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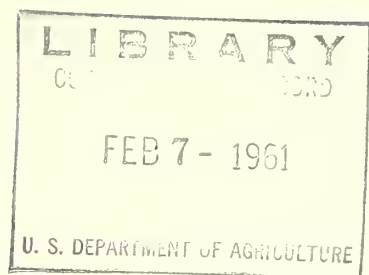
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GENERAL REPORT 88
JANUARY 1961

COST OF HANDLING EGGS and LABOR OUTPUT OF SELECTED COOPERATIVES

**Combined Report of Northeast, North Central
and Western Areas**

BY HARRY E. RATCLIFFE



Growth Through Agricultural Progress

**FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE**

FARMER COOPERATIVE SERVICE
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Joseph G. Knapp, Administrator

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing, and membership.

The Service publishes the results of such studies; confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

This study was conducted under authority of the Agricultural Marketing Act of 1946 (RMA, Title II).

Contents

	Page
Summary	iii
Purpose and scope of study	2
Organizations selected	2
Period covered	4
Operations included	4
Data collected.....	9
Direct costs and labor requirements.....	9
Indirect or overhead costs	10
Indirect labor costs	10
Other indirect costs.....	10
Other information.....	11
Cost and output comparisons	12
Total costs.....	12
Direct costs and labor output.....	14
Labor and truck costs and output by plant operations	14
Collecting	21
Receiving.....	23
Inspecting	23
Sizing.....	23
Candling	23
Cartoning.....	27
Packing cartoned eggs.....	29
Coopering cases.....	29
Stacking.....	30
Loading out	31
Delivering.....	32
Shell treating.....	36
Shell cleaning	36
Egg breaking	36
Materials used.....	37
Loose pack.....	37
Cartoned pack.....	37
Shell treating.....	37
Shell cleaning	37
Egg breaking	39
Other direct costs	39
Total direct costs.....	40
Indirect costs	40
Costs by type of pack	44

Summary

This report is the fourth of a series of publications on a study of comparative costs of handling eggs by cooperatives. It summarizes data from 23 cooperatives in Northeastern, North Central, and Western States and compares costs in one area with another. Total costs, direct costs of specific operations, labor output per man-hour, and costs by type of pack are analyzed.

This study had three major objectives: (1) To obtain information and data on costs and labor requirements of individual operations or steps in handling eggs; (2) to determine and measure the factors affecting costs and labor output; and (3) to test the findings by applying them to actual operating conditions.

The annual volume of eggs handled through the individual plants ranged from a low of 31,000 to a high of more than 550,000 cases, averaged 177,356 cases, and totaled more than 4 million cases for the 23 plants.

Labor costs, direct and indirect, constituted 42.5 percent of the total cost. Materials were next with 33.1 percent. Truck costs averaged 13.3 percent of the total. Other costs made up the remaining 11.1 percent.

The analysis revealed wide variations in direct costs per unit and output a man-hour for most of the 14 operations among the associations studied. No association uni-

formly had the lowest or highest labor costs or outputs in all operations. These 14 operations were: Collecting, receiving, inspecting, sizing, candling, cartoning, packing cartoned eggs, coopering cases, stacking, loading out, delivering, shell cleaning, shell treating, and egg breaking.

The tabulation on pages iv and v shows the average and range of direct labor costs and labor output by geographical areas and in total for most of these operations.

Nine of 14 plant operations studied were performed by most of the 23 associations. Increasing labor output a man-hour was associated with increasing volume handled for seven of the nine operations. Coopering and loading out were the exceptions.

The cost of materials for the loose pack of eggs averaged 46.6 cents a case and ranged from 7.2 to 70 cents. By areas the average cost ranged from 40 to 52.5 cents a case. For the cartoned pack the material cost averaged 96.8 cents and ranged from 81.5 to \$1.28 a case. The range in cost by areas was from 92.3 to \$1.02 a case. The oil for shell treating averaged 1.3 cents a case for five associations in two areas and ranged from 0.8 cent to 2 cents a case. Containers for broken out egg meats cost an average of 48 cents a 30-dozen case for four associations and ranged from 41.8 to 53.7 cents.

Total indirect costs averaged 39.2 cents a case of eggs received for

Areas	Cost			Output		
	Average	Range		Average	Range	
		Low	High		Low	High

Cents per case

Cases per man-hour

Collecting

Northeast	19.9	13.5	27.3	9.9	5.7	14.0
North Central	22.9	18.1	28.5	7.0	5.1	9.0
Western	<u>8.7</u>	<u>4.6</u>	<u>12.6</u>	<u>38.8</u>	<u>24.7</u>	<u>63.7</u>
3 areas	18.7	4.6	28.5	14.0	5.1	63.7

Receiving

Northeast	2.1	1.3	2.7	93.9	56.2	150.7
North Central	2.5	1.7	4.9	64.8	32.1	92.0
Western	<u>4.8</u>	<u>1.4</u>	<u>8.1</u>	<u>78.0</u>	<u>27.7</u>	<u>198.1</u>
3 areas	2.9	1.3	8.1	78.4	27.7	198.1

Candling

Northeast	52.2	36.3	75.4	2.9	2.4	3.8
North Central	47.5	34.8	71.7	2.5	1.5	4.0
Western	<u>64.0</u>	<u>44.5</u>	<u>94.4</u>	<u>3.6</u>	<u>2.4</u>	<u>4.8</u>
3 areas	53.8	34.8	94.4	2.9	1.5	4.8

Cartoning

Northeast	52.1	40.3	72.4	2.9	2.4	3.6
North Central	41.0	29.6	47.9	2.9	2.2	4.9
Western	<u>53.6</u>	<u>38.6</u>	<u>74.6</u>	<u>5.1</u>	<u>2.4</u>	<u>6.7</u>
3 areas	48.0	29.6	74.6	3.3	2.2	6.7

Packing cartoned eggs

Northeast	9.8	4.5	13.9	16.7	10.8	26.4
North Central	7.8	5.5	13.3	15.4	8.9	22.5
Western	<u>6.6</u>	<u>5.4</u>	<u>8.3</u>	<u>35.3</u>	<u>28.5</u>	<u>40.0</u>
3 areas	8.5	4.5	13.9	19.3	8.9	40.0

Coopering

Northeast	2.5	1.6	3.2	67.3	32.4	141.3
North Central	2.1	.5	5.3	89.2	22.2	301.1
Western	<u>3.5</u>	<u>1.4</u>	<u>5.0</u>	<u>88.2</u>	<u>37.9</u>	<u>181.1</u>
3 areas	2.6	.5	5.3	81.3	22.2	301.1

Continued

Areas	Cost			Output		
	Average	Range		Average	Range	
		Low	High		Low	High
<i>Cents per case</i>						
Stacking						
Northeast	2.0	1.4	3.4	94.1	53.7	162.9
North Central	2.1	.8	4.6	94.1	33.9	174.7
Western	2.0	.9	3.0	160.9	83.1	325.9
3 areas	2.0	.8	4.6	111.5	33.9	325.9
Loading out						
Northeast	2.1	1.0	4.1	105.5	57.6	196.3
North Central	1.5	.5	2.5	145.8	79.3	266.2
Western	5.0	2.4	10.6	62.5	29.6	95.3
3 areas	2.6	.5	10.6	108.4	29.6	266.2
Delivering						
Northeast	11.6	4.8	22.9	20.9	11.9	29.6
North Central	14.1	4.4	33.2	--	--	--
Western	20.8	3.3	49.8	32.8	6.2	87.3
3 areas	15.0	3.3	49.8	25.7	6.2	87.3
Shell treating						
Northeast	--	--	--	--	--	--
North Central	5.5	5.5	5.5	16.5	16.5	16.5
Western	18.2	17.8	18.5	12.5	11.5	13.4
3 areas	13.9	5.5	18.5	13.8	11.5	16.5
Shell cleaning						
Northeast	--	--	--	--	--	--
North Central	11.9	6.4	21.9	11.4	5.3	16.1
Western	30.9	30.9	30.9	--	--	--
3 areas	15.0	6.4	30.9	10.7	5.3	16.1
Egg breaking						
Northeast	87.3	87.3	87.3	1.6	1.6	1.6
North Central	94.3	94.3	94.3	2.1	2.1	2.1
Western	134.9	102.9	166.8	1.7	1.3	2.0
3 areas	112.8	87.3	166.8	1.8	1.3	2.1

23 associations and ranged from 18.6 to 72.4 cents. By areas indirect costs varied from an average of 31 to 49.4 cents a case. Indirect plant costs averaged 15.9 cents--indirect non-plant 23.3 cents. The indirect plant costs averaged 39.6 percent of total indirect costs--indirect non-plant costs 60.4 percent.

The total of all costs, direct and indirect, of handling eggs averaged 8 cents a dozen for consumer-grade, loose eggs packed in cases for 23 associations; 9.6 cents a dozen for consumer-grade, cartoned eggs packed in cases for 20 associations; and 7.9 cents a dozen for the liquid egg pack for four associations.

Findings of this study point up the wide variations in labor costs among associations--as much as 60 cents a case for the high cost candling operation, for instance. In one low cost operation, that of receiving eggs, the highest cost was more than six times the lowest cost.

One important factor in candling labor output and per unit cost was type of equipment used. The high rental cost of some candling and packaging equipment offset the increased labor efficiency obtained.

Some area differences were found to exist. For example, labor costs,

because of higher wage rates, were greater in the Western area than in the Northeast or North Central areas--total labor costs in the Western area were 47.4 percent of all costs as compared with 41.9 percent in the Northeast and only 37.1 percent in the North Central area. Labor saving equipment was used more extensively in the Western area to lower labor costs. This resulted in higher labor outputs in many operations. The increased labor efficiency, however, was offset to a large extent by machinery rental costs.

These and other findings suggest the possibilities of reducing costs.

This report does not analyze factors affecting costs, but the unit costs presented can be used by the cooperating organizations and other egg handlers to compare with their own costs. Plants with costs out of line are then in a position to take steps to find out why their costs are comparatively high and then if possible make the necessary corrections to reduce them. However, plants not included in this study will need to make sure that the method of arriving at their costs is comparable with that of this study; otherwise, the comparisons will not be valid.

Cost of Handling Eggs and Labor Output of Selected Cooperatives

Combined Report of Northeast, North Central, and Western Areas

by Harry E. Ratcliffe
Poultry Branch
Marketing Division

The cost of handling eggs is of interest and importance to producers, the management of egg-handling plants, and consumers. Lowered handling costs by producer associations mean higher returns to producers or lower costs to consumers, or both.

Unless the management of an organization has made a detailed

analysis of operating costs in comparison with those of other firms, it does not know whether these costs are out of line. However, comparison of costs with those of other organizations enables the management of one organization to determine whether its costs are relatively high or low. If they are high, steps can be taken to determine the cause and then to make changes and improvements in operation, plant, layout, or other factors.

This report contains information to make such comparisons possible.

Note: Appreciation is expressed to the managers and employees of the associations studied for their cooperation and assistance; to Henry W. Bradford and Edwin E. Drewniak of the Poultry Branch, Farmer Cooperative Service, for assistance with the field work; and to John J. Scanlan, Chief, Poultry Branch, who made substantial contributions in planning and conducting the study.

Purpose and Scope of Study

This is the fourth of a series of publications on costs and labor output of handling eggs by cooperatives. Previous reports analyzed egg handling costs in the Northeast,¹ North Central,² and Western³ areas. It brings together in 1 publication cost data from the 23 cooperatives studied in the 3 areas. It also compares one area with another and presents comparative statistics of (1) total costs, (2) direct cost of specific operations, (3) indirect (overhead) costs by associations, (4) costs by types of packs, and (5) labor output per man-hour.

The complete study, of which this report is a part, includes information from eight cooperatives in six Northeastern States, nine in six North Central States, and six in four Western States. A comparable study,⁴ made in 1950-51, included 9 cooperatives in 5 Northeastern States and 16 in 7 North Central States. Both

studies had three major objectives: (1) to obtain information and data on costs and labor requirements of several operations or steps in handling eggs; (2) to determine and measure the factors affecting costs and labor output; and (3) to find and apply methods, skills, techniques, and other means of increasing efficiency in individual operations and organizations. This and the other published reports cover the first objective of the study. A final analytical report on factors affecting the variation in costs and labor outputs among cooperatives covering the second objective of the study will be prepared.

The third objective will not be reported in a separate publication but findings of the study are being used by testing and applying them to actual operating conditions.

While the data were obtained from cooperative firms, the comparisons of costs and ways to reduce them could benefit all egg handling agencies.

Organizations Selected

Cooperatives included in the study were selected because they were: (1) Doing an effective job of marketing eggs; (2) either candling or cartoning a large portion of eggs received; (3) handling relatively large volumes compared with other associations in their areas; or (4) using newer type equipment.

Associations were selected in the three areas by States as follows:

¹Ratcliffe, Harry E. Cost of Marketing Eggs and Labor Output of Selected Cooperatives. Part I--Northeast. Gen. Rpt. 59. Farmer Cooperative Service, U.S. Dept. of Agr. May 1959.

²Ratcliffe, Harry E. Cost of Marketing Eggs and Labor Output of Selected Cooperatives. Part II--North Central. Gen. Rpt. 72. Farmer Cooperative Service, U.S. Dept. of Agr. May 1960.

³Ratcliffe, Harry E. Cost of Handling Eggs and Labor Output of Selected Cooperatives. Part III--Western. Gen. Rpt. 75. Farmer Cooperative Service, U.S. Dept. of Agr. July 1960.

⁴Bradford, Henry W., Ratcliffe, Harry E., Scanlan, John J. Costs and Labor Efficiency of Specialized Egg Marketing Cooperatives in the Northeast. Farm Credit Administration, U.S. Dept. of Agr. Misc. Rpt. 158. 1952.

Ratcliffe, Harry E., Bradford, Henry W., and Scanlan, John J. Cost of Handling Eggs by Selected Cooperatives in the North Central States. Farm Credit Administration, U.S. Dept. of Agr. Misc. Rpt. 162. May 1952.

(Misc. Rpts. 158 and 162 are out of print but are available for reference in most agricultural college and university libraries.)

	<u>Number</u>
Northeast:	
Ohio	3
Connecticut	1
New Jersey	1
New York	1
Pennsylvania	1
Virginia	1
	<hr/>
Total	8
	<hr/>

North Central:	
Kansas	2
Minnesota	2
South Dakota	2
Iowa	1
Michigan	1
Wisconsin	1
	<hr/>
Total	9
	<hr/>

Far West:	
California	2
Utah	2
Oregon	1
Washington	1
	<hr/>
Total	6
	<hr/>

One association each in California and Ohio and the ones in Oregon, Utah, Washington, and Wisconsin operated more than one egg handling plant. Data were obtained separately from two plants of the Utah association, but from only one plant each of the other five operating more than one plant. Thus 22 associations and 23 plants were included in the selection.

All of the associations handled some eggs but only at 11 of the 23 did eggs or poultry or both constitute the major portion of business done. In the tabulation below the associations are grouped according to the

commodities or combination of commodities in which a major portion of the business was done at the time the study was made.

<u>Item</u>	<u>Number</u>
Dairy	6
Farm supplies	6
Eggs	6
Eggs and poultry	5
	<hr/>
Total	23

Each association has been given a code letter in this report, as the information and data were obtained on a confidential basis with the understanding that the names or addresses of the cooperating associations would not be divulged.

The 23 plants⁵ received a total of 4,079,194 cases of eggs, or an average of 177,356 cases for each plant during the year ending with the 2-week period of study. The annual plant volume ranged from a low of 31,000 cases for a plant in the Western area to more than 550,000 cases for two in the Northeast (table 1).

Table 1 also shows the 2-week volume averaged highest for the Northeastern plants, 9,982 cases as compared with 6,975 for the Western plants and 3,910 cases for the North Central plants. If two small plants are excluded from the Western volume, the average for the remaining four plants would be 11,079 cases, as compared with 6,975 cases for six plants. The range in the 2-week

⁵Data obtained are for single egg plants. In the case of multiple plant associations the figures shown do not represent the whole operation. Unless otherwise noted, the term "association or associations" in the remainder of the report refers to a single plant or total of the single plants covered.

Table 1.--Egg receipts: Areas and combined, 23 associations, 2-week period, 1957-58

Item	Combined	Northeast	North Central	Western
Number of associations:	23	8	9	6
Annual volume:				
Total	4,079,194	2,076,175	914,932	1,088,087
Average	177,356	259,522	101,659	181,348
Range:				
Low	31,000	73,000	39,300	31,000
High	555,000	555,000	205,000	459,650
2-week average volume: ¹				
Total	156,892	79,852	35,190	41,850
Average	6,821	9,982	3,910	6,975
Range:				
Low	1,192	2,808	1,512	1,192
High	21,346	21,346	7,885	17,679

¹ Annual volume divided by 26.

combined volume was from a low of 1,192 to a high of 21,346 cases.

In comparison to these plant volumes, 22 associations handled a total volume of 6,474,948 cases or an average of 294,316 for each association.

Period Covered

An intensive study of the operations of each cooperative was made over a period of 2 consecutive weeks. Because of limitations of time and personnel, it was not possible to visit all associations during comparable periods in their seasonal volume cycle. Consequently, the volume handled by the cooperatives during the period studied was below the average for the year for some cooperatives and above for others, and therefore unlikely to be strictly representative of a typical week.

Table 2 shows the relationship of the volume received by each of 23 cooperatives, in total, and by areas during the period studied to the average for the previous 52 weeks. Among the 23 associations the volume handled during the period visited ranged from a low of 70 percent to a high of 168 percent of the period average for the year for associations J and F respectively. Total volume handled by the 23 associations averaged 102 percent of the period average for the year. Total average volume by areas ranged from 98 percent to 106 percent of their period average for the year.

Operations Included

Operating costs in total were not comparable because all firms did not perform the same services or perform them in the same proportion. Therefore, it was necessary to break down costs and labor output

Table 2.--Relationship of egg receipts during 2-week sample period to the average 2-week receipts for the year, 23 associations in total, and by areas, 1957-58¹

Area and association	Receipts of period in relation to average for year	Area and association	Receipts of period in relation to average for year
	<i>Percent</i>		<i>Percent</i>
Northeast:		Western:	
A	103	R	80
B	83	S	87
C	85	T	122
D	112	U	137
E	89	V	120
F	168	W	90
G	98		
H	90	Range:	
		Low	70
North Central:		High	168
I	99	Averages:	
J	70	All associations	102
K	78	Northeast	104
L	96	North Central	98
M	99	Western	106
N	111		
O	115		
P	91		
Q	122		

¹ The year covered the 52 weeks ending with the last day of the period of study.

by individual steps, operations, or services through the handling or marketing process so that they could be made as nearly comparable as possible among cooperatives.

Relative sameness of an operation narrows it down so that the number of variables is reduced and the comparison of operations made practicable for the purpose of the study.

In this study, the handling of eggs through the cooperatives was broken down into as many as 14 separate operations. These are: Collecting, receiving, sizing, inspecting, candling, cartoning, packing cartoned eggs, coopering cases, stacking eggs in holding rooms, loading

out, delivering, shell treating, shell cleaning, and egg breaking.

Table 3 shows the number of operations performed by each of the 23 associations studied. None of the associations performed all 14 operations. The number of operations performed by the associations concerned was as follows:

<u>Number of operations</u>	<u>Number of associations performing</u>
14	0
13	1
12	1
11	11
10	8
9	1
6	1

Table 3.--Egg handling operations performed by 23 associations, 2-week period, 1957-58 ¹

Areas and association	Collecting	Receiving	Inspecting	Sizing	Candling	Cartoning	Packing cartoned eggs	Coopering	Stacking	Loading out	Delivering	Shell treating	Shell cleaning	Egg breaking	Total operations performed
Northeast:															
A	x	x	x	(2)	x	x	x	x	x	x	x				11
B	x	x	x	(2)	x	x	x	x	x	x	x				11
C	x	x	x	(2)	x	x	x	x	x	x	x				11
D	x	x	x	x	x	x	x	x	x	x	x			x	11
E	x	x	x	x	x	x	x	x	x	x	x				11
F	x	x	x	(2)	x	x	x	x	x	x	x				10
G	x	x	x	x	x	x	x	x	x	x	x				10
H	x	x	x	x	x	x	x	x	x	x	x				10
North Central															
I	x	x		(2)	x	x	x	x	x	x	x		x		11
J	x	x	x	(2)	x	x	x	x	x	x	x	x	x		10
K	x	x	x	(2)	x	x	x	x	x	x	x		x		9
L	x	x	x	(2)	x	x	x	x	x	x	x		x		11
M	x	x	x	(2)	x	x	x	x	x	x	x		x		10
N	x	x	x	(2)	x	x	x	x	x	x	x		x		11
O	x	x	x	(2)	x	x	x	x	x	x	x		x		11
P	x	x	x	(2)	x	x	x	x	x	x	x	x			11
Q	x	x	x	(2)	x	x	x	x	x	x	x	x		x	11
Western															
R		x		(2)	x			x	x	x					6
S	x	x	x	(2)	x	x	(3)	x	x	x			x		10
T	x	x	x	(2)	x	x	x	x	x	x	x		(2)	x	13
U	x	x	x	(2)	x	x	(3)	x	x	x	x	x		x	12
V	x	x	x	(2)	x	x	x	x	x	x	x				10
W	x	x	x	(2)	x	x	x	x	x	x	x				10
Total	21	23	4	23	23	20	20	23	23	23	21	5	8	4	-

¹ "x" indicates operation performed.

² Operation performed as part of candling and cartoning operation.

³ Operation performed as part of the cartoning operation.

Six operations, receiving, sizing, candling, coopering, stacking, and loading out were performed by all 23 associations. However, only four of the 23 associations sized eggs apart from the candling and cartoning operation. The collecting operation was performed by 21 associations. At two associations there was no collecting operation since the members delivered eggs to the plants. Cartoning and packing cartoned eggs were performed by 20 associations, shell cleaning by 8, shell treating by 5, and inspecting for wholesale grades and egg breaking by only 4 associations.

In order to make the costs and labor outputs as comparable as possible among cooperatives studied, it was necessary to determine precisely where each operation began and ended. In the case of labor, this was done by including

the pertinent labor elements covered in each operation, as listed below:

1. Collecting (hauling to plant):
Loading truck with empty cases
Driving truck and driver's helper
Loading truck at farms
Making out producers' and route records
2. Receiving (plant labor):
Unloading (including time of trucker)
Receiving door deliveries
Weighing in cases
Moving eggs to receiving room
Sorting cases
Recording receipts
3. Inspecting (wholesale grading):
Moving eggs to inspectors
Removing case covers



Most cooperatives place eggs in a cooler as soon as they are received at the plant.

Candling desired sample
Returning eggs to case
Replacing case covers
Weighing before or after inspecting
Removing inspected cases
Recording and marking inspection results

4. Sizing (by machine when separate from candling):

Moving eggs to sizer
Removing case covers
Placing eggs on machine
Placing sized eggs in cases
Replacing case covers
Removing cases of sized eggs

5. Candling (loose to case):⁶

Moving eggs to candlers
Removing case covers
Obtaining and readying empty cases
Putting eggs on sizing machine
Packing loose eggs from sizing machine
Candling operation
Putting eggs in cases
Recording candling results
Replacing case covers
Weighing after candling
Stamping candled case
Removing cases

6. Cartoning (candling to cartons):⁶

Moving eggs to candlers
Removing case covers
Obtaining and setting up cartons
Putting eggs on or taking off sizing machine or belt
Candling operation

Putting eggs in cartons
Closing cartons
Recording candling results
Marking, sealing, and labeling cartons
Removing cartoned cases
Unloading and storing cartons

7. Packing (cartoned eggs):

Obtaining and readying empty cases
Stamping, labeling, or marking cartoned cases
Inserting flats
Putting cartons in case
Closing cases
Sealing cartoned cases
Stacking packed cases for removal to holding place

8. Coopering (including storing empty cases):

Obtaining shook or used cases
Making or setting up new cases
Repairing used cases
Putting flats and fillers in new cases
Putting labels on cases during coopering
Removing coopered cases
Stacking coopered cases

9. Stacking and holding (in plant):

Stacking (when several high and separate from candler removal)
Moving cases to holding place
Sorting cases
Restacking cases
Weighing and labeling cases

10. Loading out:

Moving to trucks or railroad cars
Loading (including time of truckers when helping)
Making out shipping records, bills of lading, and delivery instructions

⁶Per unit labor cost for candling and for cartoning is based upon the actual case output of all operation rather than case input. For example, if 100 cases, of which 15 percent were rejects, went to the cartoning operation, the cost and volumes were allocated based on 85 cases cartoned and 15 cases candled and packed loose.

11. Delivering (hauling to buyers; truck personnel only):
Driving truck
Unloading eggs
Making records of collections
12. Shell treating:
Preparing oil
Readying empty cases and equipment
Moving cases to machine
Oiling
Packing in cases
Labeling, marking, and the like
Removing filled cases
13. Shell cleaning:
Hauling to cleaner
Buffing
Washing
Removal from cleaning operation
14. Egg breaking:
Moving to breaking room
Breaking
Operation of mixer, pump, and the like
Filling and covering cans
Putting cans in refrigerator
Making out breaking records
Cleaning equipment and room

Data Collected

During the 2-week period, information was obtained concerning (1) direct costs and labor requirements, (2) indirect costs, and (3) related information.

Direct Costs and Labor Requirements

Data collected under "direct costs" pertained to direct labor, packing and processing materials,

truck operating and contract hauling, and other direct costs.

As used in this report, direct labor costs and direct labor requirements were those incurred for a single operation or part of an operation. They, therefore, could be separated and could be traced directly to that operation or to one or more of its elements. Direct labor costs varied in total amount as the product volume increased or decreased, but on a unit basis they were affected much less than indirect costs by changes in volume.

Labor requirements or man-hour outputs were determined by dividing the number of cases handled in an operation over a period of time by the total number of hours required to perform an operation during the



Eggs for the wholesale grade, loose pack are weighed when received at the plant.

same period. These outputs are important because they usually reflect labor efficiency more accurately than do dollar-and-cents costs and do not become outdated so soon. Labor output was an important factor affecting differences in unit costs among these associations.

Costs for direct labor, in addition to wages and salaries for regular and overtime work, included fringe benefit costs, such as Federal old age benefits, unemployment insurance, workmen's compensation, bonuses, pensions, and hospital insurance. After the labor cost for each employee was determined, his time and wages were charged to the operation or operations in which he worked. When he worked on several operations, his wages were distributed among them on a time basis.

Costs for materials were determined according to three types of egg packs used. These are: (1) 30-dozen loose or case pack, (2) 30-dozen or equivalent cartoned pack, and (3) liquid egg pack.

The most important materials were case shells, flats and fillers or filler-flats, case labels, gummed tape, cartons, carton seals, oil for shell treating, washing materials, and cans and lids for liquid eggs. In instances where both new and old materials were used, it was necessary to determine the proportions of each in order to calculate the average unit cost.

Cost data for operating association trucks and charges for contract trucking were obtained.

Other direct costs incurred were service fees for Federal or State inspection and grading and royalties on machines for setting up and closing cartons and grading and packaging eggs.

Indirect or Overhead Costs

Indirect costs refer to those costs incurred for more than one operation or for parts of more than one operation. They therefore, cannot be readily separated and are difficult to trace directly to an individual operation or its elements. Most indirect costs are fixed costs and change little in total amount when the volume of product changes. But, on a unit basis, they decrease when the volume increases and increase when volume is less.

When indirect costs were collected and analyzed, they were divided into labor and other costs.

Indirect Labor Costs.--Indirect labor costs, which included the salaries or wages of the manager, office help, salesmen, fieldmen, janitors, night watchmen, repair and maintenance employees, and plant foreman, were determined for the specific period under study. As such, they represented costs for the same period as direct labor. When the work of some employees was chargeable to both direct and indirect costs, their labor costs were divided accordingly.

Other Indirect Costs.--Indirect expenses, other than indirect labor costs, came from the audit report for the latest fiscal year of each association. These annual data were then calculated on a period basis, and the period average applied to current operations. In other words, indirect cost figures, excluding indirect labor, were also for a 2-week period and therefore 1/26 of such costs of the fiscal year preceding the period of study.

This method was used because indirect cost information was not

currently available on a short-time basis for the period of study. Also, annual indirect costs, especially in total, were found to vary little from year to year for any individual association. Therefore, a 2-week apportionment of the previous year's indirect costs was considered sufficiently accurate and reliable for this analysis.

Indirect costs on a unit basis were calculated by dividing the average period indirect costs by the 2-week average number of cases of eggs received during the 12 months ending with the close of the period of study (volume for the previous 12 months divided by 26). This study did not apportion these costs to individual operations. For this reason, a comparison of these unit indirect costs among associations may not be as meaningful as a comparison of direct costs apportioned by operations.

Indirect costs, other than indirect labor, include the following expense items:

Plant

- Heat, power, and water
- General insurance
- Real estate and personal property taxes
- Maintenance and repair
- Plant supplies (general)
- Depreciation:
 - Buildings
 - Plant equipment
- Miscellaneous

Non-plant

- Office supplies, stationery, and printing
- Postage
- Telephone and telegraph
- Advertising
- Bad debts
- Interest

- Bank service
- Auditing and legal
- Travel
- Automobile
- Directors' expense
- Annual meeting expense
- Educational expense
- Dues and subscriptions
- Contributions and donations
- Depreciation
 - Furniture and fixtures
 - Automobile
- Miscellaneous

In instances where marketing associations handled farm supplies or other farm products as well as eggs, it was necessary to allocate the proper portion of each indirect expense item to the egg department. The records of most associations provided such allocations to the egg department. But even in such cases, modifications were sometimes found necessary in order to handle indirect individual expense allocations uniformly for all associations.

Other Information

Facts other than cost data were obtained during the period of study. These helped explain costs, factors affecting costs, and labor efficiency. For the most part, this information included labor rates for regular and overtime work, amount of overtime, quality of eggs candled and cartoned, grading standards used, number and type of jobs performed by candlers, percentage of eggs sized on farms before reaching the plant, types of equipment used, plant and equipment layout, flow of eggs through the plant, length of farm routes, and frequency of farm pickups. This information will be used in the analysis of factors affecting costs and included in the analytical report to be issued later.

Cost and Output Comparisons

Cost comparisons will now be shown for (1) the total direct and indirect costs of the 23 associations, (2) direct unit costs and labor output of handling eggs of individual associations by their operations, (3) indirect unit costs by associations, and (4) costs by type of pack.

Total Costs

The total cost of handling eggs through the 23 associations and by areas for the 2-week period appears in table 4. The total cost was subdivided into direct and indirect costs. Direct costs were further divided into labor, materials, truck and other costs. Indirect costs were divided into labor and other indirect costs.

Total costs for the 23 associations for the 2-week period were \$336,658, or an average of \$14,637. Totals and averages by areas were as follows:

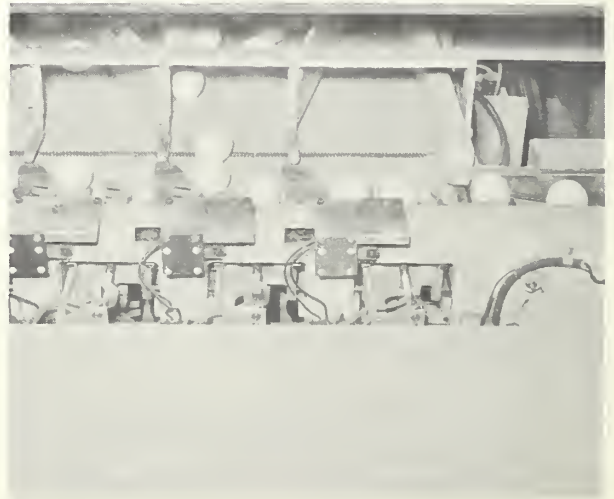
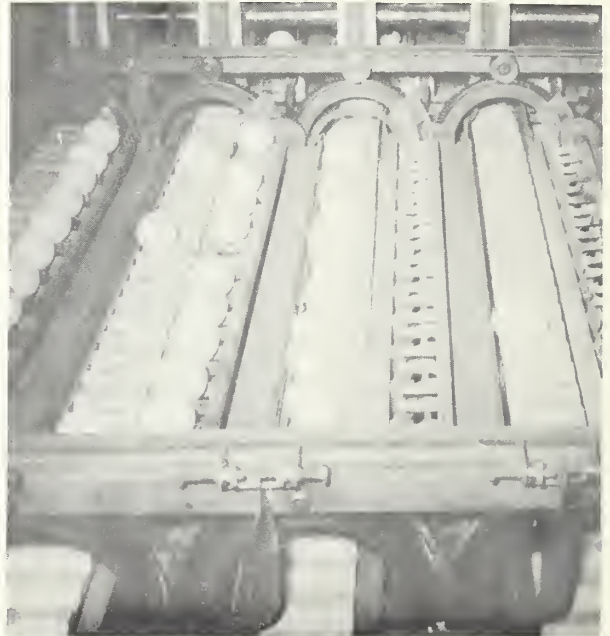
<u>Area</u>	<u>Total</u>	<u>Average</u>
Northeast	\$137,565	\$17,196
North Central	85,130	9,459
Western	113,963	18,994

By association, the total cost ranged from a low of \$1,602 to a high of \$45,571 - both in the Western area. Direct costs for the 23 associations constituted an average of 83.1 percent of total costs; indirect costs, 16.9 percent. Direct costs by areas ranged from 80.8 percent of the total for the Western to 88 percent for the North Central area.

Total labor cost, both direct and indirect, accounted for 42.5 percent of the total cost for 23 associations.

By areas the total labor cost varied from 37.1 percent for the North Central area to 47.4 percent of total costs for the Western area.

Materials was the next most important direct cost item--approximately 33 percent of the total cost for the 23 associations and 30, 32.2



Two types of machines used to size eggs.

Table 4.--Total direct and indirect costs for handling eggs at 23 associations, 2-week period, 1957-58

Area	Number of asso- ciations	Direct costs				Indirect costs			Grand total	
		Labor	Materials ¹	Truck ²	Other ³	Total	Labor	Other than labor		Total
Total										
Northeast	8	\$43,282	\$49,132	\$17,392	\$2,932	\$112,738	\$14,256	\$10,571	\$24,827	\$137,565
North Central	9	25,692	25,535	20,831	2,847	74,905	5,867	4,358	10,225	85,130
Western	6	43,802	36,673	6,725	4,906	92,106	10,209	11,648	21,857	113,963
<hr/>										
3 areas	23	112,776	111,340	44,948	10,685	279,749	30,332	26,577	56,909	336,658
<hr/>										
Range					--	1,135	212	255	468	1,602
Low		670	464	--	--	1,135	212	255	468	1,602
High		14,110	15,558	1,659	3,285	34,612	3,339	7,620	10,959	45,571
<hr/>										
Average										
Northeast	8	5,410	6,141	2,174	366	14,092	1,782	1,321	3,103	17,196
North Central	9	2,855	2,837	2,315	316	8,323	652	484	1,136	9,459
Western	6	7,300	6,111	1,121	818	15,351	1,702	1,941	3,643	18,994
<hr/>										
3 areas	23	4,903	4,841	1,954	465	12,163	1,319	1,156	2,474	14,637
<hr/>										
Percent										
Northeast	8	31.5	35.7	12.6	2.1	81.9	10.4	7.7	18.1	100.0
North Central	9	30.2	30.0	24.5	3.3	88.0	6.9	5.1	12.0	100.0
Western	6	38.4	32.2	5.9	4.3	80.8	9.0	10.2	19.2	100.0
<hr/>										
3 areas	23	33.5	33.1	13.3	3.2	83.1	9.0	7.9	16.9	100.0

¹ Materials used for packing loose, cartoned, liquid eggs, and shell cleaning and treating.

² Includes truck expense of association trucks and charges for contract trucking.

³ Includes State or Federal inspection fees, rental for cartoning equipment, and for sizing and packaging equipment for four associations.

and 35.7 percent for the North Central, Western, and Northeast areas, respectively.

Truck costs averaged 13.3 percent of the total for the 23 associations and varied from 5.9 for the Western area to 24.5 for the North Central area.

Miscellaneous small direct and indirect costs, exclusive of indirect labor, made up the remaining 11.1 percent for the 23 associations. These costs for the areas ranged from a low of 8.4 for the North Central to a high of 14.5 percent for the Western area (table 4).

Direct Costs and Labor Output

Direct costs in this report are on a case-unit basis for: (1) Direct labor, truck, and labor output by individual plant operations, (2) materials by type of pack, and (3) other direct costs by operations. The cost groups are discussed in this order below.

Labor and Truck Costs and Output by Plant Operations

Average direct labor costs for the 23 associations by operations ranged

from a low of 2 cents a case for stacking eggs in the holding room to a high of \$1.13 a case for egg breaking (table 5 and figure 1).

Average unit costs for the three areas were relatively high for egg breaking, candling, cartoning, collecting, shell cleaning, delivering eggs to buyers, sizing, and shell treating. For example, the average costs of these operations on an individual operation basis, ranged from 13.9 cents for shell treating to \$1.13 a case for egg breaking. In contrast, the lower cost operations of stacking, coopering, loading out, receiving, inspecting, and packing cartoned eggs ranged from 2 cents for stacking to 8.5 cents for packing cartoned eggs.

Inspecting and sizing as a separate operation was performed only by associations in the Northeast area; shell treating, where labor of any consequence was involved, by one association in the North Central area and two associations in the Western area; and shell cleaning by associations in the North Central and Western areas.

Average unit labor costs by operations varied among the three areas to some extent. The following tabulation indicates these variations:

Unit labor costs

<u>Area</u>	<u>Lowest</u>	<u>Highest</u>	<u>About the same</u>
Northeast	Receiving Delivering Egg breaking	Packing	Stacking
North Central	Candling Cartoning Coopering Loading out Shell treating Shell cleaning	Collecting	Stacking

Unit labor costs

<u>Area</u>	<u>Lowest</u>	<u>Highest</u>	<u>About the same</u>
Western	Collecting Packing cartoned eggs	Receiving Candling Cartoning Coopering Loading out Delivering Shell treating Shell cleaning Egg breaking	Stacking

The Western area had the highest average unit labor costs for nine operations. This was despite the fact that the Western area associations had the highest average output per manhour for candling, cartoning, and delivering eggs. This area had higher average wage rates and fringe benefits than the other two areas. The Western area associations had the lowest average unit labor costs only in collecting and packing cartoned eggs. The North Central area had the lowest average unit labor costs for six operations. In the Northeast, average unit labor costs were lowest for receiving, delivering, and egg breaking and highest for packing cartoned eggs. The labor cost for stacking eggs in the holding room was nearly the same in all three areas - 2.1 cents a case in one and 2 cents in two areas.

A wide range of labor output existed among the operations. For example, the stacking, loading out, coopering, and receiving have the largest man-hour outputs - 111.5, 108.4, 81.3, and 78.4 cases, respectively. In contrast, the egg-breaking output was only 1.8 cases; candling, 3.0; and cartoning, 3.3 cases (table 6).

No association had direct labor costs or labor outputs that were

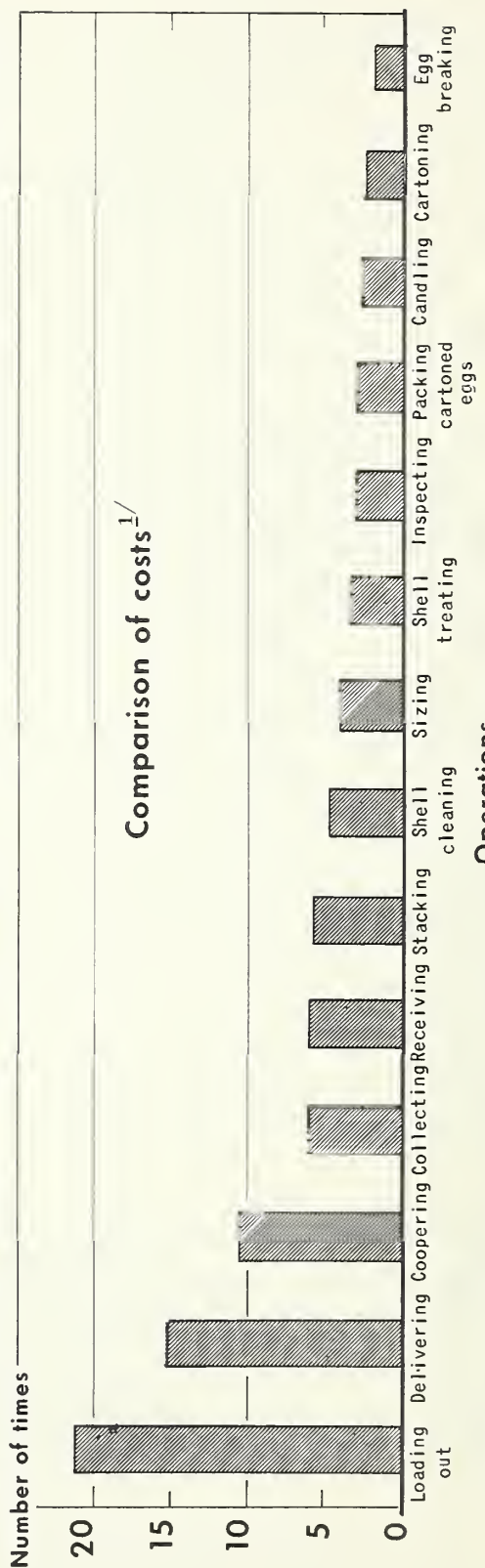
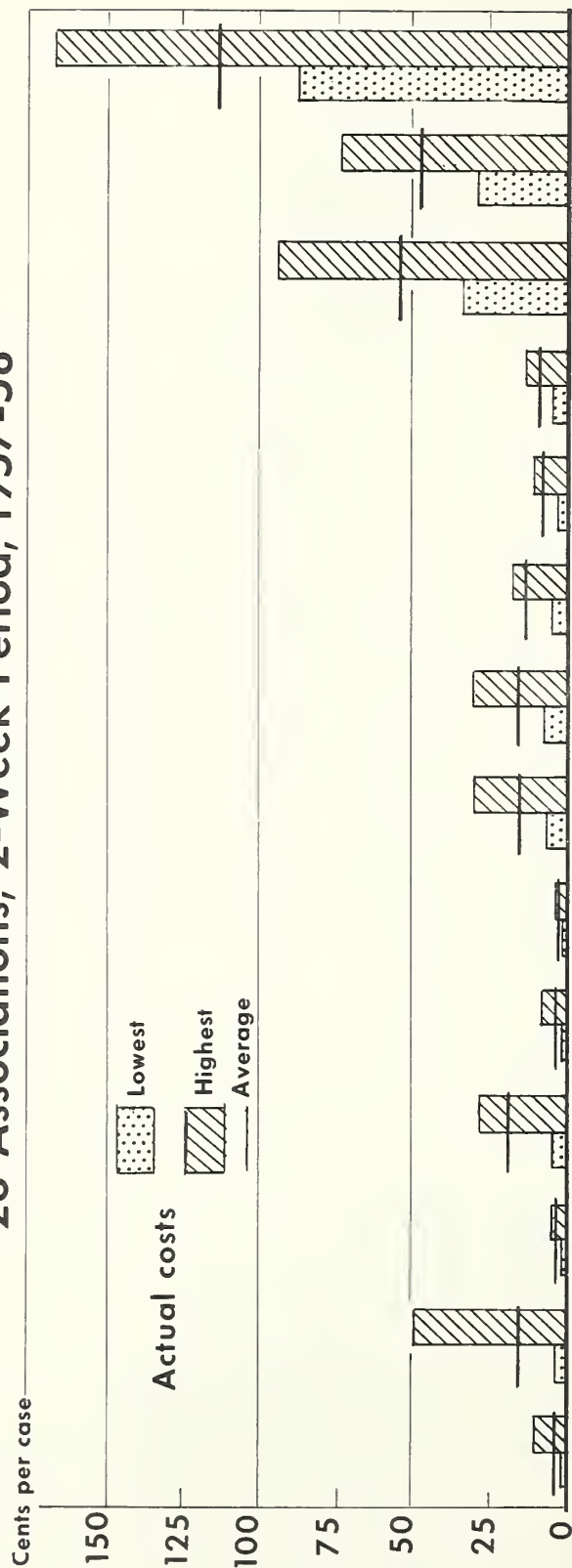
uniformly high or low in all operations. An association might have had the highest labor cost or labor output in one operation and the lowest in another, as compared with other associations. A comparison of direct labor costs by associations and operations (table 5) indicates the associations with the lowest and highest cost for each operation. Association E had the lowest labor cost for receiving and the highest for sizing. Association J had the lowest cost for shell treating and shell cleaning and the highest for stacking. Association O had the lowest cost for stacking and the highest for collecting.

Table 5 also shows the average direct labor cost, range in costs, and the number that the highest cost is times the lowest cost for each operation. The highest loading out cost was more than 21 times the lowest cost. For egg breaking the highest labor cost among four associations was 1.9 times the lowest cost.

The lowest direct labor cost of the 14 operations performed by more than one association was divided among 9 of the 23 associations, with association Q having the lowest cost in three operations - candling, cartoning, and coopering. The highest direct labor cost operations were

Figure 1

Average Cost of Direct Labor by Operations, 23 Associations, 2-Week Period, 1957-58



^{1/} Number that highest cost is times lowest cost in each operation.

Table 5.--Direct labor cost by operations, 23 egg marketing cooperatives in the United States, 2-week period, 1957-58

Area and co-op	Col- lecting	Receiv- ing	Inspect- ing	Sizing	Candling	Car- toning	Packing car- toned eggs	Coop- ering	Stack- ing	Loading out	Deliv- ering	Shell treat- ing	Shell clean- ing	Egg break- ing	Number of op- erations with	
															Lowest costs	Highest costs
Cents per case																
Northeast																
A	(1)	2.2	<u>3.2</u>	(2)	75.4	72.4	11.7	2.5	2.1	1.5	(1)	(3)	(3)	(3)	1	--
B	22.3	2.6	<u>10.5</u>	(2)	36.2	50.9	11.8	3.1	2.3	2.0	6.6	(3)	(3)	(3)	--	1
C	(1)	1.9	7.4	(2)	68.1	46.9	7.3	3.2	1.9	2.8	(1)	(3)	(3)	(3)	--	--
D	15.4	1.9	(3)	(3)	50.3	56.2	12.3	2.1	1.4	4.1	13.9	(3)	(3)	<u>87.3</u>	2	--
E	20.1	<u>1.3</u>	9.4	<u>30.4</u>	47.9	46.1	10.3	2.7	1.6	2.5	11.6	(3)	(3)	(3)	1	1
F	20.8	2.1	(3)	(3)	49.0	50.3	<u>4.5</u>	2.0	1.5	1.0	4.8	(3)	(3)	(3)	1	--
G	13.5	2.7	(3)	11.5	49.0	53.6	<u>6.3</u>	3.0	3.4	1.9	22.9	(3)	(3)	(3)	--	--
H	27.3	1.7	(3)	10.0	41.8	40.3	<u>13.9</u>	1.6	1.7	1.0	9.9	(3)	(3)	(3)	--	1
North Central																
I	23.1	4.9	(3)	(2)	51.3	46.3	8.7	2.1	3.7	1.9	(1)	(3)	7.0	(3)	--	--
J	20.2	2.1	(3)	(2)	38.6	(3)	(3)	1.4	<u>4.6</u>	2.0	(1)	<u>5.5</u>	<u>6.4</u>	(3)	2	1
K	23.4	2.8	(3)	(2)	71.7	(3)	(3)	<u>5.3</u>	1.3	.9	(1)	(3)	21.9	(3)	--	1
L	18.1	2.0	(3)	(2)	40.2	40.2	6.3	2.7	.9	<u>.5</u>	(1)	(3)	7.8	(3)	1	--
M	19.9	2.1	(3)	(2)	45.2	40.9	13.3	.9	1.8	1.6	4.6	(3)	(3)	(3)	--	--
N	27.4	1.7	(3)	(2)	47.6	41.1	7.8	2.0	2.0	2.5	33.2	(3)	16.3	(3)	--	--
O	<u>28.5</u>	2.4	(3)	(2)	45.1	40.7	7.1	1.5	<u>.8</u>	1.0	(1)	(3)	(3)	(3)	1	1
P	22.7	2.4	(3)	(2)	53.0	47.9	5.6	2.8	1.4	.9	(1)	(4)	(3)	(3)	--	--
Q	(3)	2.3	(3)	(2)	<u>34.8</u>	<u>29.6</u>	5.5	<u>.5</u>	2.0	2.0	4.4	(4)	(3)	94.3	3	--
Western																
R	(3)	<u>8.1</u>	(3)	(2)	44.5	(3)	(3)	5.0	1.0	2.4	(3)	(3)	(3)	(3)	--	1
S	(1)	6.8	(3)	(2)	52.7	576.6	(6)	4.5	2.5	3.0	(3)	(3)	<u>30.9</u>	(3)	--	1
T	9.9	2.7	(3)	(2)	80.6	<u>74.6</u>	6.2	4.0	2.3	5.5	<u>49.8</u>	<u>17.8</u>	(3)	<u>166.8</u>	--	3
U	7.5	6.0	(3)	(2)	<u>94.4</u>	577.8	(6)	4.5	3.0	<u>10.6</u>	14.9	<u>18.5</u>	(3)	102.9	--	3
V	<u>4.6</u>	1.4	(3)	(2)	51.8	38.6	5.4	1.6	2.2	4.8	<u>3.3</u>	(3)	(3)	(3)	2	--
W	<u>12.6</u>	<u>3.7</u>	(3)	(2)	<u>59.8</u>	<u>47.7</u>	8.3	1.4	.9	<u>3.8</u>	<u>15.1</u>	(3)	(3)	(3)	--	--
Averages ⁷																
All co-ops	18.7	2.9	7.6	14.8	53.8	48.0	8.5	2.6	2.0	2.6	15.0	13.9	15.0	112.8	--	--
Northeast	19.9	2.1	7.6	14.8	52.2	52.1	9.8	2.5	2.0	2.1	11.6	--	--	87.3	--	--
No. Central	22.9	2.5	--	--	47.5	41.0	7.8	2.1	2.1	1.5	14.1	5.5	11.9	94.3	--	--
Western	8.7	4.8	--	--	64.0	53.6	6.6	3.5	2.0	5.0	20.8	18.2	30.9	134.9	--	--
Range																
Low	4.6	1.3	3.2	7.2	34.8	29.6	4.5	.5	.8	.5	3.3	5.5	6.4	87.3	--	--
High	28.5	8.1	10.5	30.4	94.4	74.6	13.9	5.3	4.6	10.6	49.8	18.5	30.9	166.8	--	--
Times ⁸	6.2	6.2	3.3	4.2	2.7	2.5	3.1	10.6	5.8	21.2	15.1	3.4	4.8	1.9	--	--

¹ Contract hauling. ² Not separable from candling and cartoning operations. ³ Operation not performed. ⁴ Labor cost negligible.⁵ Includes cost of packing cartoned eggs not included in average or range. ⁶ Included in cartoning operation. ⁷ Unweighted.⁸ Number that highest cost is times lowest cost.

Low

High

Table 6.--Labor output by operations, 23 egg marketing cooperatives in the United States, 2-week period, 1957-58

Area and co-op	Collecting	Receiving	Inspecting	Sizing	Candling	Cartoning	Packing carton-eggs	Coopering	Stacking	Loading out	Delivering	Shell treating	Shell cleaning	Egg breaking	Number of operations with	
															Lowest outputs	Highest outputs
Cases per man-hour																
Northeast																
A	(1)	71.6	[60.1]	(2)	2.4	2.7	14.0	65.2	78.6	132.7	(1)	(3)	(3)	(3)	--	1
B	8.6	63.9	[14.8]	(2)	3.8	2.7	11.6	38.8	64.1	75.8	29.6	(3)	(3)	(3)	1	--
C	(1)	121.5	32.1	(2)	2.4	3.4	19.2	45.9	120.1	77.1	(2)	(3)	(3)	(3)	--	--
D	14.0	109.8	(3)	[21.7]	2.9	2.6	13.4	141.3	162.9	57.6	16.2	(3)	(3)	1.6	--	1
E	10.4	150.7	23.0	[3.9]	2.9	3.1	14.6	48.8	84.7	88.9	23.1	(3)	(3)	(3)	1	--
F	5.7	56.2	(3)	(2)	2.4	2.4	26.4	58.5	81.2	118.1	25.0	(3)	(3)	(3)	--	--
G	14.0	63.1	(3)	13.6	2.8	2.5	23.8	51.2	53.7	97.8	11.9	(3)	(3)	(3)	--	--
H	6.5	114.7	(3)	14.3	3.5	3.6	10.8	102.2	107.5	196.3	19.5	(3)	(3)	(3)	--	--
North Central																
I	6.0	32.1	(3)	(2)	2.3	2.5	13.5	60.0	[33.9]	79.3	(1)	(3)	[16.1]	(3)	1	1
J	5.7	57.4	(3)	(2)	2.9	(3)	(3)	56.8	87.0	146.1	(1)	[16.5]	14.2	(3)	--	1
K	[5.1]	42.0	(3)	(2)	[1.5]	(3)	(3)	[22.2]	93.6	131.3	(1)	(3)	[5.3]	(3)	4	--
L	9.0	69.3	(3)	(2)	2.2	2.2	13.6	46.8	124.8	[266.2]	(1)	(3)	14.6	(3)	1	1
M	8.9	72.0	(3)	(2)	2.6	2.9	8.9	146.5	81.4	90.5	(4)	(3)	(3)	(3)	1	--
N	(4)	92.0	(3)	(2)	2.5	2.9	14.8	61.2	65.8	(4)	(4)	(3)	7.0	(3)	--	--
O	6.8	79.8	(3)	(2)	2.3	2.6	12.3	61.5	174.7	157.1	(1)	(3)	(3)	(3)	--	--
P	7.2	57.2	(3)	(2)	2.3	2.5	22.5	47.1	97.6	154.4	(1)	(5)	(3)	(3)	--	--
Q	(3)	81.4	(3)	(2)	4.0	4.9	22.1	[301.1]	88.4	141.7	(4)	(5)	(3)	[2.1]	--	2
Western																
R	(3)	[27.7]	(3)	(2)	6 [5.5]	(3)	(3)	39.7	233.4	95.3	(3)	(3)	(3)	(3)	1	1
S	(1)	30.2	(3)	(2)	3.4	7 2.2	(8)	37.9	83.1	66.6	(3)	(3)	6.7	(3)	--	--
T	27.9	93.2	(3)	(2)	3.0	3.2	37.3	59.8	119.7	52.7	[6.2]	13.4	(3)	[1.3]	2	--
U	(4)	44.7	(3)	(2)	2.4	7 2.9	(8)	47.3	86.8	[29.6]	18.5	[11.5]	(3)	2.0	2	--
V	[63.7]	[198.1]	(3)	(2)	4.8	[6.7]	[40.0]	163.3	116.3	55.8	[87.3]	(3)	(3)	(3)	--	5
W	24.7	74.0	(3)	(2)	4.2	5.3	28.5	181.1	[325.9]	74.8	19.2	(3)	(3)	(3)	--	1
Averages ¹⁰																
All co-ops	14.0	78.4	32.5	13.4	2.9	3.3	19.3	81.9	111.5	108.4	25.7	13.8	10.7	1.8	--	--
Northeast	9.9	93.9	32.5	13.4	2.9	2.9	16.7	69.0	94.1	105.5	20.9	--	--	1.6	--	--
No. Central	7.0	64.8	--	--	2.5	2.9	15.4	89.2	94.1	145.8	--	16.5	11.4	2.1	--	--
Western	38.8	78.0	--	--	3.6	5.1	35.3	88.2	160.9	62.5	32.8	12.5	--	1.7	--	--
Range																
Low	5.1	27.7	14.8	3.9	1.5	2.2	8.9	22.2	33.9	29.6	6.2	11.5	5.3	1.3	--	--
High	63.7	198.1	60.1	21.7	5.5	6.7	40.0	301.1	325.9	266.2	87.3	16.5	16.1	2.1	--	--
Times ¹¹	12.5	7.2	4.1	5.6	3.7	3.0	4.5	13.6	9.6	9.0	14.1	1.4	3.0	1.6	--	--

¹Contract hauling. ²Not separable from candling and cartoning operations. ³Operation not performed. ⁴Hours not available.⁵Labor negligible. ⁶Not included in average or range. ⁷Includes packing carton-egg - not included in average or range.⁸Included in the cartoning operation. ⁹One-week period. ¹⁰Unweighted. ¹¹Number that highest output is times lowest output.

[] Low [] High

shared by 10 associations with association U highest in 4 operations - candling, cartoning,⁷ loading out, and shell treating. Figure 1 emphasizes the variations in average costs by operations.

A similar comparison of labor output for each operation appears in table 6 and figure 2. As with direct labor cost a case, no association had a consistently low or high output per man-hour for all operations, although association K had the lowest output in four operations and association V had the highest output in

five operations. The lowest outputs were divided among 10 of the 23 associations; the highest outputs, among 9 associations. The greatest difference between the highest and lowest output per man-hour was for the delivering operation--14.1 times. This difference ranged downward to 1.4 times for shell treating but with only three associations performing the operation.

As with unit labor costs, labor output per man-hour varied among the three areas. The variations are indicated in the following tabulation:

Outputs per man-hour

<u>Area</u>	<u>Lowest</u>	<u>Highest</u>
Northeast	Cartoning, coopering, stacking, delivering, egg breaking	Receiving
North Central	Collecting, receiving, candling, cartoning, packing cartoned eggs, stacking	Coopering, loading out, shell treating, shell cleaning, egg breaking
Western	Loading out, shell treating, shell cleaning	Collecting, candling, cartoning, packing cartoned eggs, stacking, delivering

The Northeast and North Central areas had lowest labor outputs for most of the operations - five in the Northeast and seven in the North Central. The Western area was lowest in three operations. Stacking was the same in the Northeast and North Central areas, as was cartoning. The largest outputs were found largely in the North Central and Western areas - five and six, respectively. The Northeast had the highest output only in the receiving operation. In the relatively high cost operation of

candling, average labor output varied 1.4 cases a man-hour - from a low of 2.5 cases in the North Central to a high of 3.9 cases in the Western area. Figure 2 emphasizes the variations in average outputs by operations.

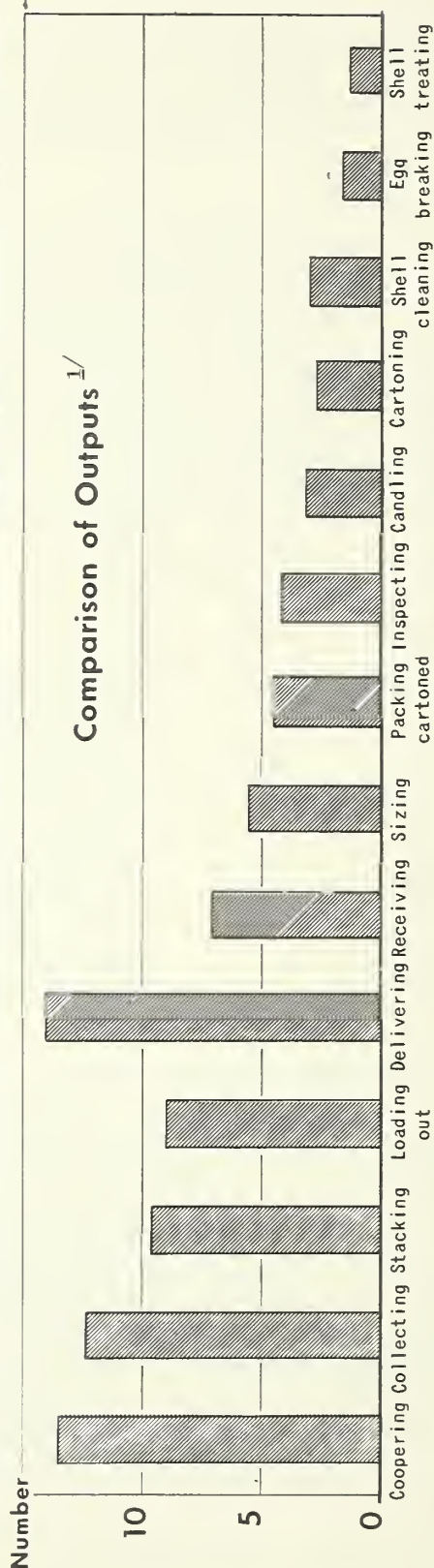
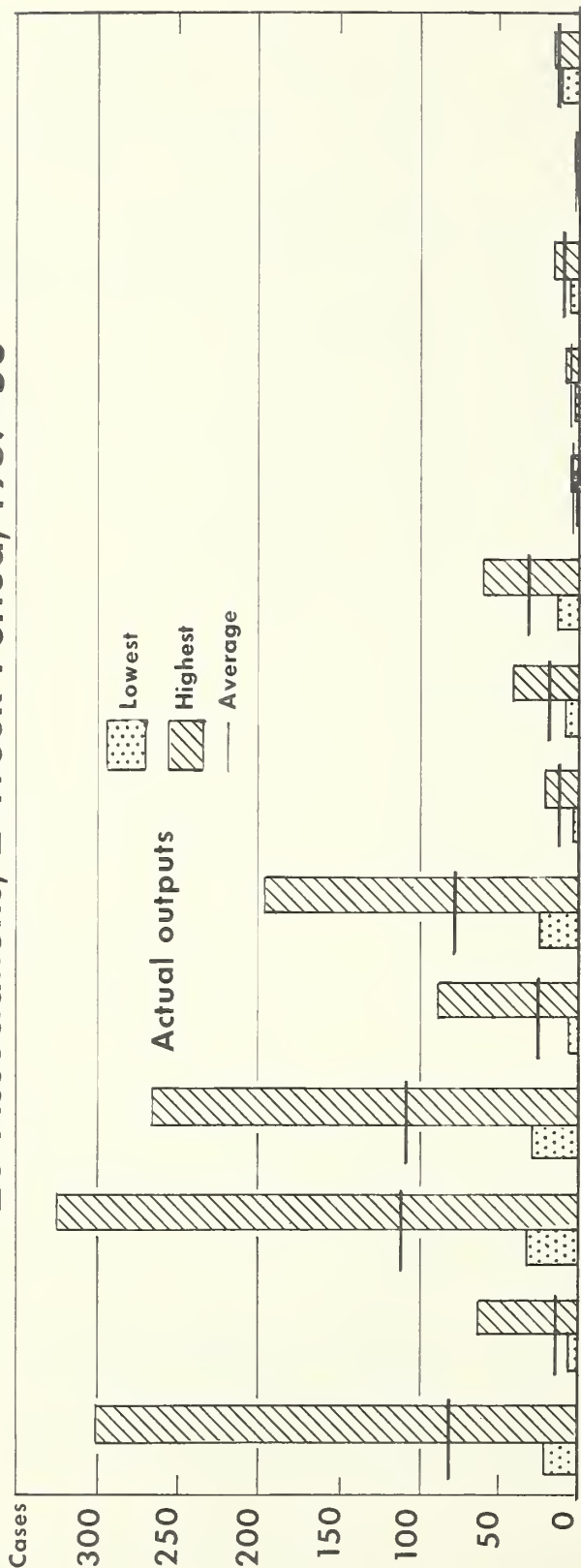
On a functional basis, tables 7 through 18 show figures on direct labor cost and output by operations, from the collecting of eggs at the farm or ranch to delivering of eggs to the buyer.

The associations are arranged in each table by areas and in each area

⁷The cartoning operation included the cost of packing cartoned eggs.

Figure 2

Average Labor Output per Man-Hour by Operations, 23 Associations, 2-Week Period, 1957-58



Operations

^{1/} Number that highest output is times lowest output in each operation.

according to the number of cases of eggs handled in the operation from highest to lowest. This arrangement gives some indication of the effect, if any, of volume on unit cost and output per man-hour. Average area volumes are shown.

Collecting.--The direct labor cost of collecting eggs varied from a low of 4.6 cents a case for association V in the Western area to a high of 28.5 cents a case for association O in the North Central area and averaged 18.7 cents. By areas this cost varied 14.2 cents from a low of 8.7 cents a case for four associations in the Western area to a high of 22.9 cents a case for eight associations in the North Central area. The volume collected during the 2-week period was 13,743 cases for the Western area but only 2,731 for the North Central area (table 7).

Cases of eggs collected each man-hour varied 58.6 cases from a low of 5.1 for association K in the North Central area to a high of 63.7 cases for association V in the Western area and averaged 14 cases for 18 associations. Average output by areas varied from a low of 7 cases a man-hour in the North Central to a high of 38.8 cases in the Western area where the average volume collected was five times that of the North Central area (table 7).

A more complete breakdown of collecting costs appears in table 8. Total collecting costs, including direct labor and truck costs, ranged from a low of 8.2 cents a case for association V in the Western area to 52.1 cents for association H in the Northeast. The average cost was 32 cents a case. The average cost by areas varied 23.7 cents a case from a low of 14.9 cents in the Western

Table 7.--Collecting eggs from farms: Average direct labor cost and output, 18 associations, 2-week period, 1957-58¹

Area and association	Cost	Output	Volume collected
<i>Cents per case Cases per man-hour Cases</i>			
Northeast ²			
B	22.3	8.6	--
D	15.4	14.0	--
E	20.1	10.4	--
G	13.5	14.0	--
H	27.3	6.5	--
F	20.8	5.7	--
North Central ²			
P	22.7	7.2	--
M	19.9	8.9	--
K	23.4	5.1	--
J	20.2	5.7	--
N	27.4	(3)	--
O	28.5	6.8	--
L	18.1	9.0	--
I	23.1	6.0	--
Western ²			
V	4.6	63.7	--
T	9.9	27.9	--
W	12.6	24.7	--
U	7.5	(3)	--
Range:			
Low	4.6	5.1	--
High	28.5	63.7	--
Averages: ⁴			
All associations	18.7	14.0	5,648
Northeast	19.9	9.9	4,141
North Central	22.9	7.0	2,731
Western	8.7	38.8	13,743

¹ Does not include contract hauling.

² Arranged in order of volume cartoned from highest to lowest.

³ Hours not available.

⁴ Unweighted.

to a high of 38.6 cents in the North Central area. The average volume collected by the Western associations was more than three times that of the North Central ones - 11,101 and 3,195 cases, respectively. For association trucks, the direct labor cost on the average was 59 percent

Table 8.--Collecting eggs from farms: Average direct costs, 20 associations, 2-week period, 1957-58

Area and association	Association trucks			Contract trucks ¹	Total	Volume
	Direct labor	Truck expense	Total			
Northeast ²	<i>Cents per case</i>					<i>Cases</i>
B	22.3	12.3	34.6	60.7	³ 41.1	--
C	--	--	--	28.8	³ 28.8	--
D	15.4	13.0	28.4	38.8	30.8	--
F	20.8	17.1	37.9	45.0	³ 44.5	--
E	20.1	16.4	36.5	--	36.5	--
G	13.5	9.7	23.2	--	23.2	--
H	27.3	24.8	52.1	--	52.1	--
North Central ²						
N	27.4	18.3	45.7	60.0	³ 47.1	--
O	28.5	7.2	35.7	50.2	³ 46.4	--
K	23.4	15.3	38.7	--	38.7	--
J	20.2	9.8	30.0	--	30.0	--
P	22.7	9.9	32.6	31.9	³ 32.6	--
M	19.9	23.7	43.6	--	43.6	--
L	18.1	16.4	34.5	--	³ 34.5	--
I	23.1	15.2	38.3	24.1	35.7	--
Western ²						
V	4.6	3.6	8.2	--	8.2	--
T	9.9	5.7	15.6	--	15.6	--
W	12.6	9.2	21.8	39.0	³ 24.0	--
U	7.5	3.6	11.1	--	11.1	--
S	--	--	--	15.8	15.8	--
Averages: ⁴						
All associations	18.7	12.8	31.6	39.4	32.0	6,321
Northeast	19.9	15.6	35.5	43.3	36.7	6,480
North Central	22.0	14.5	37.4	41.6	38.6	3,195
Western	8.7	5.5	14.2	27.4	14.9	11,101
Range:						
Low	4.6	3.6	8.2	15.8	8.2	--
High	28.5	24.8	52.1	60.7	52.1	--

¹ Cost or charge to association or association patrons.² Arranged in order of volume collected from highest to lowest.³ Weighted average of figures for association and contract trucks.⁴ Unweighted average of vertical columns.

of total collecting costs. This percentage by areas was:

Northeast	-	56
North Central	-	59
Western	-	61

For associations using both owned trucks and contract trucks in col-

lecting eggs, the total collecting cost was 34.4 cents a case with association trucks and 43.7 cents a case with contract trucks or a difference of 9.3 cents. The average volume of eggs collected with association trucks was 3,722 cases and 2,120 with contract trucks.

Receiving.--The direct labor cost for receiving eggs into plants averaged 2.9 cents a case for the 23 associations studied and ranged from a low of 1.3 cents for association E in the Northeast and 1.4 cents for association V in the Western area to a high of 8.1 cents for association R in the Western area (table 9). By areas this cost ranged from an average of 2.1 cents a case in the Northeast to 4.8 cents in the Western area.

Receiving output for each man-hour of labor ranged from a low of 27.7 cases for association R to a high of 198.1 cases for association V - both in the Western area (table 9). One association had equipment by which truckloads of eggs could be unloaded directly from trucks to receiving room in a few minutes' time. The average output for all associations was 78.4 cases. The North Central area had the lowest average output of 64.8 cases--29.1 cases less than the 93.9 cases for the Northeast.

By areas, labor output per man-hour increased as the volume of eggs received increased.

Inspecting.--Only 4 of 8 associations in the Northeast performed the service of inspecting eggs handled on a wholesale grade bases. The direct labor cost ranged from 3.2 cents to 10.5 cents a case and averaged 7.6 cents. Output per man-hour ranged from 14.8 to 60.1 cases and averaged 32.5 cases.

Sizing.--Only four associations, all in the Northeast, performed the sizing operation separately from the candling and cartoning operation. The direct labor cost averaged 14.8 cents a case and ranged from 7.2 to 30.4 cents. For three associations the cost was less than 12 cents a

Table 9.--Receiving eggs: Average direct labor cost and output, 23 associations, 2-week period, 1957-58

Area and association	Cost	Output	Volume received
	<i>Cents per case</i>	<i>Cases per man-hour</i>	<i>Cases</i>
Northeast ¹			
A	2.2	71.6	--
B	2.6	63.9	--
C	1.9	121.5	--
D	1.9	109.8	--
F	2.1	56.2	--
E	1.3	150.7	--
G	2.7	63.1	--
H	1.7	114.7	--
North Central ¹			
Q	2.3	81.4	--
P	2.4	57.2	--
M	2.1	72.0	--
L	2.0	69.3	--
I	4.9	32.1	--
N	1.7	92.0	--
K	2.8	42.0	--
J	2.1	57.4	--
O	2.4	79.8	--
Western ¹			
V	1.4	198.1	--
T	2.7	93.2	--
W	3.7	74.0	--
U	6.0	44.7	--
S	6.8	30.2	--
R	8.1	27.7	--
Averages: ²			
All associations	2.9	78.4	6,959
Northeast	2.1	93.9	9,524
North Central	2.5	64.8	3,640
Western	4.8	78.0	8,519
Range:			
Low	1.3	27.7	--
High	8.1	198.1	--

¹ Arranged in order of volume received - from high to low.

² Unweighted.

case. Output per man-hour averaged 13.4 cases and ranged from 3.9 to 21.7 cases.

Candling.--This operation covers eggs candled loose into cases. Direct labor cost and output are shown in table 10. Labor is divided between

Types of Conveyances Used in Egg Plants--



Two-wheel hand truck. Eggs on the truck are on their way to be candled.



Four-wheel hand truck. Labor costs of the associations covered in the report accounted for nearly 43 percent of the total costs in handling eggs.



Skid and power lift truck. Through the use of these trucks in moving and loading eggs, cooperatives can save in labor costs.



Skid and hydraulic hand truck. These eggs were brought into the egg receiving room on this truck from farm pick-up trucks.



Roller conveyor. Cases of loose pack eggs travel the conveyor to be stamped, closed, and carried into the cooler.

Table 10.--Candling eggs: Average direct labor cost and labor output, 23 associations, 2-week period, 1957-58

Area and association	Cost			Output			Volume
	Direct candling	Auxiliary labor ¹	Total	Direct candling	Auxiliary labor ¹	Total	
Northeast: ²		<i>Cents per case</i>			<i>Cases per man-hour</i>		<i>Cases</i>
B	22.4	13.8	36.2	6.1	10.3	3.8	--
E	30.9	17.0	47.9	4.8	7.7	2.9	--
H	27.0	14.8	41.8	5.3	10.1	3.5	--
D	42.9	7.4	50.3	3.3	21.4	2.9	--
G	40.3	8.7	49.0	3.3	18.3	2.8	--
C	40.3	27.8	68.1	4.2	5.5	2.4	--
F	46.4	2.6	49.0	2.6	46.5	2.4	--
A	60.6	14.8	75.4	3.4	8.5	2.4	--
North Central: ²							
Q	23.4	11.4	34.8	6.2	11.5	4.0	--
P	36.4	16.6	53.0	3.3	7.4	2.3	--
O	30.7	14.4	45.1	3.3	7.7	2.3	--
L	25.3	14.9	40.2	3.5	6.0	2.2	--
I	29.2	22.1	51.3	4.0	5.5	2.3	--
K	42.3	29.4	71.7	2.5	3.6	1.5	--
N	29.0	18.6	47.6	4.0	6.7	2.5	--
M	19.4	25.8	45.2	6.2	4.6	2.6	--
J	25.7	12.9	38.6	3.9	10.4	2.9	--
Western: ²							
V	33.5	18.3	51.8	7.9	12.2	4.8	--
T	33.3	47.3	80.6	7.2	5.1	3.0	--
W	32.8	27.0	59.8	7.8	8.8	4.2	--
U	73.8	20.6	94.4	3.2	10.9	2.4	--
R	(3)	(3)	⁴ 44.5	(3)	(3)	⁴ 5.5	--
S	49.1	3.6	52.7	3.6	57.1	3.4	--
Range:							
Low	19.4	2.6	34.8	2.5	3.6	1.5	--
High	73.8	47.3	94.4	7.9	57.1	4.8	--
Averages: ⁵							
All associations	36.1	17.7	53.8	4.5	13.0	2.9	2,317
Northeast	38.9	13.4	52.3	4.1	16.0	2.9	2,110
North Central	29.0	18.5	47.5	4.1	7.0	2.5	2,237
Western	44.5	23.4	67.9	5.9	18.8	3.6	2,713

¹ Includes such labor as supplying eggs to candlers, sizing, and removing eggs after candling.² Arranged in order of volume candled - from high to low.³ Not separately obtained.⁴ Not included in average or range.⁵ Unweighted.

that for direct candling and auxiliary labor. Auxiliary labor is that required to supply eggs to the candlers, size eggs when separate from direct candling, supply materials,

and remove the eggs from candlers after candling.

The total direct labor cost for candling eggs ranged from a low of

34.8 cents a case for association Q in the North Central area to a high of 94.4 cents for association U in the Western area - a difference of 59.6 cents. The cost for the 23 associations averaged 53.8 cents a case. The direct candling labor cost was more than the cost of auxiliary labor for all associations except M and T. At association M eggs were candled to the sizing machine and the candlers were not required to place eggs into filler flats and push them onto a moving belt or otherwise dispose of the candled eggs as was done at other associations. At association T the direct candling labor was less because nearly 50 percent of the eggs were flash candled.

The average direct candling labor cost of 22 associations was 67 percent of the total candling labor cost. It was 78.2 percent for the highest volume association and 55.7 percent for the lowest volume one. By areas this percentage was 74.5, 61.1 and 65.5 percent for the Northeast, North Central, and Western areas, respectively.

By areas, the total candling labor cost varied 20.4 cents a case - from a high average of 67.9 cents for the Western area to a low of 47.5 cents for the North Central area. This was in spite of the fact that the Western area candled the larger volume of eggs. The Northeast associations candled the smallest average volume with an average cost of 52.2 cents a case - 4.7 more than that of North Central but 15.7 cents less than that of the Western group.

Total candling labor output averaged 2.9 cases a man-hour for 22 associations and ranged from a low of 1.5 cases for association K to a high of 4.8 cases for association V. By areas, candling labor output

ranged from the highest average of 3.6 cases for the Western area with the largest average volume of 2,713 cases candled to a low of 2.5 cases for the North Central area with the second highest average volume of 2,237 cases candled.

With the exception of association R, associations with a total candling labor output of more than three cases a man-hour were using the latest makes of candling and packaging equipment.

Cartoning.--Cartoning labor also is divided into direct candling and into auxiliary labor. Auxiliary labor, in addition to that mentioned for the candling operation, includes setting up cartons but does not include packing the cartoned eggs into cases or boxes. The data on direct cartoning labor costs and output per man-hour for 20 associations are shown in table 11.

Total direct labor cost ranged from a low of 29.6 cents a case for association Q in the North Central area to a high of 77.8 cents for association U in the Western area - a difference of 48.2 cents. The cost for association U included the cost of packing cartoned eggs which was not separable from the other cartoning costs. Had the packing cost for this association been 6.6 cents a case, the average for three other Western associations, its cartoning labor cost would be reduced to 71.2 cents or 3.4 cents less than the 74.6 cents for association T of the Western area. The average for the 20 associations was 50.9 cents a case.

By areas, the total cartoning labor cost varied 22.1 cents a case from a low average of 41 for the North Central area to a high of 63.1 cents for

Table 11.--Cartoning eggs: Average direct labor cost and labor output, 20 associations, 2-week period, 1957-58

Area and association	Cost			Output			Volume
	Direct cartoning	Auxiliary labor ¹	Total	Direct cartoning	Auxiliary labor ¹	Total	
Northeast: ²		<i>Cents per case</i>			<i>Cases per man-hour</i>		<i>Cases</i>
B	22.5	28.4	50.9	6.1	4.9	2.7	--
C	38.3	8.6	46.9	4.2	16.3	3.4	--
A	60.3	12.1	72.4	3.4	12.8	2.7	--
F	46.3	4.0	50.3	2.6	29.5	2.4	--
D	43.1	13.1	56.2	3.3	12.4	2.6	--
G	40.3	13.3	53.6	3.3	11.2	2.5	--
E	29.8	16.3	46.1	5.0	8.4	3.1	--
H	27.0	13.3	40.3	5.3	11.1	3.6	--
North Central: ²							
Q	23.4	6.2	29.6	6.2	23.2	4.9	--
M	19.3	21.6	40.9	6.2	5.4	2.9	--
I	29.2	17.1	46.3	4.0	6.9	2.5	--
N	29.0	12.1	41.1	4.0	11.0	2.9	--
O	30.6	10.1	40.7	3.4	10.2	2.6	--
P	36.4	11.5	47.9	3.3	10.4	2.5	--
L	25.3	14.9	40.2	3.5	6.0	2.2	--
Western: ²							
V	33.4	5.2	38.6	7.9	45.3	6.7	--
T	38.0	36.6	74.6	6.3	6.7	3.2	--
W	32.8	14.9	47.7	7.8	16.7	5.3	--
U	³ 63.4	14.4	³ 77.8	³ 3.5	16.0	³ 2.9	--
S	³ 72.4	4.2	³ 76.6	³ 2.4	49.4	³ 2.2	--
Averages: ⁴							
All associations	37.0	13.9	50.9	4.6	15.7	3.3	3,751
Northeast	38.4	13.6	52.0	4.1	13.3	2.9	3,548
North Central	27.6	13.4	41.0	4.4	10.4	2.9	2,105
Western	48.0	15.1	63.1	5.6	26.8	5.1	6,379
Range:							
Low	19.3	4.0	29.6	2.4	4.9	2.2	--
High	72.4	36.6	74.6	7.9	49.4	6.7	--

¹Includes such labor as supplying eggs to candlers, sizing and removing eggs after candling.²Arranged in order of volume cartoned - from high to low.³Includes labor for packing cartoned eggs not included in average or range.⁴Unweighted.

the Western area. The average volume of eggs cartoned by the Western area associations was more than three times as large as the volume of the North Central associations - 6,379 compared with 2,105 cases.

Total cartoning labor output averaged 3.2 cases a man-hour for 20 associations and ranged from a low of 2.2 cases for association L of the North Central area to a high of 6.7 cases for association V of the

Western area. Among areas, the average cartoning labor output ranged from a low of 2.9 cases for the Northeast and North Central areas to 4.1 cases for the Western associations.

Packing Cartoned Eggs.--Although packing cartoned eggs into cases is essentially a part of the cartoning operation, direct labor cost and labor output were obtained separately for 18 of 20 associations cartoning eggs (table 12).

This cost averaged 8.5 cents a case for the 18 associations and ranged from a low of 4.5 cents for association F to a high of 13.9 cents for association H - both in the Northeast. It cost association M of the North Central area only 0.6 cent a case less than the highest cost to pack cartoned eggs - 13.3 cents.

Among areas, the labor cost ranged from a low of 6.6 for the Western area to a high of 9.8 cents for the Northeast - a difference of 3.2 cents a case. The three Western associations packed the largest average volume of eggs during the period but the Northeast associations with the highest labor cost did not have the lowest volume (table 12).

Packing labor output averaged 19.3 cases a man-hour for 18 associations and ranged from a low of 8.9 for association M in the North Central area to a high of 40 cases for association V in the Western area. The average output among areas ranged from a low of 15.4 cases for the North Central to a high of 35.3 cases for the Western area or more than twice the lowest average output. The North Central area associations packed the lowest average volume of eggs, 2,105 cases and three Western associations the largest, 9,963 cases, or nearly five times as much as the lowest volume.

Table 12.--Packing cartoned eggs: Average direct labor cost and labor output, 20 associations, 2-week period 1957-58

Area and association	Cost	Output	Volume packed
	<i>Cents per case</i>	<i>Cases per man-hour</i>	<i>Cases</i>
Northeast: ¹			
B	11.8	11.6	--
C	7.3	19.2	--
A	11.7	14.0	--
F	4.5	26.4	--
D	12.3	13.4	--
G	6.3	23.8	--
E	10.3	14.6	--
H	13.9	10.8	--
North Central: ¹			
Q	5.5	22.1	--
M	13.3	8.9	--
I	8.7	13.5	--
N	7.8	14.8	--
O	7.1	12.3	--
P	5.6	22.5	--
L	6.3	13.6	--
Western: ¹			
V	5.4	40.0	--
T	6.2	37.3	--
W	8.3	28.5	--
U ²	--	--	--
S ²	--	--	--
Averages: ³			
All associations	8.5	19.3	3,751
Northeast	9.8	16.7	3,548
North Central	7.8	15.4	2,105
Western	6.6	35.3	9,963
Range:			
Low	4.5	8.9	--
High	13.9	40.0	--

¹ Arranged in order of volume packed--from highest to lowest.

² Packing labor could not be readily separated from that of cartoning.

³ Unweighted.

Coopering Cases.--Coopering cases is a comparatively low cost operation. Among 23 associations, the direct coopering labor cost ranged from a low of 0.5 cent a case for association Q to a high of 5.3 cents for association K - both in the North Central area. Association R



Packing cartoned eggs after cartons have been automatically filled, closed, sealed, and dated.

in the Western area had a cost of 5 cents a case (table 13). The average labor cost was 2.6 cents a case. By areas, the Western associations had the highest average cost of 3.5 cents as compared with the lowest cost of 2.1 cents for the North Central associations. The six Western associations coopered an average of 12,012 cases as compared with 5,427 cases for the North Central group.

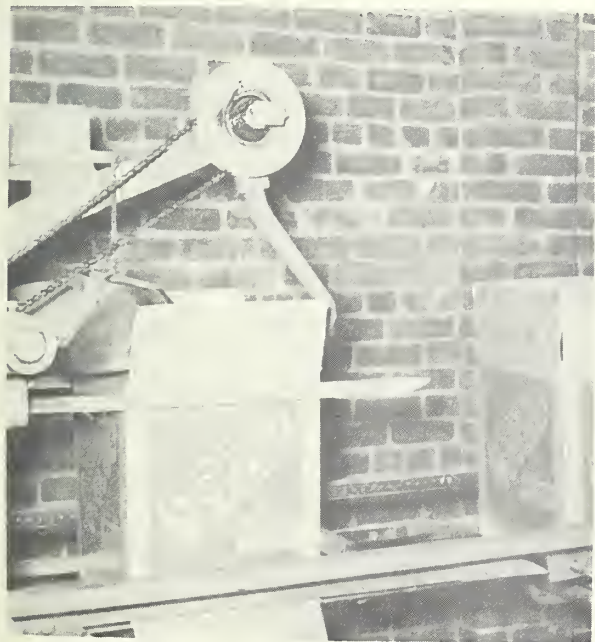
Cases coopered a man-hour averaged 81.3 for the 23 associations and ranged from a low of 22.2 cases for association K and a high of 301.1 cases for association Q, the associations with the highest and lowest cooperating labor cost respectively.

Association R with the second highest labor cost had the third lowest output per man hour, 39.7 cases. Among areas the North Central associations had the highest average output of 89.2 cases as compared with 88.2 for the Western associations and the lowest average of 67.3 cases for the Northeast associations.

Stacking.--Moving eggs from the work room and stacking them in the holding room is another low cost operation. Various means are used to move eggs to the holding room - four wheel hand trucks, pallets moved by power lift trucks, and conveyor belts.

For the 23 associations studied, the direct stacking labor cost averaged 2 cents a case and ranged from a low of 0.8 cent for association O of the North Central area and 0.9 cent each for association L of the North Central area and W of the Western area, to a high of 4.6 cents for association J of the North Central area. Among areas the average stacking labor cost was approximately the same - 2 cents in 2 areas and 2.1 cents in the third. However, the average volume stacked varied greatly by areas - 9,312 cases in the Northeast, 3,636 in the North Central and 7,982 cases in the Western area (table 14).

Both the Northeast and North Central area associations stacked an average of 94.1 cases a man-hour as compared with 160.9 cases by the six associations in the Western area. For the 23 associations, labor output averaged 111.5 cases a man-hour and ranged from a low of 33.9 cases



At some cooperatives, egg cases are closed and sealed by machinery.

for association I of the North Central area to a high of 325.9 cases for association W of the Western area.

Loading Out.--The cost of labor for loading out eggs averaged 2.6 cents a case and varied among the 23 associations from a low of 0.5 cent for

Table 13.--Coopering egg cases: Average direct labor cost and output, 23 associations, 2-week period, 1957-58

Area and associations	Cost	Output	Volume
<i>Cents per case Cases per man-hour Cases</i>			
Northeast: ¹			
A	2.5	65.2	--
B	3.1	38.8	--
C	3.2	32.4	--
F	2.0	58.5	--
H	1.6	102.2	--
D	2.1	141.3	--
E	2.7	48.8	--
G	3.0	51.2	--
North Central: ¹			
Q	.5	301.1	--
M	.9	146.5	--
P	2.8	47.1	--
I	2.1	60.0	--
O	1.5	61.5	--
L	2.7	46.8	--
N	2.0	61.2	--
K	5.3	22.2	--
J	1.4	56.8	--
Western: ¹			
V	1.6	163.3	--
W	1.4	181.1	--
T	4.0	59.8	--
U	4.5	47.3	--
S	4.5	37.9	--
R	5.0	39.7	--
Averages: ²			
All associations	2.6	81.3	8,442
Northeast	2.5	67.3	9,158
North Central	2.1	89.2	5,427
Western	3.5	88.2	12,012
Range:			
Low	.5	22.2	--
High	5.3	301.1	--

¹Arranged in order of volume coopered - from high to low.

²Unweighted.



As soon as eggs are candled and packed, they are placed in refrigerated holding rooms.

association L of the North Central area to a high of 10.6 cents for association U in the Western area (table 15). The average cost for the North Central associations was 1.5 cents a case, the lowest of the three areas. The average cost was highest for the Western area, 5 cents a case. The average volume loaded out during the period was highest for the Northeast associations, 9,550 cases; next highest for the Western area, 8,124 cases; and lowest for the North Central associations, 3,899 cases.

Labor output for loading out eggs averaged 108.4 cases a man-hour for 22 associations and varied from the lowest of 29.6 cases for association U with the highest labor cost to

266.2 cases for association L with the lowest labor cost. The North Central associations loaded out the largest average number of cases a man-hour—145.8 as compared with 105.5 cases for the Northeast and 62.4 cases for the Western association. The average labor output of the Western associations was less than half the output of the North Central associations.

Delivering.--Thirteen of the 23 associations studied delivered eggs to market in association-owned trucks. The direct labor cost and output for the 13 are shown in table 16.

The direct labor cost averaged 15 cents a case for 13 associations. The range in cost among the associations

Table 14.--Stacking eggs: Average direct labor and output, 23 associations, 2-week period, 1957-58

Area and association	Cost	Output	Volume
	<i>Cents per case</i>	<i>Cases per man-hour</i>	<i>Cases</i>
Northeast: ¹			
A	2.1	78.6	--
B	2.3	64.1	--
C	1.9	120.1	--
D	1.4	162.9	--
F	1.5	81.2	--
E	1.6	84.7	--
G	3.4	53.7	--
H	1.7	107.5	--
North Central: ¹			
Q	2.0	88.4	--
M	1.8	81.4	--
P	1.4	97.6	--
O	.8	174.7	--
L	.9	124.8	--
N	2.0	65.8	--
I	3.7	33.9	--
K	1.3	93.6	--
J	4.6	87.0	--
Western: ¹			
V	2.2	116.3	--
T	2.3	119.7	--
W	.9	325.9	--
U	3.0	86.8	--
S	2.5	83.1	--
R	1.0	233.4	--
Averages: ²			
All associations	2.0	111.5	6,744
Northeast	2.0	94.1	9,312
North Central	2.1	94.1	3,636
Western	2.0	160.9	7,982
Range:			
Low	.8	33.9	--
High	4.6	325.9	--

¹ Arranged in order of volume stacked--from highest to lowest.

² Unweighted.

was from a low of 3.3 cents for association V in the Western area to a high of 49.8 for association T also in the Western area. The labor cost of delivering eggs is greatly affected by distances to market. Some

Table 15.--Loading out eggs: Average direct labor cost and output, 23 associations, 2-week period, 1957-58

Area and association	Cost	Output	Volume
	<i>Cents per case</i>	<i>Cases per man-hour</i>	<i>Cases</i>
Northeast: ¹			
A	1.5	132.7	--
B	2.0	75.8	--
C	2.8	77.1	--
D	4.1	57.6	--
E	2.5	88.9	--
F	1.0	118.1	--
G	1.9	97.8	--
H	1.0	196.3	--
North Central: ¹			
Q	2.0	141.7	--
M	1.6	90.5	--
P	.9	154.4	--
O	1.0	157.1	--
L	.5	266.2	--
I	1.9	79.3	--
N ²	2.5	(³)	--
K	.9	131.3	--
J	2.0	146.1	--
Western: ¹			
V	4.8	55.8	--
T	5.5	52.7	--
W	3.8	74.8	--
U	10.6	29.6	--
S	3.0	66.6	--
R	2.4	95.3	--
Averages: ⁴			
All associations	2.6	108.4	6,967
Northeast	2.1	105.5	9,550
North Central	1.5	145.8	3,899
Western	5.0	62.5	8,124
Range:			
Low	.5	29.6	--
High	10.6	266.2	--

¹ Arranged in order of volume loaded out--from high to low.

² Not included in average or range.

³ Hours not available.

⁴ Unweighted.

associations haul short distances while others haul long distances. By areas, delivering labor cost averaged lowest for the Northeast associations, 11.6 cents a case, as compared with the highest cost of 20.8

Table 16.--Delivering eggs: Average direct labor cost and output, 13 associations, 2-week period, 1957-58¹

Area and association	Cost	Output	Volume
	<i>Cents per case</i>	<i>Cases per man-hour</i>	<i>Cases</i>
Northeast: ²			
E	11.6	23.1	--
G	22.9	11.9	--
D	13.9	16.2	--
F	4.8	25.0	--
B	6.6	29.6	--
H	9.9	19.5	--
North Central: ²			
Q	4.4	(³)	--
M	4.6	(³)	--
N	33.2	(³)	--
Western: ²			
V	3.3	87.3	--
U	14.9	18.5	--
T	49.8	6.2	--
W	15.1	19.2	--
Averages: ⁴			
All associations	15.0	25.7	4,927
Northeast	11.6	20.9	3,359
North Central	14.1	(³)	4,991
Western	20.8	32.8	7,231
Range:			
Low	3.3	6.2	--
High	49.8	87.3	--

¹ Does not include contract hauling.

² Arranged in order of volume delivered in association trucks.

³ Hours not available.

⁴ Unweighted.

for the Western associations and 14.1 cents for the North Central ones. The Northeast associations delivered the smallest average volume of eggs, 3,359 cases--the Western associations the largest volume, 7,231 cases.

The number of labor hours required to deliver eggs was not available for the North Central associations,

therefore labor output for these associations is not shown in table 16. For the 10 associations in the other two areas, labor output averaged 25.7 cases a man-hour and ranged from a low of 6.2 for association T to a high of 87.3 cases for association V--both in the Western area. Average output was highest for the Western associations and lowest for the Northeast--32.8 and 20.9 cases, respectively. For this operation, average labor output increased as the volume of eggs delivered increased.

A more complete breakdown of the cost of delivering eggs is shown in table 17. This table shows costs for direct labor, truck operating, and in total by plants for association trucks; contract hauling; and the grand total for delivering costs.

Total delivering costs with association trucks ranged from a low of 6.9 cents a case for association V to a high of 64.2 cents for association T--both in the Western area. The average for 13 associations was 24.6 cents a case. Total delivering costs also averaged highest for the Western group of associations and lowest for the Northeast--28.5 and 20.5 cents a case, respectively. The North Central group, however, had the highest truck expense of 13.5 cents a case, which made its total delivering cost 27.6 cents a case, as nearly as much as the total for the Western group and 7.1 cents more than that of the Northeast associations.

The percentage which delivering labor cost was of the total deliver-

Table 17.--Delivering eggs to buyers: Average direct costs, 19 associations, 2-week period, 1957-58

Area and association	Association trucks			Contract trucks ¹	Total	Volume
	Direct labor	Truck expense	Total			

<i>Cents per case</i>							<i>Cases</i>
Northeast: ²							
B	6.6	5.2	11.8	31.2	³ 29.1	--	
E	11.6	10.4	22.0	--	22.0	--	
D	13.9	13.9	27.8	40.3	³ 30.8	--	
G	22.9	3.7	26.6	--	26.6	--	
F	4.8	5.4	10.2	--	10.2	--	
H	9.9	14.6	24.5	--	24.5	--	
North Central: ²							
Q	4.4	9.7	14.1	--	14.1	--	
M	4.6	7.4	12.0	--	12.0	--	
O	--	--	--	88.1	88.1	--	
P	--	--	--	87.5	87.5	--	
L	--	--	--	100.5	100.5	--	
I	--	--	--	83.9	83.9	--	
N	33.2	23.4	56.6	46.9	³ 52.6	--	
K	--	--	--	111.5	111.5	--	
J	--	--	--	90.1	90.1	--	
Western: ²							
V	3.3	3.6	6.9	--	6.9	--	
T	49.8	14.4	64.2	20.6	³ 27.5	--	
U	14.9	6.5	21.4	--	21.4	--	
W	<u>15.1</u>	<u>6.3</u>	<u>21.4</u>	<u>--</u>	<u>21.4</u>	<u>--</u>	
Averages: ⁴							
All associations	15.0	9.6	24.6	70.1	45.3	5,421	
Northeast	11.6	8.9	20.5	35.8	23.9	5,327	
North Central	14.1	13.5	27.6	86.9	71.1	3,551	
Western	20.8	7.7	28.5	20.6	19.3	9,771	
Range:							
Low	3.3	3.6	6.9	20.6	6.9	--	
High	49.8	23.4	64.2	111.5	111.5	--	

¹ Cost or charge to association patrons.² Arranged in order of total volume delivered--from highest to lowest.³ Weighted average cost of total association truck expense and of contract hauling.⁴ Unweighted average of vertical column.

ing cost varied considerably as shown
in the following tabulation:

	Percent
Northeast area	56.6
North Central area	51.1
Western area	73.0

	Percent
Lowest cost association	47.8
Highest cost association	77.6
All associations	61.0

Only four associations using their
own trucks when delivering eggs also

had eggs delivered by contract truckers. In two cases contract trucking cost more per case than trucking with association owned trucks and in two cases less. Comparison of delivering costs of eggs in plant-owned versus contract trucks is not valid, however, because of the wide variations in volume of eggs handled and distances eggs are delivered.

Shell Treating.--Only three associations in the North Central area and two in the Western area shell treated eggs with oil. The treating was done on the candling line at two associations in the North Central area and a negligible amount of labor was required. The direct labor cost for the three remaining associations averaged 13.9 cents a case. The range was from a low of 5.5 cents to a high of 18.5 cents. Labor output averaged 13.8 cases a man-hour and ranged from a low of 11.5 cases to a high of 16.5 cases.

Shell Cleaning.--Shell cleaning involving labor to any extent was performed only by five associations in the North Central area. The direct labor cost ranged from a low of 6.4 cents a case to a high of 21.9 cents and averaged 11.9 cents. Output per man-hour ranged from 5.3 cases to 16.1 cases. The average output was 11.4 cases.

Egg Breaking.--Egg breaking was performed by one association each in the Northeast and North Central area and by two in the Western area. In each instance the breaking was a hand operation and on a relatively small scale, and therefore not conducive to a really efficient operation. The operation provided an outlet for

checked, cracked, and edible under-grade eggs. Direct labor cost and output for egg breaking are shown in table 18.

Direct labor cost for egg breaking averaged \$1.13 for each 30-dozen case for the four associations and ranged from a low of 87.3 cents for association D in the Northeast to a high of \$1.67 for association T in the Western area.

Output per man-hour averaged 1.8 30-dozen cases and ranged from a low of 1.3 cases for association T in the Western area to a high of 2.1 cases for association Q of the North Central area.

The total volume broken ranged from a low of 181 cases for associa-

Table 18.--Egg breaking: Average direct labor cost and output, four associations, 2-week period, 1957-58

Area and association	Cost	Output	Volume
	<i>Cents per case</i>	<i>Cases per man-hour</i>	<i>Cases</i>
Northeast:			
D	87.3	1.6	394
North Central:			
O	94.3	2.1	192
Western:			
T ¹	166.8	1.3	682
U	102.9	2.0	181
Average: ²	112.8	1.8	362
Range:			
Low	87.3	1.3	181
High	166.8	2.1	682

¹1-week period.

²Unweighted.

tion U during the 2-week period to a high of 682 cases for association T during a 1-week period. This association had the highest breaking labor cost and the lowest output a man-hour.

Materials Used

Table 19 shows the cost of materials used for the loose and cartoned pack, shell treating, and egg breaking.

Loose Pack.--The materials used in the loose pack consisted largely of fiberboard cases and flats and fillers. The cost averaged 46.6 cents a 30-dozen case for 23 associations and ranged from a low of 7.2 cents for association F and a second low of 35.1 for association G, both in the Northeast, to a high of 70 cents for association I in the North Central area. At association F eggs were packed almost exclusively in used cases, flats, and fillers.

By areas, the materials cost for the loose pack averaged 40, 52.5, and 46.4 cents a case for the Northeast, North Central, and Western areas respectively--a difference of 12.5 cents between the lowest and highest average. With the abnormally low cost of 7.2 cents for association F removed, the Northeast average would be increased 4.7 cents to 44.7 cents a case. The average for the North Central area, with the highest cost of 70 cents a case of association I eliminated, would be 2.1 cents less or 50.4 cents a case. This would reduce the difference between the

lowest and highest average cost from 7.2 to 5.7 cents a case.

Cartoned Pack.--Materials used in the cartoned pack were largely cases and cartons. The cost averaged 96.8 cents a 30-dozen case for 18 associations and ranged from a low of 81.5 cents for association F in the Northeast to a high of \$1.28 for association I and a second high of \$1.11 for association M of the North Central area.

By areas, the Western associations had the lowest average labor cost of 92.3 cents a case as compared with the highest average cost of \$1.02 for five North Central associations--a difference of 9.5 cents. The average labor cost for the North Central associations would be reduced to 95.4 cents if the highest cost of \$1.27 a case were eliminated or nearly the same as the average for the other two areas.

Shell Treating.--The cost of oil for shell treating eggs averaged 1.3 cents a 30-dozen case for five associations in the North Central and Western areas and ranged from a low of 0.8 cent for association U in the Western area to a high of 2 cents for association P in the North Central area. The average cost for the three associations in the North Central area was 1.4 cents a case or nearly the same as the 1.3 cents for the two associations in the Western area. Variations among associations in cost of oil for a case of eggs may be caused by differences in the price of oil and the quantity used per case.

Shell Cleaning.--The cost of materials for shell cleaning eggs was

Table 19.--Materials used: Total cost for loose and cartoned packed eggs, shell treating, shell cleaning, and egg breaking, 23 associations, 2-week period, 1957-58

Area and association	Loose pack	Cartoned pack	Shell treating	Shell cleaning	Egg breaking
<i>Cents per case</i> ¹					
Northeast: ²					
A	44.4	109.8	(3)	(3)	(3)
B	41.3	99.2	(3)	(3)	(3)
C	45.6	98.6	(3)	(3)	(3)
D	57.7	104.0	(3)	(3)	53.7
E	44.2	89.7	(3)	(3)	(3)
F	7.2	81.5	(3)	(3)	(3)
G	35.1	94.5	(3)	(3)	(3)
H	44.3	94.4	(3)	(3)	(3)
North Central: ²					
Q	44.8	92.2	1.0	(3)	41.8
P	51.0	⁴ 40.1	2.0	(3)	(3)
M	50.9	111.3	(3)	(3)	(3)
L	54.1	⁴ 10.8	(3)	.8	(3)
I	70.0	127.5	(3)	⁵ .1	(3)
N	58.2	86.2	(3)	.6	(3)
K	55.0	(3)	(3)	1.0	(3)
J	39.2	(3)	1.1	.9	(3)
O	49.6	91.9	(3)	(3)	(3)
Western: ²					
V	45.9	86.4	(3)	(3)	(3)
T	48.6	95.6	1.7	(6)	43.7
W	47.5	88.7	(3)	(3)	(3)
U	41.9	95.7	.8	(3)	52.8
S	54.8	95.1	(3)	(3)	(3)
R	39.8	(3)	(3)	(3)	(3)
Averages: ⁷					
All associations	46.6	96.8	1.3	.8	48.0
Northeast	40.0	96.5	--	--	53.7
North Central	52.5	101.8	1.4	.8	41.8
Western	46.4	92.3	1.3	--	48.3
Range:					
Low	7.2	81.5	.8	.6	41.8
High	70.0	127.5	2.0	1.0	53.7

¹ Materials cost calculated on basis of 30-dozen eggs per case.

² Arranged in order of volume received--from highest to lowest.

³ Operation not performed.

⁴ Does not include cartons furnished by buyer of eggs--figure not included in average or range.

⁵ Buffing eggs before placing them in cartons or cases--figure not included in average or range.

⁶ Cost not obtained.

⁷ Unweighted.

obtained from only five associations -- all in the North Central area. The cost averaged 0.8 cent a 30-dozen case for these associations with a range of 0.6 to 1 cent a case.

Egg Breaking.--For the four associations breaking eggs, the average cost of metal containers for liquid egg was 48 cents a 30-dozen case. The cost varied from a low of 41.8 cents for association Q in the North Central area to a high of 53.7 cents for association D in the Northeast.

Other Direct Costs

In addition to direct labor and truck costs there were three other direct costs: Replacement cost of eggs damaged or of unsatisfactory quality; service fees for Federal or State inspection; and rental on machines for setting up and closing cartons and automatic grading and packaging equipment.

No attempt was made in this study to determine costs of replacing eggs unfit for the candling and cartoning packs. Replacement costs varied widely from association to association and chiefly depended upon egg quality standards, sales outlets, relative prices, and association policies.

Direct costs for Federal or State inspection and rentals appear in table 20. Inspection fees averaged 0.8 cent a case for 16 associations and ranged from a low of 0.2 cent for associations A and B in the Northeast to a high of 2.5 cents for association F also in the Northeast (table 20).

Table 20.--Costs of inspection fee and rental of candling and cartoning equipment, 18 associations, 2-week period, 1957-58

Area and association	Federal or State inspection	Rental	Total
Northeast: ¹			
A	0.2	1.5	1.7
B	.2	² 15.0	15.2
C	.7	.7	1.4
D	(³)	.8	.8
E	.6	1.5	2.1
F	2.5	.6	3.1
G	.8	.9	1.7
H	1.0	2.7	3.7
North Central: ¹			
Q	.8	² 20.0	20.8
P	.8	.9	1.7
M	.8	.3	1.1
L	.8	--	.8
I	.9	--	.9
N	.8	1.7	2.5
K	1.2	--	1.2
Western: ¹			
V	(³)	² 15.5	15.5
T	.5	--	.5
W	.7	17.4	18.1
Averages: ⁴			
All associations	0.8	5.7	5.2
Northeast	.9	3.0	3.7
North Central	.9	² 5.7	4.1
Western	.6	² 16.5	11.4
Range:			
Low	0.2	0.3	0.5
High	2.5	20.0	20.8

¹Arranged in order of volume received--from highest to lowest.

²Includes grading equipment.

³No State or Federal inspection.

⁴Unweighted average of vertical columns.

Associations handling the largest volumes of eggs had the lowest inspection costs per case because the inspection charges were less per unit for large volumes than for small ones. The average cost by areas was 0.9 cent a case each for the Northeast and North Central and 0.6 for the Western area.

Rental costs on equipment averaged 5.7 cents a case for 14 associations and ranged from a low of 0.3 cent at association M for carton-ing equipment only to a high of 20 cents at association Q (table 20).

Total Direct Costs

In order to determine total direct costs by operations, it is necessary to add, whenever pertinent, the labor, materials used, and truck and other direct costs. A summary table (table 21) combines by areas and total, average direct labor costs from table 5, materials costs from table 19, truck costs from tables 8 and 17, and other direct costs from table 20.

To illustrate for all associations combined, the average direct labor cost for the collecting operation was 18.7 cents and truck operating costs were 12.8 cents--making a total average direct cost of 31.5 cents a case for this operation as compared with a total collecting cost of 35.5, 45.6, and 14.2 cents for the Northeast, North Central, and Western areas, respectively. In the receiving operation, labor constituted the only direct cost, averaging 2.9 cents for all associations and 2.1, 2.5, and 4.8 cents for the Northeast, North Central, and Western areas, respectively. On the other hand, in the cartoning operation there were direct costs for labor, packing materials, Federal or State inspection, and rental on equipment. These cartoning costs averaged \$1.50 a case for all associations and \$1.52, \$1.47, and \$1.67 for the Northeast, North Central, and Western areas, respectively (table 21).

Indirect Costs

Total indirect costs do not fluctuate much with total volume of eggs received. However, unit indirect costs fluctuate considerably with changes in volume. Since it was not feasible to visit all associations during the same period of their seasonal volume cycle, average receipts for each 2 weeks during the year, rather than total receipts during the 2-week period studied, were used to compute indirect costs per case. By doing this, unit indirect costs were made more comparable among associations than by using a receipts period that might be high or low in the volume cycle.

Based on the average number of cases of eggs received during an average 2-week period, indirect costs averaged 39.2 cents a case for 23 associations and ranged from a low of 18.6 cents for association L, a cooperative creamery in the North Central area, to a high of 72.4 cents for association U of the Western area (table 22). The area averages ranged from a low of 31 cents a case for the North Central to a high of 49.4 cents for the Western area--a spread of 18.4 cents. The North Central associations had the smallest average 2-week volume of receipts, 3,804 cases; the Northeast associations the largest, 9,759 cases.

Table 22 also shows a detailed analysis of indirect costs. They are classified first into plant and non-plant costs. Plant and non-plant costs are further divided into salaries, expenses other than salaries, and depreciation. Such a division facilitates the comparison of certain groups of indirect expenses and helps explain variations in costs. These data are shown percentagewise in table 23.

Table 21.--Average total direct costs of operations, 23 associations by areas, 2-week period, 1957-58

Area and cost element	Operations													
	Col-lecting	Re-ceiving	In-spect-ing ¹	Sizing ²	Can-dling	Carton-ing	Packing carton-ed eggs	Coop-ering cases	Stack-ing	Load-ing out	Deliver-ing	Shell treat-ing	Shell clean-ing	Break-ing
<i>Cents per case</i>														
Northeast:														
Labor	19.9	2.1	7.6	14.8	52.2	52.1	9.8	2.5	2.0	2.1	11.6	--	--	87.3
Materials	--	--	44.8	--	40.0	96.5	--	--	--	--	--	--	--	53.7
Truck ³	15.6	--	--	--	--	--	--	--	--	--	8.9	--	--	--
Other	--	--	4.2	--	4.9	5 3.7	--	--	--	--	--	--	--	--
Total	35.5	2.1	52.6	14.8	93.1	152.3	9.8	2.5	2.0	2.1	20.5	--	--	141.0
North Central:														
Labor	22.9	2.5	--	--	47.5	41.0	7.8	2.1	2.1	1.5	14.1	5.5	11.9	94.3
Materials	8.1	--	--	--	52.2	101.8	--	--	--	--	--	1.4	.8	41.8
Truck ³	14.6	--	--	--	--	--	--	--	--	--	13.5	--	--	--
Other	--	--	--	--	4.9	5 4.6	--	--	--	--	--	--	--	--
Total	45.6	2.5	--	--	100.6	147.4	7.8	2.1	2.1	1.5	27.6	6.9	12.7	136.1
Western:														
Labor	8.7	4.8	--	--	64.0	63.1	6.6	3.5	2.0	5.0	20.8	18.2	30.9	134.9
Materials	--	--	--	--	46.4	92.3	--	--	--	--	--	1.3	--	48.3
Truck ³	5.5	--	--	--	--	--	--	--	--	--	7.7	--	--	--
Other	--	--	--	--	5 11.4	5 11.4	--	--	--	--	--	--	--	--
Total	14.2	4.8	--	--	121.8	166.8	6.6	3.5	2.0	5.0	28.5	19.5	30.9	183.2
All associations:														
Labor	18.7	2.9	7.6	14.8	53.4	48.0	8.5	2.6	2.0	2.6	15.0	13.9	15.0	112.8
Materials	--	--	44.8	--	46.6	96.8	--	--	--	--	--	1.3	.8	48.0
Truck ³	12.8	--	--	--	--	--	--	--	--	--	9.6	--	--	--
Other	--	--	4.2	--	4.8	5 5.2	--	--	--	--	--	--	--	--
Total	31.5	2.9	52.6	14.8	100.8	150.0	⁶ 8.5	2.6	2.0	2.6	24.6	⁷ 15.2	⁸ 15.8	⁹ 160.8

¹ Performed only by four associations in the Northeast.² Only four associations in the Northeast performed the sizing operation separately from the candling and cartoning service.³ Represents truck operating expense of association trucks. Cost of contract trucking not included.⁴ Inspection fees.⁵ Inspection fees and rentals on candling or cartoning equipment or both.⁶ Sixteen associations.⁷ Three associations.⁸ Six associations.⁹ Four associations.

Table 22.--Indirect costs: Plant, non-plant, and total indirect costs of eggs received¹, 23 associations, 2-week period, 1957-58

Area and association	Indirect plant costs				Indirect non-plant costs				Total in-direct costs	Average volume received
	Salaries ²	Other ³	Depreciation ⁴	Total	Salaries ⁵	Other ⁶	Depreciation ⁷	Total		
Northeast: ⁸	<i>Cents per case</i>									<i>Cases</i>
B	6.9	3.8	.8	11.5	8.7	3.6	0.1	12.4	23.9	--
A	1.0	2.8	1.0	4.8	9.6	5.9	.1	15.6	20.4	--
C	5.7	4.4	2.2	12.3	12.6	5.3	.4	18.3	30.6	--
D	9.0	5.9	8.6	23.5	23.9	13.1	.4	37.4	60.9	--
E	9.8	9.5	3.9	23.2	19.1	9.4	.4	28.9	52.1	--
F	5.8	.2	1.9	7.9	16.0	2.7	.1	18.8	26.7	--
G	11.0	8.9	7.6	27.5	20.8	10.1	.1	31.0	58.5	--
H	3.9	8.2	10.6	22.7	18.5	11.6	.8	30.9	53.6	--
North Central: ⁸										
Q	5.3	3.0	2.4	10.7	4.9	4.7	.2	9.8	20.5	--
P	4.8	2.7	5.0	12.5	11.9	1.5	(⁹)	13.4	25.9	--
M	7.5	5.8	1.0	14.3	13.0	7.7	1.1	21.8	36.1	--
L	2.6	3.6	.6	6.8	8.0	3.7	.1	11.8	18.6	--
O	5.3	10.0	1.4	16.7	18.5	4.1	.5	23.1	39.8	--
I	8.3	7.4	.9	16.6	12.6	7.0	.1	19.7	36.3	--
N	13.0	6.8	1.2	21.0	19.7	10.1	1.4	31.2	52.2	--
K	.9	4.9	.8	6.6	9.6	3.4	.1	13.1	19.7	--
J	2.1	10.2	.5	12.8	11.1	5.8	.2	17.1	29.9	--
Western: ⁸										
V	9.9	10.1	2.2	22.2	9.0	30.2	.6	39.8	62.0	--
T	14.4	.5	6.2	21.1	21.5	5.2	(⁹)	26.7	47.8	--
W	8.8	4.8	5.7	19.3	11.8	3.3	.2	15.3	34.6	--
U	17.6	26.0	2.4	46.0	18.2	6.0	2.2	26.4	72.4	--
R	--	2.1	.4	2.5	16.6	17.6	(⁹)	34.2	36.7	--
S	--	3.0	.8	3.8	21.2	17.5	(⁹)	38.7	42.5	--
Averages: ¹⁰										
All associations	6.7	6.3	2.9	15.9	14.6	8.2	.5	23.3	39.2	6,702
Northeast	6.6	5.4	4.6	16.6	16.2	7.7	.3	24.2	40.8	9,759
North Central	5.5	6.1	1.5	13.1	12.1	5.4	.4	17.9	31.0	3,804
Western	8.4	7.8	3.0	19.2	16.4	13.3	.5	30.2	49.4	6,975
Range:										
Low	.9	.2	.4	2.5	4.9	1.5	.1	9.8	18.6	--
High	17.6	26.0	10.6	46.0	23.9	30.2	2.2	39.8	72.4	--

¹ Receipts for 12 months ending with period of study. ² Includes association wages or salaries for plant supervision, janitor and watchman, and maintenance and repair labor. ³ Includes expenses for heat, utilities, general insurance, taxes (real estate and personal property), maintenance and repair, plant supplies, and miscellaneous.

⁴ Includes depreciation of buildings and plant machinery and equipment. ⁵ Includes salaries of manager, clerical help, fieldmen, and salesmen. ⁶ Includes such non-plant expenses as telephone and telegraph, advertising, auditing, directors' expense, annual meetings and the like, except depreciation. ⁷ Includes depreciation on office furniture and fixtures. ⁸ Arranged in order of volume received--from highest to lowest. ⁹ Not obtained separately. ¹⁰ Unweighted.

Table 23.--Indirect costs: Percentage distribution of plant and non-plant costs, 23 associations, 2-week period, 1957-58

Area and association		Indirect plant costs				Indirect non-plant costs				Total indirect costs
		Salaries ¹	Other ²	Depreci- ation ³	Total	Salaries ⁴	Other ⁵	Depreci- ation ⁶	Total	
Northeast:										
		Percent								
	A	4.9	13.8	4.8	23.5	46.9	29.0	0.6	76.5	100.0
	B	28.9	15.9	3.3	48.1	36.4	15.1	.4	51.9	100.0
	C	18.6	14.4	7.2	40.2	41.2	17.3	1.3	59.8	100.0
	D	14.8	9.7	14.1	38.6	39.2	21.5	.7	61.4	100.0
	E	18.9	18.2	7.4	44.5	36.7	18.1	.7	55.5	100.0
	F	21.7	.8	7.1	29.6	59.9	10.1	.4	70.4	100.0
	G	18.8	15.2	13.0	47.0	35.6	17.2	.2	53.0	100.0
	H	7.3	15.3	19.8	42.4	34.5	21.6	1.5	57.6	100.0
North Central:										
	Q	26.2	14.5	11.7	52.4	23.6	22.9	1.1	47.6	100.0
	P	18.4	10.5	19.4	48.3	45.9	5.8	(7)	51.7	100.0
	M	20.8	16.1	2.7	39.6	35.9	21.3	3.2	60.4	100.0
	L	13.8	19.3	3.5	36.6	43.4	19.7	.3	63.4	100.0
	O	13.4	25.2	3.4	42.0	46.4	10.3	1.3	58.0	100.0
	I	23.0	20.2	2.6	45.8	34.7	19.2	.3	54.2	100.0
	N	24.9	13.0	2.3	40.2	37.7	19.4	2.7	59.8	100.0
	K	4.6	24.7	4.3	33.6	48.8	17.2	.4	66.4	100.0
	J	6.9	34.1	1.9	42.9	37.1	19.5	.5	57.1	100.0
Western:										
	V	16.0	16.2	3.5	35.7	14.5	48.8	1.0	64.3	100.0
	T	30.3	1.0	12.9	44.2	45.0	10.8	(7)	55.8	100.0
	W	25.5	13.8	16.6	55.9	34.2	9.5	.4	44.1	100.0
	U	24.4	35.8	3.4	63.6	25.1	8.3	3.0	36.4	100.0
	R	--	5.7	1.1	6.8	45.4	47.8	(7)	93.2	100.0
	S	--	7.1	1.9	9.0	49.8	41.2	(7)	91.0	100.0
Averages: ⁸										
	All associations	16.6	15.7	7.3	39.6	39.0	20.5	.9	60.4	100.0
	Northeast	16.7	12.9	9.6	39.2	41.3	18.7	.8	60.8	100.0
	North Central	16.9	19.7	5.8	42.4	39.3	17.2	1.1	57.6	100.0
	Western	16.0	13.3	6.6	35.9	35.7	27.7	.7	64.1	100.0
Range:										
	Low	4.6	.8	1.1	6.8	14.5	5.8	.2	36.4	--
	High	30.3	35.8	19.8	63.6	59.9	48.8	3.2	93.2	--

¹ Includes association wages or salaries for plant supervision, janitor and watchmen, and maintenance and repair labor.

² Includes expenses for heat, utilities, general insurance, taxes (real estate and personal property), maintenance and repair, plant supplies and miscellaneous. Depreciation not included.

³ Includes depreciation of buildings and plant machinery and equipment.

⁴ Includes salaries of manager, clerical help, fieldmen, and salesmen.

⁵ Includes such non-plant expenses as telephone and telegraph, advertising, auditing, directors' expense, annual meetings, and the like, except depreciation.

⁶ Includes depreciation on office furniture and fixtures.

⁷ Not obtained separately.

⁸ Unweighted.

The average total indirect plant cost for the 23 associations was 15.9 cents a case as compared with 23.3 for the total indirect non-plant cost. The 15.9 cents consisted of 6.7 cents for salaries, 2.9 cents for depreciation, and 6.3 cents for other plant costs. The total indirect non-plant costs consisted of 14.6 cents for salaries, 0.5 cent for depreciation, and 8.2 cents a case for other non-plant costs.

Indirect plant costs averaged 39.6 percent of total indirect costs for 23 associations--total indirect non-plant costs averaged 60.4 percent of the total. By areas, total indirect plant costs were 39.2, 42.4, and 35.9 percent of total indirect costs for the Northeast, North Central, and Western areas, respectively.

Total indirect plant salaries averaged 16.6 percent of total indirect costs--total non-plant salaries 39 percent--a total of 55.6 percent for the 23 associations. These percentages were similar by areas.

Costs by Type of Pack

Direct unit costs given thus far in the report have been shown by individual operations. Comparable total overall costs, both direct and indirect, can be determined when services performed are the same by combining costs incurred in the specific type of pack of eggs handled by an association when the labor, materials, truck, and other costs are known.

All associations packed one or more of four packs of eggs: (1) Consumer grade loose, in cases; (2) consumer grade, cartoned in cases; (3) wholesale grade loose; and (4) liquid, in cans.

Costs by operations for the three packs of eggs by associations and the average of associations concerned appear in tables 24 to 27. Costs for eggs of consumer grade, loose pack appear in table 24; consumer grade



Eggs are most economically handled in plants built for the purpose.

Table 24.-Cost for consumer grade, loose case-packed eggs, by operations and total, 23 associations, 2-week period, 1957-58

Costs and operation	Averages ¹				Area and association							
	All assns	North- east	North Central	West- ern	Northeast							
					A	B	C	D	E	F	G	H
Direct costs:												
Direct labor:												
Collecting	16.8	15.2	22.0	8.7	(2)	3 16.8	(2)	3 12.0	20.1	3 1.6	13.5	27.3
Receiving	2.9	2.1	2.5	4.8	2.2	2.6	1.9	1.9	1.3	2.1	2.7	1.7
Sizing ⁴	(14.8)	(14.8)	(5)	(5)	(5)	(5)	(5)	(7.2)	(30.4)	(5)	(11.5)	(10.0)
Candling:												
Direct	36.5	38.9	29.0	44.5	60.6	22.4	40.3	42.9	30.9	46.4	40.3	27.0
Auxiliary labor	17.7	13.4	18.5	23.4	14.8	13.8	27.8	7.4	17.0	2.6	8.7	14.8
Coopering cases	2.6	2.5	2.1	3.5	2.5	3.1	3.2	2.1	2.7	2.0	2.5	1.6
Stacking	2.0	2.0	2.1	2.0	2.1	2.3	1.9	1.4	1.6	1.5	3.4	1.7
Loading out	2.6	2.1	1.4	5.0	1.5	2.0	2.8	4.1	2.5	1.0	1.9	1.0
Delivering	9.4	11.3	8.8	7.0	(2)	7 8.3	(2)	10.5	11.6	4.8	22.9	9.9
Shell treating	2.7	(8)	4.4	1.9	(8)	(8)	(8)	(8)	(8)	(8)	(8)	(8)
Shell cleaning	3.2	(8)	3.7	0.6	(8)	(8)	(8)	(8)	(8)	(8)	(8)	(8)
Total direct labor	96.4	87.5	94.5	101.4	83.7	71.3	77.9	82.3	87.7	62.0	95.9	85.0
Packing materials	46.6	40.0	52.5	46.4	44.4	41.3	45.6	57.7	44.2	7.2	35.1	44.3
Truck expense												
Collecting	16.6	23.7	16.6	6.7	(9)	10 24.3	11 28.8	10 18.7	16.4	10 42.9	9.7	24.8
Delivering	36.1	12.5	64.5	7.6	(8)	10 20.8	(8)	20.3	10.4	5.4	3.7	14.6
Other	5.4	3.0	5.2	11.4	.2	15.2	.7	--	.6	2.5	.8	1.0
Total direct costs	201.1	166.7	233.3	173.5	128.3	172.9	153.0	179.0	159.3	120.0	145.2	169.7
Indirect costs:												
Plant	15.9	16.7	13.1	19.2	4.8	11.5	12.3	23.5	23.2	7.9	27.5	22.7
Non-plant	23.3	24.2	17.9	30.2	15.6	12.4	18.3	37.4	28.9	18.8	31.0	30.9
Total indirect cost	39.2	40.9	31.0	49.4	20.4	23.9	30.6	60.9	52.1	26.7	58.5	53.6
Total cost:												
Per case	240.3	207.6	264.3	222.9	12 148.7	196.8	13 183.6	239.9	211.4	146.7	203.7	223.3
Per dozen	8.0	6.9	8.8	7.4	12 5.0	6.6	13 6.1	8.0	7.0	4.9	6.8	7.4

See end of table for footnote references.
Table continued on following page.

Table 24. --Cost for consumer grade, loose case-packed eggs, by operations and total, 23 associations, 2-week period, 1957-58--Continued

Costs and operation	Area and association														
	North Central								Western						
	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Direct costs:	Cents per case														
Direct labor:															
Collecting	3 19.9	20.2	23.4	18.1	19.9	24.6	27.9	3 21.9	(8)	(8)	(8)	9.9	7.5	4.6	12.6
Receiving	4.9	2.1	2.8	2.0	2.1	1.7	2.4	2.4	2.3	8.1	6.8	2.7	6.0	1.4	3.7
Sizing ⁴	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Candling:															
Direct	29.2	25.7	42.3	25.3	19.4	29.0	30.7	36.4	23.4	44.5	49.1	33.3	73.8	33.5	32.8
Auxiliary labor	22.1	12.9	29.4	14.9	25.8	18.6	14.4	16.6	11.4	(1.4)	3.6	47.3	20.6	18.3	27.0
Coopering cases	2.1	1.4	5.3	2.7	.9	2.0	1.5	2.8	.5	5.0	4.5	4.0	4.5	1.6	1.4
Stacking	3.7	4.6	1.3	.9	1.8	2.0	.8	1.4	2.0	1.0	2.5	2.3	3.0	2.2	0.9
Loading out	1.9	2.0	.9	.5	1.6	2.5	1.0	.9	1.2	2.4	3.0	5.5	10.6	4.8	3.8
Delivering	(2)	(2)	(2)	(2)	4.6	3 17.3	(2)	(2)	4.4	(8)	(8)	3 7.9	3 13.6	3.3	3 3.2
Shell treating	(8)	1.5 4.4	(8)	(8)	(8)	(8)	(8)	(1.1)	(1.1)	(4)	(8)	10.3	10 3.5	(8)	(8)
Shell cleaning	7.0	1.5 1.3	1.5 6.2	1.5 2.3	(8)	1.5 1.6	(8)	(8)	(8)	(8)	1.5 0.6	(1.6)	(8)	(8)	(8)
Total direct labor	90.8	74.6	111.6	66.7	76.1	99.3	78.7	82.4	45.2	61.0	70.1	113.2	143.1	69.7	85.4
Packing materials	70.0	39.2	55.0	54.1	50.9	58.2	49.6	51.0	44.8	39.8	54.8	48.6	41.9	45.9	47.5
Truck expense															
Collecting	10 15.8	9.8	15.3	16.4	23.7	10 22.5	10 18.5	10 10.7	(8)	(8)	1.1 7.4	5.7	3.6	3.6 ¹⁰	13.0
Delivering	11 83.9	11 90.1	11 111.5	11 100.5	7.4	10 29.7	11 88.1	11 59.8	9.7	(8)	(8)	10 19.6	17 5.9	3.6	17 1.3
Other	.9	--	--	.2	1.1	2.5	--	1.7	25.0	--	--	0.5	--	15.5	18.1
Total direct costs	261.4	213.7	293.4	237.9	159.2	212.2	234.9	205.6	124.7	100.8	132.3	187.6	194.5	138.3	165.3
Indirect costs:															
Plant	16.6	12.8	6.6	6.8	14.3	21.0	16.7	12.5	10.7	2.5	3.8	21.1	46.0	22.2	19.3
Non-plant	19.7	17.1	13.1	11.8	21.8	31.2	23.1	13.4	9.8	34.2	38.7	26.7	26.4	39.8	15.3
Total indirect cost	36.3	29.9	19.7	18.6	36.1	52.2	39.8	25.9	20.5	36.7	42.5	47.8	72.4	62.0	34.6
Total costs:															
Per case	297.7	243.6	313.1	256.5	195.3	264.4	274.7	231.5	12 145.2	12 137.5	12 174.8	235.4	266.9	200.3	199.9
Per dozen	9.9	8.1	10.4	8.6	6.5	8.8	9.2	7.7	12 4.8	12 4.6	12 5.8	7.9	8.9	6.7	6.7

¹ Unweighted average of associations performing operation. ² Contract hauling. ³ Direct labor cost divided by total volume collected or delivered. ⁴ Sizing cost figures where shown separately are included in candling labor cost also but are not duplicated in total cost. ⁵ Sizing not separated from candling operation. ⁶ Eggs were not loaded into trucks by association employees. ⁷ Weighted average of association and contract truck laborers. ⁸ Operation not performed by association. ⁹ Contract hauling - cost not obtained. ¹⁰ Weighted average cost of association truck expense and contract hauling - see tables 7 and 16 for actual collecting and delivering by contract truckers. ¹¹ Cost of contract hauling. ¹² Does not include collecting cost. ¹³ Does not include delivering costs. ¹⁴ Included in direct candling labor. ¹⁵ Direct labor cost divided by total volume candled and cartoned. ¹⁶ Labor cost negligible. ¹⁷ Association truck expense divided by volume loaded out.

cartoned, in table 25; wholesale grade, loose pack in table 26; and liquid pack, in table 27. Total costs are shown by the case and by the dozen.

For comparison, the average total cost and total number of cooperatives and number by areas that prepared each pack were:

Type of pack and area	Number of associations	Average cost ¹	
		Case	Dozen
Consumer grade, loose			
Northeast	8	\$2.08	6.9¢
North Central	9	2.65	8.8
Western	6	2.23	7.4
Total	23	2.41	8.0
Consumer grade, cartoned			
Northeast	8	2.77	9.2
North Central	7	3.03	10.1
Western	5	2.73	9.1
Total	20	2.89	9.6
Liquid			
Northeast	1	2.37	7.9
North Central	1	1.59	5.3
Western	2	2.65	8.9
Total	4	2.36	7.9
Wholesale grade, loose			
Northeast	4	1.61	5.4

¹ The cost to replace eggs not suitable for use in each pack is not included in these costs, but must be considered when these data are used to determine necessary mark-ups.

Direct costs are made up of direct labor, packing materials, truck expenses, and other costs such as rental of candling and cartoning equipment.

To find the total cost of each pack, the indirect costs were added to the direct costs although not allocated to separate egg-handling operations. In the data presented, indirect costs have been allocated proportionately at an equal cost per case to each type of pack.

The allocation could be made by other methods: In the same ratio that total direct labor cost for each pack is of total direct labor cost; in the same ratio as total direct costs for each pack is of total direct costs; or in the ratio of number of labor hours in each pack to total number of labor hours.

Indirect costs were allocated at an equal cost per case to each pack in this study for simplicity of computation. Allocation by other methods

Table 25.--Total cost for consumer grade, cartoned case-packed eggs, by operations and total, 20 associations, 2-week period, 1957-58

Cost and operations	Averages ¹				Area and association							
	All asso- ciations	North- east	North Central	West- ern	Northeast							
					A	B	C	D	E	F	G	H
<i>Cents per case</i>												
Direct costs:												
Direct labor:												
Collecting	16.1	15.2	22.1	8.7	(2)	³ 16.8	(2)	³ 12.0	20.1	³ 1.6	13.5	27.3
Receiving	2.7	2.1	2.5	4.1	2.2	2.6	1.9	1.9	1.3	2.1	2.7	1.7
Sizing 4	(14.8)	(14.8)	(5)	(5)	(5)	(5)	(5)	(7.2)	(30.4)	(5)	(11.5)	(10.0)
Cartoning:												
Direct	37.0	38.4	27.6	48.0	60.3	22.5	38.3	43.1	29.8	46.3	40.3	27.0
Auxiliary labor	13.9	13.6	13.4	15.1	12.1	28.4	8.6	13.1	16.3	4.0	13.2	13.3
Packing cartoned eggs	8.5	9.8	7.8	6.6	11.7	11.8	7.3	12.3	10.3	4.5	6.3	13.9
Coopering cases	2.4	2.5	1.8	3.2	2.5	3.1	3.2	2.1	2.7	2.0	2.5	1.6
Stacking	2.0	2.0	1.8	2.2	2.1	2.3	1.9	1.4	1.6	1.5	3.4	1.7
Loading out	2.7	2.1	1.4	5.5	6 1.5	2.0	2.8	4.1	2.5	1.0	1.9	1.0
Delivering	9.4	11.3	8.8	7.0	(2)	7 8.3	(2)	3 10.5	11.6	4.8	22.9	9.9
Shell treating	1.9	(8)	(8)	1.9	(8)	(8)	(8)	(8)	(8)	(8)	(8)	(8)
Shell cleaning	2.9	(8)	3.6	.6	(8)	(8)	(8)	(8)	(8)	(8)	(8)	(8)
Total direct labor	99.5	97.0	90.8	102.9	92.4	97.8	64.0	100.5	96.2	67.8	106.7	97.4
Packing materials	96.8	96.5	101.8	92.3	109.8	99.2	98.6	104.0	89.7	81.5	94.5	94.4
Truck expense:												
Collecting	17.1	23.9	17.9	6.7	(9)	¹⁰ 24.3	¹¹ 28.8	¹⁰ 18.7	16.4	¹⁰ 44.5	9.7	24.8
Delivering	28.7	15.3	54.2	7.6	32.1	¹⁰ 20.8	(8)	¹⁰ 20.3	10.4	5.4	3.7	14.6
Other	5.6	3.7	5.2	11.4	1.7	15.2	1.4	.8	2.1	3.1	1.7	3.7
Total direct costs	247.7	236.4	269.9	220.9	236.0	257.3	192.8	244.3	214.8	202.3	216.3	234.9
Indirect costs:												
Plant	17.2	16.7	14.1	22.5	4.8	11.5	12.8	23.5	23.2	7.9	27.5	22.7
Non-plant	23.6	24.2	18.7	29.4	15.6	12.4	18.3	37.4	28.9	18.8	31.0	30.9
Total indirect costs	40.8	40.9	32.8	51.9	20.4	23.9	31.1	60.9	52.1	26.7	58.5	53.6
Total cost:												
Per case	288.5	277.3	302.7	272.8	¹² 256.4	281.2	¹³ 223.9	305.2	266.9	229.0	274.8	288.5
Per dozen	9.6	9.2	10.1	9.1	¹² 8.5	9.4	¹³ 7.5	10.2	8.9	7.6	9.2	9.6

See end of table for footnote references.
Table continued on following page.

Table 25.--Total cost for consumer grade, cartonned case-packed eggs, by operations and total, 20 associations, 2-week period, 1957-58--continued

Costs and operations	Area and association											
	North Central						Western					
	I	L	M	N	O	P	Q	S	T	U	V	W
Direct costs:	<i>Cents per case</i>											
Direct labor:												
Collecting	3 19.9	18.1	19.9	3 24.6	3 27.9	3 21.9	(8)	(8)	9.9	7.5	4.6	12.6
Receiving	4.9	2.0	2.1	1.7	2.4	2.4	2.3	6.8	2.7	6.0	1.4	3.7
Sizing 4	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Cartonning:												
Direct	29.2	25.3	19.3	29.0	30.6	36.4	23.4	72.4	38.0	63.4	33.4	32.8
Auxiliary labor	17.1	14.9	21.6	12.1	10.1	11.5	6.2	4.2	36.6	14.4	5.2	14.9
Packing cartonned eggs	8.7	6.3	13.3	7.8	7.1	5.6	5.5	(1.4)	6.2	(1.4)	5.4	8.3
Coopering cases	2.1	2.7	.9	2.0	1.5	2.8	.5	4.5	4.0	4.5	1.6	1.4
Stacking	3.7	.9	1.8	2.0	.8	1.4	2.0	2.5	2.3	3.0	2.2	.9
Loading out	1.9	.5	1.6	2.5	1.0	.9	1.2	3.0	5.5	10.6	4.8	3.8
Delivering	(2)	(2)	4.6	17.3	(2)	(2)	4.4	(2)	3 7.9	3 13.6	3.3	3 3.2
Shell treating	(8)	(8)	(8)	(8)	(8)	(1.5)	(1.5)	(4)	1.6.3	1.6.3	(8)	(8)
Shell cleaning	7.0	1.6 2.3	(8)	1.6 1.6	(8)	(8)	(8)	1.6.6	(1.5)	(8)	(8)	(8)
Total direct labor	94.5	73.0	85.1	100.6	81.4	82.9	45.5	94.0	113.4	126.5	61.9	81.6
Packing materials	127.5	1.7 10.8	11.3	86.2	91.9	1.7 40.1	92.2	95.1	95.6	95.7	86.4	88.7
Truck expense:												
Collecting	1.0 15.8	16.4	23.7	1.0 22.5	1.0 18.5	1.0 10.7	(8)	1.1 7.4	5.7	3.6	3.6	1.0 13.0
Delivering	1.1 83.9	100.5	7.4	1.0 29.7	1.1 88.1	1.1 59.8	9.7	(8)	1.0 19.6	1.8 5.9	3.6	1.8 1.3
Other	.9	.2	1.1	2.5	--	1.7	25.0	--	.5	--	15.5	18.1
Total direct costs	322.6	200.9	228.6	241.5	279.9	195.2	172.4	196.5	234.8	231.7	171.0	202.7
Indirect costs:												
Plant	16.6	6.8	14.3	21.0	16.7	12.5	10.7	3.8	21.1	46.0	22.2	19.3
Non-plant	19.7	11.8	21.8	31.2	23.1	13.4	9.8	38.7	26.7	26.4	39.8	15.3
Total indirect costs	36.3	18.6	36.1	52.2	39.8	25.9	20.5	42.5	47.8	72.4	62.0	34.6
Total cost:												
Per case	358.9	1.7 219.5	264.7	293.7	319.7	1.7 221.1	1.2 192.9	1.2 239.0	282.6	304.1	233.0	237.3
Per dozen	12.0	1.7 7.3	8.8	9.8	10.7	1.7 7.4	1.2 6.4	1.2 8.0	9.4	10.1	7.8	7.9

¹ Unweighted average of associations performing operation. ² Contract hauling. ³ Direct labor cost divided by total volume collected or delivered. ⁴ Sizing cost figures where shown separately are included in cartonning labor cost but are not duplicated in total cost. ⁵ Sizing not separated from cartonning operation. ⁶ Eggs were not loaded into trucks by association employees. ⁷ Weighted average of association and contract hauling laborers. ⁸ Operation not performed by association. ⁹ Contract hauling--cost not obtained. ¹⁰ Weighted average cost of association trucks expense and contract hauling--see tables 7 and 16 for actual collecting and delivering by contract truckers. ¹¹ Cost of contract hauling. ¹² Does not include collecting cost. ¹³ Does not include delivering costs. ¹⁴ Included in direct cartonning labor. ¹⁵ Labor cost negligible. ¹⁶ Direct labor cost divided by total volume candled and cartonned. ¹⁷ Does not include cost of cartons furnished by buyers--cost not included in average. ¹⁸ Association truck expense divided by volume loaded out.

Table 26.--Total cost of wholesale grade, loose case-packed eggs, four associations, 2-week period, 1956-57

Costs and operation	Wholesale grade loose				
	Associations				
	A	B	C	E	Average ¹
Direct costs:					
Direct labor:	<i>Cents per case</i>				
Collecting	(2)	³ 16.8	(2)	20.1	³ 18.5
Receiving	2.2	2.6	1.9	1.3	2.0
Inspecting	3.2	10.5	7.4	9.4	7.6
Coopering	2.5	3.1	3.2	2.7	2.9
Stacking	2.1	2.3	1.9	1.6	2.0
Loading out	⁴ 1.5	2.0	2.8	2.5	2.2
Delivering	(2)	⁵ 8.3	(4)	11.6	9.9
Total direct labor	11.5	45.6	17.2	49.2	45.1
Packing materials	39.1	50.0	45.9	44.2	44.8
Truck expense: ⁶					
Collecting	--	⁷ 24.3	⁸ 28.8	16.4	23.2
Delivering	--	⁷ 20.8	--	10.4	15.6
Other	(9)	.2	(10)	--	.2
Total direct cost	50.6	140.9	91.9	120.2	128.9
Indirect costs:					
Plant	4.8	11.5	12.3	23.2	13.0
Non-plant	15.6	12.4	18.3	28.9	18.8
Total indirect cost	20.4	23.9	30.6	52.1	31.8
Total cost:					
Per case	¹¹ 71.0	164.8	¹² 122.5	172.3	160.7
Per dozen	¹¹ 2.4	5.5	¹² 4.1	5.7	5.4

¹ Unweighted average.² Contract trucks.³ Direct labor cost divided by total volume collected.⁴ Eggs not loaded into trucks by association employees.⁵ Weighted average of association and contract truck laborers.⁶ Collecting and delivering costs, including labor, should be charged only to the actual number of cases collected or delivered.⁷ Weighted average cost of association truck expense and cost of contract truck hauling. See tables 6 and 17 for actual collecting and delivering costs by contract truckers.⁸ Cost of contract truck hauling.⁹ Less than 0.1 cent.¹⁰ Less than 0.05 cent.¹¹ Does not include collecting and delivering costs.¹² Does not include delivering cost.

Table 27.--Total cost of liquid pack of eggs, four associations, 2-week period, 1957-58

Costs and operation	Area and association					All asso- ciations
	North- east	North Central	Western		Average	
	D	Q	T ¹	U		
<u>Direct costs:</u>						
Direct labor: ²			<i>Cents per case</i>			
Collecting	3 12.0	(⁴)	9.9	7.5	8.7	9.8
Receiving	1.9	2.3	2.7	6.0	4.4	3.2
Egg breaking	87.3	94.3	166.8	102.9	134.9	112.8
Coopering cases	<u>2.1</u>	<u>.5</u>	<u>4.0</u>	<u>4.5</u>	<u>4.3</u>	<u>2.8</u>
Total direct labor	103.3	97.1	183.4	120.9	152.3	128.6
Packing materials:	53.7	41.8	43.7	52.8	48.3	48.0
Truck expense: ³						
Collecting	<u>18.7</u>	<u>(⁴)</u>	<u>5.7</u>	<u>3.6</u>	<u>4.7</u>	<u>9.3</u>
Total direct costs	<u>175.7</u>	<u>138.9</u>	<u>232.8</u>	<u>177.3</u>	<u>205.3</u>	<u>185.9</u>
<u>Indirect costs:</u>						
Plant	23.5	10.7	21.1	46.0	33.6	25.3
Non-plant	<u>37.4</u>	<u>9.8</u>	<u>26.7</u>	<u>26.4</u>	<u>26.6</u>	<u>25.1</u>
Total indirect costs	60.9	20.5	47.8	72.4	60.2	50.4
<u>Total cost:</u>						
Per case	236.6	⁵ 159.4	280.6	249.7	265.5	236.3
Per dozen	7.9	⁵ 5.3	9.4	8.3	8.9	7.9

¹ 1-week period.² No attempt was made to determine labor costs chargeable to the liquid egg pack for candling, loading out, delivering, or for delivery truck operating.³ Direct labor cost divided by total volume collected.⁴ Operation not performed by association.⁵ Does not include cost of collecting eggs.

mentioned above would increase the indirect costs figures somewhat for the consumer grade loose and cartoned packs for associations in this study.

The following tabulation shows the average and range of total costs by the dozen for type of pack:

Cost	Type of pack			
	Consumer grade, loose	Consumer grade, cartoned	Wholesale grade, loose	Liquid
	<i>Cents per dozen</i>			
Average	8.0	9.6	5.4	7.9
Range:				
Low	¹ 4.6	² 6.4	2.4	5.3
High	10.4	12.0	5.7	9.4

¹ Does not include direct labor cost for collecting, delivering, shell treating, shell cleaning, and truck expense for collecting and delivering.

² Does not include cost of collecting eggs.

The association with the lowest consumer grade, loose pack cost, did not perform several of the operations--collecting, delivering, shell treating, and shell cleaning. To make the cost of this association, 4.6 cents a dozen, comparable with the other associations performing these operations as well as the other operations performed by all associations, the cost for collecting, delivering, shell treating, and shell cleaning should be added. The average cost of these operations for the other associations performing them was 84.8 cents a case, or 2.8 cents a dozen.

On the average the indirect costs were 16.3 percent of total direct and indirect costs for all associations packing consumer grade eggs, loose. For the Northeast associations this percentage was 19.7 percent, 11.7 for the North Central, and 22.2 percent for those in the Western area. By individual associations this percentage ranged from a low of 6.3 percent for association K in the North Central area to a high of 27.1 percent for association U of the Western area.

Other Publications Available

The Story of Farmers' Cooperatives,
Educational Circular 1.

Organizing a Farmer Cooperative,
FCS Circular 18.

Costs of Marketing Eggs and Labor
Output of Selected Cooperatives,
Part I, Northeast, General Report
59. Harry E. Ratcliffe.

Costs of Marketing Eggs and Labor
Output of Selected Cooperatives,
Part II, North Central, General
Report 72. Harry E. Ratcliffe.

Costs of Handling Eggs and Labor
Output of Selected Cooperatives,
Part III, Western, General Report
75. Harry E. Ratcliffe.

Interstate Trucking of Fresh and
Frozen Poultry under Agricultural
Exemption, Marketing Research
Report 224. James R. Snitzler and
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Cooperative Marketing of Turkeys,
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tive, Educational Circular 9. John J.
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