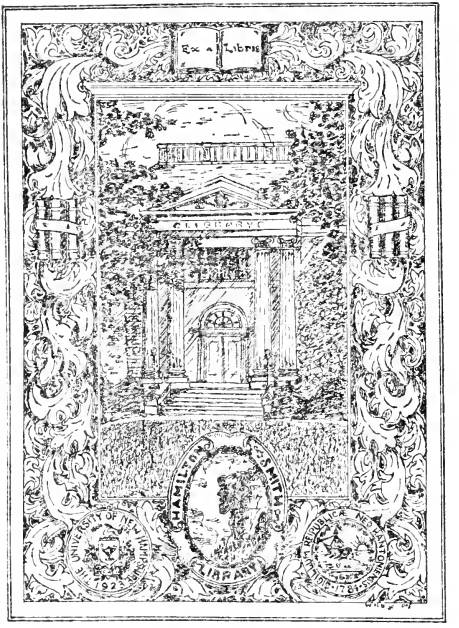

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NEW HAMPSHIRE AGRICULTURAL
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OPERATING COSTS OF RETAIL GRAIN STORES IN NEW HAMPSHIRE

By E. H. RINEAR

UNIVERSITY OF NEW HAMPSHIRE
DURHAM, N. H.

SUMMARY

A survey was made of practically all the retail stores in New Hampshire which were selling feed and grain during 1926. Reports were collected from 197 stores. Following this, detailed accounts were obtained from 41 stores for the business transacted during 1928.

The state survey showed 15 per cent of the feed and grain sold at the car door, 62% at the store and 23% delivered to customers. The average gross margin was $4.71 per ton for 138 stores and 11.29% of sales for 33 stores. (Table 1).

The business of the 41 grain stores amounted to $4,539,018. during 1928 and was transacted on a gross margin of 11.22% of sales. The total costs were 10.76%, a net profit of .46% of sales. Total costs were proportioned under four heads as follows: fixed costs 24.63%, labor costs 51.70%, delivery costs 8.63%, and other costs 15.04%.

The average investment turnover in relation to sales was 4.04 times. As the number of turnovers increase an average of 1½ times fixed costs decreased $.02 per dollar of sales. (Table 6).

The number of employees per store averaged 3.7 persons. As yearly sales per man increased from less than $20,000 to $60,000, labor costs decreased $.023, total costs $.061 and gross margins $.043 per dollar of sales. (Table 10).

It was found in five stores that the employees were busy 82.9% of the total time during one week. Sales per hour of occupied time for all stores varied from $8.06 to $20.04 with an average of $10.52. The ones operated by one man had a higher average sales per hour of occupied time than those operated by 3 or more people. (Table 11).

The average inventory turnover was 10.2 times. As the number of turnovers increased an average of 3 times, total costs decreased $.017 per dollar of sales.

An average of $870,521. was carried in accounts and notes receivable by 89 of the grain stores in the state. The average turnover of accounts receivable was 38 days. Bad debts ranged from none up to $4000. per store.

When weekly retail cash store prices are compared for 62 stores for grain and feeds of the same standard or brand, a great range in prices is found. The largest range is $.65 per cwt. for wheat and the smallest $.30 per cwt. for middlings. (Table 19).

Although the Boston wholesale market changed 40 times on a weekly basis during the year, the stores shifted prices 14.5 times. Store prices lagged an average of 2.6 weeks as upward market changes occurred and 4.8 weeks when they were downward.

Higher retail cash prices are charged for corn as the percentage of credit sales increase. (Table 21).

Operating Costs of Retail Grain Stores in New Hampshire

By E. H. Rinear

The economical distribution of grain is of great importance to both farmers and dealers in New Hampshire. The farmers spend seven or eight million dollars a year for feed, according to agricultural census reports, and individual accounts show the grain bill constitutes from 30 to 50 per cent of total farm expenditures. The dealers have large amounts of capital invested in warehouses, equipment, stock inventories and accounts receivable and are interested in securing a fair return for their capital and labor.

Similar studies* elsewhere have shown a wide range in the operating costs of grain stores, and it seemed desirable to investigate the situation in this state. The main objects of the study were: first, to analyze the costs of New Hampshire grain stores; second, to set up operating ratios of efficiency; and third, to point out the important factors which cause differences.

PROCEDURE FOLLOWED

In starting the investigation, an attempt was made to call on all the stores in the state which were selling feed and grain, and the dealers were interviewed personally. They approved of the study in practically all instances and discussed their problems freely, especially when assured that all information would be confidential as to source. The whole state was canvassed in this manner and information collected for the year 1926 regarding total tonnage, sales, operating costs, margins, services, etc., from 197 stores.

After tabulating and analyzing these data it was evident that more detailed figures and a uniform system of accounting would be necessary before definite conclusions could be drawn. In view of this, and the importance of the information already gathered, it seemed best to call a meeting of the grain dealers. Accordingly, a meeting was held at Durham with good attendance from all sections of the state.

The facts resulting from the state-wide survey were presented at the meeting. As the result of discussion, the group requested that a committee be appointed to work with the Station to draw up a cost accounting outline which would be adaptable to a retail grain business. Later, these outlines were mailed to all the dealers, who were requested to use them in summarizing their business for 1928. The out-

*Cornell Station Bulletin 471.
Ohio Experiment Station Bulletin 416.

lines were given reference numbers which have been used in presenting the analysis of this study so that each dealer may compare his costs and margins with those of others.

Through the cooperation of 62 dealers, postal cards were mailed to the Station weekly during 1928 giving each dealer's retail cash price for corn, wheat, cottonseed, gluten feed, standard bran, standard middlings and definite brands of scratch, dry mash and dairy feeds. Also, ten wholesale distributors and manufacturers sent their mixed car quotations regularly for the same period. Through comparison of these quotations it is possible to show the range in weekly retail prices for the same commodity as well as the difference in the wholesale prices; to determine how closely the market is followed; and to learn the effect of operating costs on the retail price of grain.

Complete cost accounting records were obtained from 41 stores for the business transacted during 1928. These records form the main basis of the analysis in this report. They are supplemented by the information for 1926, gathered in the state survey. Due to the limited number of cooperative owned stores in the state, it seems impracticable to make comparisons of the cooperatives with the private owned stores.

DEFINITION OF TERMS

Grain Store: when 75 per cent or more of the total yearly sales are for feed and grains.

General Merchandise Store: when feed and grain sales are less than 75 per cent.

Fixed Expense: includes depreciation, insurance, rent, taxes and interest. In this study, yearly interest at 6 per cent was charged on net worth. Depreciation on frame buildings was charged at 4 per cent and 2 per cent on brick or stone. A 10 per cent depreciation rate was charged on equipment. (Depreciation on truck and delivery equipment is included under the heading of delivery costs).

Labor Expense: includes amount paid to the manager, book-keeper and to the regular labor. The value of the proprietor's time where no regular salary was paid was figured at $35.00 a week.

Delivery Expense: includes gas, oil, repairs, depreciation and miscellaneous items. A yearly truck depreciation was charged at 25% of original cost price. Expenses for the maintenance of horses and wagons are included under this head.

Other Expense: includes telephone, light, power, office supplies, fuel, repairs, demurrage, bad debts, collection charges and interest paid on borrowed capital. (Large repair bills were redistributed over a period of years.) Travel and all other items not heretofore mentioned were included under miscellaneous.

Total Costs: include the fixed, labor, delivery and other costs which are incurred during one year's operation.

Inventory: the value of stock on hand figured at market price or original cost depending on which is the lowest.

Cost of Goods Sold: includes original cost plus freight to railroad station and after adjustment has been made for inventories at the beginning and end of year.

Net Sales or Total Sales: the amount received in exchange for goods sold during a year, after adjustments have been made for goods returned.

Gross Margin: the difference between the cost of goods sold and net sales. Small amounts of miscellaneous income were included in this item.

Net Income or Profit: the difference between gross margin and total costs; also referred to as net profit.

Cash Sales: that part of total sales for which cash is paid at the time the transaction occurs.

Credit Sales: that part of total sales which is not paid for in cash at time of transaction.

THE STATE SURVEY

Of the 197 stores visited in the state survey, 107 could be classed as feed stores and 90 as general merchandise stores. Often the general merchandise store handled grain as a side issue, either as an accommodation to its customers or because of the pressure of competition. Quite frequently it secured this grain in small amounts from the local grain store.

More complete records were procured from the grain than from the general merchandise stores. The latter made no effort to keep the grain sales separate. The lack of a definite system of keeping records was frequently evident. Many dealers had no record of current expenses or tonnage handled. Neither did they realize that they had

TABLE 1—*Gross Margin Variation of* 171 *Grain and General Merchandise Stores During* 1926

Gross Margin per Ton	Number in Each Class	Gross Margin Percentage of Sales	Number in Each Class
$1.00—$1.99	4	Less than 10	4
$2.00— 2.99	16	10—10.9	15
$3.00— 3.99	14	11—11.9	3
$4.00— 4.99	44	12—12.9	4
$5.00— 5.99	33	13—13.9	
$6.00— and above	27	14—14.9	
		15—and above	7
Total	138		33

The average gross margin was $4.71 per ton and 11.29 per cent of sales.

operated at a loss which was often demonstrated when their accounts were figured. On the other hand, there were dealers who kept exact records and balanced their books monthly. They knew when and how they had made or lost money. In all instances, an effort was made to obtain all the information possible, and estimates were taken when records were not available.

Total tonnage of grain sold in New Hampshire during 1926 was 210.835 tons, of which 15 per cent was sold at the car door, 62 per cent at the store and 23 per cent was delivered to customers.

Gross margins varied among the stores as shown in Table 1. Where dealers did not have a regular system of accounts, gross margins were estimated, sometimes in dollars per ton, sometimes in per cent of sales. The average gross margin per ton of 138 dealers was $4.71, and the average per cent of sales of 33 dealers was $11.29. There were 12 general merchandise stores handling grain on a margin between $2 and $3 a ton. This is the group which sold grain primarily because it brought trade to their store.

Gross margins at the car door varied from $1 to $3 a ton, with the larger number charging about $1.50 a ton.

TABLE 2—*Average Net Sales, Gross Margins, Operating Costs and Net Income of 41 Retail Grain Stores in 1928*

	Total Amount	Average Amount	Per cent of Net Sales	Total Costs	
				Amount	Per cent of Total
Net sales	$4,539,018.25	$110,707.76	100.00		
Cost of goods sold	4,029,832.94	98,288.61	88.78		
Gross margin	509,185.31	12,419.15	11.22		
Fixed costs:—				$120,267.77	24.63
Rent	14,695.09	358.42	.32		
Taxes	19,850.14	484.15	.44		
Insurance	16,932.09	412.98	.37		
Interest on net worth	52,517.05	1,280.90	1.16		
Depreciation on buildings and equipment	16,273.40	396.91	.36		
Labor costs:—				$252,451.20	51.70
Salaries and wages	252,451.20	6,157.35	5.56		
Delivery costs:—				$42,105.23	8.63
Gas, oil, repairs, depreciation, miscellaneous	42,105.23	1,026.96	.93		
Other costs:—				$73,438.56	15.04
Stationery and postage	5,530.29	134.88	.12		
Telephone and telegraph	5,904.98	144.02	.13		
Light and power	10,571.88	257.85	.23		
Net interest	9,736.28	237.47	.21		
Demurrage	329.00	8.02	.01		
Advertising	4,728.11	115.32	.10		
General repairs	8,761.56	213.70	.19		
Bad debts	12,621.42	307.84	.28		
Miscellaneous	15,255.04	372.08	.34		
Total Costs	$488,262.76	$11,908.85	10.76%	$488,262.76	100%
Net Income	$20,922.55	$510.31	.46%		

ANALYSIS OF COSTS FROM 41 STORES

The business transacted in 1928 by 41 grain stores has been summarized in Table 2. These figures were taken from the cost accounting outlines. Attention is called to the column titled, "Per cent of net sales." It will be noted that the average gross margin for all stores was 11.22 per cent, total expense 10.76 per cent and net income .46 per cent of total sales. Judging the grain stores as a whole on the basis of this sample, they are not making a large net profit. Current expenses are distributed under four main heads in the last column as follows:—fixed costs 24.63 per cent, labor costs 51.70 per cent, delivery costs 8.63 per cent and other costs 15.04 per cent.

Great variations occur in costs between stores as given in Table 22 and illustrated in Figure 1. There is a range in total costs per dollar of sales from $.06 to $.18; other costs vary from less than half a cent to about $.07; delivery costs from nothing to over $.02; labor costs vary from $.035 to $.105; and fixed costs vary from $.01 to $.05.

Although the stores are arranged in Figure 1 in order of increasing costs per dollar of sales, the fixed, labor, delivery and other costs do not increase in the same proportion; i. e., fixed costs may be low, while labor and other costs are high. This is well illustrated by Store 8 where other costs are large because of an unusual bad debt item. Just the opposite results are obtained by the manager of Store 6. Here the delivery cost is nothing; the fixed, labor and other costs are low. The primary reason the total costs for Store 6 are lower than for Store 8 is because yearly sales are so much larger. Total costs of 6 were $4488.34 and total sales $70,522.09, making a cost of $.0635 for each dollar of sales. On the other hand, total costs for 8 were $7579.16 and total sales $40,924.62, which resulted in a total cost of $.1850 for each dollar of sales. Undoubtedly, Store 8 is equipped and capable of doing twice the amount of business shown in its report.

Store 47 has exceptionally large labor costs. In this instance, the store is operated by the proprietor. The value of his labor was figured at $35 per week, the rate for proprietors who were on full time. It is possible the manager does not value his time so high; if so, the labor cost per dollar of sales would be reduced. On the other hand, the yearly sales are approximately $18,000. If they were double this amount, all costs would be cut in half and a net profit would result instead of a loss.

The final results of store operations are presented in Table 22. Direct comparisons between total costs and gross margins can be made for each store. In some cases the variations are quite striking. The effect of competition causes gross margins to hold near the 13 and 14 cent level even though total costs may exceed this amount. The managers do not care to raise the gross margin enough to absorb the loss for fear of losing trade.

One store had a gross margin of $.1594 per dollar of sales, contrasted to total costs of $.0784; another of $.1818 compared to $.1007, leaving a net profit of $.0810 and $.0811 respectively for each dollar of goods sold. The opposite condition is true with Stores 179 and 8.

They have a net loss of $.0628 and $.0941 respectively for each dollar of goods sold. These cases are the extremes, and it will be noted that the largest group maintain a more even balance between gross margins and total costs.

When there is so even a balance between operating a business for a loss or a profit, it is absolutely essential that a clear-cut system of accounting be used which will show on a monthly basis which way the business is headed. It is too late to wait until the end of the year to figure final results. The men who are continually running at a loss cannot stay in the business for long.

FIXED COSTS

Fixed costs are often referred to as the "dirti" five, namely, depreciation, insurance, rent, taxes and interest. Yearly interest costs are flexible, whereas the other costs continue at approximately the same amount year after year. Large or small stock inventory values and varying amounts in accounts and notes receivable will affect the net worth, which in turn may reduce or increase the interest charge on net worth. For this reason, the men who are on a cash basis would have smaller overhead expense. Also, a convenient and not too large a building located on a railroad siding is an important factor in keeping the fixed costs as well as the necessary labor requirements low.

Table 3—*Fixed Cost and Capital Distribution of 13 Rented and 28 Owned Stores*

ITEMS	Rented		Owned	
	Total Amount	Per Cent Distribution	Total Amount	Per Cent Distribution
Fixed Cost:—				
Rent	$12,613.12	45.68	$2,063.97*	2.23
Taxes	3,778.11	13.67	16,072.03	17.35
Insurance	4,514.84	16.33	12,417.25	13.41
Interest on net worth	5,576.47	20.17	46,940.58	50.68
Depreciation on building and equipment	1,147.22	4.15	15,126.18	16.33
Total	$27,647.76	100%	$92,620.01	100%
Capital:—				
Land and buildings			$278,802.79	29.58
Equipment	$28,539.00	9.76	81,643.30	8.79
Cash on hand	13,853.84	4.74	40,190.75	3.78
Accounts and notes receivable	117,272.84	40.10	275,857.37	21.22
Stock inventory	132,757.00	45.40	350,103.63	36.63
Total	$292,422.68	100%	$1,026,597.84	100%

*Rent for railroad siding and railroad land.

The total sales of 13 rented stores was $1,250,748.39, or a fixed cost per dollar of sales of $0.0221. Total sales of 28 owned stores was $3,288,269.86, or a fixed cost per dollar of sales of $0.0282.

TABLE 4—*Variation of Store Sales Compared with Fixed Costs*

Fixed Cost Class Limits	Total Sales	Store Reference Numbers	Fixed Cost Class Limits	Total Sales	Store Reference Numbers
	$18,000	17		$62,195	156
	23,910	49		66,000	189
	29,610	178		83,764	149
$600— $999	35,000	195		98,686	5
	40,924	8	$2,000— $2,499	100,149	126
	43,812	160		122,608	131
	70,522	6		133,017	7
				137,507	132
	31,587	142		152,724	1
	55,591	291			
$1,000— $1,499	67,037	185		$1,467	197
	75,352	167		86,457	19
	98,625	193		87,621	128
	138,000	186		100,719	124
			$2,500— $5,400	103,668	127
	30,967	192		104,700	179
	64,377	51		110,853	198
$1,500—$1,999	83,618	125		123,631	184
	96,104	129		141,873	154
	118,247	168		203,330	18
	148,030	148			
				180,962	188
			$6,500—$19,250	193,000	171
				791,159	130

The fixed cost and capital distribution of the 41 stores are given in Table 3. Thirteen stores were rented and 28 were owned. Analysis of these data shows the rented stores had a more favorable ratio between fixed costs per dollar of sales than the owned stores. This ratio was $.0221 for the rented and $.0282 for the owned, or a difference in fixed costs per dollar of sales of $.0061 in favor of the rented stores. Also the capital turnover of the rented stores was 4.3 times compared to 3.2 times for the owned stores.

TABLE 5—*Relation of Fixed Costs per Dollar of Sales to Increasing Volume of Business*

Fixed Cost Class Limits	Total Sales Class Limits		
	Less $40,000	$40,000 to 120,000	Above $120,000
$.0100— .0199		7	7
.0200— .0299	3	8	1
.0300— .0399	1	3	3
.0400— .0499	1	3	
.0500— .0599	1	2	1
Number stores in each class	6	23	12
Average fixed cost	.0350	.0272	.0240

Perhaps the most surprising results obtained in the study are the great differences in amount of sales compared with the actual amount of fixed costs. (Table 4). No better example could be had of efficiency and lack of efficiency in the use of capital than is apparent in these illustrations. A range in total amount of fixed costs from $600 to $1000, for instance, resulted in sales varying from $18,000 to $70,522.

The ratio of fixed costs in relation to sales is obtained by dividing the amount of fixed costs by the total sales for each store. Although the majority have fixed costs per dollar of sales between one and three cents, there are many who have more; four stores have over five cents in this item. The extremes noted in the previous table are not so apparent when reduced to the ratio basis shown in Table 5. There were 14 stores with an average of $.015, 12 with $.025, 7 with $.035, 4 with $.045 and 4 with $.055 fixed cost per dollar of sales. As total sales increase from less than $40,000 to $120,000, fixed costs decrease from $.0350 to $.0240 per dollar of sales.

TABLE 6—*Relation of Total Investment Turnover to Fixed Costs per Dollar of Sales*

Turnover Class Limits	Fixed Cost Class Limits			Total Number of Stores in Each Class
	$.0100 to .0199	$.0200 to .0299	$.0300 and above	
1— 1.9			2	2
2— 2.9	1	5	8	14
3— 3.9	3	2	3	8
4— 4.9	4	2	1	7
5— 5.9	4	2		6
6— 6.9	1			1
7— 7.9		1		1
8— 8.9	1			1
11—11.9			1	1
Number stores in class	14	12	15	41
Average turnover	4.86	3.92	3.30	

Effect of Turnover of Total Investment on Fixed Costs

Store managers are interested in knowing how rapid a turnover of total assets is made in relation to yearly sales. This is found by dividing the sales by the total investment. Turnovers varied from 1 to 12 times with an average for all stores of 4.04 times.

By comparing total investment turnover with fixed costs per dollar of sale, it is apparent that low costs are the result of rapid turnovers and high costs the result of slow ones. Those stores which had small turnovers were operating at a disadvantage. (Table 6). There was a difference of over $.015 in fixed cost per dollar of sales as the total investment turnover varied from 4.86 to 3.30 times.

TABLE 7 *Relation of Total Investments to Fixed Costs per Dollar of Sales*

Total Investment Class Limits	Fixed Cost Class Limits		
	$.0100 to .0199	$.0200 to .0299	$.0300 and above
Less than $10,000	1	1	2
$10,000 — 19,999	5	6	3
$20,000 — 29,999	2	2	3
$30,000 — 39,999	3	2	
$40,000 — 49,999	2		2
$50,000 — 59,999	1		3
$60,000 — 69,999			
$70,000 — 79,999			1
$80,000 — 89,999			
$90,000 — 99,999			
100,000—109,999			
110,000—119,999			1
160,000—169,999		1	
Number stores in each class	14	12	15
Average investment	$27,143	$31,667	$38,333

Further information on the effect of large and small investment in relation to fixed costs per dollar of sales is presented in Table 7. A definite relationship is noticeable; that is, for each $5000 increase of investment there is an average increase of approximately one cent in fixed cost per dollar of sales. Fourteen stores having an investment from $10,000 to $60,000 or an average investment of $27,143 have lower fixed costs per dollar of sales than those with larger capital investments.

TABLE 8—*Relation of Fixed Cost to Total Cost and to Gross Margin per Dollar of Sales*

Fixed Cost Class Limits	Total Cost Class Limits			Gross Margin Class Limits		
	Less than $.0900	$.0900 to $.1199	$.1200 and above	Less than $.1000	$.1000 to $.1299	$.1300 and above
$.0100—$.0199	8	4	2	7	5	2
$.0200—$.0299	3	5	4	1	6	5
$.0300—$.0399		2	5	1	3	3
$.0400—$.0499		2	2		3	1
$.0500—$.0599			4	1		3
Number stores in class	11	13	17	10	17	14
Average fixed cost	$.0177	$.0265	$.0361	$.0220	$.0273	$.0335

Relation of Fixed Costs to Total Costs and Gross Margins

Since fixed costs represent approximately 25 per cent of total costs of all stores, they affect total costs and gross margins but not in like proportion. (Table 8). A $.03 increase in total costs per dollar of

sales is accompanied by an average increase of $.0184 in fixed costs per dollar of sales. Likewise, a $.03 increase in gross margin per dollar of sales is accompanied by a general increase of $.0115 in fixed costs per dollar of sales.

Summary of Fixed Costs

Because fixed costs are largely made of items which are not subject to change the only sure way of reducing the load is to increase the volume of business. This is impossible to accomplish in many sections where competition is keen. The most efficiently operated stores are able to do $100,000 worth of business with an investment of approximately $15,000. Too frequently, capital has been invested in buildings which have a capacity several times larger than necessary. Such instances of over-expansion represent an economic waste to the community. Occasionally one dealer will buy out another, thereby doubling his volume with a small increase in overhead. In other instances, the stores have been closed or changed over to another kind of business.

Those stores having satisfactory but not elaborate buildings and equipment equal to the needs of their business are in an advantageous position to meet competition. On the other hand, where only ¼ or ½ of the building space is utilized, such conditions are certain to throw the operating ratios out of balance. Either the return on the capital invested in buildings is low as competition keeps the gross margin to a minimum, or if the return on the capital in such buildings and equipment approaches normal, the gross margin has usually been raised above the average. In many instances, the buildings were erected at a time when the volume of business was much greater and also before goods were sacked and sold in mixed cars so that more storage space was necessary. Since these over-large buildings are still in use their value should be figured on the basis of earning power in relation to the business transacted and not at the cost of replacement. Undoubtedly, if these stores were to be replaced, the amount of capital required would be much less than their present book values and the return on the capital invested in them would then be commensurate with the business.

Referring to Tables 4 and 22, it will be seen that Store 192 has fixed costs of over $.05 per dollar of sales; and has the smallest sales of any in the group in relation to fixed cost expenditures. The manager of this store has an accurate bookkeeping system. He realizes his predicament and has raised the gross margin on sales to prevent operating at a loss. He states that it would be possible to handle twice the amount of grain with his present investment. Although this man's customers might object to the increased margin, the question arises: would they be willing to go without the convenience of a local grain store in the community and obtain the grain from more distant points if the local dealer should go out of business?

There are many grain stores where the opposite condition is true. Store 6 is a good example of more favorable circumstances. It has fixed costs of approximately $.015 per dollar of sales, because the fixed costs are low and because sales are exceptionally high.

Labor Expense

Over half the expense of grain stores is for labor. Even though this item is flexible and easily changed, there are many instances where too much help is maintained. The labor requirements vary between stores because of dissimilar conditions. One store may be a mile or so from the railroad siding, or it may be in a community where small purchases are frequently made, or the building and equipment may be poorly arranged so that more labor is required for operation. Only by checking up on this problem as to sales and amount of idle time is a manager able to gauge efficiency.

Yearly labor costs of 41 stores are compared with total sales in Table 9. The extent of variation is not so apparent as when a similar comparison was made with fixed costs; but it will be noted that many stores have shifted relative positions.

Number Employed

There were 151.7 persons employed on a full-time basis in the 41 stores, or an average of 3.7 persons per store. Seven stores employed 1.5 persons daily, twelve 2.5, twelve 3.5, three 4.5, three 5.5, and one store employed over 19 persons.

Sales per Man

Dividing total sales by number of persons employed in a store gave the average yearly sales per man. The average for all stores was

TABLE 9—*Variation of Store Sales Compared with Labor Costs*

Labor Cost Class Limits	Total Sales	Store Reference Number	Labor Cost Class Limits	Total Sales	Store Reference Number
$1,800—$2,999	$18,000	47	$4,500— $7,499	$81,467	197
	23,910	49		83,618	125
	29,610	178		98,625	193
	30,967	192		100,449	126
	34,587	142		100,719	124
	35,000	195		104,700	179
	40,924	8		110,853	198
	43,812	160		122,608	131
	64,377	51		137,507	132
	70,522	6		138,000	186
				148,030	148
$3,000—$4,499	55,591	201	$7,500—$57,000	98,686	5
	62,495	156		123,631	184
	66,000	189		133,017	7
	67,037	185		141,873	154
	75,352	167		152,724	4
	83,764	125		180,962	188
	86,457	19		193,000	171
	87,621	128		203,330	18
	96,104	129		791,159	130
	103,668	127			
	118,247	168			

$32,805. Sales per man varied from less than $20,000 up to $60,000 —an indication that the labor problem is handled more efficiently in some stores than others.

On a dollar of sales basis, the range was from $.03 to $.10 with an average labor cost for all stores of $.0598 per dollar of sales. There were four stores with a labor cost of $.035 per dollar of sales, twelve with $.045, eleven with $.055, eight with $.065, four with $.075, one with $.085 and one with $.105 labor cost per dollar of sales.

The effect on the labor cost of securing large sales per man is shown in Table 10. Labor costs are reduced approximately $.02 as sales per man are increased from $20,000 to $60,000; or for each $1000 increase in yearly sales per man, labor costs are reduced $.0005 per dollar of sales. Since labor represents over half the total cost of operating a grain store, it is possible to show the relationships for sales per man with total costs and gross margins per dollar of sales. As sales per man increase from $20,000 to $60,000, total costs decrease approximately $.06 and gross margins approximately $.05 per dollar of sales.

Fifteen of the stores included in this analysis were operated at a loss and 26 at a profit. Many more of the stores could have made a profit if they had dropped one or two men from the pay roll.

Table 10—*Relation of Sales per Man to Labor Costs, Total Costs and Gross Margins*

Sales per Man Class Limits	Number Stores	Average Labor Cost for Each Class	Average Total Cost for Each Class	Average Gross Margin for Each Class
Less than $20,000	4	$.0653	$.1352	$.1317
$20,000—$29,999	14	.0532	.1235	.1208
$30,000—$39,999	10	.0499	.0990	.1217
$40,000—$49,999	11	.0501	.1024	.1094
$50,000—$59,999	2	.0422	.0736	.0886

The efficiency of those stores with an average sale per man of $32,000 or above is reflected not only in greater net profit, but in decreased gross margins. This means a decreased price of grain to the trade.

Because of the small sales in the afternoon, one manager found it possible to save the expense of one man by closing the store half a day so that the same person could handle sales in the morning and make deliveries in the afternoon. This change was effected in an orderly manner by mailing notices to the trade several weeks in advance, stating the mutual advantages to be gained and when the new system would commence. Through this greater efficiency, labor costs were reduced approximately $1 a ton. The yearly sales of this store averaged $40,000 which is above the average of the group studied.

Doubtless many border-line cases do exist where added or decreased help is in question. Many claim they can afford to hire a man to stay at the store while they visit the customers, obtain more trade, collect bills, etc.

Through the cooperation of five store managers, the daily distribu-

TABLE 11—*Distribution of Employees' Time During One Week*

Items	Hours Utilized by Five Grain Stores										Total all Stores	
	No. 49		No. 172		No. 185		No. 19		No. 7			
	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%
Book accounts and correspondence	3.1	4.8	3.5	6.5	25.0	17.9	17.0	10.8	54.0	16.7	102.6	13.9
Store trade	7.7	12.0	12.0	22.2	29.0	20.7	25.0	15.9	35.0	10.8	108.7	14.7
Sales on road							5.0	3.2	48.0	14.8	53.0	7.2
Telephone*	1.2	1.9	1.5	2.8			10.7	6.8			13.4	1.8
Delivering	5.0	7.8	5.5	10.2	46.0	32.8	28.8	18.2	57.0	17.6	142.2	19.2
Cleaning and repairing	3.1	4.9	2.0	3.7	6.0	4.3	10.5	6.7	12.6	3.9	34.2	4.6
Unloading	2.2	3.4	4.5	8.3	32.0	22.9	13.5	8.6	66.6	20.5	118.8	16.0
Mixing									10.5	3.2	10.5	1.4
With salesmen	.6	1.0	.7	1.3							1.4	.2
Collecting accounts			3.0	5.6	2.0	1.4	14.5	9.2	9.0	2.8	28.5	3.8
Occupied time	22.9	35.8	32.7	60.6	140.0	100.0	125.0	79.4	292.7	90.3	613.3	82.9
Idle time	41.0	64.2	21.3	39.4			32.5	20.6	31.3	9.7	126.1	17.1
Total time for week	63.9	100.0	54.0	100.0	140.0	100.0	157.5	100.0	324.0	100.0	739.4	100.0
Weekly sales	$455.28		$655.33		$1429.18		$1662.00		$2552.06		$6453.85	
Number of men†	1		1		3		3		6		14	
Average weekly sales per man	$455.28		$655.33		$376.39		$554.00		$425.34		$460.99	
Average sales per hour of occupied time	$19.86		$20.04		$8.06		$13.30		$8.72		$10.52	
Average sales per hour when store was open	$7.11		$12.14		$8.06		$10.55		$7.88		$8.73	

* The time required to telephone was not kept separate by stores No. 185 and No. 7.
† Includes manager.

tion of time for each employee was obtained. Representative types of stores were chosen in various sections of the state. All of these five stores have appeared in the preceding discussion except Store 172. One report covered the business days for a whole month; the others were for a week. (Table 11). The distribution of labor averaged:—delivering, 19.2 per cent; unloading, 16. per cent; store trade, 14.7 per cent; book accounts and correspondence, 13.9 per cent; sales on road, 7.2 per cent; cleaning and repairing, 4.6 per cent; collecting accounts, 3.8 per cent; telephone, 1.8 per cent; mixing, 1.4 per cent; time with salesmen, .2 per cent; and idle time, 17.1 per cent. The average daily sales for all stores were $215.13. The information obtained from this small sample for so short a period suggests that further study should be made along these lines. Those stores which have a low sales per man undoubtedly would have many unproductive hours per employee. By referring to Figure 1 and Table 22, it is possible to note the sales, costs, margins and profits of these stores.

Many differences may be observed in the portion of time given under the several items. For instance, Stores 185, 19 and 7 require more time for delivery than for waiting on trade. The reverse is true of the other two, mainly because they were one-man stores. Stores 185 and 7 have the highest percentages in amount of time given to book accounts and correspondence, as an office girl is employed regularly. Collecting accounts is an important item for Stores 172 and 19. Much time is used by Store 7 in canvassing for more business.

The effects of time busy, time unoccupied, and total number of hours the store was open, in relation to the sales are also shown. The stores operated by one man have an advantage over the others when weekly sales are compared with the hours worked. This advantage is apparently lost when the number of hours the store was open is compared with total sales, although Store 172 continues to hold first place in both illustrations. One reason Store 29 drops to lowest place in the latter comparison is because of the long hours per day the proprietor is on the job. He does the majority of his delivering after usual closing hours, working more than 10½ hours a day.

The yearly average sales per man for Stores 49, 185, 19 and 7 were $23.900, $23,346, $28.819 and $22.100 respectively which is considerably below the average of all 41 stores. The average sales per store for all employees during the time the store was open varies in a similar fashion, i. e., those stores having the lowest yearly sales per man employed also have the lowest average sales per hour the store was open.

If we judge these five stores on the basis of sales per hour of occupied time, the one-man stores, 49 and 172, are the most efficient. Their average sales per hour were over twice as great as the average sales for Stores 185, 19 and 7. On the other hand, the one-man stores, 49 and 172, spent 64 per cent and 39 per cent respectively of the time in idleness, whereas the other stores reported 20 per cent and 9 per cent and in one instance no idle time whatever. No checkup was made of the number of customers and size of individual purchases for all stores.

The proprietor of Store 49 recorded the amount of time required for each customer and the number of patrons for a month. The time varied from 5 to 20 minutes with an average of 6 minutes per customer. The number of customers varied from 7 to 25 a day.

DELIVERY COSTS

The state survey indicated that 23 per cent of the grain sold in 1926 was delivered by the dealers to the customers. The dealers often expressed the opinion that the demand for this service was increasing. Over half of the stores delivered grain without any extra charge, as is shown in Table 12.

TABLE 12—*Number of Stores Delivering Grain and Charges Made in Village and Outside as Reported in State Survey*

Charge per Bag	For Delivery in Village	For Delivery Outside Village			Total Number Stores
		No Distance Given	Less than 5 Miles	More than 5 Miles*	
No charge	66	3	13	4	86
$.05	13	5	8	7	33
$.10 or more	8	12	5	4	29
Total	87	20	26	15	148

*One store charges 15c per bag for 10 miles, and another 20c per bag for 15 miles.

Much of the promiscuous system of charging for delivery is due to competition and lack of cooperation between grain dealers. When one store manager charges 5 cents a bag for delivering or delivers free of charge, the competitor usually does the same. The cost of delivering then becomes part of the general overhead expense and is paid out of the gross margin. Those men who are located five miles away and have their purchases delivered without extra charge are paying for only part of the delivery service, whereas the men who buy grain at the store at the same price are paying too much in that they are contributing to the cost of the service which the other men receive. This inequitable method of charging for delivery is not fair to the trade. It is, however, possible that it costs as much to deliver nearby as farther out because of smaller orders and more frequent demand for service.

Undoubtedly grain dealers are in a more advantageous position to deliver grain throughout the greater part of the year than are the customers to do their own hauling. In many instances the stores are not located on a railroad siding, and all of the grain has to be hauled to the store by team or truck. Usually these stores have their own hauling equipment and are able to render delivery service. This problem has been worked out most satisfactorily where zoning systems have been established along with regular routes which are covered weekly. In this way the customer pays for the service rendered.

So much irregularity was found in the state survey concerning delivery charges that the attempt was made in the cost accounting outline to assemble these costs and the total tonnage delivered. A limited number of tonnage records was kept, but none was available which gave the amount credited to delivery so that it is impossible to show whether the service was operated at a profit or a loss.

Thirty-five of the 41 stores reporting for 1928 were delivering grain. The average delivery cost per dollar of sales was $.012. There were sixteen stores with delivery costs per dollar of sales less than $.01, fourteen with $.015, four with $.025 and one with $.035.

OTHER COSTS

Whereas the majority of the items under Other Costs are of a miscellaneous nature, the skill with which they are managed can make or break a business. Attention is called to their distribution in Table 13

TABLE 13—*Other Cost Distribution of* 41 *Retail Grain Stores*

Expense Items	Amount in Each Item	Per cent	Average Amount
Stationery and postage	$ 5,530.29	7.5	$134.88
Telephone and telegraph	5,904.98	8.1	144.03
Light and power and heat	10,571.88	14.4	257.85
Net interest	9,736.28	13.3	237.47
Demurrage	329.00	.4	8.02
Advertising	4,728.11	6.4	115.32
General repairs	8,761.56	11.9	213.70
Bad debts	12,621.42	17.2	307.84
Miscellaneous	15,255.04	20.8	372.07
Total	$73,438.56	100%	$1,791.18

with special emphasis on bad debts and interest paid on borrowed capital. These items are flexible and of greater importance to the stores furnishing credit than to those on a cash basis. Since 9 of the 41 are on a cash basis, the percentage of other costs would be even greater for these three items if the credit stores were considered separately. Interest expense will vary in the same manner; those stores supplying credit usually have to borrow more money for working capital than those on a cash basis.

Demurrage was unimportant except for two stores, where it could be attributed to a lack of working capital. With one it is the result of having too much capital tied up in fixed assets which are beyond the requirements of the business. With the other, working capital was lacking because of too liberal a credit policy based on a small net worth in the business so that the local bank could not afford to extend any more credit to the dealer.

Bad debts varied from none up to $4000. Store 8 had the highest other costs because of a heavy loss due to over-extension of credit.

As a rule the dealers did not enter any bad debts expense until they were positive the account was uncollectable. They did venture the opinion that many of their accounts probably would prove worthless if they had to force collection. On the other hand, the cash stores had no bad debts expense. (Forty-nine stores were found in the survey which did not incur any bad debts although they had extended some credit).

Some managers are selling over twice as many dollars worth of goods as others with about the same amount of expense for other costs. (Table 14). Apparently Store 47 has the best other cost ratio to sales. However, it is doubtful if the average store could function satisfactorily with this small amount of expense. The store has no

Table 14—*Variation of Store Sales Compared with Other Costs*

Other Cost Class Limits	Total Sales	Store Reference Number	Other Cost Class Limits	Total Sales	Store Reference Number
	$18,000.00	47		$40,924.62	8
	23,910.23	49		75,352.56	167
	30,967.30	192		81,467.00	197
$80	34,587.00	142		83,764.59	149
to	35,000.00	195		87,621.46	128
$450	64,377.48	51	$1,350	98,686.03	5
	83,618.31	125	to	110,853.32	198
	96,104.60	129	$3,000	118,247.14	168
	100,449.31	126		122,608.99	131
				123,631.74	184
	29,610.22	178		133,017.94	7
	43,812.86	160		148,030.22	148
	55,591.06	201		152,724.40	4
	62,495.35	156		193,000.00	171
$500	66,000.00	189			
to	67,037.34	185		104,790.53	179
$1,350	70,522.09	6	$3,100	138,000.00	186
	86,457.97	19	to	141,873.51	154
	98,625.70	193	$12,800	180,962.59	188
	100,719.25	124		791,159.27	130
	103,668.64	127			
	137,507.00	132			

telephone, and does no delivering. Stationery and postage expense amounts to $10 and fuel to $30. There was $40 in bad debts, though the store had 90 per cent cash sales. No money is paid out for demurrage or for interest on borrowed capital. On the other hand, it is undoubtedly costing Store 179 more for other costs than is necessary. Total sales for Store 47 are only $18,000, whereas Store 179 has $104,700 sales with $3142 of other costs or a ratio 6 times as great. There are many instances where similar comparisons might be made.

The average other costs for the 41 stores was $.0174 per dollar of sales. There were ten stores with other costs per dollar of sales less than $.01, twenty with $.015, six with $.025, four with $.035 and one with $.075. Seven of the cash stores are in the first group where other costs are less than $.01.

Although other costs represent only 15.04 per cent of the total operating costs of the 41 stores, they show a definite tendency to increase as total costs increase. The influence of other costs on gross margins is usually similar to that on total costs. On the other hand, the exceptionally large item of $.075 appearing under other costs for Store 8, due to bad debts, does not increase the gross margin a like amount. Apparently, the manager accepted this loss as part of the game and did not attempt to make it up by raising the gross margin.

TOTAL COSTS, GROSS MARGINS AND NET PROFIT

During the preceding discussion, attention has been called to the important factors which affected the fixed, labor, delivery and other costs of the 41 stores. It was shown in Figure 1 that the costs under these four heads are variable and of much more importance for some stores than others. A summary of these costs for the individual stores is given in Table 22. When total costs are subtracted from gross margins there are 27 stores which made a profit and 14 which operated at a loss. Undoubtedly competition causes gross margins to remain at a low level so that some of these stores are unable to retrieve their losses.

Many of the stores do not hold the same relative position when sales are compared with the amount of gross margin that they held when sales were compared with fixed, labor or other costs. (Tables 4, 9, 14 and 15). This is to be expected when so much variation is found con-

Table 15—*Variation of Store Sales Compared with Gross Margin*

Gross Margins Class Limits	Total Sales	Store Reference Number	Gross Margins Class Limits	Total Sales	Store Reference Number
	$18,000.00	47		$66,000.00	189
	23,910.23	49		83,764.59	149
	29,610.22	178		98,686.00	5
$2,000	30,967.30	192		100,449.31	126
to	34,587.00	142	$10,000	100,719.25	124
$6,500	35,000.00	195	to	103,668.64	127
	40,924.62	8	$15,600	118,247.14	168
	64,377.48	51		133,017.94	7
	70,522.09	6		137,507.00	132
	75,352.56	167		141,873.51	154
				203,330.63	18
	43,812.86	160		148,030.22	148
	55,591.06	201			
	62,495.35	156		110,853.32	198
	67,037.34	185		122,608.99	131
$7,000	81,467.00	197	$16,000	138,000.00	186
to	83,618.31	125	to	152,724.40	4
$9,999	86,457.00	19	$82,500	180,962.59	188
	87,621.46	128		193,000.00	171
	96,104.60	129		791,159.27	130
	98,625.70	193			
	104,700.53	179			
	123,631.74	184			

cerning the importance of these items for the individual stores. It is not the effect of volume of business on these costs which should be emphasized, but the fact that some managers are able to conduct several times as much business on about the same cost. Many managers remarked, "If only I could increase my volume of business, I would be all right." On the other hand, these men seldom mentioned the cutting down of labor, delivery, bad debts, interest and the costs which are flexible, so as to be equal to or in a better position than the average.

INVENTORY TURNOVER

It has come to be considered a business axiom that the more often stock is sold out and replenished, the larger will be the return on the investment, because a margin of profit is realized on each inventory turnover. A smaller amount of capital is required to do a given amount of business, and market changes are more easily followed when turnovers are rapid. Other advantages are decreases in spoilage and waste, and in insurance and tax costs because of a smaller inventory.

The inventory turnover of the 41 stores averaged 10.2 times. There were ten stores which had less than 7 inventory turnovers, fifteen from 7 to 10, eight from 10 to 13 and eight with more than 13. Store 185 with the largest turnover of 22.5 times had a total cost per dollar of sales of $.1081, whereas Store 192 with the lowest turnover of 3.5 had a cost of $.1510. When the total costs per dollar of sales are compared with the number of inventory turnovers for all stores, a marked relationship is found; i. e., slow turnovers are associated more often with high costs than are the more rapid ones. The average total cost of 14 stores having inventory turnovers less than 8 times is $.1228 per dollar of sales, and for 13 stores having more than 11 turnovers it is $.1057.

The slow turnovers suggest that, apparently, some stores are carrying much larger stocks than are necessary. Large stocks are due to several causes: e. g., keeping three or four different brands of dairy or poultry feed on hand so as to satisfy the trade; buying in straight carlots to reduce the cost per ton in spite of a small volume of business; and the handling of miscellaneous goods such as cement, hardware and farm implements.

CREDIT

Data collected in the state survey showed that 89 dealers had an average amount of $870,521.50 in accounts and notes receivable. There were 48 stores having less than $5000 regularly in accounts receivable, 18 from $5000 to $9999, 13 from $10,000 to $25,000 and 10 with more than $25,000, the largest amount carried in this account being $95,629.

The seriousness of these accounts is better appreciated when their average amount is compared to yearly sales. (This ratio is obtained by dividing the average amount in accounts and notes receivable by the yearly sales). On this basis there were 24 stores having average

accounts receivable in relation to sales of 2.5 per cent, 27 with 7.5 per cent, 20 with 12.5 per cent, 9 with 20 per cent, and 9 with more than 30 per cent. Three stores had extended so much credit that it exceeded 60 per cent of total sales.

The percentage of total grain sales which were for cash varied from 10 to 100 per cent. Twenty-two stores were found in the state survey which were selling grain on practically a cash basis.

As a usual thing, a liberal credit policy will be accompanied by some bad debt. During 1926, the losses due to bad debts totaled $34,821.15 for 103 stores. In the majority of stores these losses were under $200, but in several instances amounted to more than $2000. Bad debts were distributed among the 103 stores as follows: 34 with less than $100, 25 with an average of $150, 25 with an average of $225, and 19 with more than $500.

Bad debts varied from less than ¼ to 3½ per cent of sales. Some stores build up a reserve for bad accounts by setting aside ½ per cent of yearly sales. When bad debts are compared with sales, 33 stores have bad debts less than .25 per cent of sales, 25 have .37 per cent, 18 have .62 per cent, 11 have 1 per cent and 11 have more than 1.25 per cent.

Other important costs resulting from supplying credit are interest, credit accounting, office supplies and collection costs.

Usually, the greater part of the accounts was in book and not note form, so that no direct income was received for the extension of credit. This means that a charge for credit had to be added at the time of sale or else absorbed as part of the general overhead.

A study of grain store credit in New York State showed an annual cost of 13.35 per cent—more than twice the 6 per cent rate charged by banks.* On this basis, the annual cost to the 89 New Hampshire grain stores of extending $870.520.50 of credit would be $116,214.48, or $63,983.25 more than it would have cost if obtained from banks.

TURNOVER OF ACCOUNTS RECEIVABLE

In order to determine the average length of time accounts stay on the books, the amount of average daily sales was divided into the average amount of accounts receivable. This turnover of accounts receivable for the 89 stores varied from less than five days up to 242 days with an average of 38 days. (Table 16).

Cash Discounts

Practices varied throughout the state in the treatment of credit. Many managers made no effort to charge for this service or to differentiate between a cash and credit customer. Although all stores did not give complete reports on this subject, sufficient evidence was found to show that cash sales increased as the discount allowed for cash increased from nothing up to 10 and 15 cents a bag. (Table 17).

*Cornell Station Bulletin 430; An Economic Study of Rural Store Credit in New York.

TABLE 16—*Accounts Receivable Turnover in Days, Reported by 89 Stores in State Survey of* 1926

Average Number of Days on Books	Number of Stores in Each Class
Less than 10	11
10—29.99	37
30—59.99	25
Above 60	13
Total	89
Average number of days	38.17

Several stores had accounts on their books for 185 and 240 days.

When nothing was allowed for cash, the average per cent of cash sales for 15 stores was 41 per cent; when a discount of $.05 a bag was made, 47 stores had an average of 53 per cent cash sales; and likewise for $.10 and $.15 a bag the average respective cash sales were 57 and 60 per cent.

Monthly Statement

As a general rule, no monthly statement was sent out from the stores. Only 29 out of 122 stores mailed statements regularly to their customers. Duplicate sales slips, one for the customer and the other to be placed on file, were more commonly used showing the amount carried forward and an itemized statement of the goods sold. There were sections where the managers found they caused dissatisfaction among their customers through sending statements. In other sections, the trade has become accustomed to receiving a statement and often

TABLE 17—*Distribution of Percentage Cash Sales According to Cash Discounts, Reported by 83 Stores in State Survey of* 1926

Per cent Cash Sales	Number Stores in Each Class			
	No Discount	Discount per Bag		
		$.05	$.10	$.15
Less than 10	2			
10—19.9				
20—29.9	3	7	1	
30—39.9	2	8	2	
40—49.9		4	4	
50—59.9	6	13	4	1
60—69.9	1	7	4	1
70—79.9	1	6	3	
80—89.9		1		
90—99.9		1	1	
Total	15	47	19	2
Average per cent cash sales	41	53	57	60

waits for it before paying the bill. The amount of time given varied from 7 to 90 days for 73 stores, while 47 stores had no time limit.

PRICE ANALYSIS

When a customer purchases a sack of grain, he pays for several other services although grain is the primary object of the transaction. The dealer who keeps the store open from 7 A. M. until 5 P. M. is making it possible for his customers to buy grain at any time they are likely to want it. When the customers are given the opportunity to purchase large or small amounts at the car or the store or have it delivered, they are receiving form and place utilities. When credit is extended, they are receiving still another service. Often the trade confuses these services and compares a credit price at the store with a cash price at the car door.

The previous discussion has shown that these distributing services cost money and that there is a great difference in the efficiency with which they are carried out. Those stores which have favorable ratios of fixed, labor, delivery and other charges are in the best position to sell grain at the lowest price, although some take advantage of the lack of competition to charge a higher price and to make a larger profit even though their costs are low. Some store managers are much shrewder buyers than others and are able to make savings which help to reduce the general overhead. Because of these differences, the prices charged for grain and feeds of the same standard and brand varied considerably throughout the state.

Weekly retail cash store prices were obtained in 1928 from 62 stores in New Hampshire, for approximately a whole year, for corn, wheat, middlings, bran, scratch feed, dry mash, dairy feed, cottonseed and gluten feed. Because the number of stores were not equally distributed by counties it does not seem desirable to make comparisons on that basis. However, when the prices were averaged by counties some were consistently low and others high. Prices for one week in July and one in November were selected for comparison.

The smallest range in average prices between counties occurred with middlings, for which there was only 6 cents per cwt. difference between the lowest and highest prices; similarly for corn there was a range of only 10 cents per cwt. The greatest difference in price between counties occurred with wheat and cottonseed, for which there were ranges of 48 cents and 57 cents per cwt., respectively.

In order to determine which feeds showed the greatest variations in price throughout the year, all the low and all the high weekly retail prices were averaged for each. The greatest range is $.79 and $.74 per cwt. respectively for poultry wheat and cottonseed meal, and the smallest range is $.11 per cwt. for two poultry feeds of the same brand. (Table 18).

When all the retail prices for a year are averaged for each standard grain or brand of mixed feed, and compared with the average wholesale distributor price, the greatest difference is $.31 per cwt. for two poultry feeds of the same brand and the smallest is $.11 per cwt. for corn.

TABLE 18—*Average Retail Cash Prices of 62 Stores Compared with Average Wholesale Mixed Car Prices of 10 Distributors for Year 1928**

Grains and Feeds	Retail				Wholesale Distributor Average Price	Difference Between Average Retail and Wholesale Prices
	Lowest Average Price	Highest Average Price	Price Range	Average Retail Price		
No. 2 corn	$2 24	$2 57	$ 33	$2 39	$2 28	$ 11
Poultry wheat	2 48	3 27	.79	2 76	2 49	.27
Standard bran	2 04	2 43	.39	2 24	2 05	.19
Standard middlings	2 11	2 62	.51	2 32	2 12	.20
Buffalo gluten	2 40	2 81	.41	2 62	2 45	.17
Cottonseed meal—36%	2 57	3 31	.74	2 94	2 77	.17
Dry mash A	3 07	3 35	.28	3 21	2 90	.31
Dry mash B	3 10	3 41	.31	3 25	2 99	.26
Dry mash C	3 16	3 27	.11	3 21	2 91	.30
Scratch feed A	2 71	2 97	.26	2 82	2 51	.31
Scratch feed B	2.71	2 98	.27	2 85	2 60	.25
Scratch feed C	2.80	2 91	.11	2 86	2 60	.26
Dairy feed A	2 71	3 11	.40	2 91	2 77	.14
Dairy feed B	2.72	2.95	.23	2 84	2.72	.12

*All goods sacked; wholesale prices to New Hampshire receiving points.

The group of stores having the lowest average price during the year sold grain and feed for less than replacement costs. Undoubtedly they purchased their supplies on a favorable market and passed these savings on to their customers. On the other hand, the group which charged the highest average price during the year took considerable gross margin over replacement values.

According to the weekly quotations given in the Boston Produce Market Report, 40 changes occurred in the price of No. 2 yellow corn* during 1928. In contrast to these market changes the retailers shifted prices on an average of 14.5 times.

The average of the up-market corn changes was $.057, and the down was $.061 per cwt. On the other hand, the average of all retail price changes when up was $.07, and when down $.075 per cwt. This seems to show that the stores are no more apt to follow changes in the market upward than downward. When the net deviation for each store was figured on the basis of its price change being greater or smaller than the market change, 28 stores were found which did not change the retail price of corn as much as the market and 7 which made greater changes than the market.

*In spite of the fact that requests for prices were asked for on the basis of No. 2 yellow corn, there is of course a possibility of confusion of grades. A study of the quotations given in the Boston Produce Market Report shows that corn prices of the same grade vary from 1 to 2 cents a bushel; also that differences between the highest quotation for No. 2 yellow corn and the highest quotation of No. 3 yellow corn vary from 1 to 4 cents a bushel. These market variations for corn prices and similarly for other grains and feeds could account for a small part of the difference in prices between stores.

TABLE 19—*Retail Cash Prices per Cwt. of 41 Stores During the First Week in December, 1928*

Store Reference Number	No. 2 Yellow Corn	Poultry Wheat	Standard Bran	Standard Middlings	Cottonseed 36%	Gluten Feed
47	$2 25	$2 40	$2 25	$2 25	$2 80	
49	2 35	2 85	2 30	2 35	2 80	$2 80
178	2 15	2 25	2 35	2 35		2 60
192		2 50	2 30	2 35	2 75	2 65
142	2 25	2 40	2 35	2 40	2 85	
195	2 30					
8	2 25	2 20	2 20	2 20		2 65
160	2 30	2 30	2 05	2 20		2 70
201	2 20	2 25	2 35	2 40	2 95	
156	2 25	2 25		2 30	2 85	2 65
51	2 10	2 20	2 15	2 15	2 70	2 60
189	2 20	2 40	2 20	2 35		2 55
185	2 25	2 35	2 20	2 25	3 25	2 65
6	2 30	2 35	2 20	2 25	2 75	2 60
167		2 30	2 15	2 30	2 70	2 70
197	2 35	2 75	2 00	2 25	2 70	2 60
125	2 10	2 20	2 30	2 30	2 75	2 55
149	2 20	2 20	2 20	2 25	2 85	2 60
19	2 30	2 35	2 35	2 45		2 85
128	2 10	2 20	2 30	2 30	2 75	2 55
129	2 10	2 20	2 30	2 30	2 75	2 55
193	2 25	2 25	2 30	2 20	2 75	2 80
5	2 25	2 30	2 25	2 30	2 75	2 60
126	2 10	2 20	2 30	2 30	2 75	2 55
124	2 10	2 20	2 30	2 30	2 75	2 55
127	2 10	2 20	2 30	2 30	2 75	2 55
179	2 30	2 55	2 30	2 35	2 80	2 70
198	2 40		2 15	2 25	2 75	
168		2 40	2 25	2 30	2 75	2 60
131	2 25	2 30		2 35		
184	2 50	2 60		2 30		
7	2 30	2 30	2 15	2 15	3 00	2 75
132	2 20	2 50	2 10	2 15		2 50
186	2 25	2 40	2 10	2 20		2 60
154	2 15	2 35	2 25	2 30	2 75	2 60
148	2 20	2 20	2 20	2 20		2 70
4	2 25	2 25	2 25	2 25	2 75	2 55
188		2 40	2 20	2 20		2 60
171	2 20	2 40	2 15	2 30	2 80	2 70
18	2 40	2 40		2 15	2 65	2 65
130	2 10	2 20	2 30	2 30	2 75	2 55
Average price	2 23	2 34	2 23	2 27	2 79	2 62
Average wholesale price	2 08	2 15	2 18	2 11	2 62	2 51

Further comparison of store prices with market quotations reveals that a time lag does exist between them. As the market rose, the average time lag of all stores was 2.6 weeks, but when it fell there was an average lag of 4.8 weeks.

Retail Store Prices Compared for One Week

Weekly prices during the first week in December, 1928, for No. 2 yellow corn, poultry wheat, standard bran, standard middlings, 36% cottonseed and gluten feed are given in Table 19 by stores. These figures show a considerable variation in prices. The greatest range is 65 cents and appears in wheat prices and the smallest is 30 cents appearing in bran, middlings and gluten prices. Some stores were consistently low in price for all goods, while others were regularly high.

By referring to the store numbers in Tables 19—22 and Figure 1, the effect of low or high costs on gross margins may be seen. Since the gross margin reveals the effect of low or high cost factors, store prices to the consumer are likewise high or low as the gross margin rises or falls.

On the whole, the more efficient managers, operating stores at low costs, are passing the savings on to the buyer, although a few take advantage of the lack of competition to obtain bigger profits. Close competition more frequently works to the advantage of the customers than does seeming lack of it against them. There were instances where competition forced the managers to operate at a loss because they dared not raise the margin for fear of losing trade. Their only salvation is to reduce overhead costs; they may have too many employees, or be too liberal with credit, thus increasing the investment and interest on net worth with the added possibility of large bad debts.

Effect of Credit on Retail Store Prices

Grain quotations secured from the dealers were on the basis of the retail cash selling price per sack at the store. It will be recalled that some of these stores were on a cash basis while others extended large amounts of credit to their patrons.

When the stores are arranged according to the percentage of annual cash sales along with their respective gross margins, it is seen that store credit costs money and that the trade is paying for it. (Table 20). The stores on practically a cash basis averaged $.0990 gross margin on every dollar of sales. The stores having cash sales ranging from 35 to 65 per cent averaged $.1200, and those with less than 35 per cent averaged $.1270 gross margin per dollar of sales.

The relationship between cash sales and gross margins is better illustrated when the corn prices for one week are compared with the percentage of yearly sales which were for cash. (Table 21). The stores which were doing a cash business sold corn at an average price of $2.17 per cwt; but those with cash sales below 35 per cent, averaged $2.31 per cwt. for corn. These differences occurred even though all stores quoted cash prices. This shows that the customers obtaining store credit are not paying in full for the service rendered because the

cash men are also contributing toward the cost of credit and are paying for a service which they do not obtain. An almost exactly similar trend could be shown with poultry wheat and to a lesser extent for cottonseed meal and gluten feed. On the other hand, opposite results were obtained for bran and middlings; there was a difference of $.07 a cwt. for bran and $.01 a cwt. for middlings in favor of the credit stores. Evidently corn and wheat are used as leaders and are more likely to be changed in price than are either bran or middlings.

Table 21—*Comparisons of No. 2 Corn Prices with Percentage of Cash Sales*

Price for Corn per Cwt. Week Ending Dec. 1, 1928	Percentage Cash Sales—Class Limits		Less than 35
	90 to 100	35 to 65	
$2.05			
2.10		1	
2.15	7		1
2.20	1	4	
2.25	2	3	4
2.30		5	4
2.35		2	1
2.40			2
2.45			
2.50			1
Number stores in each class	10	15	13
Average price per cwt.	2.17	2.25	2.31

As more credit is extended by the stores, the cash customer pays more for corn.

CONCLUSIONS

Because cases vary, it is impossible to set up operating cost standards and say they are attainable by all stores alike. Conditions differ between stores. The location of buildings as well as the arrangement of buildings and equipment and other factors are not alike. What might apply to one case would not to another. Furthermore, it is a fallacy to assume that all managers of the 41 stores are equally efficient and capable.

Throughout the previous discussions, the operating expenses of grain stores have been referred to under fixed, labor, delivery and other costs. The stores have been pointed out which have low, medium and high costs. Also the important factors which have contributed to their size have been presented and discussed. All of this information is based on data from the 41 stores. If now we assemble the lowest cost for each of the four headings from the 41 stores and make up a composite total cost, which would represent the most efficient possible method of store operation, we find the following costs per dollar of sales: fixed $.0107; labor $.0352; delivery $.00; other costs $.0022, a total cost of $.0481.

Of those stores having delivery equipment which is used only for hauling grain from the car to the store, the lowest delivery cost per

TABLE 20—*Percentage of Cash Sales Compared with Gross Margins*

Cash Class Limits	Gross Margin Class Limits												Number of stores in each Class	Average Gross Margin
	$ 0700 to $ 0799	$ 0800 to $ 0899	$ 0900 to $ 0999	$ 1000 to $ 1099	$ 1100 to $ 1199	$ 1200 to $ 1299	$ 1300 to $ 1399	$ 1400 to $ 1499	$ 1500 to $ 1599	$ 1600 to $ 1699	$ 1700 to $ 1799	$ 1800 to $ 1899		
Less than 35	1	1	1	2	3	2	2	1	1	1	1	1	17	$ 1270
35 65	1	3		1	1		3	1	1	1	1		13	1200
90 100	2		1	7	1								11	0990

Gross margins are the smallest when stores are on a cash basis.

dollar of sales is $.0011. For a store delivering 5 per cent of the grain, the cost per dollar of sales is $.002. This ratio increases as the amount delivered increases, but for reasons explained in the previous discussion, it is impossible to state the net cost for delivery.

When the five lowest and the five highest combinations of fixed, labor, delivery and other cost ratios are selected, the average possible costs of these stores show extremes of $.0581 and $.2009 per dollar of sales. It is apparent that there is considerable chance for improvement.

In general, the results obtained from the survey suggest that the managers have not thought of their business in terms of operating ratios and turnovers. The usual procedure followed in attempting to reduce costs was through increasing total sales. Although this is considered a good method, it is not the only way; neither is it certain to reduce costs. Much depends upon the management and how carefully the costs have been analyzed and the gross margin budgeted, whether or not the business will show a profit instead of a loss. There are stores where readjustments can be brought about with the present volume of business operating at the same gross margin which will show a profit providing the flexible costs such as labor are reduced.

When sales per man vary $40,000, it would seem that either more business should be forthcoming to some stores or the number of people employed reduced. Further study should be made of the labor distribution in the efficiently operated stores where there are low labor costs per dollar of sales and high average yearly sales for those employed. The limited amount of information on this subject given in this report indicates that there are possibilities of checking on the reasons for the great differences in labor costs between stores. Furthermore, labor costs usually constitute over half the total costs and are flexible whereas many of the other costs are not so easily changed.

Grain dealers appreciate that they are not bankers and many wished they were on a cash basis. In fact they considered credit their worst problem. The amount of information at hand shows the cash stores do have an advantage. They had lower costs, took smaller margins and sold grain at a lower average price than those extending credit.

Basing final opinion on the data presented, there is no doubt but that considerable variation does occur in the operating costs of grain stores as well as in the selling prices of feed and grain. It has been pointed out that some of these costs are flexible so that they can be changed. In other words, there are opportunities to reduce costs in many stores and bring about a greater net profit as well as to reduce the gross margin or the part which the farmer pays to the dealer for his services.

TABLE 22—*Total Sales, Expense, Gross Margin and Profit or Loss of 41 Retail Grain Stores in New Hampshire During* 1928

Store Number	Sales	Fixed Cost		Labor Cost		Delivery Cost		Other Cost		Total Cost		Gross Margin		Profit or Loss	
		Amount	Per Dollar Sales	Amount	Per Dollar Sales	Amount	Per Dollar Sales	Amount	Per Dollar Sales	Amount	Per Dollar Sales	Amount	Per Dollar Sales	Amount + or −	Per Dollar Sales + or −
47	$48,000 00	$730 50	$ 0105	$1,895 00	$ 1052			880 00	$ 0044	$2,705 50	$ 1501	$2,073 50	$ 1151	$632 00	0350
49	23,910 23	622 88	0260	2,137 85	0891	$224 88	$ 0091	281 27	0117	3,266 88	1365	3,980 35	1668	+ 722 47	+ 0303
178	29,610 22	609 20	0210	2,191 00	0740	315 15	0120	673 37	0220	3,878 72	1290	3,871 35	1300	+ 52 63	+ 0010
192	30,967 30	1,545 87	0500	2,320 00	0750	500 00	0160	310 00	0100	4,675 87	1510	5,301 52	1710	+ 625 65	+ 0200
142	34,587 00	1,249 22	0361	2,299 00	0664	151 00	0130	420 34	0121	4,119 56	1276	4,015 00	1160	104 56	0116
195	35,000 00	891 50	0250	2,060 00	0590	281 00	0080	160 00	0130	3,390 50	1570	5,500 00	1570	+ 1,807 50	+ 0510
8	40,924 62	787 44	0192	2,860 00	0698	1,028 34	0251	2,903 38	0709	7,579 16	1850	3,720 66	0909	3,858 50	0944
160	43,812 56	877 44	0200	2,570 55	0570	1,175 85	0260	1,307 38	0300	5,931 22	1330	7,032 74	1600	+ 1,101 52	+ 0250
201	55,591 06	1,372 57	0247	3,063 47	0551	461 91	0083	948 24	0165	5,846 19	1046	7,322 72	1317	+ 1,506 53	+ 0271
156	62,195 35	2,088 55	0334	3,449 50	0552	1,386 19	0221	681 53	0109	7,605 77	1246	9,135 54	1461	+ 1,529 77	+ 0245
51	61,377 48	1,502 25	0233	2,736 00	0425	75 00	0011	206 00	0032	4,519 25	0701	5,761 69	0894	+ 1,242 44	+ 0193
189	66,000 00	2,415 00	0365	3,100 00	0469	300 00	0045	850 00	0128	6,665 00	1007	12,000 00	1818	+ 5,335 00	+ 0811
185	67,037 34	1,152 20	0171	4,284 50	0639	941 05	0140	884 18	0131	7,265 23	1081	8,054 09	1201	788 86	0120
6	70,522 09	936 47	0132	2,765 38	0392			786 49	0111	4,488 34	0635	4,975 79	0705	487 45	0070
167	75,352 56	1,426 63	0189	4,386 65	0582	1,104 21	0147	1,581 37	0209	8,498 86	1087	6,449 46	0856	+ 1,749 40	+ 0231
197	81,467 00	3,056 44	0370	4,780 50	0590	566 53	0070	1,398 50	0170	9,801 97	1200	9,753 56	1197	48 41	0003
125	83,618 34	1,773 66	0212	4,561 18	0549	597 04	0072	841 28	0101	7,373 16	0882	8,646 13	1034	+ 1,272 97	+ 0152
149	83,764 54	2,282 23	0535	3,266 50	0389	881 23	0105	2,657 02	0317	9,036 98	1316	11,632 83	1388	+ 2,595 82	+ 0312
19	86,457 97	2,374 88	0298	3,560 25	0412	1,486 68	0172	861 27	0099	8,183 08	0981	9,831 40	1137	+ 1,351 32	+ 0156
128	87,621 46	3,526 45	0402	3,548 01	0405	892 44	0102	1,989 64	0227	9,956 54	1136	9,060 30	1031	896 24	0102
129	96,101 60	1,914 83	0199	4,108 80	0428	1 05		213 90	0022	6,238 58	0649	9,937 22	1031	+ 3,698 64	+ 0385
193	98,625 70	1,358 54	0137	4,930 00	0499			617 33	0062	6,905 87	0698	7,789 24	0789	883 37	0091
5	98,686 03	2,420 57	0214	7,538 50	0763	1,617 77	0163	1,416 12	0143	12,992 96	1283	12,013 85	1217	979 11	0066
126	100,149 34	2,291 54	0228	5,260 92	0521	1,434 13	0113	199 10	0019	9,182 66	0914	10,386 46	1034	+ 1,203 80	+ 0120
124	100,719 25	4,525 65	0449	5,545 29	0551	806 08	0080	500 82	0050	11,377 84	1130	10,411 57	1034	965 47	0096
127	103,668 64	2,806 57	0271	4,428 86	0427	276 91	0027	835 92	0080	8,348 29	0805	10,719 54	1034	+ 2,371 05	+ 0229
179	104,700 53	5,335 86	0509	6,434 33	0614	925 32	0088	3,112 53	0300	15,808 04	1511	9,248 86	0884	6,559 18	0628
198	110,853 32	5,160 89	0465	6,679 00	0602	470 73	0042	1,472 30	0130	13,782 92	1239	19,374 57	1747	+ 5,588 65	+ 0488
168	118,247 44	1,028 56	0088	4,165 23	0352			2,715 13	0229	8,508 92	0719	11,636 25	0984	3,127 33	0265
131	122,608 99	2,117 62	0190	5,920 26	0490	1,917 05	0160	2,034 07	0160	12,288 98	1000	16,741 74	1370	+ 4,452 76	+ 0370
184	123,631 74	4,928 19	0397	8,063 80	0652	1,055 56	0085	2,145 02	0173	16,192 87	1307	9,892 00	0800	6,300 87	0507
7	133,017 94	2,090 41	0157	8,749 39	0657	4,083 55	0307	2,421 64	0182	17,344 99	1303	13,991 87	1051	3,353 12	0252
132	137,507 00	2,290 30	0166	5,725 05	0416	458 76	0033	721 70	0052	9,195 81	0667	10,159 00	0738	963 19	0071
186	148,000 00	1,488 63	0107	5,400 83	0391			3,951 57	0286	10,841 03	0781	22,000 00	1594	+ 11,158 97	+ 0810
154	141,873 51	5,315 49	0374	8,481 23	0598	2,293 15	0161	5,218 41	0367	21,308 61	1500	14,108 71	1015	6,899 90	0485
148	148,030 22	1,950 18	0130	7,404 76	0500	374 20	0020	2,536 05	0170	12,265 19	0820	15,599 69	1050	+ 3,334 50	+ 0230
4	152,724 40	2,282 72	0149	9,190 50	0601	3,670 31	0240	1,745 93	0114	16,889 46	1101	17,364 52	1136	475 06	0035
188	180,962 59	6,458 54	0356	8,036 61	0440	269 99	0110	3,596 09	0200	18,301 26	1106	23,639 79	1306	+ 5,338 53	+ 0294
171	193,000 00	10,879 00	0563	8,150 00	0422	2,206 50	0114	2,865 14	0150	24,130 64	1249	28,000 00	1450	+ 3,869 36	+ 0201
18	203,330 63	2,704 58	0133	10,005 91	0492	1,996 85	0098	2,144 59	0105	16,851 93	0828	15,383 97	0756	1,467 96	0072
130	791,159 27	19,247 15	0244	56,366 56	0712	5,908 51	0075	12,753 64	0161	94,276 16	1192	82,359 26	1034	11,916 90	0151

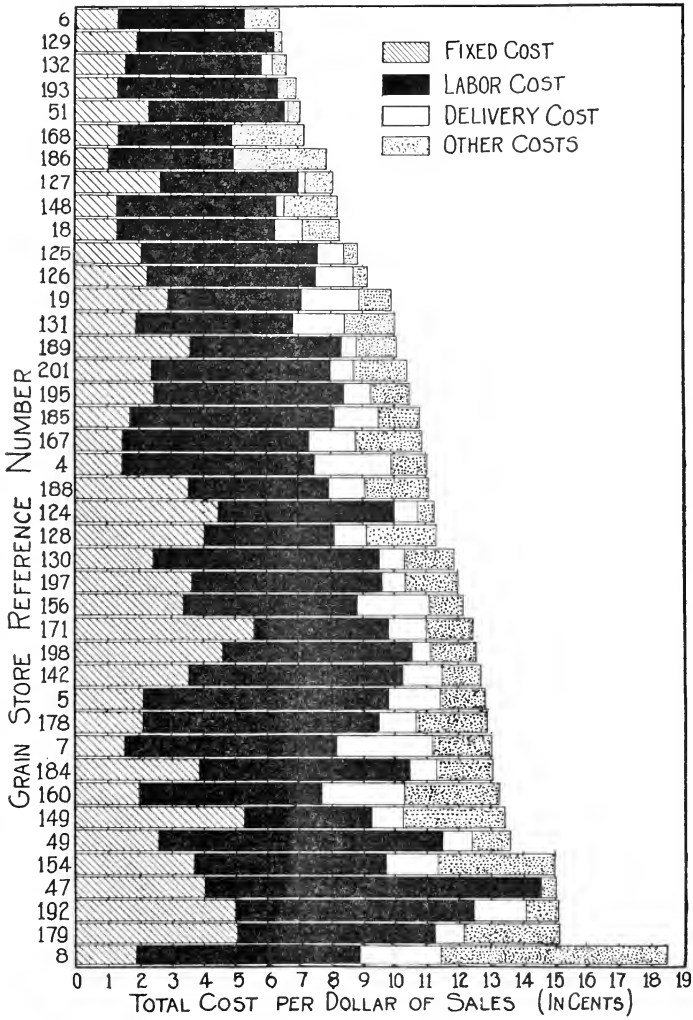

Fig. 1. Distribution of operating costs of 41 grain stores.