned to farmers	5,379	4,999	3,418	1,944
Total	39,791	41,812	42,686	47,953
Percentages				
Manufactured into:				
Casein	32.2	57.9	66.6	61.5
Condensed and evaporated	20.	16.5	10.3	11.2
Cheeses	17.5	6.5	3.2	0.6
All other	0.4	...	0.6	0.3
Total manufactured	70.1	80.9	80.7	73.6
Shipped*	16.4	7.1	11.3	22.4
Fed or returned to farmers	13.5	12.	8.	4.
Total	100.	100.	100.	100.

* Includes skim milk used in standardizing.

TABLE 53.—PERCENTAGE OF DELIVERIES RECEIVED AS MILK AND CREAM; LOCAL COOPERATIVES AND STOCK COMPANIES, 1925-1929

	Percentage of total deliveries			
	Local cooperatives		Stock companies	
	Fluid milk	Cream	Fluid milk	Cream
1925	74	26	17	83
1926	72	28	14	86
1927	72	28	5	95
1928	74	26	6	94
1929	80	20	5	95

From time to time the local associations have found it necessary to buy dairy products from each other or from other plants if they are to fill their orders during the low-production months. The amounts of these purchases and the purposes for which they were used are shown in table 54. They vary irregularly, no tendency being apparent for the purchase of any particular product to increase.

The average monthly deliveries per patron of 10 cooperatives whose fluid sales were in excess of 50 percent of their deliveries increased approximately 300 pounds between 1926 and 1929, but this increment was offset by an equivalent decrease in the deliveries of the patrons of

TABLE 54.—INTERPLANT PURCHASES OF LOCAL ASSOCIATIONS, 1924-1929
(Thousands of pounds)

Disposal of product	1924	1925	1926	1927	1928	1929
Fluid milk						
Shipped as milk	788	1,686	1,097	299	558	1,002
Manufactured into ice cream.....	...	....	....	...	...	16
Manufactured into butter	38	....	19	...	...	....
Total fluid milk purchases ...	826	1,686	1,116	299	558	1,018
Cream						
Shipped as cream	343	335	412	291	169	190
Manufactured into butter	87	42	58	87	28	93
Manufactured into ice cream	18	31	149	...	...	5
Total cream purchases	448	408	619	378	197	288
Butter						
Sold as butter	69	66	86	109	142	57
Skimmilk						
Used for standardizing milk	118	10	326	24	2	315
Manufactured into ice cream mix.	37	11	15	...	...	....
Manufactured into cheeses	33	106	....	...	...	....
Condensed	173	....	....	...	...	....
Total skimmilk purchases....	361	127	341	24	2	315

the remaining 11 associations which shipped less than half of their receipts in fluid form, leaving the average for all associations unchanged.

Changes in the seasonal distribution of production of these two groups during the same period are indicated in figure 10. They are appreciable but not marked. The patrons of the fluid milk shipping

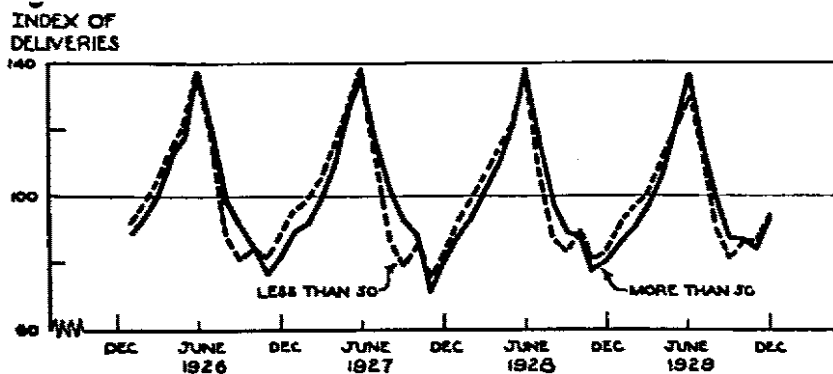


FIG. 10.—Changes in the seasonal distribution of patrons' deliveries, 1926-1929. Eleven cooperatives which shipped 50 percent or more of their receipts as fluid milk and 10 which shipped less than 50 percent as fluid during the five-year period.

(Deliveries adjusted to 30-day month. Monthly average = 100.)

associations delivered a larger percentage of their product during the winter months of 1928-29 than in those of 1926-27. There was a considerable increase in the production during the low month of November but only a slight reduction in the June peak (figure 11). In the case of those associations whose fluid sales were relatively less important, a greater reduction occurred in June production and a tendency was manifest for the low point to shift from November to September.

INDEX OF DELIVERIES

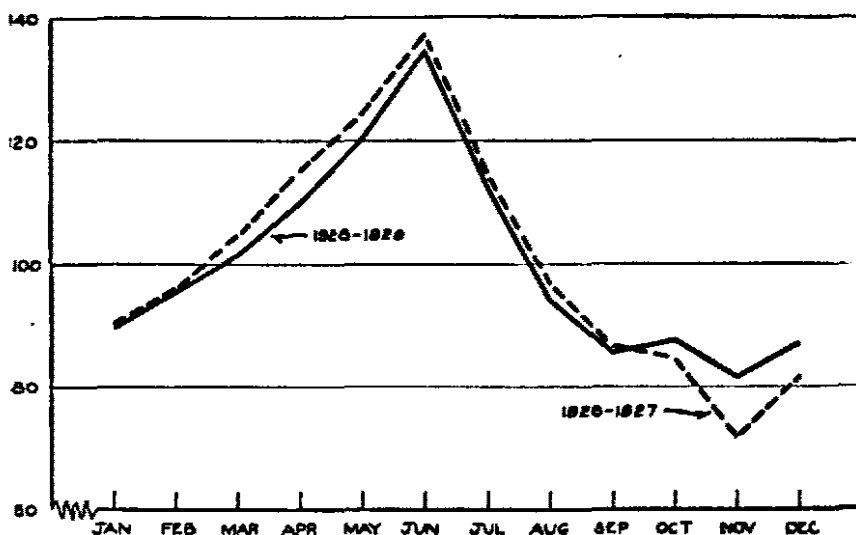


FIG. 11.—Changes in the seasonal variation in deliveries. Thirteen cooperatives which shipped more than 40 percent of their receipts as fluid milk in 1929. (Deliveries adjusted to 30-day month. Monthly average = 100.)

TABLE 55.—AVERAGE BALANCE SHEET VALUES; 20 COOPERATIVES, 1925-1929

	1925	1926	1927	1928	1929
Average asset values					
Current assets	\$38,263	\$ 45,718	\$ 60,595	\$ 60,410	\$ 66,254
Deferred assets	3,067	3,323	3,264	3,545	3,880
Fixed assets	53,744	59,885	63,212	64,235	64,126
Other assets	856	5,522	6,083	6,232	7,461
Total assets	\$95,930	\$114,448	\$133,154	\$134,422	\$141,721
Average equity values					
Current liabilities	\$29,716	\$ 37,737	\$ 47,744	\$ 44,083	\$ 50,379
Fixed liabilities	10,975	13,894	13,972	12,169	11,597
Total liabilities ...	\$40,691	\$ 51,631	\$ 61,716	\$ 56,252	\$ 61,976
Net worth	\$55,239	\$ 62,817	\$ 71,438	\$ 78,170	\$ 79,745
Total equities ...	\$95,930	\$114,448	\$133,154	\$134,422	\$141,721

Balance Sheet Items.—Between 1920 and 1929 the average investment of the cooperatives nearly doubled. Growth was particularly rapid from 1925 to 1927 (tables 55 and 56), continuing at a slower rate

TABLE 56.—RATES OF INCREASE OF INVESTMENT; 20 COOPERATIVES, 1925-1929

	1926	1927	1928	1929
Average increase over preceding year....	\$18,518	\$18,706	\$1,268	\$7,299
Percentage increase	19	16	1	5

through 1928 and 1929. No growth occurred among the stock companies during these years (table 57) but their shareholders' equity increased appreciably.

TABLE 57.—AVERAGE BALANCE SHEET VALUES; STOCK COMPANIES, 1925-1929

	1925	1926	1927	1928	1929
Number of statements	10	12	12	12	13
Assets					
Current assets	\$ 6,929	\$ 6,471	\$ 8,184	\$ 8,179	\$ 6,552
Deferred assets	467	615	574	552	516
Fixed assets	4,268	4,489	4,060	4,448	4,603
Other assets	183	164	161	182	180
Total assets	\$11,847	\$11,739	\$12,979	\$13,361	\$11,851
Equities					
Current liabilities	\$ 5,352	\$ 5,218	\$ 5,905	\$ 6,135	\$ 4,118
Fixed liabilities	175	146	146	146	135
Total liabilities	\$ 5,527	\$ 5,364	\$ 6,051	\$ 6,281	\$ 4,253
Net worth	\$ 6,320	\$ 6,375	\$ 6,928	\$ 7,080	\$ 7,598
Total equities	\$11,847	\$11,739	\$12,979	\$13,361	\$11,851

There were 16 cooperatives for which balance sheet data were available for each year from 1922 to 1929. The rate of growth over this longer period, during which the average investment rose from \$87,000 to \$168,000 (Appendix D, table 4, p. 102), is indicated in table 58. Among the assets the current group increased half as fast again as did the fixed group, rising from 38 percent of the total at the beginning of the eight years to 46 percent at the end. Similarly current liabilities, consisting largely of accounts payable to patrons, rose rapidly. Fixed liabilities increased until 1927 but were reduced to their original amount during the last two years. Net worth increased more rapidly than the liabilities so the members' equity in their associations grew from 46 to 57 percent of the total equities.

TABLE 58.—ANNUAL INCREASE IN THE AVERAGE VALUE OF ASSETS AND EQUITIES;
16 COOPERATIVES, 1922-1929

	Annual increase*	
	Amount	Percentage of average value
Current assets	\$ 6,538	12
Deferred assets	238	7
Fixed assets	4,406	7
All other assets	1,446	36
Total assets	\$12,628	10
Current liabilities	\$ 4,024	9
Fixed liabilities	386	3
Total liabilities	\$ 4,410	8
Net worth	8,218	12
Total equities	\$12,628	10

* As determined from a straight line fitted by least squares.

Less than one percent of the new capital, averaging \$80,965, brought into these associations between 1922 and 1929, was used to

TABLE 59.—SOURCES AND APPLICATION OF FUNDS; 16 DAIRY COOPERATIVES,
1922-1929

Item	Source of new funds		Application of new funds	
	Average amount	Percentage	Average amount	Percentage
	Decrease		Increase	
Cash .....	.....	...	\$11,639	14
Receivables .....	.....	...	23,332	29
Merchandise inventory .....	.....	...	8,533	11
Other current assets .....	.....	...	664	1
Deferred assets .....	.....	...	1,770	2
Investment and other assets .....	.....	...	8,648	11
Office equipment .....	.....	...	351	...
Delivery equipment .....	.....	...	2,397	3
Plant equipment .....	.....	...	11,037	14
Buildings .....	.....	...	9,082	11
Land and improvements....	.....	...	3,149	4
Total assets .....	.....	...	\$80,602	100
	Increase		Decrease	
Patrons' accounts payable...	\$19,015	23	.....	...
Trade accounts payable....	4,244	5	.....	...
Trade notes payable	1,436	2	.....	...
Bank notes payable	486	1	.....	...
Other current liabilities....	443	1	.....	...
Fixed liabilities .....	.....	...	363	...
Capital stock	28,530	35	.....	...
Reserves	19,047	23	.....	...
Undivided profits	7,764	10	.....	...
Total equities	\$80,965	100	\$ 363	...
Totals	\$80,965	100	\$80,965	100

reduce liabilities whereas 99.5 percent went into increased asset values (table 59). The largest increase, 29 percent of the total, was in receivables, the direct result of growth in volume of business. About 17 percent of this increment was invested in equipment and 15 percent in real estate. The increase in net worth was the important source of funds, equivalent to 68 percent of the whole. It was partly the result of the sale of stock and partly of plowing earnings back into the business. Twenty-three percent was derived from current accounts due patrons for produce, the increase, like the corresponding one in receivables, being directly due to the larger volume of product handled at the latter date.

As the cooperatives have grown their financial condition has improved, both with regard to their current position (tables 60, 61 and

TABLE 60.—AVERAGE WORKING CAPITAL AND ITS RELATION TO INVESTMENT IN FIXED ASSETS AND TOTAL INVESTMENT; 16 COOPERATIVES, 1922-1929

Year	Working capital		
	Average value	In percentage of fixed assets	In percentage of total assets
1922	\$-803	-2	-1
1923	6,319	12	7
1924	6,028	10	6
1925	9,889	16	9
1926	8,974	13	7
1927	13,667	18	9
1928	18,186	24	12
1929	17,740	23	11

TABLE 61.—CURRENT RATIO; 16 COOPERATIVES, 1922-1929

Year	Current ratio			Number of associations with a current ratio of:			
	Range		Average	Less than 1	1 to 1.49	1.50 to 1.99	2 and over
	Low	High					
1922	0.43	1.59	0.97	10	5	1	..
1923	0.54	2.74	1.23	5	6	4	1
1924	0.61	1.64	1.14	5	10	1	..
1925	0.66	2.02	1.25	3	9	3	1
1926	0.36	2.44	1.28	4	8	3	1
1927	0.51	2.70	1.33	4	6	5	1
1928	0.72	3.22	1.43	4	7	3	2
1929	0.77	2.92	1.41	2	9	3	2

figure 12) and their ultimate solvency (table 62 and figure 13). In 1922, 10 of the 16 reported current liabilities in excess of current assets and, on the average, the group showed such an excess of liabilities,

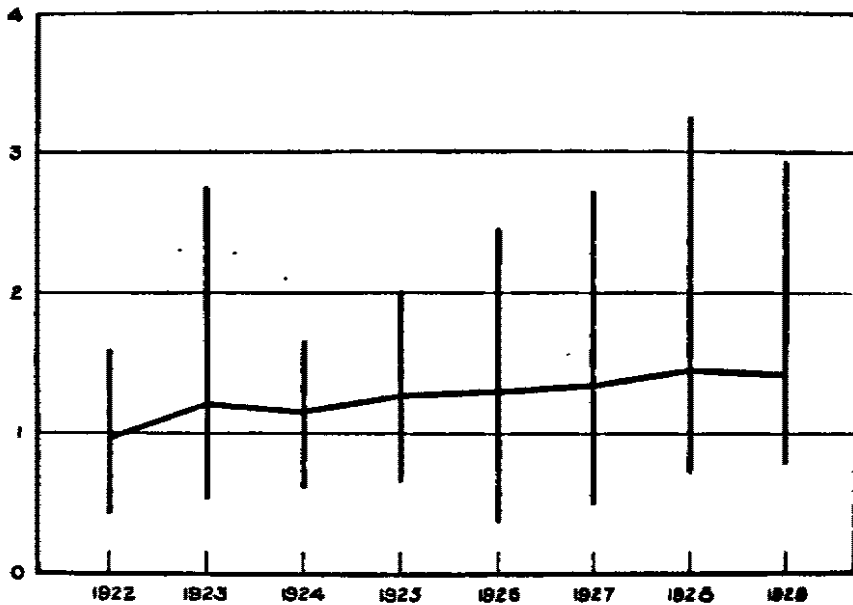
CURRENT
RATIO

FIG. 12.—Current ratio. Average and range, 16 cooperatives, 1922-1929.

amounting to \$800. During the following years the working capital increased somewhat irregularly until, in 1929, it averaged approximately \$18,000, being equivalent to 23 percent of the fixed assets and to 11 percent of the total assets. In the latter year only two associations had

TABLE 62.—MEMBERS' EQUITIES IN THEIR ASSOCIATIONS; 16 COOPERATIVES, 1922-1929

Year	Members' net worth in percentage of total investment			Number of associations whose members' net worth in percentage of total investment was:			
	Range		Average percentage	Less than 40	40 to 49	50 to 59	60 and over
	Low	High					
1922	—2	67	45	5	6	5	..
1923	32	60	53	1	4	9	2
1924	41	68	53	..	6	6	4
1925	48	75	58	..	1	11	4
1926	47	73	57	..	4	5	7
1927	40	79	57	1	5	4	6
1928	40	83	59	..	3	6	7
1929	30	83	58	2	3	3	8

current liabilities in excess of their current assets. Similarly the members' equity in their organizations climbed from 45 percent of the total equities in 1922 to 58 percent in 1925 and held at that point thereafter.

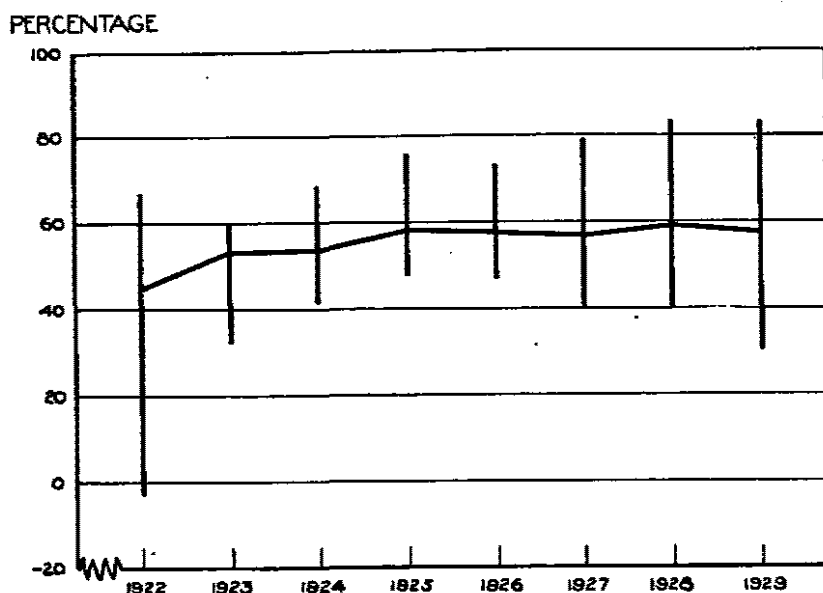


FIG. 13.—Percentage members' equity was of the total investment. Average and range, 16 cooperatives, 1922-1929.

Operating Items.—The net sales of the cooperatives increased rather steadily from 1925 to 1929 at an average rate of 12.5 percent per year, the average for the 20 for which complete records for the five years are available climbing from \$345,000 to \$553,000 (table 63). The average volume of sales of the stock companies rose from \$70,000 in 1926 to \$85,000 in 1928, but fell back to \$69,000 the next year. In the case of one cooperative and eight stock companies the volume of business declined during the periods noted.

TABLE 63.—AVERAGE VALUES OF NET SALES; 20 COOPERATIVES, 1925-1929, AND 10 STOCK COMPANIES, 1926-1929

Year	Cooperatives	Stock companies
Number of associations	20	10
1925	\$345,103	.....
1926	381,427	\$69,992
1927	433,853	80,638
1928	501,071	84,581
1929	553,415	69,052

The expense accounts of the cooperatives did not increase to the same degree as did their sales volume, so the proportionate share of the receipts used to defray operating costs declined between 1925 and 1929

(table 64 and figure 14). At the beginning of the period 16 cents of every sales dollar was absorbed in defraying the operating expense but in 1929 this figure had fallen to 14 cents. All three groups of expenses,

TABLE 64.—OPERATING COSTS RELATIVE TO NET SALES; 20 COOPERATIVES, 1925-1929, AND 10 STOCK COMPANIES, 1926-1929

Year	Average net sales (thousands)	Operating costs in percentage of net sales			
		Salaries wages	Real estate	Office and general	Total
Twenty cooperatives					
1925	\$345	5.4	0.8	9.7	15.9
1926	381	5.5	0.8	9.2	15.5
1927	434	5.4	0.8	9.	15.2
1928	501	5.	0.8	8.1	13.9
1929	553	4.9	0.7	8.2	13.8
Ten stock companies					
1926	\$ 70	..	..	..	10.5
1927	81	3.2	0.3	5.8	9.4
1928	85	3.3	0.2	5.1	8.6
1929	69	3.2	0.4	7.	10.6

labor, real estate and general, declined relative to sales, the reduction being most rapid in the general and least rapid in the real estate group. Among the stock companies also the percentage of net sales expended for operating costs varied inversely with the volume of business, falling in 1927 and 1928 and rising again in 1929.

PERCENTAGE

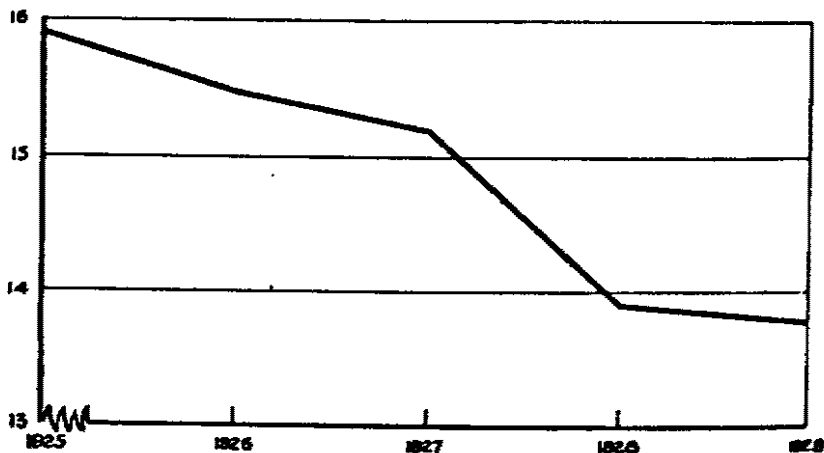


FIG. 14.—Changes in the percentage of net sales used for operating expenses, 20 cooperatives, 1925-1929.

The ratios between net sales and the assets of 16 cooperatives for the seven years from 1923 to 1929 are given in table 65. Until and including 1926 both the fixed and the total assets increased faster than did the sales, the turnover of the former falling from 6.9 to 6.3 and of

TABLE 65.—AVERAGE TURNOVER OF TOTAL ASSETS AND OF FIXED ASSETS; 16 COOPERATIVES, 1923-1929

Year	Turnover in net sales of:	
	Total investment	Fixed assets
1923	3.8	6.9
1924	3.5	6.4
1925	3.6	6.4
1926	3.1	6.3
1927	3.4	6.6
1928	3.6	7.5
1929	3.9	8.4

the latter from 3.8 to 3.1. During the last three years sales rose the faster, especially relative to fixed assets. At the close of the period sales were slightly larger relative to the total investment, and appreciably so relative to the investment in fixed assets, than at its beginning.

FACTORS AFFECTING SERVICE TO MEMBER-PATRONS

PURCHASING ASSOCIATIONS

While the limited number of the purchasing associations involved renders impossible any detailed analysis of the factors which affect their efficiency, there are two items in that connection which are worth noting. In round numbers their 1929 volume of sales ranged from \$50,000 to \$400,000. Each additional \$100,000 worth of business was accompanied by an average decrease in operating costs of one cent per dollar of sales.

The credit policies of two associations were in sharp contrast. With their consent data showing the effect upon operating costs and upon financial condition of a liberal and of a conservative credit are shown in table 66. Neither association conducted a strictly cash business. The cooperative which has been somewhat lax in making collections and rather free in the extension of credit had the equivalent of 23 days' sales outstanding in accounts receivable and, in addition, a considerable contingent liability for notes receivable discounted; the other, which had been more strict in this regard, had only the equivalent of four days' sales outstanding. The former was heavily indebted to trade

creditors for supplies which cost it more than they should because it was unable to take advantage of cash discounts. Of each dollar of net sales 0.1 cent was consumed in losses due to bad debts while 0.4 cent was spent for interest on borrowed capital. These two items are

TABLE 66.—RELATION OF CREDIT POLICY TO OPERATING ITEMS AND FINANCIAL CONDITION; TWO COOPERATIVE PURCHASING ASSOCIATIONS, 1929-1930*

Item	Credit policy	
	Liberal	Conservative
Days' sales outstanding in receivables.....	23	4
Value of net sales.....	\$391,993	\$357,206
Sales per man unit.....	\$ 77,119	\$113,760
Turnover of total investment.....	8	14
In percentage of net sales:		
Gross margin	3.7	4.8
Salaries and wages.....	1.8	2.2
Real estate expense.....	0.3	0.2
Loss from bad debts.....	0.1	..
Interest on investment.....	0.8	0.5
Other expenses	1.1	0.6
Total operating expense	4.1	3.5
Net operating income.....	-0.4	1.3
Accounts receivable as percentage of total assets.....	60	16
Cash as percentage of current liabilities.....	3	3,688
Current ratio	1.13	60.70
Net worth as percentage of total assets.....	18	99
Surplus and reserves as percentage of net worth.....	10	74

* Published with permission of the associations.

equivalent to half the difference between the operating costs of the two associations. The one was in an extremely weak position both as regards current solvency and as regards ultimate solvency; the other was in an extremely strong one.

DAIRY MARKETING ASSOCIATIONS

Type of Business.—The differences in operating items among the 16 associations whose major business was the shipment of fluid milk and the 11 butter factories (mostly stock companies) are indicated in table 67. The operating costs of the former group amounted to 47 cents per hundredweight of milk equivalent and to 14 percent of the net sales; for the latter they were only 28 cents a hundred and 12 percent of sales. However, this saving in plant costs of 19 cents a hundred was much more than offset by a difference in favor of the milk shipping companies of 86 cents a hundred in net sales. These differ-

TABLE 67.—RELATION OF TYPE OF BUSINESS TO OPERATING ITEMS, 1929

Operating items	Type of business		All associations
	Milk shipment	Butter making	
Number of associations	16	11	27
Operating items in percentage of net sales			
Gross margin	13.8	11.3	12.8
Total operating expense	14.3	11.6	13.2
Net operating income	-0.5	-0.3	-0.4
Other income	1.9	1.4	1.7
Net income for distribution	1.4	1.1	1.3
Operating items per 100 pounds of 3.7 milk equivalent			
Net sales	cents 331	cents 245	cents 296
Gross margin	46	28	39
Total operating expense	47	28	39

ences in operating items are also reflected in the various operating ratios (table 68). Rates of turnover were lower among the shipping stations and their accounts receivable were large relative to those of the butter factories.

TABLE 68.—TYPE OF BUSINESS AND OPERATING RATIOS; 28 ASSOCIATIONS, 1929

Operating items	Major enterprise		All associations
	Milk shipment	Butter making	
Number of associations.....	16	12	28
Turnover of total investment	4.4	5.9	5.
Turnover of fixed assets.....	10.4	14.2	12.
Percentage of net sales required to yield 10 percent on net worth	1.6	1.3	1.4
Percentage of net sales required to yield 6 percent on capital stock.....	0.5	0.3	0.4
Days' sales outstanding in accounts receivable	23.	13.	19.

If the cooperative group be subdivided (table 69) it will be found that as the percentage shipped as fluid rises, operating costs at first increase, but as the figure passes beyond 65 the tendency is reversed and decline sets in, both relative to sales and relative to the amount of product handled, while the value of net sales per hundred continues to increase. Thus in the group of seven cooperatives which shipped more than 65 percent of their receipts as fluid, operating expenses were seven cents less per hundred and two cents less per dollar of sales than the

average of the nine which shipped between 40 and 65 percent in fluid form and at the same time net sales were 10 cents a hundred higher. This saving in operating costs was effected in spite of the fact that the volume of sales in the former group averaged \$200,000 less than in the

TABLE 69.—RELATION BETWEEN THE PERCENTAGE OF DELIVERIES SHIPPED AS FLUID MILK AND OPERATING ITEMS; 21 COOPERATIVES, 1929

	Percentage of deliveries shipped as fluid milk			All associa- tions
	Less than 40	40 to 65	More than 65	
Number of associations.....	5	9	7	21
Average percentage	5	53	77	49
Average net sales (thousands)..	\$162	\$733	\$531	\$530
Operating items in percentage of net sales				
Gross margin	12.4	14.1	12.9	13.3
Salaries and wages	4.3	5.4	4.3	4.8
Real estate expense.....	0.5	0.8	0.6	0.7
Hauling and trucking	1.5	1.4	1.3	1.4
Creamery supplies	2.	1.1	0.7	1.2
Equipment expense	0.7	1.8	1.4	1.4
Heat, light, power and water..	1.	1.2	0.9	1.
Ice and refrigeration	0.1	0.3	0.5	0.3
Commissions and brokerage...	0.1	0.2	0.5	0.3
Interest on investment	1.5	1.5	1.8	1.6
All other expense	1.1	1.	0.7	0.9
Total operating expense..	12.8	14.7	12.7	13.6
Net operating income.....	-0.4	-0.6	0.2	-0.3
Other income	1.3	1.6	1.7	1.6
Net income for distribu- tion	0.9	1.	1.9	1.3
Number of associations	5	8	7	20*
Average percentage shipped as fluid	5	55	77	50
Operating items per 100 pounds of 3.7 milk equivalent				
Net sales	cents 258	cents 330	cents 340	cents 316
Gross margin	32	48	43	42
Total operating expense	33	50	43	43

* The data permitted determination of operating costs per hundredweight of milk in only 20 of the 21 associations.

latter. The savings in the expenditures for labor and supplies and in equipment costs were especially noticeable and those in real estate expense and in the cost of heat, light, power and water appreciable. On the other hand refrigeration, commissions and interest charges absorbed a somewhat larger share of the net sales of those shipping over 65 percent as fluid than they did in the other group.

Thus operating costs have been dependent to a considerable extent upon the degree of specialization of the operations of the associations, whether the main product be butter, fluid cream or fluid milk. This is further illustrated in table 70 in which the cooperatives are grouped

TABLE 70.—RELATION OF DIVERSITY INDEX OF SALES TO OPERATING ITEMS; 20 CO-OPERATIVES, 1929

Operating item	Diversity index of net sales			All associations
	Less than 1.3	1.3 to 2	More than 2	
Number of associations	7	7	7	21
Average diversity index	1.1	1.7	2.5	1.8
Average net sales (thousands)..	\$279	\$730	\$580	\$530
Operating items in percentage of net sales				
Gross margin	13.8	12.2	13.9	13.3
Salaries and wages	4.3	4.6	5.5	4.8
Real estate expense	0.6	0.7	0.7	0.7
Hauling and trucking	0.8	1.6	1.8	1.4
Creamery supplies	1.3	0.8	1.5	1.2
Equipment expense	1.2	1.4	1.6	1.4
Heat, light, power and water..	0.9	1.	1.2	1.
Ice and refrigeration	0.3	0.3	0.2	0.3
Commissions and brokerage...	0.4	0.4	0.1	0.3
Interest on investment	1.6	1.8	1.5	1.6
All other expense	0.8	0.7	1.1	0.9
Total operating expense..	12.2	13.3	15.2	13.6
Net operating income....	1.6	-1.1	-1.3	-0.3
Other income	1.7	1.7	1.4	1.6
Net income for distribution	3.3	0.6	0.1	1.3
Number of associations.....	7	7	6	20
Average diversity index.....	1.1	1.7	2.5	1.7
Operating items per 100 pounds 3.7 milk equivalent				
Net sales	cents 297	cents 333	cents 316	cents 316
Gross margin	40	40	47	42
Total operating expense.....	35	44	51	43

according to a weighted index of the number of products marketed. As the diversity of their operations increases the operating expenses rise from 12.2 percent of sales in the group of seven with an average index of 1.1 to 15.2 percent in the group with an average diversity index of 2.5. There is a difference of 16 cents per hundredweight of milk equivalent between the operating costs of the two groups. The most important savings were made in labor, trucking and equipment charges.

While no significant differences in financial condition were apparent between the butter, cream and milk shipping groups as a whole, there seems to have been an appreciable association between the degree of specialization and financial set up and solvency (table 71). Plant

TABLE 71.—RELATION OF DIVERSITY OF BUSINESS TO FINANCIAL CONDITION; 21 CO-OPERATIVES, 1929

Factor	Diversity index of net sales		
	Less than 1.3	1.3 to 2	More than 2
Number of associations.....	7	7	7
Average diversity index	1.1	1.7	2.5
Plant equipment as percentage of fixed assets....	33	40	54
Fixed assets as percentage of total assets.....	47	43	48
Current liabilities as percentage of total equity....	29	35	41
Working capital as percentage of total assets....	21	9	7
Cash as percentage of current liabilities.....	65	22	4
Current ratio	1.72	1.26	1.
Net worth as percentage of total equity.....	71	57	48

equipment was a more important item in the balance sheets of the cooperatives carrying on diversified operations than in those of the others, accounting for 54 percent of the investment in fixed assets in the group with a diversity index higher than 2 and only 33 percent in the group with an index of less than 1.3. However, the proportion of the total investment tied up in fixed assets was practically the same in the two groups. Both as regards current solvency and ultimate solvency the more specialized group was the stronger. Their current liabilities were less in relation to their total equities, their cash position was much stronger and the ratio of their current assets to their current liabilities higher than was the case with the associations whose business was more diversified. The average equity of the members of the former group was 71 percent of all equities; that of the latter group was 48 percent.

In the competitive struggle for fluid market outlets the associations which succeed in selling a high percentage of their product as market milk profit not only because of the increase in receipts resulting from sales in the high priced section of the market, but likewise through the savings in operating costs made possible by specialization.

Unlike the ordinary commercial corporation the cooperative corporation touches the financial interest of its members not only through its dividend rate and through changes in the value of their equity in it, but even more nearly through the prices it pays for raw material. Cooperatives are commonly, and rightly, regarded as successful or

unsuccessful according to the prices they pay for milk and to their financial condition.

The important bearing which participation in the fluid market has upon the prices patrons receive is shown in table 72. An increase in

TABLE 72.—RELATION OF PERCENTAGE OF DELIVERIES SHIPPED AS FLUID MILK TO PRICES PAID PATRONS; 18 COOPERATIVES WHICH RECEIVED ALL OR PART OF THEIR DELIVERIES AS FLUID MILK, 1929

	Percentage of deliveries shipped as fluid milk			All associations
	Less than 50	50 to 65	More than 65	
Number of associations.....	5	6	7	18
Average percentage shipped as fluid..	35	58	75	58
Percentage of fluid receipts shipped as fluid	57	61	84	69
Average price per hundredweight paid fluid patrons	\$2.70	\$2.77	\$2.87	\$2.79
Average price per pound fat paid cream patrons	\$0.56	\$0.52	\$0.57	\$0.55

fluid sales from 35 to 58 percent of deliveries was accompanied by a seven-cent increase in the price to fluid milk patrons. A further increase in fluid sales to 75 percent meant an additional 10-cent rise in price, a total difference between the high and low groups of 17 cents a hundred. Even this price differential in favor of the patrons of the associations which sold the higher percentage of their product in fluid markets does not tell quite the whole story of their relative advantage. The book value of the stock of the seven associations which sold more than 65 percent of their milk in fluid form increased on the average \$3,062 per association or nine dollars per member, while that of the five associations which sold less than 50 percent as fluid increased only \$660 per association or two dollars per member (table 73). The effort

TABLE 73.—PERCENTAGE OF DELIVERIES SHIPPED AS FLUID MILK AND INCREASE IN NET WORTH; 18 COOPERATIVES WHICH RECEIVED ALL OR PART OF THEIR DELIVERIES AS FLUID MILK, 1929

	Percentage of deliveries shipped as fluid milk			All associations
	Less than 50	50 to 65	More than 65	
Number of associations.....	5	6	7	18
Average percentage shipped as fluid	35	58	75	58
Net worth as percentage of total equities	45	57	64	56
Increase in net worth per association, 1929.....	\$660	\$1,988	\$3,062	\$2,036
Increase in net worth per member, 1929	\$ 2	\$ 7	\$ 9	\$ 6

to meet competitive prices makes it impossible for the cooperatives which do not secure their proportionate share of the fluid market to build up their reserves as rapidly as their more fortunate fellows. That similar relationships have existed in past years as well is indicated by the fact that the members' equity in their associations is only 45 percent of the total equities in the first group, whereas it is 64 percent in the last group.

Volume of Business.—Among the 11 butter factories for which operating data were available there was little relationship between size and operating costs, and such differences as existed were in favor of the smaller associations (table 74). There were seven whose net sales

TABLE 74.—VOLUME OF BUSINESS AND OPERATING ITEMS; 11 BUTTER FACTORIES, 1929

	Value of net sales		All associa- tions
	Less than \$100,000	More than \$100,000	
Number of associations.....	7	4	11
Average net sales (thousands).....	\$49	\$152	\$86
Percentage of total receipts from sale of butter	97	92	94
Operating costs in percentage of sales.....	11.7	11.5	11.6
Operating costs per pound fat (cents).....	7.3	8.4	7.7
Net sales per pound fat (cents).....	62	73	66
Average price paid per pound fat (cents)...	55	65	59

ranged from \$39,000 to \$60,000 with an average of \$49,000 and four with sales running from \$126,000 to \$206,000 and averaging \$152,000. The operating expenses of the larger associations were slightly higher, the difference amounting to a cent for each pound of butterfat handled. On the other hand they sold their product to better advantage, their net sales amounting to 73 cents for each pound of fat, 10 cents a pound more than the average of the smaller associations and, hence, the percentages of sales consumed in operating expenses in the two groups were virtually equal. These differences in price and in operating costs in some small part are attributable to the fact that the larger associations were less exclusively occupied in butter manufacture, members of the one group deriving eight percent while those of the other gained only three percent of their income from the sale of other products. The advantage of the smaller associations in operating efficiency was slight; indeed probably all that can be said with assurance is that there was no increase in efficiency associated with large volume operations. However, the advantage which the larger associations held in the sale of their product was marked and was directly reflected in the payment

of a price for cream approximately 10 cents a pound higher than the average paid by the other group.

The 14 cooperatives which shipped more than 40 percent of their milk in bulk to southern New England and New York markets fall into three rather sharply defined groups (table 75). There were three

TABLE 75.—VOLUME OF BUSINESS AND OPERATING ITEMS; 14 COOPERATIVES WHICH SHIPPED MORE THAN 40 PERCENT OF THEIR RECEIPTS AS BULK FLUID MILK, 1929

	Value of net sales			All associations
	\$150,000 to \$200,000	\$300,000 to \$400,000	More than \$600,000	
Number of associations.....	3	5	6	14
Average volume of sales (thousands)	\$173	\$330	\$1,024	\$594
Operating items in percentage of sales				
Gross margin	13.	12.3	14.5	13.4
Salaries and wages.....	3.8	4.1	5.3	4.6
Real estate expense.....	0.4	0.7	0.8	0.7
Hauling and trucking.....	3.5	0.4	1.3	1.4
Creamery supplies	1.	0.5	1.2	0.9
Equipment expense	0.8	1.2	2.2	1.5
Heat, light, power and water..	0.8	1.	1.3	1.1
Ice and refrigeration.....	0.5	0.3	0.4	0.4
Interest on investment.....	1.5	2.	1.7	1.8
All other expense.....	0.9	1.2	1.4	1.2
Total operating expense..	13.2	11.4	15.6	13.6
Net operating income.....	-0.2	0.9	-1.1	-0.2
Other income	1.4	2.1	1.7	1.8
Net income for distribution	1.2	3.	0.6	1.6
Number of associations.....	3	5	5	13
Operating items per 100 pounds 3.7 milk equivalent				
Net sales	cents 305	cents 335	cents 331	cents 327
Gross margin	40	41	50	44
Total operating expenses.....	40	38	54	44

whose net sales were between \$150,000 and \$200,000, five with sales between \$300,000 and \$400,000 and six whose sales amounted to more than \$600,000. The total operating costs were somewhat lower in the middle group than in that composed of the smallest associations, the difference amounting to slightly less than two cents for each dollar of sales. It will be noted, however, that the margin between the two is more than accounted for in the one item of trucking and that the

general operations of the relatively small plants seem to be somewhat more efficiently conducted. The high trucking charge in the first group seems due to the fact that two of the three plants are "off-rail," in other words to location rather than to lack of volume of business. No evidence is in hand indicating that any of the fluid milk shipping cooperatives were handicapped by failure to secure sufficient volume for efficient plant operation.

On the other hand the operating efficiency of the group of six cooperatives with sales in excess of \$600,000 each, averaging more than \$1,000,000, appears to have been distinctly inferior to that of the smaller associations. Their total costs were four cents higher for each dollar of sales and nearly 16 cents more per hundredweight of milk equivalent than those of the middle group. Furthermore, each separate item in the operating expenses—except interest on investment—is higher in proportion to sales among the larger than among the smaller associations. Salaries and wages absorbed 1.2 cents more of each dollar of sales, trucking 0.9 cents more, equipment expense a cent more and so on down through the list.

The position of the three groups with respect to labor usage, the most important single cost item, is indicated in table 76. There is little

TABLE 76.—VOLUME OF BUSINESS AND LABOR EFFICIENCY; 14 COOPERATIVES WHICH SHIPPED MORE THAN 40 PERCENT OF THEIR RECEIPTS AS BULK FLUID MILK, 1929

	Value of net sales			All associations
	\$150,000 to \$200,000	\$300,000 to \$400,000	More than \$600,000	
Number of associations.....	3	5	6	14
Average volume of sales (thousands)	\$173	\$330	\$1,024	\$594
Sales per man unit (thousands)	\$ 35	\$ 40	\$ 33	\$ 36
Butterfat per man unit (thousands of pounds)....	43	42	33	38
Salaries and wages per dollar of sales (cents).....	3.8	4.1	5.3	4.6
Salaries and wages per hundredweight of milk equivalent (cents)	12	14	18*	15*

* Five and 13 associations respectively.

to choose between the two lower groups. The smallest associations handled a little more butterfat for each man employed, but since the prices they received were lower the dollar volume of their sales was

less per man unit than that of the intermediate group. The average large association sold only about four-fifths as much per man, in dollars or in butterfat, as did those whose sales ran from \$300,000 to \$400,000.

Since the records of only a few associations are available one can not speak with entire assurance as to the reasons for the failure of the large cooperatives to hold down their operating costs; however, at least two factors are definitely involved, namely, their relation to the fluid milk market and their ownership of outlying stations.

The larger associations failed to secure in 1929 their proportionate share of the fluid market (table 77). Their fluid milk shipments were

TABLE 77.—VOLUME OF BUSINESS AND PERCENTAGE OF DELIVERIES SOLD AS FLUID; 14 COOPERATIVES WHICH SHIPPED MORE THAN 40 PERCENT OF THEIR RECEIPTS AS BULK FLUID MILK, 1929

	Value of net sales			All associa- tions
	\$150,000 to \$200,000	\$300,000 to \$400,000	More than \$600,000	
Number of associations.....	3	5	6	14
Average volume of sales (thousands)	\$173	\$330	\$1,024	\$594
Percentage shipped as fluid..	66	72	55	59

equivalent to 55 percent of their receipts while those of the other two groups were equivalent to 72 and 66 percents. The effect of specialization upon operating costs has just been discussed. The necessity which this group was under of handling 45 percent of their intake in forms other than that of fluid milk has inevitably increased their plant costs.

Another characteristic differentiates the group of large associations sharply from the others. Each of the six owned one or more outside receiving stations in addition to its central plant, whereas none of the members of the other two groups owned such supplementary plants. The well defined gap which occurs between the middle and the last groups in these tables already mentioned, there being no cooperatives with net sales between \$400,000 and \$600,000, is significant in this connection.

Fluid milk shipments made by the members of the groups of large associations varied, in round figures, from 40 percent to 70 percent of their total receipts, averaging 55 percent. This same range included four of the smaller associations, two from each size group, with an average percentage shipped as fluid of 57 percent and average net sales of \$262,000. Comparison of the operations of the coopera-

tives owning supplementary receiving stations with those of the four smaller unit plants which handled the same proportion of fluid (table 78) indicates that the larger volume of business secured through the establishment or purchase of feeder plants was definitely associated

TABLE 78.—RELATION OF OWNERSHIP OF RECEIVING STATIONS TO OPERATING COSTS; 10 COOPERATIVES WHICH SHIPPED BETWEEN 40 PERCENT AND 70 PERCENT OF THEIR RECEIPTS AS FLUID MILK

	Unit plants	Plants with outside stations	All plants
Number of associations.....	4	6	10
Percentage shipped as fluid.....	57	55	55
Average volume of business (thousands)....	\$262	\$1,024	\$719
Operating items in percentage of sales			
Gross margin	12.4	14.5	13.6
Salaries and wages.....	4.3	5.3	4.9
Real estate expense	0.7	0.8	0.8
Hauling and trucking.....	1.3	1.3	1.3
Creamery supplies	0.6	1.2	0.9
Equipment expense	1.2	2.2	1.8
Heat, light, power and water.....	1.1	1.3	1.2
Ice and refrigeration.....	0.1	0.4	0.3
Interest on investment.....	1.6	1.7	1.7
All other expense.....	0.8	1.4	1.1
Total operating expense.....	11.7	15.6	14.
Net operating income.....	0.7	—1.1	—0.4
Other income	2.	1.7	1.9
Net income for distribution.....	2.7	0.6	1.5
Number of associations.....	4	5	9
Operating items per 100 pounds 3.7 milk equivalent			
Net sales	cents 308	cents 331	cents 321
Gross margin	39	50	45
Total operating expenses	36	54	46

with relatively low operating efficiency. Total operating costs were four cents higher per dollar of sales and 18 cents higher per hundred-weight. In every case the separate operating items were as high or higher relative to sales among the large associations, the difference being particularly marked in salaries and wages, equipment costs and supplies. On the other hand the large associations disposed of their product to better advantage than did the smaller ones with the same proportion of fluid sales, their net sales averaging 23 cents a hundred

higher, thus more than offsetting the losses due to lowered operating efficiency.

Since they were selling more of their product in the high-priced section of the market and were operating at a relatively high level of efficiency, five associations with unit plants and with sales ranging from \$300,000 to \$400,000 as a whole were in better financial condition than either the larger or the smaller associations taken as groups, both with respect to their current position and to their ultimate solvency (table 79). Their members' net worth was equivalent to 66 percent of the

TABLE 79.—VOLUME OF BUSINESS AND FINANCIAL CONDITION; 14 COOPERATIVES WHICH SHIPPED MORE THAN 40 PERCENT OF THEIR RECEIPTS AS BULK FLUID MILK, 1929

	Value of net sales			All associations
	\$150,000 to \$200,000	\$300,000 to \$400,000	More than \$600,000	
Number of associations.....	3	5	6	14
Average volume of sales (thousands)	\$173	\$330	\$1,024	\$594
Current ratio	1.22	1.48	1.32	1.34
Members equity as percentage of total equities.....	57	66	54	57

total equities as compared to 57 and 54 percent for the other two; for each dollar of current liabilities they had \$1.48 in current assets, the other two groups \$1.22 and \$1.32 respectively. Between the first and the last groups the differences were slight.

The final result of the differences in volume of business and in the factors associated therewith may be seen in table 80 which shows the average prices paid to patrons in each group. Returns to fluid patrons of the members of the second group were 15 cents a hundred more

TABLE 80.—RELATION OF VOLUME OF BUSINESS TO PRICES PAID PATRONS; 14 COOPERATIVES WHICH SHIPPED MORE THAN 40 PERCENT OF THEIR RECEIPTS AS BULK FLUID MILK, 1929

	Value of net sales			All associations
	\$150,000 to \$200,000	\$300,000 to \$400,000	More than \$600,000	
Number of associations.....	3	5	6	14
Average volume of sales (thousands)	\$173	\$330	\$1,024	\$594
Average price per hundred-weight paid fluid patrons..	\$ 2.77	\$ 2.92	\$ 2.70	\$ 2.80
Average price per pound fat paid cream patrons.....	\$ 0.53	\$ 0.52	\$ 0.52	\$ 0.52

than those received by the patrons of the three smallest associations and 22 cents a hundred more than the average received by patrons of the six largest associations.

Location.—Ready access to rail facilities might be expected to be of especial importance in relation to the operating costs of associations whose major business is the shipment of fluid milk. However, the difference was negligible between the average total operating costs of the eight milk shipping stations with loading tracks and those of the five without railroad sidings and located at an average distance of six miles off rail (table 81). Of course the trucking charges of the latter

TABLE 81.—RELATION OF RAIL FACILITIES TO OPERATING ITEMS; 13 COOPERATIVES WHICH SHIPPED MORE THAN 50 PERCENT OF THEIR RECEIPTS AS FLUID MILK, 1929

	On rail	Off rail	All associations
Number of associations.....	8	5	13
Average net sales (thousands).....	\$712	\$310	\$557
Percentage shipped as fluid.....	67	63	66
Operating items in percentage of net sales			
Gross margin	12.4	12.2	12.3
Salaries and wages.....	4.4	4.1	4.3
Real estate expense.....	0.8	0.5	0.7
Hauling and trucking.....	0.6	2.2	1.2
Creamery supplies.....	0.5	0.9	0.7
Equipment expense.....	1.7	1.1	1.4
Interest on investment.....	1.9	1.5	1.7
All other expense.....	2.4	2.6	2.5
Total operating expense.....	12.3	12.9	12.5
Net operating income.....	0.1	-0.7	-0.2
Other income.....	1.9	1.7	1.8
Net income for distribution.....	2.0	1.0	1.6
Operating items per 100 pounds 3.7 milk equivalent			
Net sales	cents 347	cents 301	cents 329
Gross margin.....	43	37	41
Total operating expenses.....	42	39	41

group were much higher, five cents per hundred and 1.6 cents per dollar of sales, than were those of the first group, but this difference was largely offset by savings in real estate, equipment and interest expense. The associations which were located on rail were not superior to the others in operating efficiency but they did sell their product to markedly better advantage. The percentage which they sold as fluid was slightly

larger and their net sales amounted to 46 cents a hundred more than did those of the more remote cooperatives.

Deliveries.—Operating costs of the 10 cooperatives whose receipts of milk and cream showed relatively large seasonal variation were lower on the average than those of the 11 whose patrons deliveries were more evenly distributed throughout the year (table 82). The difference

TABLE 82.—RELATION OF SEASONAL VARIATION IN DELIVERIES TO OPERATING ITEMS; 21 COOPERATIVES, 1929

	Coefficient of variability		
	Less than 19	19 or more	All associa- tions
Number of associations.....	11	10	21
Average coefficient of variability.....	15	25	20
Operating items in percentage of sales			
Gross margin.....	14.6	11.9	13.3
Salaries and wages.....	5.4	4.1	4.8
Real estate expense.....	0.8	0.6	0.7
Equipment expense.....	1.2	1.6	1.4
Interest on investment.....	1.7	1.5	1.6
All other expense.....	5.4	4.8	5.1
Total operating expense.....	14.5	12.6	13.6
Net operating income.....	0.1	-0.7	-0.3

between the two groups is most noticeable in the item of salaries and wages, but real estate expense as well as interest and miscellaneous charges were also lower in the group of associations whose receipts were more variable. The reason for this apparent advantage is not clear. Seasonal fluctuation in volume of business is commonly regarded as a handicap and it is unlikely that it is an advantage here, but it is at least certain that such variation as occurred was not sufficient to affect operating costs adversely.

Adequacy of Original Financing.—Data indicating their financial conditions shortly after organization were available for 16 cooperatives organized prior to 1922. At the time, 11 to 22 months from their respective dates of incorporation, the value of their outstanding capital stock varied from 14 to 55 percent of their total investments, averaging 34 percent. In only two associations did it exceed 50 percent of the total investment and in only one was it in excess of the value of the fixed assets. In nine cases part of the permanent investment was being financed by short term credit, chiefly bank loans, some of which were secured by members' demand notes as collateral while some were

unsecured. Five statements showed deficits, two of them in excess of the par value of the outstanding capital stock. The capital stock of eight was equivalent to less than a third and of eight to more than a third of the investment. The difference in the adequacy of the original financing of the two groups has no apparent bearing upon their subsequent financial condition (table 83). As early as 1925 the group whose

TABLE 83.—RELATION OF ORIGINAL METHOD OF FINANCE TO SUBSEQUENT FINANCIAL CONDITION; 16 COOPERATIVES

	Capital stock as percentage of total assets 11 to 22 months from date of incorporation		All associations
	Less than 33 percent	More than 33 percent	
Number of associations.....	8	8	16
Average percentage.....	24	43	34
Eleven to 22 months from date of incorporation			
Average total investment.....	\$ 72,264	\$ 52,727	\$ 62,496
Average working capital.....	\$-11,373	\$-3,759	\$-7,566
Working capital as percentage of total assets.....	-16	-7	-12
Current ratio.....	0.71	0.83	0.76
Surplus and reserves as percentage of net worth.....	11	-1	5
Same associations in 1925			
Average total investment.....	\$ 90,474	\$104,919	\$ 97,696
Average working capital.....	\$ 7,344	\$ 7,094	\$ 7,219
Working capital as percentage of total assets.....	7	8	7
Current ratio.....	1.25	1.24	1.24
Surplus and reserves as percentage of net worth.....	46	32	39
Same associations in 1929			
Average total investment.....	\$ 142,620	\$164,499	\$153,560
Average working capital.....	\$ 13,163	\$ 14,518	\$ 13,840
Working capital as percentage of total assets.....	8	10	9
Current ratio.....	1.22	1.28	1.25
Surplus and reserves as percentage of net worth.....	45	33	39

members had financed less than a third of their investment by the sale of capital stock was in as strong a financial condition as the other, while both had improved their condition markedly in respect to their current position and to their solvency. In 1929 there was no significant difference in financial strength between the two groups.

Labor Efficiency.—The most important single item of cost was that of salaries and wages. The bearing of the effective use of labor, as

measured by the volume of sales per man employed, upon the share of the net sales paid out to employees is indicated in table 84. Labor costs per dollar of sales were only a little more than half as much, 3.6 cents as against 6.7 cents, among the seven associations whose sales were more than \$35,000 per man as they were in the group of six with sales per man of less than \$30,000. All other important items of

TABLE 84.—RELATION OF SALES PER MAN UNIT TO OPERATING ITEMS; 20 COOPERATIVES, 1929

	Net sales per man unit			All associations
	Less than \$30,000	\$30,000 to \$35,000	More than \$35,000	
Number of associations.....	6	7	7	20
Average sales per man unit (thousands)	\$23	\$32	\$43	\$33
Operating items in percentage of net sales				
Gross margin.....	16.2	12.2	12.	13.3
Salaries and wages.....	6.7	4.3	3.6	4.8
Real estate expense.....	0.9	0.7	0.5	0.7
Hauling and trucking.....	1.4	1.4	1.4	1.4
Creamery supplies.....	1.6	1.5	0.7	1.2
Equipment expense.....	1.8	1.4	1.	1.4
Heat, light, power and water..	1.2	1.1	0.8	1.
Interest on investment.....	2.	1.4	1.4	1.6
All other expense.....	1.7	1.4	1.4	1.5
Total operating expense...	17.3	13.2	10.8	13.6
Net operating income.....	-1.1	-1.	1.2	-0.3
Other income.....	1.8	1.6	1.5	1.6
Net income for distribution	0.7	0.6	2.7	1.3
Operating items per 100 pounds 3.7 milk equivalent				
Net sales	cents 323	cents 311	cents 313	cents 316
Gross margin	53	38	38	42
Total operating expense.....	57	41	34	43

expense, except trucking, also declined as the sales per man unit rose. The cooperatives where labor was effectively handled were well managed in other respects as well. The difference in total costs between the first and the third group amounted to 6.5 cents for each dollar of sales. Differences in the average prices received by the several groups were not large. Net sales of the associations with sales in excess of \$35,000 per man averaged 10 cents a hundred less than those of the associations whose net sales ran less than \$30,000 per man, but their operating expenses were 23 cents a hundred less.

Operating Costs.—The relationship between the operating costs of a cooperative marketing association and the prices which it can pay its patrons for their product is direct and obvious. Among these dairy cooperatives, however, the effect of variations in operating efficiency upon milk prices was largely obscured by that of differences in the more important and less stable factor of sales prices. Six associations whose operating costs were less than 38 cents a hundred paid six cents a hundred more for fluid milk than a second group of six with costs of 38 to 48 cents a hundred (table 85), but the prices paid by

TABLE 85.—OPERATING COSTS AND PRICES PAID TO FLUID MILK PATRONS; 17 COOPERATIVES, 1929

	Operating costs per 100 pounds 3.7 milk equivalent			All associations
	Less than \$0.38	\$0.38 to \$0.48	More than \$0.48	
Number of associations.....	6	6	5	17
Average operating costs per hundredweight	\$0.33	\$0.43	\$0.63	\$0.45
Average net sales per hundredweight	3.18	3.28	3.45	3.29
Average price paid fluid milk patrons	2.83	2.77	2.78	2.80

those with operating costs of more than 48 cents per hundred were as high on the average as were those of the middle group.

The effect upon producers' prices of differences in net sales per hundredweight is much more clear cut (table 86). Sales at higher

TABLE 86.—NET SALES PER HUNDREDWEIGHT AND PRICES PAID TO FLUID MILK PATRONS; 17 COOPERATIVES, 1929

	Net sales per 100 pounds 3.7 milk equivalent			All associations
	Less than \$3.10	\$3.10 to \$3.40	More than \$3.40	
Number of associations.....	6	5	6	17
Average net sales per hundredweight	\$2.93	\$3.27	\$3.67	\$3.29
Average operating costs per hundredweight	0.38	0.42	0.55	0.45
Average price paid fluid milk patrons	2.68	2.84	2.88	2.80

than average rates tend to be accompanied to some extent by higher than average operating costs, but the differences in costs are of less degree. The average price paid by five associations with net sales ranging between \$3.10 and \$3.40 per hundred was 16 cents higher than that paid

by associations whose net sales were less than \$3.10 per hundred; and further increases in net sales to more than \$3.40 were accompanied by an average increase of four cents a hundred to fluid milk patrons.

While relatively high operating costs were the normal accompaniment of sales at relatively high prices the two were not inevitably associated. There were three associations (table 87) whose net sales per

TABLE 87.—NET SALES PER HUNDREDWEIGHT, OPERATING COSTS AND PRICES PAID TO FLUID MILK PATRONS

	Net sales per 100 pounds of 3.7 milk equivalent		All associa- tions
	More than \$3.25	Less than \$3.25	
Operating costs less than 40 cents per 100 pounds 3.7 milk equivalent			
Number of associations.....	3	5	8
Average net sales per hundredweight....	\$3.53	\$2.93	\$3.16
Average operating costs per hundredweight	0.35	0.34	0.34
Average price to fluid patrons.....	3.00	2.70	2.81
Operating costs more than 40 cents per 100 pounds 3.7 milk equivalent			
Number of associations.....	6	3	9
Average net sales per hundredweight....	\$3.58	\$3.07	\$3.41
Average operating costs per hundredweight	0.59	0.47	0.55
Average price to fluid patrons.....	2.83	2.69	2.78
All associations			
Number of associations.....	9	8	17
Average net sales per hundredweight....	\$3.57	\$2.98	\$3.29
Average operating costs per hundredweight	0.51	0.39	0.45
Average price to fluid patrons.....	2.88	2.70	2.80

hundred were above the median point of \$3.25 and whose operating costs were below the median cost of 40 cents a hundred. Their members reaped the benefit of good management in the form of an average price 17 cents higher than that of the six associations whose sales were above median but whose costs were likewise relatively high, 30 cents higher than that of the five associations whose costs were below median but whose net sales per hundred were also relatively low and 20 cents higher than the average of all associations.

Competitive Prices.—Because of differences in the form in which they are quoted and in butterfat differentials, and because a portion of the returns of the patron of the cooperative may take the form of an increase in the value of this equity in the property of his association, an exact comparison between the prices paid to producers by the co-

operatives and by proprietary dealers is not possible. The data quoted in table 88, which shows the weighted average monthly prices paid in

TABLE 88.—AVERAGE MILK PRICES PAID BY COOPERATIVES AND BY BOSTON DEALERS, 1929

Month	Number of cooperatives	Cooperative price		Competitive price	Difference
		Range	Average		
January	17	\$2.76-3.32	\$2.94	\$3.00	\$-0.06
February	17	2.65- 3.32	2.91	3.00	-0.09
March	17	2.53- 3.32	2.84	2.90	-0.06
April	17	2.44- 3.16	2.72	2.69	0.03
May	17	2.33- 2.94	2.58	2.51	0.07
June	17	2.21- 2.94	2.41	2.26	0.15
July	17	2.25- 2.94	2.64	2.54	0.10
August	17	2.38- 3.12	2.81	2.75	0.06
September	18	2.70- 3.32	2.92	2.82	0.10
October	18	2.70- 3.34	2.93	2.79	0.14
November	18	2.71- 3.42	2.95	2.81	0.14
December	18	2.36- 3.42	2.77	2.64	0.13

1929 by the cooperatives and the weighted average prices paid by Boston dealers operating on the New England Milk Producers' Association price plan as quoted in the *New England Dairyman*, the official organ of that association, have been put on as nearly comparable a basis as is practicable by adjustment of the cooperative prices to a 3.7 percent base and to the tenth (181-200 mile) zone, and by correction for increases or decreases in surplus accounts.

During the three months of January, February and March cooperative prices averaged less than those of the dealers; during the other nine months they were higher. The excess of cooperative over proprietary prices was greatest in June, the month of largest production and during the "short period" months of October and November. The average monthly price of 10 cooperatives exceeded that of the dealers, while that of eight fell below it. The average difference in favor of the cooperatives was six cents a hundred.

SUMMARY

Organized cooperative effort for commercial purposes in Vermont has been located almost entirely in the field of the processing and sale of dairy products. During the last quarter of the last century more than a hundred farmer-owned butter and cheese factories were established. This movement reached its peak in 1905 when approximately 130 were in existence. Since that time their number has steadily decreased, in part because stock ownership and control has tended to pass

from the hands of the patrons of the plants so that their cooperative character has been lost and in part because they were not adapted to the changed conditions brought about by the extension of the Boston and New York fluid milk sheds to include the territory in which they were operated. A few of those still in existence remain essentially cooperative in character and the records of 13 of them have been included in this study, 10 being butter factories, two cream shipping stations and one a fluid milk shipping station. All are relatively unimportant plants, their net sales in 1929 ranging from \$26,000 to \$141,000 and averaging \$70,000. Their combined total sales were exceeded by each of three of the more recently organized cooperatives.

The Vermont general corporation law was modified in 1915 by specifically providing for the incorporation of cooperative associations. The use of the designation "cooperative" was confined to corporations whose articles of association stipulated:

- (1) That voting be on a "one man—one vote" basis;
- (2) That dividends on capital stock be limited to six percent;
- (3) That not less than 10 percent of the net profits be set aside annually until a reserve fund equivalent to 30 (subsequently changed to 50) percent of the paid-up capital stock should be accumulated;
- (4) That dividends in excess of six percent of the capital stock be distributed on the basis of patronage; and
- (5) That ownership of stock by any one individual be limited to 10 percent of the total.

Thirty-six dairy marketing corporations have been organized under this modified law, all of them within 10 years of the change. Three have gone out of business, five have been sold to proprietary companies, one has been reorganized under the business corporation law and six have been sold to or merged with other cooperatives, leaving 21 in existence at the present time (1932).

Of the 21 associations which were operating plants in 1929 four derived the major part of their income from the sale of butter, two from the sale of cream and 15 from the sale of fluid milk. Eighty percent of the patrons' deliveries were in the form of milk and 20 percent in cream. Fluid milk shipments were equivalent to 69 percent of fluid receipts and to 55 percent of total receipts. Thirty-two percent of the total fat received was shipped as cream.

They were very diverse in respect to size, the volume of their net sales in 1929 varying from \$50,000 to more than \$2,000,000. Two butter factories made annual sales of approximately \$50,000 each, the

sales of six ranged from \$125,000 to \$225,000, of six from \$300,000 to \$400,000, of four from \$600,000 to \$800,000 and of three over \$1,000,000, averaging \$1,700,000. The 1929 average for the entire group was \$530,000. A small percentage of the total income was derived from the sale of farm supplies to patrons and from the resale of dairy products purchased from other organizations; essentially it represents the amount realized from the sale of the product of 5,547 Vermont dairy farms. The 1930 census classifies 14,425 of Vermont's 24,898 farms as "dairy farms." These 5,547 represent rather more than three-eighths of the total number of dairy farms and nearly one-fourth of the total number of farms in Vermont.

The average investment of these associations was \$131,000, one-fifth of which was in buildings and one-fifth in plant equipment. The members' equities in their associations varied from 30 to 85 percent of the total investment, averaging 56 percent. The main liability, equivalent to 23 percent of the total, was to patrons for milk and cream, while short term bank borrowings amounted to five percent and fixed liabilities to eight percent of the total investment.

Fifteen of the associations require all patrons to subscribe for stock but only three have kept control completely in the hands of their patrons by the repurchase of the stock of members who have ceased to make deliveries. In 1920 only two percent of the stockholders were not producers and patrons of the cooperatives, whereas in 1930 the inactive membership had increased to 18 percent. Although the trend is not as pronounced as it was among the stock companies organized prior to the enactment of the cooperative law of 1915, there is an appreciable tendency for the ownership and control of the cooperatives to pass from the hands of those who sell through them.

Salaries and wages constitute the most important single item of expense incurred by these creameries, being responsible for a little more than a third of the costs of operation. Other important items were trucking costs, purchases of supplies and repairs and depreciation on equipment. The total operating expense varied widely among the several associations. On the average it was equivalent to 13.6 percent of the net sales and to 43 cents for each hundredweight of milk or its equivalent in cream that was handled.

The number of cooperatives reached its peak of 32 in 1922, since which time the number has declined, partly through mergers, but they have continued to grow in volume of business and in size of investment. Between 1925 and 1929 the volume of sales increased 60 per-

cent and the investment 48 percent. During the same period the percentage of net sales consumed in operating costs has been reduced from 16 to 14. From 1922 to 1925 there was a considerable improvement in their financial condition, the net worth of the 16 for which data were available increasing from 45 percent of the total equities to 58 percent and their average current ratio from 0.97 to 1.25. Between 1925 and 1929 no appreciable change occurred in their members' equity but their current position continued to improve.

Although the dairy marketing associations have been and are the important group of cooperative corporations they are not the only ones that have been organized. Other such enterprises include the cooperative marketing of maple syrup and the cooperative purchase of farm supplies. Six of the latter type have been formed, four of which were operating in 1929 and two in 1932. Their average volume of business in 1929 was \$248,000, nearly 90 percent of it consisting of sales of grain and feed. They also handled fertilizer, seed and a number of miscellaneous items and marketed some seven cars of potatoes for patrons on commission. Operating costs absorbed 4.3 cents of each dollar of net sales, half of it being spent for salaries and wages. Although their number was too small to permit any detailed analysis or comparison of their records it was apparent that their several operating efficiencies were largely dependent upon the volume of business done, each additional \$100,000 of sales being associated on the average with a reduction of one cent per dollar of sales in the operating expenses.

No such direct relationship seemed to exist between the volume and cost of operations among the dairy marketing associations. Differences in volume are associated with marked differences in type of business, a relationship which must be borne in mind in any consideration of the factors which affect costs and returns.

Despite the fact that the butter factories conducted their operations on a much smaller scale than did the milk shipping stations, their volume of sales being only a seventh as large, their operating costs were 19 cents less per hundredweight of 3.7 milk equivalent and 2.7 cents less per dollar of sales. This difference is not to be attributed entirely to the difference in product handled but is partly due to a greater degree of specialization in the operations of the butter factories, more than nine-tenths of whose shipments were made in the one form. However, any savings in operating expense on the part of the butter plants and any advantage accruing to their patrons through the retention of a larger proportion of the skimmilk on the farm was more than offset by an average difference in net sales of 85 cents per hundred.

Within the group of butter factories itself no significant relationship existed between operating costs and volume of business. Costs were a cent a pound of fat higher among four with an average sales volume of \$152,000 than among seven whose net sales averaged \$49,000, but the group of larger associations sold their product to much better advantage and their operating costs were no higher relative to their sales. As a result of their more effective selling their buying prices were approximately 10 cents per pound of fat higher.

Among the cooperatives whose main enterprise was the bulk shipment of fluid milk, operating costs of the large associations were definitely higher than were those of the relatively small ones. Thus the expenses of six associations with sales in excess of \$600,000 and averaging \$1,024,000 were four cents per dollar of sales and 16 cents per hundredweight more than those of a group of five whose sales volumes varied from \$300,000 to \$400,000 and their net sales per hundredweight were four cents less. In a third group, consisting of three associations with sales of less than \$200,000, operating costs were higher than those of the intermediate group but still considerably below those of the largest cooperatives.

The failure of the large cooperatives to operate as efficiently as the others may be attributed to two factors. In the first place they were not getting their proportionate share of the fluid markets. Their fluid shipments were equivalent to 55 percent of their total receipts, those of the middle group to 72 percent and those of the lower group to 66 percent of theirs. The amount of surplus carried not only affects the average selling price but the diverse character of the operations involved in handling approximately half of the total product as fluid and half as surplus necessarily results in added expense.

In the second place the development of a relatively large volume of business involves the extension of the operations of an association over a correspondingly large area. For the most part this has been brought about by the purchase or establishment of feeder stations from which the product is trucked to the central plant of the association. Comparison of the operating costs of the cooperatives which owned outside receiving stations with those of four unit plants which shipped a like percentage of their milk in fluid form indicates that the latter were the more economically run. Their operating costs were on the average 18 cents less per hundredweight and four cents less per dollar of sales than those of the group with substations. The difference was most noticeable in labor and equipment costs. It should be noted, however, that although their operating costs were 18 cents a hundred

higher the net sales of the large cooperatives were likewise 23 cents a hundred higher than those of the unit plants carrying the same amount of surplus.

In 1929 some of the associations charged a part of the cost of receiving station operation directly to the patrons delivering to those stations. Since that time the tendency has been to discard this station charge and pay all patrons alike whether they deliver to the central plant or to an outside one.

The price which a cooperative can pay its patrons is obviously in part dependent upon its operating costs; but the effect which differences in operating efficiency exerted on the prices paid to patrons was largely obscured by the much more important effect of disparity in the prices at which sales were made. The amount of the net sales per hundredweight of milk equivalent depends largely, though not entirely, upon the percentage of the product sold as fluid milk. Among the butter factories the relatively large associations secured better prices than their smaller neighbors, and among the fluid milk shipping cooperatives the big associations sold to better advantage than did the relatively small ones which were carrying a comparable amount of surplus.

The associations in the group which operated unit plants and whose 1929 sales ranged from \$300,000 to \$400,000 shipped a higher percentage of their receipts in fluid form, sold their output at a higher average price, operated at lower costs and paid higher prices in the country than did either the larger or the smaller milk shipping associations. This is not to say that the dairy industry of Vermont would have been better served if all associations had been similar to the members of this group. Neither does it preclude the possibility that organization of the marketing agencies in the milk shed in such a way that the burden of surplus would be distributed upon some logical basis and not on that of a competitive scramble for fluid outlets might benefit producer, trade and consumer alike, through the establishment of a steadier market and by enabling greater specialization in country plant operations. It simply means that under the conditions which existed in the market and in the milk shed in 1929 these particular associations were able to serve the interests of their members more effectively than were the rest of the cooperatives.

The cooperative group as a whole was successfully meeting competition in the country in 1929. Exact price comparison between the cooperative and proprietary groups is not possible but adjustment of the prices to a basis as nearly comparable as may be indicates that the weighted average fluid price of the 18 cooperatives that handled milk

was below the New England Milk Producers' Association price during January, February and March and above it during the rest of the year. The average monthly price of 10 cooperatives exceeded the average paid by Boston dealers and that of eight fell short of it. The average differential in favor of the cooperatives was six cents.

APPENDIX A

ADJUSTMENT OF AUDITORS' STATEMENTS

Intangible Assets.—Intangible assets, such as goodwill and organization expense, were omitted from the balance sheets because of lack of known material value to the business.

Accounts Receivable.—Allowances or reserves for doubtful accounts, when recorded as a part of net worth, were transferred to the asset side of the balance sheet as a deduction from accounts receivable.

Notes Receivable.—Discounted notes were deducted from notes receivable. Although notes receivable discounted represent a contingent liability, the act of discounting constitutes essentially the sale of an asset the proceeds of which already appear among the assets.

Fixed Assets.—When allowances for depreciation of fixed assets appeared as a reserve in the net worth section of the balance sheet, they were transferred and deducted from the assets against which they were charged and the assets entered at their net value.

Deficit.—Deficit accounts appearing on the asset side of the balance sheet were transferred to the net worth section as deductions in order to obtain the true net worth.

Accrued Expenses.—Reserves for expenses were frequently listed among net worth items. These were transferred to current liabilities as accrued expenses.

Capital Stock.—Treasury stock was deducted from capital stock to obtain the actual amount of capital stock outstanding. Forfeitures of capital stock sometimes appeared in the profit and loss statement as income available for distribution to members. This item was transferred to the net worth section of the balance sheet, thus treating it as capital income rather than earned income.

Membership Liabilities.—In the statements of a few of the larger dairy corporations, amounts due members appeared as part of current liabilities. In some cases the corporation paid interest on this item, which was later distributed as a stock dividend. Such indebtedness to members was deducted from current liabilities and transferred to a separate section of the equities. In the analysis, it is treated as a part of the members' net worth.

Reserve for Dividend.—When reserves for dividends were included as a part of the net worth section of the balance sheet, they were transferred to current liabilities only when there was evidence that dividends had been declared.

Freight Out.—Freight and icing expense for outgoing shipments were deducted from gross sales to get net sales.

Interest.—Interest on capital stock was deducted from operating expenses and treated as a distribution of net earnings. Interest paid or due on borrowed capital was included in the operating expenses. To allow for varying amounts of investment in the business, interest was charged on the stockholders' investment at the prevailing rate of six percent and also credited to other income as interest not paid. This double entry does not affect net income for distribution.

Reserves Allowances.—Auditors frequently included transfers to contingent reserves with the operating expenses. These were deducted from the expense items and included as part of the distribution of net earnings.

Depreciation.—Those organizations which have installed a regular double entry system of accounts and have their books audited regularly, usually charged depreciation against the fixed assets at following rates:

Furniture and fixtures.....	10%	Buildings:	
Delivery equipment.....	25%	Wood frame.....	5%
Machinery and equipment.....	15%	Brick and tile.....	3%
Land improvements.....	10%	Concrete and steel.....	2%

Many of the larger dairy corporations apply a separate rate of depreciation to each major item of equipment. In the case of associations which carried no open asset accounts and charged no depreciation on fixed assets, the valuation of the assets was based on estimates by managers or officers or on income tax reports, and depreciation was charged at the standard rates given above.

APPENDIX B

CHAPTER 210, GENERAL LAWS OF VERMONT

GENERAL CORPORATION LAW

SECTION 4897.¹ PROVISIONS AS TO COOPERATIVE ASSOCIATIONS. A corporation formed under this chapter shall not have the word "cooperative" or any abbreviation thereof as part of its name, unless the articles of association contain all of the following provisions:

- I. Each shareholder shall have one vote and only one in all matters pertaining to the management of the corporation;
- II. The interest or dividend on the paid-up capital stock of the corporation shall not exceed six percent per annum;
- III. There shall be set aside annually not less than ten percent of the net profits of the corporation for a reserve fund until there is accumulated a fund of not less than fifty percent of the paid-up capital stock.
- IV. The remainder of the earnings, or any part thereof, shall be distributed by a uniform dividend upon the amount of purchases or sales through the corporation by the shareholders, or the amount of raw material furnished to, or business done through the corporation by the shareholders; such profits or earnings to be distributed as often as once in twelve months;
- V. Not more than ten percent of the capital stock of such corporation shall be owned by any one member;
- VI. Certificates of stock in cooperative corporations shall contain a statement on the face thereof that the holder is entitled to only one vote thereon.

APPENDIX C

"CAPPER-VOLSTEAD" ACT

(Public—No. 146, 67th Congress)
(H. R. 2373)

AN ACT TO AUTHORIZE ASSOCIATION OF PRODUCERS OF AGRICULTURAL PRODUCTS.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That persons engaged in the production of agricultural products as farmers, planters, ranchmen, dairymen, nut or fruit growers may act together in associations, corporate or otherwise, with or without capital stock, in collectively processing, preparing for market, handling, and marketing in interstate and foreign commerce, such products of persons so engaged. Such associations may have marketing agencies in common; and such associations and their members may make the necessary contracts and agreements to effect such purposes; *Provided, however,* That such associations are operated for the mutual benefit of the members thereof, as such producers, and conform to one or both of the following requirements:

First. That no member of the association is allowed more than one vote because of the amount of stock or membership capital he may own therein, or,

Second. That the association does not pay dividends on stock or membership capital in excess of 8 per centum per annum.

And in any case to the following:

Third. That the association shall not deal in the products of nonmembers to an amount greater in value than such as are handled by it for members.

SEC. 2. That if the Secretary of Agriculture shall have reason to believe that any such association monopolizes or restrains trade in interstate or foreign commerce to such an extent that the price of any agricultural product is unduly

¹ As amended to December 31, 1929 (No. 81 of 1929). It was still further amended by No. 96 of the Acts of 1931 (the so-called "cooperative marketing act" designed "to encourage the orderly marketing of agricultural products through cooperation"), but since this bulletin deals with the data secured prior to 1931, present form of the law is not given but that in operation at the time to which the data have reference.

enhanced by reason thereof, he shall serve upon such association a complaint stating his charge in that respect, to which complaint shall be attached, or contained therein, a notice of hearing, specifying a day and place not less than thirty days after the service thereof, requiring the association to show cause why an order should not be made directing it to cease and desist from monopolization or restraint of trade. An association so complained of may at the time and place so fixed show cause why such order should not be entered. The evidence given on such a hearing shall be taken under such rules and regulations as the Secretary of Agriculture may prescribe, reduced to writing, and made a part of the record therein. If upon such hearing the Secretary of Agriculture shall be of the opinion that such association monopolizes or restrains trade in interstate or foreign commerce to such an extent that the price of any agricultural product is unduly enhanced thereby, he shall issue and cause to be served upon the association an order reciting the facts found by him, directing such association to cease and desist from monopolization or restraint of trade. On the request of such association or if such association fails or neglects for thirty days to obey such order, the Secretary of Agriculture shall file in the district court in the judicial district in which such association has its principal place of business a certified copy of the order and of all the records in the proceeding, together with a petition asking that the order be enforced, and shall give notice to the Attorney General and to said association of such filing. Such district court shall thereupon have jurisdiction to enter a decree affirming, modifying, or setting aside said order, or enter such other decree as the court may deem equitable, and may make rules as to pleadings and proceedings to be had in considering such order. The place of trial may, for cause or by consent of parties, be changed as in other causes.

The facts found by the Secretary of Agriculture and recited or set forth in said order shall be prima facie evidence of such facts, but either party may adduce additional evidence. The Department of Justice shall have charge of the enforcement of such order. After the order is so filed in such district court and while pending for review therein the court may issue a temporary writ of injunction forbidding such association from violating such order or any part thereof. The court may, upon conclusion of its hearing, enforce its decree by a permanent injunction or other appropriate remedy. Service of such complaint and of all notices may be made upon such association by service upon any officer or agent thereof engaged in carrying on its business, or on any attorney authorized to appear in such proceeding for such association, and such service shall be binding upon such association, the officers, and members thereof.

Approved, February 18, 1922.

APPENDIX D

TABLE I.—MEMBER AND PATRON RELATIONSHIP, ALL GROUPS OF ORGANIZATIONS

Year	Number of associations	Members				Patrons			
		Patron		Non-patron	Total number	Member		Non-member	Total number
		Number	Percentage of total			Number	Percentage of total		
Cooperative dairy corporations, annually, 1916-1930									
1916.....	2	78	100	....	78	78	80	20	98
1917.....	3	184	98	3	187	184	88	25	209
1918.....	4	217	97	7	224	217	88	30	247
1919.....	8	906	98	20	926	906	96	41	947
1920.....	12	1,738	98	34	1,772	1,738	97	58	1,796
1921.....	13	2,423	97	82	2,505	2,423	97	78	2,501
1922.....	17	2,957	95	144	3,101	2,957	95	154	3,111
1923.....	17	3,113	92	282	3,395	3,113	92	252	3,365
1924.....	19	3,587	89	440	4,027	3,587	94	231	3,818
1925.....	22	3,937	86	618	4,555	3,937	93	298	4,235
1926.....	22	4,584	85	812	5,396	4,584	92	419	5,003
1927.....	22	4,698	84	874	5,572	4,698	90	528	5,226
1928.....	22	5,144	84	1,013	6,157	5,144	90	586	5,730
1929.....	22	5,096	82	1,087	6,183	5,096	90	551	5,647
1930.....	22	5,485	82	1,203	6,688	5,485	90	625	6,110
Stock companies by five-year periods, 1905-1925, and annually, 1925-1930									
1905.....	12	395	75	131	526	395	42	536	931
1910.....	13	345	66	175	520	345	33	710	1,055
1915.....	13	318	62	195	513	318	29	778	1,096
1920.....	13	290	55	233	523	290	25	854	1,144
1925.....	13	239	45	296	535	239	20	977	1,216
1926.....	13	228	43	300	528	228	21	867	1,095
1927.....	13	220	42	304	524	220	19	950	1,170
1928.....	13	209	40	309	518	209	19	869	1,078
1929.....	13	182	35	335	517	182	21	702	884
1930.....	13	182	35	335	517	182	22	662	844
Cooperative purchasing associations, annually, 1925-1930									
1925.....	4	1,005	80	256	1,261	1,005	59	691	1,696
1926.....	4	1,030	81	235	1,265	1,030	57	785	1,815
1927.....	4	1,040	83	212	1,252	1,040	54	897	1,937
1928.....	4	1,060	84	200	1,260	1,060	50	1,065	2,125
1929.....	4	1,022	81	243	1,265	1,022	46	1,218	2,240
1930.....	4	1,020	80	250	1,270	1,020	44	1,278	2,298
All organizations, annually, 1925-1930									
1925.....	39	5,181	82	1,170	6,351	5,181	72	1,966	7,147
1926.....	39	5,842	81	1,347	7,189	5,842	74	2,071	7,913
1927.....	39	5,958	81	1,390	7,348	5,958	72	2,375	8,333
1928.....	39	6,413	81	1,522	7,935	6,413	72	2,520	8,933
1929.....	39	6,300	79	1,665	7,965	6,300	72	2,471	8,771
1930.....	39	6,687	79	1,788	8,475	6,687	72	2,565	9,252

TABLE 4.—AVERAGE ASSET VALUES; 16 COOPERATIVE DAIRY CORPORATIONS, 1922-1929

Balance sheet items	1922	1923	1924	1925	1926	1927	1928	1929
Assets								
Cash	\$ 1,852	\$ 3,583	\$ 5,788	\$ 8,114	\$ 7,106	\$ 12,015	\$ 12,727	\$ 13,191
Receivables	28,273	31,068	29,222	28,844	36,332	42,276	48,559	51,100
Merchandise inventory..	2,948	5,464	5,909	5,470	7,937	14,684	7,766	11,157
Other current assets....	511	538	604	652	624	709	937	1,100
Total current assets	\$33,584	\$40,653	\$ 41,523	\$ 43,080	\$ 51,999	\$ 69,684	\$ 69,989	\$ 77,212
Deferred assets.....	\$ 2,675	\$ 3,009	\$ 2,820	\$ 3,498	\$ 3,696	\$ 3,671	\$ 3,987	\$ 4,400
Investments and other	428	465	327	438	6,277	7,104	7,415	9,170
Office equipment.....	\$ 708	\$ 736	\$ 829	\$ 951	\$ 994	\$ 1,161	\$ 1,089	\$ 1,150
Delivery equipment....	889	1,005	1,325	2,564	2,808	3,349	3,393	3,289
Plant equipment.....	21,228	20,939	23,504	23,719	29,256	32,122	31,633	32,869
Buildings	24,846	25,464	27,919	31,650	32,689	33,533	34,267	33,924
Land and improvements	3,107	3,240	4,170	4,850	5,590	5,636	6,239	6,239
Total fixed assets..	\$50,778	\$51,384	\$ 57,747	\$ 63,734	\$ 71,337	\$ 75,801	\$ 76,621	\$ 76,719
Total assets	\$87,465	\$95,511	\$102,417	\$110,750	\$133,309	\$156,260	\$158,012	\$168,067

TABLE 5.—AVERAGE EQUITY VALUES; 16 COOPERATIVE DAIRY CORPORATIONS, 1922-1929

Balance sheet items	1922	1923	1924	1925	1926	1927	1928	1929
Equities								
Patrons' accounts payable	\$20,170	\$22,667	\$ 23,444	\$ 25,204	\$ 30,330	\$ 34,607	\$ 37,066	\$ 39,116
Trade accounts payable.	3,359	3,389	3,923	2,776	2,830	3,904	5,801	7,603
Trade notes payable....	181	27	280	569	575	1,853	1,644	1,616
Bank notes payable....	8,911	7,072	6,412	3,593	7,503	13,286	5,481	9,397
Other current liabilities	1,766	1,179	1,437	1,049	1,788	2,367	1,811	2,209
Total current liabilities	\$34,387	\$34,334	\$ 35,496	\$ 33,191	\$ 43,026	\$ 56,017	\$ 51,803	\$ 60,011
Fixed liabilities....	12,941	10,416	10,678	12,562	16,211	16,122	13,403	12,578
Total liabilities....	\$47,328	\$44,750	\$ 46,174	\$ 45,753	\$ 59,237	\$ 72,139	\$ 65,206	\$ 72,589
Capital stock.....	\$30,845	\$34,192	\$ 36,380	\$ 39,337	\$ 50,137	\$ 55,355	\$ 59,208	\$ 59,375
Reserves	6,669	13,611	15,409	18,583	17,653	20,760	23,136	25,715
Undivided profits.....	2,623	2,958	4,454	7,077	6,282	8,006	10,462	10,383
Total net worth....	\$40,137	\$50,761	\$ 56,243	\$ 64,997	\$ 74,072	\$ 84,121	\$ 92,806	\$ 95,473
Total equities.....	\$87,465	\$95,511	\$102,417	\$110,750	\$133,309	\$156,260	\$158,012	\$168,067

