

ABSTRACT OF THESIS

AN ANALYSIS OF EGG MARKETING
IN EASTERN COLORADO
WITH SPECIAL EMPHASIS ON
THE LOCAL MARKET

SUBMITTED BY
E. P. WINTER

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ABSTRACT

This study was an attempt to investigate the methods of egg marketing in eastern Colorado. Special emphasis was given to conditions in the local market, because the first phases of marketing are the most critical with regard to the preservation of the eggs' quality.

As a background for the discussion the present status and the past development of poultry and egg production in Colorado were discussed. Colorado's egg production activities, although unimportant in comparison with other farm activities, amounted in 1939 to over three million dollars. Of the 42,222 Colorado farmers keeping chickens (82.09 percent of all Colorado farmers) 53.4 percent have flocks numbering less than 50 and 80.34 percent less than 100 chickens. Colorado's average yearly egg production in 1940 compared favorably with that of the surrounding states and was slightly above the national average. In eastern Colorado, all of the counties having relatively high average yearly egg production in 1939/40 were within about 60 miles of the cities of Denver and Pueblo with the exception of Phillips county. A trend is noticeable toward concentration of chicken and egg production around the city of Denver. The southeastern counties, especially those south of the Arkansas River, and some of the east central counties seemed to have developed their chicken and egg production least between 1920 and 1940.

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A general description of the marketing of eggs in eastern Colorado was based chiefly on informal interviews with members of the trade and inspectors. The most important marketing channel is producer-local buyer-wholesaler-retailer-consumer. Grading is almost exclusively done at the wholesaler. Eggs are stored for short periods in all the marketing stages. Denver has only two cold storage companies with an approximate total capacity of 45,000 cases of eggs. A system for cooling eggs seems to be almost non-existent on farms or at the local buyers and completely inadequate with regard to the volume handled at the wholesaler. Only very few city retailers keep eggs cooled in showcases or store rooms. Eggs are usually transported in non-refrigerated trucks. The branch stores of a large chain store organization ship excess eggs to one of their egg grading stations in a central city, where they are graded, packed, and shipped to other branches in or out of the state, put into storage, or jobbed to wholesalers.

The main part of the thesis was devoted to an investigation of the local market. It was based on a personal survey by the writer with the aid of a carefully prepared schedule.

Local buyers were divided into chain stores, independent stores, and cream stations and produce houses, independent stores being subdivided into independent supermarkets, independent medium-sized stores and independent small stores, depending on the number of sales personnel in each store.

Producers were subdivided into large, medium, small and very small producers according to the volume of eggs they market with an interviewed local buyer. Large producers included those who marketed a 30-dozen case or more per week; medium producers those who marketed 12 to less than 30 dozen per week; small producers those who marketed 4 to less than 12 dozen per week; and very small producers those who marketed less than 4 dozen eggs per week.

Approximately one third of the classified local buyers were interviewed. The findings were analysed through comparison of the differences between the various classes of producers and of local buyers.

The main findings of the analysis of the survey were the following:

1. That the large and medium producers constitute the main portion of all producers reached through interviewing local buyers.

2. That large and medium producers marketed the major portion of the total volume.

3. That large and medium producers marketed by far the largest volumes at a time.

4. That the larger the weekly volume marketed, the higher was the percentage marketed in winter;

5. That almost none of the very small producers marketed in winter while almost all of the large producers do.

6. That a relatively small proportion of the large producers marketed on Saturdays;

7. That the majority of producers marketed once or twice per week with a decided preference for marketing once. The only ones marketing twice were large producers, who did so in the spring and summer;

8. That hardly any producers or local buyers paid attention as to whether eggs were packed large or small end up;

9. That a major portion of all producers marketed with chain stores, cream stations and produce houses;

10. That large producers marketed mostly with chain stores, cream stations and produce houses;

11. That chain stores received on the average a greater volume than the combined volumes of the other four classes of local buyers.

12. That every one of the chain stores shipped out more than 2,500 cases per year. This is more than most of the other local buyers shipped.

13. That chain stores showed the highest and independent supermarkets the lowest percentage of volume marketed in winter;

14. That chain stores, cream stations and produce houses were the only local buyers who paid exclusively cash.

15. That there were some chain stores, cream stations and produce houses which used only new cases, fillers and flats;

16. That most of the local buyers held eggs for less than four days;

17. That most local buyers stored eggs in an adjoining room;

18. That over 60 percent of all classes of local buyers had no cooling facilities;

19. That with the exception of chain stores, the dominant portion of local buyers shipped eggs to central dealers, and that proximity did not seem to be a deciding factor in the choice of the central dealer;

20. That the shipping margins were $1\frac{1}{2}$ to 3 cents, the retail margins 2 to 7 cents per dozen;

21. That local buyers' egg licenses did not conform with their methods of paying cash or trading in;

22. That compliance with the candling and labeling requirements of the egg law was not very strict;

23. That there did not seem to be a correlation between the width of the retail margins and compliance with the law.

Observations in northwestern Colorado indicated that the retail margins were wider and the shipping margins narrower than in eastern Colorado. They also showed that eggs were held for a longer time than in eastern Colorado and that local buyers of northwestern Colorado shipped in eggs between October and February.

An analysis of the Colorado egg law showed that it is deficient with regard to passing benefits on to producers, elimination of inedible eggs as early as possible, uniformity and accuracy of grading, and requirements for egg grading rooms and equipment, containers, and packing material.

It was recommended to improve the existing egg marketing system as follows:

1. The introduction of loss off buying at the local market, without, however, forcing the local buyer to candle every egg.

2. The encouragement of large and medium and the discouragement of small and very small producers.

3. Requirements concerning the condition of egg cases and packing material at the local market;

4. Supervision of the rooms in which eggs are kept at the local market;

5. Similar requirements as (3) and (4) applying to the wholesale market with the addition of required refrigeration;

6. Licensing of all graders to certify their proficiency.

T H E S I S

AN ANALYSIS OF
EGG MARKETING IN EASTERN COLORADO
WITH SPECIAL EMPHASIS ON THE LOCAL MARKET

Submitted by
Egon P. Winter

In partial fulfillment of the requirements
for the Degree of Master of Science
Colorado State College
of
Agriculture and Mechanic Arts
Fort Collins, Colorado

October, 1943

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October 1943

I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY
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ENTITLED **AN ANALYSIS OF EGG MARKETING IN EASTERN**
COLORADO WITH SPECIAL EMPHASIS ON THE LOCAL MARKET
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Chapter I

INTRODUCTION

Economics in its various branches is primarily concerned with discovery of the best use of scarce resources. The best economy measured by those standards is the one that gives the consumer the maximum satisfaction of his needs with a minimum of costs.

Goods are not "produced" until they are in the hands of the final consumer. This suggests that marketing is an important step in the entire economic process. In marketing the aim should be to eliminate waste in all its forms. Marketing involves the actual movement of some specific commodity from the producer to the final consumer. The marketing of eggs in eastern Colorado has been selected for this study.

Eggs are extremely perishable; yet their quality may be partly preserved through proper handling. No previous research regarding marketing methods in Colorado is available in the literature, but a general opinion prevails that the marketing methods employed do not preserve the quality of the egg sufficiently. Since an egg's quality cannot be improved but only preserved, it becomes imperative to start its preservation

from the time it is laid. In other words, if preservation shall be achieved it will have to be practiced throughout the marketing process, including the time that eggs are in the possession of the farmer. This is one of the central problems of egg marketing. It is aggravated by the fact that in Colorado eggs are usually produced on a small scale and as a sideline on widely scattered farms.

OBJECTIVES

This study deals with methods of marketing eggs in eastern Colorado and ways of improving them. It will describe the way eggs are handled from the time they leave the farmers' hands until they reach the retailer. It will also attempt to get some indications on the way farmers handle eggs. Main stress will be placed on the local market because that is the point where eggs enter the trade and where their quality can either be preserved or impaired by marketing methods. That is also the point where egg legislation may influence marketing methods most advantageously. The fact that the local market is the main point of contact between the farmer and the middleman increases its importance.

Egg marketing and production are interdependent and therefore the status and the development of

egg production and of the poultry industry in Colorado will be discussed to serve as a background for an understanding of egg marketing problems.

DEFINITION OF TERMS

"Candling" is the best commercial method yet known for determining the interior quality of an egg; it consists of holding the egg before a bright light and looking through it toward the light (3:23).

To "flash candle" is to candle hastily.

A "layer" is used synonymously with hen.

The word "poultry" refers only to chickens, not to turkeys, ducks, geese, guineas, or pigeons.

The "local buyer" is that marketing agent who buys eggs from farmers and sells them to another marketing agent.

"Size" of eggs is used synonymously with weight.

Buying by "grade" means that eggs are bought according to their individual quality and size using state or national standards.

Buying by "weight" means that eggs are bought without consideration of quality but with regard to weight.

Buying "loss off" means that eggs are candled

for edibility and the seller is not paid for inedible eggs.

Buying "case count", also called "straight run" or "flat rate", means that eggs are bought at a flat price without consideration of quality or size.

"Loss" eggs are used synonymously with inedible eggs.

To "seal" eggs is a commercial term and designates the process of submerging eggs into an oil solution in order to seal their pores. This is practiced before putting eggs into cold storage to prevent excessive evaporation.

The "flush" season is the peak of egg production, mainly the months of March, April, and May.

A "filler" is a cardboard frame into which eggs are placed when packed into cases.

A "flat" is a cardboard sheet which is placed in between the layers of eggs in a case.

"Empty hauling" means the moving of a carrier without merchandise.

PRESENT STATUS OF POULTRY AND EGG PRODUCTION IN COLORADO

In 1939 only 4.5 percent of Colorado's farm value was contributed by poultry and poultry products

as compared with 7.9 percent for dairy products, 30.5 percent for field crops, and 40.6 percent for livestock (54 vol. 2 part 3:107). Despite this small importance as compared with other farm enterprises the value of poultry and poultry products was \$4,854,623 in 1939 (54 vol. 2 part 3:107) of which \$3,093,360 was from eggs (54 vol. 2 part 3: 98). The above amounts include the value of the products consumed on farms which, in the case of eggs, was about one third of the total. While 82.09 percent of Colorado's farmers are keeping chickens (54 vol. 1 part 6:222-3), their importance for the individual farm unit is often small. Of the 42,222 Colorado farmers keeping chickens 53.14 percent have flocks numbering less than 50 and 80.34 percent have less than 100 chickens (55:12-13).

According to L. G. Allbaugh's classification (2 :312-8) chicken flocks may be divided into table-use-flocks of 10 to 50 chickens, pin-money-flocks of 50 to 100, grocery-bill-flocks of 100 to 200 chickens, and business-enterprise-flocks of 200 to 400 or 500 chickens or more. Such a functional division of chicken flocks is a useful aid and will be adopted in a simplified and expanded form without, however, depriving it of Allbaugh's connotations. The classification to be adopted in this paper is:

I	Very small	(flocks of under 50 chickens)
II	Small	(flocks of 50 to 99 chickens)
III	Medium	(flocks of 100 to 199 chickens)
IV	Large	(flocks of 200 to 399 chickens)
V	Commercial	(flocks of 400 chickens and over)

Applying the above classification to Colorado flocks, Table 1 may be obtained through computation from the 1940 U. S. Census (55:12-15).

Table 1.--PERCENTAGE DISTRIBUTION OF CHICKEN FLOCKS IN COLORADO

Classification		Percentage of all flocks
I	Very small	53.14
II	Small	27.20
III	Medium	14.58
IV	Large	4.08
V	Commercial	1.00

Table 1 indicates the overwhelming importance of very small and small flocks. The greater egg production on the larger farms with regard to the individual farm unit will change the importance somewhat in favor of the larger farms, but it seems that on the whole the commercial and large farms are of minor importance for the poultry industry of Colorado.

A useful indicator of the efficiency of production methods is the egg production per hen. Table 2 presents a comparison of yearly egg production per hen in Colorado, neighboring states, and the United States as a whole.

Table 2.--YEARLY EGG PRODUCTION PER LAYER IN COLORADO, NEIGHBORING STATES, AND THE UNITED STATES, 1940.

State	Yearly egg production per layer
United States	101
Colorado	102
Wyoming	91
Utah	123
Arizona	115
New Mexico	100
Oklahoma	89
Kansas	100
Nebraska	92

Table 2 shows that while Colorado is slightly above the national average, two of the surrounding states, Utah and Arizona, surpass Colorado in the yearly number of eggs produced per layer.

Table 3 presents the computed average 1939 egg production per layer for the counties of eastern Colorado (54 vol. 1 part 6:258-60).

Table 3.--AVERAGE EGG PRODUCTION PER LAYER IN THE
COUNTIES OF EASTERN COLORADO, 1939-1940. 1/

County	Average yearly egg production
NORTH CENTRAL AND NORTH EAST	
Boulder	91.68
Jefferson	106.01
Larimer	95.70
Logan	83.02
Morgan	72.35
Sedgwick	69.58
Weld	82.54
EAST CENTRAL	
Adams	83.80
Arapahoe	95.23
Cheyenne	59.95
Denver	85.75
Douglas	88.13
Elbert	85.72
El Paso	82.82
Kiowa	70.50
Kit Carson	65.52
Lincoln	71.34
Phillips	86.00
Washington	81.11
Yuma	72.12
SOUTHEAST	
Baca	71.87
Bent	68.52
Crowley	68.05
Custer	79.32
Fremont	76.51
Huerfano	51.88
Las Animas	66.47
Otero	81.45
Prowers	79.75
Pueblo	91.66

1/ Computed from the census.

It also shows that the 1939 egg production per layer ranges from 52 in Huerfano county to 106 in Jefferson county. The highest counties with regard to production are Jefferson, Arapahoe, Larimer, Boulder, Pueblo, Douglas, Phillips, Denver, and Elbert. All but Phillips county are within about 60 miles from the cities of Denver and Pueblo. The lowest counties with regard to production are Huerfano, Cheyenne, Las Animas, Crowley, Bent, Kiowa, Lincoln, and Baca in the order mentioned.

PAST DEVELOPMENT OF POULTRY AND EGG PRODUCTION IN COLORADO^{1/}

The number of chickens produced, sold from, and consumed on Colorado farms was approximately the same in the beginning and the end of the period 1925 to 1940. But there were considerable changes with regard to the number produced and sold during that period. The number of chickens produced and sold rose gradually until 1931 when it fell sharply; the number of chickens produced declined 20.90 percent and the number of chickens sold 25.62 percent. Beginning in 1933 the number of chickens produced and sold started gradually to rise interrupted by decreases in 1935, 1937, and 1940. The sharp decrease in 1931 was caused mainly by

^{1/} The following discussion is based on Appendix tables A to E.

the depression while the less severe decrease in other years was the result of drouths or unfavorable distribution of precipitation.

While the number of chickens did not change greatly between 1925 and 1940, the number of eggs produced increased by 13.15 percent and the number of eggs sold by 17.50 percent. The reason for the divergence between changes in the number of eggs and chickens may be found in improved production methods including breeding, feeding, housing, and management. The assumption that the production methods are partly responsible for increased egg production may be borne out by the fact that the yearly egg production per layer has increased considerably as shown in Table 4 (51:1).

Table 4.--YEARLY EGG PRODUCTION PER LAYER IN COLORADO, 1934-1941.

Year	Number	Year	Number
1934	90	1938	105
1935	93	1939	107
1936	96	1940	102
1937	100	1941	107

The only data on the development of individual counties refer to the census years. Although census years do not show detailed fluctuations they can indicate net changes and trends. The number of chickens

on hand between 1920 and 1940 increased in all counties of North Central and Northeast Colorado with the exception of Logan and Weld counties. Most of the counties of the East Central district showed a net decrease, but Adams, Arapahoe, Denver, Phillips, and Yuma counties showed increases. For the Southeast district the number of chickens decreased in all counties except Fremont. The greatest increase in the number of chickens between 1920 and 1940 was in Jefferson county with over 55 percent increase, Arapahoe county with over 40 percent increase, Larimer and Boulder counties with over 30 percent increase, and Sedgwick, Phillips, and Fremont counties with over 20 percent increase. Many of the other counties showed a considerable increase between 1920 and 1930 but lost it again between 1930 and 1940. The greatest decrease in the number of chickens between 1920 and 1940 was in Baca county with over 40 percent decrease, followed by Las Animas and Huerfano counties with over 30 percent decrease, and Pueblo, Crowley, Elbert, Kit Carson, Lincoln, and Kiowa counties with over 15 percent decrease.

In contrast to the relatively large number of counties where chicken population decreased between 1920 and 1940 there are but few counties in which total egg production declined during that period. The counties

Baca, Huerfano, and Las Animas of the Southeast district and Kit Carson of the East Central district are the only ones showing smaller egg production in 1940 than in 1930. Most of the counties of eastern Colorado showed a decided increase in egg production between 1920 and 1930, Arapahoe county producing in 1930 three and one half times as many eggs as in 1920, Cheyenne county three times as many; Boulder, Jefferson, Larimer, Fremont, Prowers, Adams, Denver, Elbert, El Paso, Kiowa, Lincoln, Phillips, and Yuma counties over twice as many eggs. All but Larimer county lost part of the increase between 1930 and 1940, leaving only Boulder, Jefferson, Larimer, Arapahoe, and Phillips counties to double their egg production in 1940 as compared with 1920.

The number of chickens sold increased between 1920 and 1940 in all counties with the exception of Las Animas and Pueblo. Larimer county increased its chicken sales over 300 percent, Logan, Morgan, and Phillips counties over 200 percent, Boulder, Jefferson, Sedgwick, Bent, Otero, Adams, Arapahoe, Denver, El Paso, Kiowa, Lincoln, Washington, and Yuma counties more than doubled their chicken sales between 1920 and 1940.

The foregoing review of data and brief analysis indicate a trend toward concentration of chicken production around the city of Denver. A notable exception is Phillips county which has developed its

chicken and egg production considerably during the past 20 years. Chickens and eggs seem to be of least importance in the southeastern counties, especially those south of the Arkansas River, and in some of the east central dryland counties. The analysis indicates also that the counties with the greatest increases in their egg production from 1920 to 1940 show relatively high egg production per layer.

Chapter II

REVIEW OF LITERATURE

Among the numerous publications on egg marketing some of those which contain contributions toward the improvement of marketing methods have been selected.

In 1928 Dana S. Card (7) of Kentucky suggested that merchants should take better care in the handling and holding of eggs; that they should be more careful in candling and grading; that they should buy eggs on the basis of grade; and that they should educate the farmers to better production methods. Card thought that although the burden of improvement falls upon the individual producer, "the burden of encouraging and assisting him falls upon the dealer in poultry products".

In 1931 W. D. Termohlen and G. S. Shepherd (44) of Iowa found that there was one licensed buyer for every 27.9 farms. This was thought to indicate much rehandling, many costly cross and backhauls, the presence of many dealers handling small volume and the possibility of many untrained and disinterested buyers poorly equipped with facilities for properly handling eggs.

The storekeepers did not buy eggs because they are^{not} in the egg business; they are in the grocery or general store business and eggs are only a sideline. They buy eggs as an accommodation to their farmer customers and for the purpose of drawing trade.

Upon the question whether they would consider buying from farmers on a graded basis the storekeepers' answer was that that would require more competent help and better equipment than they had.

In 1934 Roy C. Potts (39) suggested that local buyers place eggs in new cases and use new packing materials.

In June 1934 L. G. Foster and F. E. Davis (18) of Ohio found that while in western Ohio the packer-shipper, also called country dealer, received most of the eggs from farmers, the grocery store and the huckster were the most important local buyers in eastern Ohio.

In 1938 H. E. Erdman and G. B. Alcorn (16) of California suggested as two possible ways of improving the quality of eggs reaching consumers: (a) decrease the length of time they are on the way from the producer and (b) improve the conditions under which they are kept during the marketing process.

In 1939 Ray C. Wiseman (63) of Ohio stated that

The prevalent system of buying eggs on a "case-count" basis in Ohio provides no

incentive for the producer to improve the quality of the eggs he sells since the price is no greater for high quality eggs than for low quality eggs. In fact the flat price or "case-count" method of buying eggs penalizes the farmer producing high quality eggs and pays a premium to the producer of low quality eggs because the price is established on a basis of the expectancy of a certain percentage of loss. Since the loss will be greater in the low quality eggs, the producer of such eggs really receives a premium because he is paid for the loss eggs.

In June 1941 Rob. R. Slocum of the United States Department of Agriculture (59) revised a bulletin of March 1924. He stated that buying on loss off basis has increased in recent years but that the conditions under which eggs are kept by dealers until shipment are still very unfavorable.

In the same year Erdman and others (17) of California reported that the operators of country grocery or general merchandise stores are but of minor importance as egg buyers in southern California. They recommended as a means of improving marketing methods: (a) to pay producers on the basis of quality, (b) to promote country auctions, (c) to keep eggs refrigerated throughout the marketing process, (d) government egg grading, and (e) quality egg clubs.

In 1942 W. P. Cotton and W. O. Wilson (13) of South Dakota recommended the following improvements:

(a) licensing produce handlers, (b) initiating uniform grading and handling regulations, (c) providing inspection service, and (d) passing benefits of price differentials for separate grades on to producers. The case of a produce plant in South Dakota was cited which was paying a premium of nine cents per dozen to producers of high quality.

In Canada, the department of agriculture (6) recommended in 1932 the individual graded return which is a technique of passing on to the producer the benefits for higher grades without compelling the local buyer to grade or candle. According to it the local buyer should identify the eggs according to individual producers. The grader at the grading firm should make a bench report including the name of the individual producer. The grading firm should then send the grading report which contains number, grade, price and the name of the individual producer back to the local buyer who must settle with the producer according to grade.

Throughout the literature cited the local market including marketing methods of producers have been criticized. Various proposals for improvement have attempted to eliminate the weaknesses of the local market, especially those connected with the system of case count buying. The proposals vary in their technique but most of them seem to desire to eliminate

inedible eggs as early in the marketing process as possible and to pass on to the producer the benefits of the quality he produces and thus to induce him to improve his production and marketing methods. Other proposals concern refrigeration and the use of new packing materials. With the exception of egg legislation which will be taken up in a separate chapter, Colorado has not contributed research or proposals for the improvement of egg marketing at the local or central marketing points.

Chapter III

IMPORTANT PHASES OF MARKETING EGGS IN EASTERN COLORADO

Marketing tends to become more indirect and roundabout with the increase in size of population and with the development of new services or functions. Egg marketing has been no exception to this general principle. The present chapter contains a general description of the marketing of eggs. A more detailed analysis of the local egg market in eastern Colorado will be presented in Chapter IV.

REASONS FOR FOCUSSED ATTENTION ON LOCAL MARKETING

A complete investigation of the functioning of the market would have necessitated taking up, one by one, the marketing methods of the farmer, the local buyer, the trucker, the wholesaler, the jobber, and the retailer. Since each of these groups faces problems peculiar to themselves, it was decided to concentrate attention at the local market end of the marketing system. Therefore, although the marketing system as a whole will be described, a more detailed analysis will be made of conditions in the local market. Moreover,

due to the extreme perishability of the egg when exposed to heat and odors and the impossibility of restoring its quality once it has deteriorated, the first phases of marketing are the most critical with regard to quality preservation¹.

GENERAL DESCRIPTION OF MARKETING OF EGGS IN EASTERN COLORADO²

As shown in Chapter 1, most of Colorado's eggs are produced by small or by very small flocks. This may explain why there is hardly any pick-up service at the farms. Neither are there any egg auctions in the state of Colorado. The usual way of assembling eggs locally is for the farmer to bring the eggs to market in his automobile when he comes to town. The small scale of production has made the chicken flock the domain of the farmer's wife who uses the eggs as "pin-money" for the purchase of groceries, etc. Thus on the farm as well as in the assembly at the local market eggs have been given a subordinate place a factor which carries its influence over to the local buyer.

¹ For technical aspects see Erdman and Alcorn (16:1-16)

² Based on informal interviews with members of the trade and with inspectors.

In eastern Colorado country store operators seem to be numerically in the majority as local egg buyers. Most of them buy eggs in excess of the quantity they need for retailing as a convenience to their farmer-patrons and in order to draw trade. Eggs are usually traded in for groceries. The excess eggs are paid for in cash or credited to the farmer's account. Some country store operators pay cash for all eggs received either because that does away with some bookkeeping or because they purchase large enough volume to consider egg dealing as a separate and important phase of their business.

The branch stores of a large chain store organization buy a considerably greater volume than they would need to satisfy their retail trade. They ship the excess eggs to one of their egg stations at a central point where they are graded, packed, shipped to other branches in or out of the state of Colorado, put into storage, or jobbed to wholesalers. Most branch stores of the chain organization, especially those which are subsidiaries to the Denver central station, ship all their eggs to the central station including those which they need for their local retail trade and receive from the central station whatever quantity they need for retailing. Some branch stores send only those eggs to their central station which are in excess of

their retail needs, and at least one branch store sold its excess eggs to a local produce dealer.

Other important local buyers are the produce houses and cream stations. In addition to eggs the produce house deals in other agricultural commodities, such as poultry, vegetables and fruit. The cream stations deal mainly in cream and may handle eggs as a convenience to their cream-customers or as an independent unit of their business.

One farmers' cooperative whose main activity is the buying and selling of feeds has recently started to market eggs for its customers. Another farmers' cooperative whose main activity is the marketing of turkeys is marketing eggs for non-members as well as for members.

A few Denver wholesalers are running their trucks into the country to buy direct from farmers. They do so mainly in those districts north of Denver which have considerable concentration of chicken flocks, but which are not close enough for farmers to do their own marketing. They buy mostly in case lots, usually paying the same or slightly higher prices compared with local buyers. Also, some truckers buy in case lots direct from farmers and sell to central wholesalers. None of the truckers buying direct from farmers was found to sell to country stores.

While truckers and wholesalers buy mainly in case lots, country stores, produce houses and cream stations receive quantities of less-than-case-lots. Eggs are brought in by farmers in unsorted lots. The receiving station repacks for shipment using standard 30-dozen cases. Some wholesalers and the chain store organization mentioned encourage farmers to ship eggs directly to their egg stations at a central point where they are graded and the farmer paid according to grade.

The place of greatest concentration is at the wholesaler's. The most important concentration of eggs in Colorado is in the city of Denver. Other important concentrations of eastern Colorado are in Pueblo, Colorado Springs and in Yuma. There are some minor concentration points which feed into the main ones. One of them is the town of Snyder where part of Morgan county's eggs are concentrated for shipment into Yuma. One of the "Big Four" meat packers has its only egg concentration plant for eastern Colorado in Yuma. This plant sends the top grades of eggs to the Army and the undergrades to the dryer in Des Moines, Iowa. A large Nebraska creamery has a buying station in Akron and ships eggs into Nebraska.

Dispersion takes place at the wholesaler's, the city retailer's and at the country store. The

wholesaler breaks up carlots into case lots and sometimes into less-than-case-lots and sells to retailers, restaurants, hotels, etc., who in their turn break up case-lots into the quantities desired by their customers. The country store, on the other hand, supplies its local retail trade by displaying the smaller quantities as received or by breaking up case lots.

Transportation from the farm to the local market is usually done in farmer-owned automobiles; from the farm to the central wholesaler¹ in wholesaler-owned or independent trucks or by parcel post; from the local market to the central wholesaler¹ in independent, local buyer-owned and occasionally in wholesaler-owned trucks; from the wholesaler to the retailer¹ in wholesaler-owned or independent trucks; from the central wholesaler to jobbers or retailers in other cities¹ in independent trucks or by rail. The independent trucker is paid for the hauling either by the wholesaler or by the local buyer, or he buys and sells eggs on his own account. None of the trucks used are refrigerated. Since transportation of eggs in eastern Colorado is done almost exclusively in gasoline-driven, rubber-tired vehicles, questions regarding waste and duplication in transportation will arise, especially

¹ In order of importance

in times of war when gasoline and rubber have become extremely scarce items. In other states research regarding simplification of the transportation problem has been conducted. Thus in Iowa it was found that there is much empty hauling¹ because empty case material must be carried and because there is no planned tonnage to be secured at a particular point (36:560-1,573-5). Recent research in Connecticut suggested that reorganization of collection areas and truck routes for the area studied would result in an estimated saving of 40,000 gallons of gasoline and about 100 truck tires in a single year (19:1-33). Similar research is needed in Colorado.

Eggs though extremely perishable when exposed to heat may be kept for long periods under cold storage conditions. During the flush season¹ wholesalers store eggs in public cold storage warehouses. There are only two cold storage companies in Denver with an approximate total capacity of 45,000 cases of eggs.

¹ See page 11 for definition of term

This capacity is believed not to be sufficient for an increased production volume¹. There is hardly any cold storage space in Colorado outside of Denver. Most wholesalers have their own sealing equipment to seal² eggs before putting them into cold storage. There is one Denver firm that does custom sealing.

Eggs are stored for short periods at all marketing stages. Eggs are kept from three to seven days each on the farm, at the local buyer and at the wholesaler's. A system for cooling eggs seems to be almost non-existent on farms or at the local buyers and completely inadequate with regard to the volume handled at the wholesaler. Only very few city retailers seem to keep eggs cooled in showcases or storage rooms.

¹ This was brought out in a meeting of the trade and representatives of the U. S. Department of Agriculture and Colorado State College in Denver on January 19, 1943.

² See page 11 for definition of term

Eggs are graded by the wholesaler. Every egg is graded according to quality, size and appearance. The graders are not licensed to certify their proficiency¹. The wholesaler does most of the egg grading in Colorado although the law says that the retailer should candle all eggs purchased from farmers. He buys usually on a case count basis from truckers, country stores, produce houses and cream stations. If a seller brings consistently a great number of loss eggs², the wholesaler might discontinue buying from him or pay a lower price. Likewise, the wholesaler pays a different price for cases weighing over or under 55 pounds gross weight. Thus the wholesaler attempts to approach a system of loss off and of weight buying in his purchasing activities.

As mentioned, some wholesalers and the branch stores of the chain store organization encourage farmers to ship eggs direct to them and pay the farmer on a graded basis.

In time of shortage some Denver wholesalers buy from Nebraska and Kansas and maintain that such eggs are superior to Colorado eggs in quality.

¹ See Chapter V

² See page 11 for definition of term

Chapter IV

LOCAL MARKETING IN EASTERN COLORADO

Before presenting the material gathered through interviews, the techniques used in doing field work will be discussed.

SCHEDULE AND METHOD OF SAMPLING

The construction of the schedule was based upon suggestions in George A. Lundberg's book "Social Research" (25:159-181). An attempt was made to formulate the questions so that information of a specific nature could be obtained. Whenever possible quantitative answers were sought or mutually exclusive alternatives offered for choice. Where quantitative answers were not available the questions were framed so as to obtain short and specific answers such as "yes" or "no", or an answer in the form of a checkmark. Before the schedule was used it was tried out under field conditions by interviewing a grocery store operator in Fort Collins. Some questions were changed and some added following this try-out.

It was not possible to interview every local buyer in a community. Over one hundred buyers in thir-

teen towns were classified in the following manner and approximately forty-two or one third of the local buyers in each class were interviewed:

- I Chain stores
- II Independent supermarkets
- III Independent medium-sized stores
- IV Independent small stores
- V Cream stations and produce houses

The purpose of this classification was to find out whether different classes of local buyers use different marketing methods. The three classes of independent stores were distinguished according to the number of regular sales clerks employed. An independent store which employed five or more sales clerks was termed an independent supermarket; one in which two to four sales clerks were regularly employed was termed an independent medium-sized store; and one in which less than two full time clerks were employed was termed an independent small store. A store which is a member of a voluntary chain, such as Red & White or IGA, was treated like an independent store.

No farmers were interviewed, but some of the farmers' marketing methods could be ascertained through the interviews of local buyers. In order to determine some of the marketing methods of farmers who marketed different volumes of eggs they were divided into four

classes according to the weekly volume marketed as estimated by the interviewed local buyer. These classes of farmers were termed large, medium, small, and very small producers. Large producers included those farmers who marketed a 30-dozen case or more per week; medium producers those who marketed 12 to less than 30 dozen per week; small producers those who marketed 4 to less than 12 dozen per week; and very small producers those who marketed less than 4 dozen eggs per week.

STRENGTH AND WEAKNESSES OF THE ANALYSIS

The principal weakness of the analysis is that its underlying data are based on estimates rather than on records. There seemed, however, no alternative method available to facilitate the study of the local egg marketing system. Local buyers do not keep records regarding the weekly or daily volume that farmers market or regarding the relative importance of very small, small, medium, and large producers, or as to the kind of packing material used, etc. Yet data such as these were thought to be of importance for the understanding of the functioning of the egg marketing system at the local market. It may well be that one reason for this lack of records and of statistical data is that too few studies such as the present one have been undertaken.

If investigations in marketing would be conducted as regular projects with dealers and farmers as correspondents over a period of years it might be possible to secure exact records of egg transactions.

To do justice to a problem such as egg marketing a simultaneous study of the institutional setting would be desirable.

Farmers were not interviewed in this study; yet some marketing practices of farmers were ascertained through the testimony of local buyers. To overcome this weakness the questions were formulated in such a way that objective answers were obtained.

A strength of the analysis is the fact that it is based on investigations conducted by one single investigator; this insured uniformity of approach and interpretation throughout the study.

The results of this study tend to stress the census count approach to analysis of differences or association analysis, as it is sometimes called (41 vol. 2:197). It was believed that this did result in a significant contribution to the better understanding of egg and poultry marketing problems.

ANALYSIS OF EVIDENCE

This survey was conducted in the following eight counties of eastern Colorado: Morgan, Washington,

Logan, Yuma, Kit Carson, Prowers, Bent, and Otero. Dealers' estimates typically relate to the 1942-43 year. Subdivisions of the evidence will be briefly analyzed in order to stress the differences. After presentation of the evidence the major results will be discussed. A summary of dealers' estimates indicated that the marketing practices of more than 3,600 farmers were included making no corrections for duplications. It was impossible to determine how many duplications there were, therefore their distribution was only expressed in relative magnitudes.

Table 5.--PERCENTAGE DISTRIBUTION OF FARMERS AS REPORTED BY LOCAL BUYERS^{1/}.

Classes of farmers according to weekly volume marketed	Percent
Very small.....	7.41
Small.....	20.91
Medium.....	38.94
Large.....	<u>32.74</u>
Total.....	100.00

^{1/} See below table 9.

Table 5 indicates a predominance of medium and large producers. If it is assumed that a very small weekly volume marketed corresponds to a very small flock as discussed in Chapter I^{1/}, small weekly volume marketed to a small flock, etc., table 5 of this chapter would be in marked contrast to table 1 of Chapter I. Table 1 summarized all Colorado farms reporting chickens by size of flock. It showed that over 50 percent of the farms had very small flocks and less than five percent had large flocks, while table 5 has over 32 percent of the farmers classified as large and about 7 percent classified as very small. Possible explanations for the discrepancy between the two tables are (1) that a great part of the owners of very small flocks do not market their eggs through local buyers but use them for home consumption or sell them directly to consumers, (2) that table 1 summarizes all Colorado farms and includes a great number of ranches in the mountain counties which ordinarily have very few chickens while table 5 deals only with farmers of eastern Colorado, and (3) that the interviewees' answers as to the distribution of farmers according to volume marketed were biased by the fact that the greater portion of the eggs received was marketed by the larger producers. Hence it is apparent that this distribution in table 5 is confined to

^{1/} This assumption will hold true in general.

the farmers who trade with the dealers interviewed and should not be taken as representative of Colorado as a whole.

Quantities marketed by farmers
with local buyers

To obtain a different picture of the relative importance of farmers marketing eggs in the various volume classes the number of dozen marketed at a time as reported by each local buyer was multiplied by the number of times they reported that eggs were marketed per week and by the number of farmers marketing that volume according to their estimates. The resulting products were added and expressed as percent of the volume marketed by all farmers for each season of the year.

Table 6.--SOURCE OF EGG DELIVERY BY SEASONS

Classes of farmers according to weekly volume marketed	Percent of total volume			
	Winter	Spring	Summer	Fall
Very small.....	.06	.61	.43	.43
Small.....	4.47	4.90	5.19	5.76
Medium.....	23.68	22.00	24.75	30.42
Large.....	<u>71.79</u>	<u>72.49</u>	<u>69.63</u>	<u>63.39</u>
Total.....	100.00	100.00	100.00	100.00

Table 6 shows the overwhelming importance of the large farmers with regard to the total volume marketed. They marketed approximately 70 percent of the total volume in all seasons except the fall. Medium farmers marketed about 25 per cent, small farmers about 5 percent, and very small farmers approximately one half of one percent of the total volume of eggs. According to table 6 this distribution seems to be fairly uniform throughout the year.

To show what quantities farmers bring in on the average at a time the weighted average was expressed in table 7.

Table 7.--VARIATION IN NUMBER OF EGGS MARKETED AT A TIME

Classes of farmers according to weekly volume marketed	Winter Spring Summer Fall			
	doz.	doz.	doz.	doz.
Very small.....	1.33	3.58	1.75	2.00
Small.....	3.85	8.04	5.36	4.68
Medium.....	10.25	19.67	14.60	13.68
Large.....	33.56	67.30	41.53	37.56

Table 7 shows that the large producers market in winter on the average more than a 30-dozen case at a time, in spring more than two cases. The medium farmers market on the average around half a case. The

largest amount which the small producers market is about eight dozen in the spring; the smallest amount is less than four dozen in winter. The very small producers market between one and four dozen at a time.

To show the seasonal variations between the classes of farmers table 8 was constructed.

Table 8.--SEASONAL VARIATION IN WEEKLY EGG VOLUME DELIVERED BY CLASSES OF FARMERS

Season	Very small	Small	Medium	Large
	pct.	pct.	pct.	pct.
Winter.....	2.02	12.73	13.92	14.81
Spring.....	55.48	39.76	37.27	42.54
Summer.....	25.74	27.54	27.08	26.75
Fall.....	<u>16.76</u>	<u>19.97</u>	<u>21.73</u>	<u>15.90</u>
Total	100.00	100.00	100.00	100.00

Table 8 indicates that the greater the weekly volume the higher the percentage marketed in winter. Very small producers deliver a greater percentage of their eggs in the spring than any other class of producers. Furthermore farmers market 2 to 15 percent of their eggs in winter, 40 to 55 percent in the spring, 25 to 28 percent in the summer, and 16 to 22 percent in the fall.

Marketing methods of farmers

Saturday is the day when most farmers come to town to buy groceries and sell produce. This investigation showed that about three-fourths of the very small producers, of the small producers, and of the medium producers, and about one-half of the large producers brought their eggs to the local market on Saturdays. The importance of Saturday is even greater than indicated by the percentage figures cited because there are a number of producers who have an equal preference for Saturday and some other day of the week. Only a few farmers were found to prefer to market on Monday, Thursday, or Friday, and none preferred Tuesday or Wednesday. The variation in preference was caused by community sales, women's meetings, etc. It may also have been influenced by advertisements of prominent stores drawing the farmers to town on certain days of the week.

To determine the frequency of marketing per week local buyers were asked how often the four classes of farmers market eggs in the various seasons.¹ It was found that almost none of the very small producers marketed in winter while almost all of the large producers did. Most farmers market once or twice per week with a

¹ See appendix table F

decided preference for marketing once on the part of all, except large producers in the spring and summer. Practically no producers marketed eggs three times per week.

In order to determine the way farmers pack eggs local buyers were asked how great a percentage of farmers were bringing eggs in cases as opposed to loose¹. As would be expected, the larger the weekly volume marketed the higher is the percentage marketed in cases. Almost 90 percent of the very small, one fourth of the small, and practically none of the medium and large producers brought eggs loose to the local buyer. Approximately 10 percent of the very small, 50 percent of the small, 3 percent of the medium, and none of the large producers brought 10 and 25 percent of their eggs in cases. None of the very small, 5 percent of the small, almost 70 percent of the medium, and all of the large producers brought 75 percent and over in cases. Besides the large producers of whom over 85 percent marketed all their eggs in cases over one third of the medium producers brought all their eggs in cases.

¹ See appendix table G

As long as eggs are packed large end up the aircell, being in the large end, will rest and not become mobile by tending to work its way up. Uniform packing improves the appearance of the merchandise. Contrary to this fact the farmers reached did not pay attention to the way they packed eggs. Only one local buyer, operator of a cream station, insisted on the correct way of packing.

Local buyers were asked what percentage of the eggs brought by the four classes of farmers were clean and what percentage were sound. The answer was rarely given in percent, but rather in such terms as "mostly all clean", "hardly any cracked", etc. But even in cases where the answer was given in percent, it was regarded as a general description rather than as a quantitative measurement. Therefore, the summing up of the answers is descriptive. Most eggs coming into the local market are clean, except when the weather has been muddy. It appeared that the small farmers brought the least clean eggs. Since many local buyers paid a premium for clean white eggs, there was a tendency toward producing them. As for the soundness it seemed that the larger the volume marketed per week the smaller the number of broken, cracked and checked eggs. This would have been expected since the larger the weekly volume the greater the percentage marketed in cases.

Distribution of local buyers

After grouping the local buyers as described in the beginning of the chapter, their relative importance will be ascertained with regard to the number of farmers who market with them and also with regard to the volume of eggs marketed with them. Table 9 gives the number and distribution of the interviewed local buyers.

Table 9.--DISTRIBUTION OF INTERVIEWED LOCAL BUYERS

	Number	Percent
Chain stores.....	8	19.05
Independent supermarkets.....	4	9.52
Independent medium-sized stores.	11	26.19
Independent small stores.....	6	14.29
Cream stations and produce houses	<u>13</u>	<u>30.95</u>
Total.....	42	100.00

It must be added that not all local buyers were included in every part of the analysis since some interviewees were unable to give certain information. However, the largest number excluded in any one section was three.

Table 10 gives the distribution of farmers marketing with local buyers.

Table 10.--DISTRIBUTION OF FARMERS MARKETING WITH FIVE CLASSES OF LOCAL BUYERS

	Percent
Chain stores.....	36.35
Independent supermarkets.....	3.97
Independent medium-sized stores.....	14.70
Independent small stores.....	4.78
Cream stations and produce houses.....	<u>40.20</u>
Total.....	100.00

Table 10 shows that over three fourths of the farmers marketed with chain stores, cream stations and produce houses, while less than one tenth marketed with independent supermarkets and small stores. The cream stations and produce houses seemed to attract slightly more farmers than the chain stores.

There are two ways by which the distribution of the four classes of farmers marketing with five classes of local buyers may be expressed. First, it may be expressed as the distribution of four classes of farmers selling to five classes of local buyers; and second, as the distribution of five classes of local buyers buying from four classes of farmers. The first method is represented by table 11.

Table 11.--DISTRIBUTION OF FOUR CLASSES OF FARMERS MARKETING WITH FIVE CLASSES OF LOCAL BUYERS (PERCENT)

	Very Small	Small	Medium	Large
Chain stores.....	26.73	44.38	42.57	21.58
Independent supermarkets.	7.13	5.27	4.18	2.75
Independent medium-sized stores.....	16.93	19.97	20.09	9.15
Independent small stores.	7.56	3.06	5.30	3.35
Cream stations and produce houses.....	<u>41.65</u>	<u>27.32</u>	<u>27.86</u>	<u>63.17</u>
Total.....	100.00	100.00	100.00	100.00

Table 11 indicates that while over 60 percent of the large producers market with cream stations and produce houses and over 20 percent with chain stores, less than 3 percent market with independent supermarkets; over 40 percent of the medium and small producers market with chain stores, 30 percent with cream stations and produce houses, and about 20 percent with independent medium-sized stores, but only about 5 percent with independent supermarkets; over 40 percent of the very small producers market with cream stations and produce houses, over 25 percent with chain stores, and over 15 percent with independent medium-sized stores.

Viewed from the local buyer's angle¹ it was

¹ See appendix table H.

found that about one half of the farmers marketing with chain stores and independent medium-sized stores were medium producers, the other half being mainly small and large producers. Over one third of the farmers marketing with independent supermarkets and independent small stores were medium producers, one fourth were small and one fourth large producers. One half of the cream stations and produce houses' egg supply came from large producers, and over one fourth from medium producers.

Quantities received by
local buyers

The interviews revealed that chain stores received on the average a greater volume than the combined average volume of the other four classes of local buyers. The cream stations and produce houses received on the average less than half the volume of the chain stores. The independent stores seemed to be last in the following order: independent medium-sized stores, independent small stores, independent supermarkets.

The volume of eggs which local buyers ship out is an index of their egg dealing activity. Table 12 gives the distribution of local buyers and the yearly quantities shipped out by them.

Table 12.--PERCENT DISTRIBUTION OF LOCAL BUYERS WITH REGARD TO THE YEARLY QUANTITY OF EGGS SHIPPED OUT

Shipped out (30-dozen case equiv- alent)	Chain stores	Indepen- dent super- markets	Indepen- dent medium- sized stores	Indepen- dent small stores	Cream stations and produce houses
0-100	---	25.00	27.28	33.33	---
101-500	---	25.00	18.18	33.33	---
501-1,000	---	25.00	27.27	---	16.67
1,001-1,500	---	25.00	9.09	---	16.67
1,501-2,500	---	---	---	---	33.33
2,501-5,000	<u>100.00</u>	<u>---</u>	<u>18.18</u>	<u>33.34</u>	<u>33.33</u>
Total	100.00	100.00	100.00	100.00	100.00

Table 12 shows that every one of the chain stores shipped out over 2,500 30-dozen cases per year. Every one of the cream stations and produce houses shipped over 500 cases per year, one third of them shipped between 1,500 and 2,000, and one third over 2,500 cases. One fourth of the independent supermarkets and independent medium-sized stores and one third of the independent small stores shipped out 100 cases or less. One fourth of the independent supermarkets, one third of the independent small stores and between one fifth and one sixth of the independent medium-sized stores shipped between 100 and 500 cases. None of the

independent supermarkets, one fifth to one sixth of the independent medium-sized stores, and one third of independent small stores shipped over 2,500 cases per year.

Expressing the weekly volume received by local buyers as seasonal percentage results in table 13.

Table 13.--SEASONAL PERCENTAGE OF WEEKLY VOLUME RECEIVED BY LOCAL BUYERS

Season	Chain stores	Independent supermarkets	Independent medium-sized stores	Independent small stores	Cream stations and produce houses
Winter.....	18.02	11.53	14.54	10.52	13.10
Spring.....	39.23	38.06	38.22	41.51	42.62
Summer.....	24.55	28.97	25.05	28.33	28.55
Fall.....	<u>18.20</u>	<u>21.44</u>	<u>22.19</u>	<u>19.64</u>	<u>15.73</u>
Total	100.00	100.00	100.00	100.00	100.00

Table 13 indicates that independent medium-sized stores receive their volume most evenly divided throughout the seasons while independent small stores show the greatest differences as between seasons. Chain stores show the highest, independent supermarkets the lowest percent of volume in winter as compared with other local buyers. Table 13 indicates furthermore that local buyers receive from 10 to 18 percent of their volume of

eggs in winter as compared with 38 to 43 percent in spring, 24 to 29 percent in summer, and 15 to 22 percent in the fall.

Marketing methods of
local buyers

When local buyers purchase eggs from farmers they pay either in cash or they trade groceries for the eggs.

Table 14.--PERCENTAGE DISTRIBUTION OF FIVE CLASSES OF LOCAL BUYERS PAYING 0, 10, 50, 100 PERCENT CASH TO FARMERS

Percentage cash paid to farmers	Chain stores	Indepen- dent super- markets	Indepen- dent medium- sized stores	Indepen- dent small stores	Cream stations and produce houses
0.....	---	---	20.00	40.00	---
10.....	---	50.00	20.00	20.00	---
50.....	---	---	40.00	40.00	---
100.....	<u>100.00</u>	<u>50.00</u>	<u>20.00</u>	<u>---</u>	<u>100.00</u>
Total	100.00	100.00	100.00	100.00	100.00

Table 14 shows that chain stores, cream stations and produce houses pay exclusively cash. One reason for this method of payment is that they have no merchandise to trade in for eggs; in the case of chain stores it seems to be a matter of policy. Twenty percent of the independent medium-sized stores, 40

percent of the independent small stores, and none of the independent supermarkets interviewed trade eggs in for groceries. None of the independent small stores pays cash for eggs received. Among the stores using both methods of payment, cash as well as trade, only one was found which paid a premium on trade as compared with cash.

Licenses.--The Colorado egg law which will be more fully discussed in Chapter V stipulates that local buyers who do not pay any cash are required to take out a less expensive license than those who pay some cash. The former license is called a retailer's license, the latter is a country receiver's license. Table 15 shows the distribution of the two kinds of licenses among local buyers.

Table 15.--DISTRIBUTION OF LOCAL BUYERS WITH REGARD TO LICENSE CARRIED

Kind of license	Chain stores	Indepen- dent super- markets	Indepen- dent medium- sized stores	Indepen- dent small stores	Cream stations and produce houses
Retailer...	12.50	---	18.19	66.67	---
Country receiver..	<u>87.50</u>	<u>100.00</u>	<u>81.81</u>	<u>33.33</u>	<u>100.00</u>
Total	100.00	100.00	100.00	100.00	100.00

If local buyers had complied with the license requirements the percentage of country receivers in table 15 would conform to the percentage of local buyers paying cash in table 14. This, however, is not the case.

Local buyers were asked whether they buy eggs from non-store customers or non-cream customers. All but two, an independent medium-sized store and an independent small store answered in the affirmative. However, the impression was obtained that some stores discourage non-store customers during the flush season.

The methods of packing are of importance. All but one of the local buyers, a cream station, were found to pay no attention to the way eggs were packed, small or large end up.

It was found that there are some chain stores, cream stations and produce houses which use only new cases, new fillers and flats^{1,2}. In all classes of local buyers there are some who use old cases, fillers and flats. The class having the greatest percentage of representatives using old packing materials are the independent supermarkets. The latter are also the only class of local buyer of which none uses 25 percent of new packing material.

¹ See appendix tables I and J

² See page 11 for definition of terms

Next the methods of storage will be considered¹. Most of the local buyers hold eggs less than four days. This includes all the chain stores, almost all cream stations and produce houses, and one half to three fourths of the independent stores. None of the local buyers held eggs over a week before shipping.

Local buyers were classified according to whether they store eggs in the store proper, an adjoining room, a special room, or the basement. It was found that over 70 percent of all classes of local buyers store eggs in an adjoining room. One fourth of the independent supermarkets, one third of the independent small stores, and one thirteenth of the cream stations and produce houses stored eggs in the store proper or cream station proper. Chain stores, cream stations and produce houses are the only local buyers, part of which store eggs in a special room.

Keeping eggs cool is one of the most important devices to preserve their quality. It was found that over 60 percent of all classes of local buyers use no cooling facilities². Only some 10 percent of the chain stores, cream stations and produce houses keep eggs under refrigeration. Some of the independent medium-sized and small stores are keeping eggs in the basement

¹ See appendix tables K, L, and M.

² Includes basements, ventilated rooms, refrigerators

during hot weather, and some of the latter keep eggs in a room from which sunlight is excluded and which is ventilated through small openings covered with screen wire or burlap.

Local buyers have ordinarily the free choice of their shipping outlet. It was found¹ that with the exception of the chain stores which ship most of their eggs to one of their central plants the dominant portion of local buyers ships eggs to central dealers. Almost 30 percent of them ship to a central dealer in Denver, approximately 20 percent to Yuma and Snyder, the rest to Sterling, Haxton, Colorado Springs, Pueblo, Trinidad, and Fowler. Proximity seemed not to be the deciding factor for the choice of the central dealer; thus, for example, local buyers from Las Animas shipped to Denver and Pueblo as well as to Fowler and Trinidad, and a local buyer in Akron shipped to Denver and not to Yuma. With the exception of the chain stores and independent supermarkets, a portion of all local buyers sells to truckers (this was found mainly in the eastern drylands), about one third of the independent medium-sized stores, and one sixth of the cream stations and produce houses sells to local dealers. The method of selling of local buyers is exclusively case count.

¹ See appendix table N

Margins and shipped out quantities

The shipping margin is the margin of profit or loss between the price the local buyer pays for a dozen eggs and the one he sells them for when shipping. In this survey the shipping margins could only be obtained for the particular day that the survey was taken.

Table 16.--PERCENTAGE DISTRIBUTION OF FOUR CLASSES OF LOCAL BUYERS WITH REGARD TO THEIR SHIPPING MARGINS FOR EGGS

Shipping margin	Independent super-markets	Independent medium-sized stores	Independent small stores	Cream stations and produce houses
Cents				
-1/2	---	11.11	---	---
0	---	22.22	25.00	---
1/3	---	33.34	---	---
1/2	33.33	---	---	---
2/3	---	---	---	11.11
1	33.33	22.22	25.00	55.56
1.1-2.0	33.34	11.11	50.00	11.11
2.1-3.0	---	---	---	<u>22.22</u>
Total	100.00	100.00	100.00	100.00

Table 16 indicates the relatively narrow shipping margins of independent medium-sized stores; over one tenth of them stated a loss of one half cent, and

two thirds of them had a shipping margin of less than one cent per dozen eggs. None of the cream stations and produce houses had a shipping margin of less than two thirds of one cent per dozen, and over 20 percent had a shipping margin of over two cents per dozen. Local buyers in the east central and southeastern part of the state showed in general a wider shipping margin than those in the northeastern part. The shipping margin of chain stores is not known since they ship eggs to their own plants. In contrast to the narrow shipping margins it is interesting to present the retail margins of local buyers.

Table 17.--PERCENTAGE DISTRIBUTION OF COUNTRY STORES WITH REGARD TO THEIR RETAIL MARGINS FOR EGGS

Retail margin	Chain stores	Indepen- dent super- markets	Indepen- dent medium- sized stores	Indepen- dent small stores
Cents				
2	28.57	---	37.50	---
3	14.29	50.00	---	25.00
4	42.85	25.00	12.50	50.00
5	14.29	25.00	37.50	25.00
6	---	---	---	---
7	---	---	<u>12.50</u>	---
Total	100.00	100.00	100.00	100.00

While 1 and 2 cents is the most common shipping margin for country stores, the most common retail margin is 4 and 5 cents.

Hardly any of the local buyers purchased eggs from non-farmers. Those who did bought such quantities as 15 or 20 cases per year.

Labeling and candling

The following table gives an indication of how many stores complied with the labeling and grading requirements of the Colorado egg law which demands all retail eggs to be graded and grade as well as size-labeled. 1/

1/ See Chapter V.

Table 18.--RETAIL LABELING, CANDLING AND WEIGHING PRACTICES OF COUNTRY STORES (PERCENT)

	<u>Grade labeling</u>		<u>Size labeling</u>		<u>Candle all retail eggs</u>		<u>Candling lamp</u>		<u>Egg scale</u>	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Chain stores.....	100.00	---	16.67	83.33	16.67	83.33	66.67	33.33	---	100.00
Independent supermarkets	50.00	50.00	25.00	75.00	100.00	---	100.00	---	---	100.00
Independent medium-sized stores.....	36.36	63.64	27.27	72.73	72.73	27.27	9.09	90.91	---	100.00
Independent small stores.....	---	100.00	---	100.00	50.00	50.00	100.00	---	---	100.00

None of the independent small stores, about one third of the independent medium-sized stores, one half of the independent supermarkets, and all of the chain stores conformed with the required grade-labeling; none of the independent small stores, about one sixth of the chain stores, about one fourth of the independent medium-sized stores and supermarkets conformed with the required size labeling; about one sixth of the chain stores, one half of the independent small stores, three fourths of the independent medium-sized stores, and all of the independent supermarkets candled all retail eggs for edibility; about one tenth of the independent medium-sized stores, two thirds of the chain stores and all of the independent supermarkets and small stores had candling lamps; none of the local buyers had an egg scale which showed that those who did size-label did so by guessing rather than by weighing. The question arose as to whether those stores which complied most scrupulously with the requirements of the law and which, therefore, gave the most services were also those which worked with the widest retail margin. Analysis of the reports shows that there is no correlation between the width of retail margins and compliance with the law or number of services.

Reactions toward possible
legal requirements

The following constitutes a summary of opinions concerning the introduction of loss off buying, the graded return 1/, and central candling places. Table 19 is presented here as a part of the evidence. Its discussion will be taken up in Chapter VI after consideration of egg legislations in Chapter V.

1/ See Chapter II for definition.

Table 19.--REACTION OF LOCAL BUYERS (PERCENT) TOWARD POSSIBLE LEGISLATION

	<u>Independent supermarkets</u>		<u>Independent medium-sized stores</u>		<u>Independent small stores</u>		<u>Cream stations and produce houses</u>		<u>All local buyers</u>	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Candle all eggs ...	66.67	33.33	45.45	54.55	66.67	33.33	76.92	23.08	63.64	36.36
Act as central candling place...	---	100.00	90.91	9.09	33.33	66.67	46.15	53.85	56.67	43.33
Adopt graded return.....	---	100.00	27.27	72.73	40.00	60.00	53.85	46.15	37.50	62.50

DISCUSSION

It was found that large farmers marketed 70 percent, medium farmers 25 percent of the total volume marketed with interviewed local buyers. The remaining 5 percent, which small and very small producers market, demonstrates the insignificant position of these producers with regard to the egg volume marketed with local buyers in eastern Colorado. The importance of the large and medium producers is evident throughout the study. They market the greatest volumes per week and at a time, and bring most of their eggs in cases.

The dominant position of Saturday as a marketing day was verified. This is due to custom and seems to be influenced by community sales, women's meetings, and other local gatherings which typically are held on Saturdays.

Among local buyers the chain stores are of outstanding importance. Not only does the average chain store market a greater volume than the sum of the other classes of local buyers, but the chain stores are also the only class of local buyers every one of which ships over 2,500 cases per year. The next important local buyers are the cream stations and produce houses.

The more important producers market preferably with the more important local buyers. Thus 80 percent

of the large and 70 percent of the medium producers market with chain stores, cream stations and produce houses. The marketing methods of chain stores, cream stations and produce houses seem to be more advanced than those of the country stores. The former paid cash to all farmers despite the penalty imposed by the egg law in form of a more expensive egg license, use more new packing material, and refrigeration than country stores.

In general, cooling facilities were found to be few which fact is somewhat ameliorated by the short time of storage before shipping (ordinarily not over four days).

Most local buyers buy eggs from anybody regardless of whether they sell groceries to or buy cream from the same producer. This may be caused by the desire to please and to solicit future customers or by the fact that the egg dealing activity of the local buyer is an important phase of his business. Some stores were found not to buy from farmers but rather from local dealers.

The most common shipping outlet was found to be the dealer at a central point. In the eastern drylands some selling to truckers was encountered.

The most usual shipping margin was 1 to 2 cents per dozen. Some buyers said they "just about broke even" in the long run; one explanation may be the

poor bargaining position of most local buyers as compared with wholesalers. The most usual retail margin was 4 to 5 cents per dozen. This seems to be a rather wide margin in view of the fact that many country stores display eggs almost as they receive them. It was found that there exists no correlation between retail margin and services given, as measured by compliance with labeling, candling and weighing requirements.

SOME OBSERVATIONS IN NORTHWESTERN COLORADO CONTRASTED WITH EVIDENCE IN EASTERN COLORADO

A field trip through the northwestern counties Grand, Routt, Moffat, and Rio Blanco showed up certain characteristics in the egg marketing situation there. The survey was much less extensive than the one conducted in eastern Colorado, and, therefore, only some differences between the marketing conditions in the two parts of the state will be mentioned.

In contrast to eastern Colorado where none of the local buyers was found to ship in eggs, many local buyers of northwestern Colorado ship in eggs between October and February. There is also some shipping out during the flush season. The length of time that eggs are held before shipping varies from 3 to 14 days, one week being the most common period as contrasted

with less than 4 days in eastern Colorado. The most common shipping outlet is the produce trucker who sells vegetables and fruit and buys eggs. The retail margins oscillate between 2 and 6 cents per dozen with 5 cents being the one most frequently encountered. This is slightly higher than in eastern Colorado. The shipping margin, on the other hand, seems to be lower than in eastern Colorado, most local buyers stating that they did not make anything on the shipping of eggs.

Chapter V

EGG LEGISLATION AND INSPECTION

Since 1925 several attempts have been made to enact an egg law in Colorado, but it was not until 1933 that a bill was passed. This law which was revised in 1935 with respect to the section on license fees is in force today. A special committee of the National Association of Marketing Officials commented on the Colorado egg law that "the inclusion of relatively unimportant clauses make it difficult for the average merchant to understand" (30:57).

THE COLORADO EGG LAW

The law specifies Colorado quality and size grades as well as tolerance for retail grades (10: sections 2a-f, 3, 11). Since federal grades and labeling standards have superseded state grades, this important section of the law has been reduced to minor significance without, however, reducing the importance of the inspections. In its candling clause the law requires every person to candle for edibility (10: section 2g) with the exception of the producer (10: section 4a). The stipulation that public carriers

shall refuse to accept any eggs intended for human consumption for delivery in Colorado unless graded and labeled (10: section 9) is not enforced. The sections on licensing and license fees (10: sections 4, 5, 8, 12) are rather involved and apparently airtight. The following table is an attempt to summarize the license requirements.

Table 20.--LICENSE REQUIREMENTS

Licensee	License and yearly fee
Producers selling direct to consumers, or to restaurants and hotels.....	Producers license, (no fee)
Local buyers trading merchandise for eggs.....	Retail egg dealers license, \$3.00
All persons, except retail grocery merchant trading merchandise for eggs, buying from producers and selling to the holder of a wholesale egg dealer's license...	Country receivers license, \$10.00
Local buyers paying cash in addition to trading.....	Country receivers license, \$10.00
Wholesalers or jobbers for each place of business.....	Wholesale egg dealers license, \$50.00
Truckers buying or bartering eggs for each truck.....	Wholesale egg dealers license, \$50.00

Some objections to the license requirements are that they are not proportionate to the volume

handled, that they are rather high and thus not advantageous to new and small businesses, that they penalize the local buyer who pays cash, and that they make it impossible for a local buyer to sell to other local buyers without first acquiring a \$50 license. Between 1937 and 1942 the following licenses were issued (12; 1941/42:103).

Table 21.--EGG LICENSES ISSUED, 1937-42

Year	Producers	Retailers	Receivers	Wholesalers	Total ²
1937	7,886	3,465	383	232	10,966
1938	8,258	3,478	355	208	12,299
1939	8,645	3,259	260	190	12,354
1940	8,930	3,103	315	194	12,542
1941	9,336	3,393	255	213	13,197
1942 ¹	10,036	3,328	312	181	13,857

¹ Letter of July 3, 1943, from Chas. O. Moser, Chief Egg Inspector, Colorado Director of Markets.

² Computed.

Table 21 does not reveal a definite trend. It shows continuous fluctuations with the exception of producers' licenses. There seems to be a slight tendency toward fewer retailers', receivers', and wholesalers' licenses. In the case of the wholesalers' and of the combined retailers' and receivers' licenses this indicates a reduction in the number of enterprises whereas the retailers' and the receivers' licenses considered separately do not allow a similar conclusion because

a reduction of retailers' licenses may often mean an increase in receivers' licenses and vice versa. The number of producers' licenses has increased steadily and is mainly responsible for the increase of the total number of licenses issued. This increase may indicate a tendency for producers to take marketing into their own hands.

The computed revenue received from egg licenses is shown in table 22. The significance of the revenue is increased by the stipulation that "the total expenses of the law shall in no event exceed the total license fees received" (30:60). This clause makes the number of inspectors and the extent of the inspection services dependent on the revenue from the egg licenses and may be responsible for the fact that there are only eight egg inspectors in the state. It may be that an appropriation is a better means to cover the expenses of the law. Such an appropriation would be borne by the general taxpayer who is the principal beneficiary of an egg law and would eliminate the restriction of services caused by the tie-up with the revenue from licenses.

Table 22.--REVENUE FROM EGG LICENSES, 1937-42

Year	Retailers	Receivers	Wholesalers	Total revenue
1937	\$10,395	\$ 3,830	\$11,600	\$25,825
1938	10,434	3,550	10,400	24,384
1939	9,777	2,600	9,500	21,877
1940	9,309	3,150	9,700	22,159
1941	10,179	2,550	10,650	23,379
1942	9,984	3,120	9,050	22,154

The law requires two kinds of records: a candling certificate (10: section 6b) made out by the grading firm and a bill of sale (10: section 13) to be made out by every one operating on a retailer's or receiver's license. The clauses on advertising (10: section 10) forbid the use of the term fresh "or other misleading terms."

An attempt to establish responsibility for the grade is made in the stipulation that eggs shall be kept in a cool place after candling and shall conform to the quality expressed by the certificate, the latter not being valid after 10 days (10: section 6c). This provision might induce dealers to take smaller quantities at a time, but it does not place the responsibility for the grade explicitly.

The Colorado egg law seems to lack provisions which would induce the production of better quality eggs and the preservation of quality. Better quality and its preservation in the local market may be approached through regulations regarding (1) passing benefits on to producers, (2) elimination of inedible eggs as early as possible, (3) uniformity and accuracy of grading, and (4) requirements for egg grading rooms and equipment, containers, and packing material. These four points and their applications in the states and in Canada will be taken up subsequently. Suggestions for a modified Colorado egg law will be presented in the concluding chapter.

PASSING BENEFITS ON TO PRODUCERS

There are three legislative possibilities whereby the producer may reap the benefit of superior quality. The first requires the local buyer to buy on a graded basis; this is not required in any egg law. The second is the legislative sanction of a farm quality program as incorporated in the egg law of Rhode Island (40:29-31) where the marketing of the top grade requires the use of special seals and must be preceded by an initial farm inspection; however, the Rhode Island program does not seem to be concerned with production

methods. The Canadian egg law (5: section 5a) has an optional top grade which can only be supplied by approved producers, and only graded, marked, and packed by especially authorized cooperative associations or other marketing groups. The law includes rigid requirements regarding production methods. O. C. Ufford, Extension Poultryman, Colorado State College, has proposed a program which plans to provide a reward for the producer of better quality (45:94-99). Mr. Ufford suggests to authorize producers producing grade A or better to market their eggs in Colorado Certified egg cartons stamped with the Colorado Certified egg stamp. Those marketing Colorado Certified eggs shall employ only tested candlers and shall see to it that the eggs are kept in a cool place.

The third legislative technique of insuring the producer a just return for the quality he is selling is the graded return. 1/ It was included in the Canadian Department of Agriculture in 1932 (6:1-11). Inspection regarding the graded return is largely a matter of accounting to make sure that the producer receives the return for the grade he sells and, further, that there are no fictitious statements to cover up case count buying. To safeguard the graded return,

1/ Outlined in the review of literature, chapter II.

grading firms are registered and supervised, and graders are licensed. According to W. A. Brown, chief of poultry services in Canada, the graded return seems to have worked out satisfactorily (4:320-2).

ELIMINATION OF INEDIBLE EGGS AS EARLY AS POSSIBLE

Two main trends may be distinguished in the egg laws of the United States dealing with the elimination of inedible eggs before or when they reach the local market. One is the provision that everybody, including the producer, is required to candle. Although a number of states^{1/} have provisions of such rigidity there is little, if any, enforcement. This is gratifying because such a provision would exert an unnecessary hardship on producers who are engaged in the versatile and difficult job of producing and should not be bothered with taking over the work of other specialists. The cause for such an unenforceable provision may have been

^{1/} Alabama (1:6), Delaware (14: section 1), Kentucky (23: section 1), Minnesota (26: section 2), Missouri (27: section 9905), Nevada (32: section 1), New Mexico (33: section 1), New York (34: rule 1), Oregon (37: paragraph 36-303), Pennsylvania (38: section 1), Tennessee (43: section 1), Utah (60: section 3-7-2), Washington (61: section 2), West Virginia (62: section 1), and Wyoming (64: section 1).

that the lawmakers preferred to make it too inclusive rather than have it proved not to be inclusive enough. The other legislative possibility to eliminate inedible eggs as early as possible concerns mainly the local buyer requiring him to buy on a loss off basis as contrasted with the usual case count buying. This provision is in the egg laws of Colorado (10: sections 2g, 4a), Illinois (20: 3), Iowa (21: section 3108), Kansas (22: section 17,224), Louisiana (24: article 439a), Nebraska (31:1), and North Dakota (35: rule no.2). Its enforcement seems to be nil in Colorado and rather lax in some of the other states, one of the reasons being that "merchants in some cases are too busy to candle the eggs at the time they receive them."^{1/}

UNIFORMITY AND ACCURACY OF GRADING

The firms which sell to and the ones which buy from the grading firm depend largely on the accuracy of the grading firm's grader, and this accuracy will influence the price. Regrading will often result in divergencies not so much caused by dishonesty as by a lack of uniformity of standards among graders. There

^{1/} Letter of February 10, 1943, from R. J. Caruth, director, State Laboratories Department, Bismarck, North Dakota.

are two main possibilities of achieving uniformity in grading: (1) to certify all graders and to inspect their performance from time to time, and (2) to install public grading stations. Of the two, the first is the more desirable from the standpoint of free enterprise and its preservation. The only states having a provision of this sort in their egg laws are Nebraska, Montana, West Virginia, and Washington. While Nebraska, Montana, and West Virginia require the licensing of candlers, the situation in Washington is slightly different. In Washington the Egg Graders' Union tried to come to a closed shop agreement with the State Department of Agriculture with the result that the department substituted for the license a grading establishment permit and issued numbers to the various graders in place of individual permits.

REQUIREMENTS FOR EGG GRADING ROOMS AND EQUIPMENT, CONTAINERS AND PACKING MATERIAL

Just as egg breaking plants and cream stations are under supervision, so egg grading rooms should fulfill certain requirements as to cleanliness, arrangement, equipment, temperature, and humidity. The states of Alabama (1:1), Colorado (10: section 6), Montana (28: section 2634,3), Nebraska (31: section 3, 81-1030),

North Dakota (25: rule no. 10), and South Dakota (42: section 1) have made efforts in that direction. But while their provisions are of a general nature and, therefore, hard to enforce, the Canadian requirements (5: section 18) are explicit and unambiguous.

Eggs being a perishable product with a porous shell should be protected against dirt and foreign odors. Therefore, containers, fillers and flats should be required to be kept clean and sanitary. Kansas is the only state in the United States which has a provision prohibiting the use of dirty or unsanitary cases, flats, fillers, or containers (22: section 17,230). Its enforcement seems to have encountered no difficulties: "Regulations on dirty cases, flats and fillers have been easily enforced until these items became scarce."1/

Canada provides that grade A eggs shall be packed only in new or as good as new cases, fillers, flats, and pads; grade B and C may be packed in used, but sound cases, fillers, flats, and pads (5: section 23).

1/ Letter of February 24, 1943, from Evan Wright, Assistant chief, Food & Drug Inspection, Kansas State Board of Health, Topeka, Kansas.

Chapter VI

RECOMMENDATIONS

The study indicated that the local egg marketing system does not function efficiently. It was shown that there is a relatively large number of farmers marketing small volume and bringing eggs in unsorted lots. It was further shown that the local buyer does as a rule not endeavor to preserve the quality of the egg. Chain stores, produce houses and cream stations have more advanced marketing methods than independent stores. Yet even few of them have refrigeration and many use old egg cases, fillers and flats.

The existing system at the local market which places no responsibility for the preservation of quality on the first seller (producer) and very little responsibility on the second seller (local buyer) can be remedied in either of two ways: (a) by enacting and enforcing regulations regarding refrigeration, storing facilities, packing material, etc., or (b) by creating inducements which will cause producers and local buyers to become interested in the preservation of quality. Both techniques will have to be employed if the waste of food

shall be checked which accompanies the present system of egg marketing. However, the more important of the two techniques seems to be that of inducement.

In Chapter V it was brought out that the passing on of benefits to producers and the elimination of inedible eggs as early as possible can be achieved through various legislative means. The most effective ones of them are (a) the graded return and (b) loss-off buying on the part of the local buyer. It was found in Chapter IV¹ that most local buyers are opposed to the graded return, but favorably inclined toward the introduction of loss off buying. This does not mean that the majority of interviewed local buyers would vote in favor of loss off buying if confronted with a choice between it and the present status; but it does indicate that they would prefer loss off buying to the graded return. The reason for this preference may be that the graded return is foreign to the American egg trade and public while loss off buying is in force in several states, or it may be that the amount of bookkeeping and of cooperation with other marketing agents connected with the graded return is repugnant to the people who were questioned. In view of such a preference it seems

¹ Chapter IV, Table 19

advisable to favor loss off buying despite its disadvantages as compared with the graded return. The latter is presumably the more economical technique since it requires no candling up to the point of greatest concentration and also offers to producers a positive reward for quality while loss off buying contains only a penalty for producers of loss eggs.

Loss off buying should be made to work with a minimum of extra labor and expense. Thus a local buyer should not be forced to candle, but should be held responsible for the edibility of the eggs he passes on to the next marketing agent. True, to be on the safe side the local buyer might flash-candle¹ every egg, but he could abstain from doing so if, for example, he was certain of the quality of a particular producer's eggs. Such a deviation from the usual loss off buying requirements would remove the odium of coercion without reducing the effectiveness of the regulation and would make it possible to comply with it without actually candling every egg. This would place the responsibility for quality preservation jointly on the producer who would suffer a financial loss and on the local buyer who would be penalized by the law if he marketed inedible eggs. Loss off buying would create some product differentiation where there is now almost complete anonymity.

¹ See page 10 for definition of term

Attention might well be given to the development of some method whereby the wholesaler will buy eggs by grade; this would help to stimulate local buyers' interest in quality eggs because of the financial loss they would suffer if they try to sell inedible eggs. It may be that the financial inducement would prove to be more effective than the legal requirement.

The requirement of loss off buying at the local market would, however, not reward the producer of better quality eggs sufficiently, and - after loss off buying has been in common use for a certain time - ways will have to be found toward paying producers according to the grade of eggs they offer. Whether the graded return, encouragement of cooperative marketing or other techniques will then be the answer for Colorado, cannot be decided now but must be left to future investigations.

Any improvement in the local marketing of eggs is closely connected with production volume and methods. If there is sufficient volume in the marketing area of a country point to justify the existence of a specialist, loss off buying will be easily enforced. If there is a sufficient volume of chickens and eggs on an individual farm unit to make eggs important among the products of the farm instead of mere pin-money, local marketing could be easily improved. For it is the small

and very small producers who bring in quantities of less than eight dozen, who market in buckets and paper bags, who constitute 28 percent of all farmers reached in this survey but marketed only five percent of the total weekly volume. The large and medium producers, on the other hand, while constituting 72 percent of all farmers according to reports of dealers interviewed marketed 95 percent of the total weekly volume and employed the more advanced marketing methods.

It seems, therefore, advisable, with the aid of extension and county agents, to encourage medium and large and to discourage small and very small producers. The answer as to what constitutes the flock sizes corresponding to large, medium, small and very small producers cannot be given with precision because of variations in egg production per layer, in farm family size and egg consumption. Assuming, however, that the above classes of farmers classified according to weekly volumes marketed correspond to the large, medium, small and very small flocks mentioned in Chapter I^{1,2}, it would mean the encouragement of flocks with at least 100 and especially of those of over 200 chickens, and the discouragement of the smaller flocks.

¹ Chapter I, Table 1

² This would hold true in general

Reduction in the number of small and very small farmers would not alter the aggregate volume much, but would lift the level of egg marketing practices in the local markets.

Besides the legislative requirements discussed it would seem advisable to introduce additional requirements concerning the condition of egg cases and packing material used at the local market. These may be modeled after the Kansan or Canadian laws. Likewise, it would be advisable to supervise the rooms where and the conditions under which eggs are kept at the local market. The wholesale market should also be subject to regulations concerning cases, packing material and storage rooms with the addition that it may be possible to enforce refrigeration at that point. The latter, however, will only be justified if the quality of eggs coming from the local market will be improved considerably through changes in the local marketing system.

Another desirable regulation concerning the wholesaler would be the certification of all graders to insure uniformity of grading.

None of the suggested improvements in the egg marketing system will be effective unless a sufficient number of inspectors is employed and unless regulations are enforced. This study has not had as its object to

investigate the state inspection service and no conclusions can, therefore, be reached regarding its efficiency. It may, however, be suggested that the present system which limits the cost of inspection service to the revenue from license fees collected might be changed to a more general system wherein the cost of inspection would be paid from an appropriation which could be levied through taxes on all beneficiaries instead of on a small group of marketing agents.

Chapter VII

SUMMARY

This study was an attempt to investigate the methods of egg marketing in eastern Colorado. Special emphasis was given to conditions in the local market, because the first phases of marketing are the most critical with regard to the preservation of the eggs' quality.

As a background for the discussion the present status and the past development of poultry and egg production in Colorado were discussed. Colorado's egg production activities, although unimportant in comparison with other farm activities, amounted in 1939 to over three million dollars. Of the 42,222 Colorado farmers keeping chickens (82.09 percent of all Colorado farmers) 53.4 percent have flocks numbering less than 50 and 80.34 percent less than 100 chickens. Colorado's average yearly egg production in 1940 compared favorably with that of the surrounding states and was slightly above the national average. In eastern Colorado, all of the counties having relatively high average yearly egg production in 1939/40 were within about 60 miles of the

cities of Denver and Pueblo with the exception of Phillips county. A trend is noticeable toward concentration of chicken and egg production around the city of Denver. The southeastern counties, especially those south of the Arkansas River, and some of the east central counties seemed to have developed their chicken and egg production least between 1920 and 1940.

A general description of the marketing of eggs in eastern Colorado was based chiefly on informal interviews with members of the trade. The most important marketing channel is producer-local buyer-wholesaler-retailer-consumer. Grading is almost exclusively done by the wholesaler. Eggs are stored for short periods in all the marketing stages. Denver has only two cold storage companies with an approximate total capacity of 45,000 cases of eggs. A system for cooling eggs seems to be almost non-existent on farms or at the local buyers and completely inadequate with regard to the volume handled at the wholesaler. Only very few city retailers keep eggs cooled in showcases or store rooms. Eggs are usually transported in non-refrigerated trucks. The branch stores of a large chain store organization ship excess eggs to one of their egg grading stations in a central city, where they are graded, packed, and shipped to other branches in or out of the state, put into storage, or jobbed to wholesalers.

The main part of the thesis was devoted to an investigation of the local market. It was based on a personal survey by the writer with the aid of a carefully prepared schedule.

Local buyers were divided into chain stores, independent stores, and cream stations and produce houses, independent stores being subdivided into independent medium-sized stores and independent small stores, depending on the number of sales personnel in each store. Producers were subdivided into large, medium, small and very small producers according to the volume of eggs they market with an interviewed local buyer.

Approximately one third of the classified local buyers were interviewed.

The main findings of the analysis of the survey were the following:

1. That the large and medium producers constitute the main portion of all producers reached through interviewing local buyers.
2. That large and medium producers marketed the major portion of the total volume;
3. That large and medium producers marketed by far the largest volumes at a time.
4. That the larger the weekly volume marketed, the higher was the percentage marketed in winter;

5. That almost none of the very small producers marketed in winter while almost all of the large producers do.

6. That a relatively small proportion of the large producers marketed on Saturdays;

7. That the majority of producers marketed once or twice per week with a decided preference for marketing once. The only ones marketing twice were large producers who, did so in the spring and summer;

8. That hardly any producers or local buyers paid attention as to whether eggs were packed large or small end up;

9. That a major portion of all producers marketed with chain stores, cream stations and produce houses.

10. That large producers marketed mostly with chain stores, cream stations and produce houses;

11. That chain stores received on the average a greater volume than the combined volumes of the other four classes of local buyers.

12. That every one of the chain stores shipped out more than 2,500 cases per year. This is more than most of the other local buyers shipped.

13. That chain stores showed the highest and independent supermarkets the lowest percentage of volume marketed in winter;

14. That chain stores, cream stations and produce houses were the only local buyers who paid exclusively cash.

15. That there were some chain stores, cream stations and produce houses which used only new cases, fillers and flats;

16. That most of the local buyers held eggs for less than four days;

17. That most local buyers stored eggs in an adjoining room;

18. That over 60 percent of all classes of local buyers had no cooling facilities;

19. That with the exception of chain stores, the dominant portion of local buyers shipped eggs to central dealers, and that proximity did not seem to be a deciding factor in the choice of the central dealer;

20. That the shipping margins were $-1/2$ to 3 cents, the retail margins 2 to 7 cents per dozen;

21. That local buyers' egg licenses did not conform with their methods of paying cash or trading in;

22. That compliance with the candling and labeling requirements of the egg law was not very strict;

23. That there did not seem to be a correlation between the width of the retail margins and compliance with the law.

Observations in northwestern Colorado indicated that the retail margins were wider and the shipping margins narrower than in eastern Colorado. They also showed that eggs were held for a longer time than in eastern Colorado and that local buyers of northwestern Colorado shipped in eggs between October and February.

An analysis of the Colorado egg law showed that it is deficient with regard to passing benefits on to producers, elimination of inedible eggs as early as possible, uniformity and accuracy of grading, and requirements for egg grading rooms and equipment, containers, and packing material.

It was recommended to improve the existing egg marketing system as follows:

1. The introduction of loss off buying at the local market, without, however, forcing the local buyer to candle every egg.
2. The encouragement of large and medium and the discouragement of small and very small producers.
3. Requirements concerning the condition of egg cases and packing material at the local market;
4. Supervision of the rooms in which eggs are kept at the local market;

5. Similar requirements as (3) and (4) applying to the wholesale market with the addition of required refrigeration;

6. Licensing of all graders to certify their proficiency.

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APPENDIX A.--COLORADO CHICKEN PRODUCTION, 1925-1940¹.

Year	Number produced on farms 1,000	Number consumed on farms 1,000	Number sold from farms 1,000	Price per head Cents
1925	5,790	2,070	3,536	73
1926	6,101	2,100	3,777	79
1927	6,072	2,100	3,868	75
1928	5,992	2,100	4,024	74
1929	6,466	2,150	4,033	76
1930	6,612	2,214	4,528	62
1931	5,230	2,192	3,368	53
1932	5,007	2,122	2,995	42
1933	5,439	2,297	3,044	33
1934	5,605	2,415	3,761	35
1935	4,758	1,773	3,269	54
1936	5,911	2,555	3,019	58
1937	5,092	2,333	2,949	58
1938	5,514	2,170	3,002	55
1939	6,572	2,344	3,969	43
1940	5,255	2,156	3,470	47

¹ (48: p.44-57), (57: p.465), (57: p.461), (58: p.14)

APPENDIX B.--COLORADO EGG PRODUCTION, 1925-1940³

Year	Number produced on farms	Number consumed ¹ on farms	Number sold from farms	Farm price per dozen ²
	Millions	Millions	Millions	Cents
1925	327	78	240	30.6
1926	353	82	262	27.8
1927	361	85	267	25.0
1928	378	87	282	26.8
1929	390	88	293	27.6
1930	389	92	289	22.6
1931	393	96	290	16.2
1932	325	91	227	12.8
1933	323	90	226	12.5
1934	326	88	231	14.8
1935	299	87	207	22.6
1936	279	85	188	21.0
1937	318	95	218	20.3
1938	325	93	227	19.0
1939	361	89	268	15.9
1940	370	85	282	15.8

¹ Includes commercial farms.

² Computed from monthly farm prices weighted by the estimated quantities sold each month.

³ (48: 28-43), (58: 16,18)

APPENDIX C.--NUMBER OF CHICKENS ON HAND BY COUNTIES OF
EASTERN COLORADO, 1920, 1930, 1940¹

District and county	1920	1930	1940
North Central and Northeast District	788,608	1,071,064	908,011
Boulder	92,449	133,980	123,709
Jefferson	82,547	158,856	130,614
Larimer	89,263	122,393	120,054
Logan	121,579	152,839	113,439
Morgan	87,129	122,137	100,156
Sedgwick	32,904	45,478	41,507
Weld	282,737	335,381	278,532
East Central District	919,389	1,275,560	905,005
Adams	86,425	134,488	96,349
Arapahoe	61,807	137,378	87,881
Cheyenne	35,761	57,691	34,487
Denver	10,128	19,003	10,141
Douglas	25,931	30,847	24,099
Elbert	72,819	80,271	59,643
El Paso	94,298	114,045	90,737
Kiowa	32,903	50,812	27,587
Kit Carson	91,731	127,318	75,357
Lincoln	69,926	102,570	57,459
Phillips	50,924	73,157	63,094
Washington	133,773	151,668	116,732
Yuma	154,963	196,312	161,439
Southeast District	547,031	654,507	432,358
Baca	83,285	102,199	44,635
Bent	49,244	64,452	45,853
Crowley	31,975	32,403	25,887
Custer	14,464	11,280	8,706
Fremont	39,094	63,059	47,196
Huerfano	29,464	28,142	19,750
Las Animas	66,366	69,252	42,877
Otero	64,039	74,307	60,729
Prowers	77,319	114,673	70,513
Pueblo	91,799	94,740	66,212

¹ (53:184-9), (54:262-7), (55, vol. I, part 6: 258-60)

APPENDIX D.--DOZEN OF EGGS PRODUCED BY COUNTIES OF EAST-
ERN COLORADO, 1919, 1929, 1939¹

District and county	1919	1929	1939
North Central and Northeast District	3,986,251	8,011,994	6,637,370
Boulder	462,695	1,050,737	945,146
Jefferson	500,420	1,392,032	1,153,881
Larimer	460,039	949,129	957,457
Logan	543,118	1,066,991	784,712
Morgan	438,773	864,844	603,822
Sedgwick	155,404	297,211	240,644
Weld	1,425,802	2,391,050	1,915,708
East Central District	4,048,673	9,532,765	5,966,750
Adams	396,571	1,067,698	672,762
Arapahoe	292,570	1,078,271	693,379
Cheyenne	144,948	440,885	172,307
Denver	61,129	181,598	72,463
Douglas	129,008	224,532	176,994
Elbert	253,159	592,478	426,024
El Paso	356,292	1,055,632	626,237
Kiowa	142,510	364,893	162,066
Kit Carson	450,610	845,558	411,446
Lincoln	289,024	751,277	341,596
Phillips	183,470	489,978	452,178
Washington	666,011	1,038,846	788,990
Yuma	683,371	1,401,119	970,308
Southeast District	2,571,057	4,895,307	2,743,948
Baca	369,555	671,542	267,315
Bent	257,829	496,805	261,845
Crowley	133,436	249,052	146,814
Custer	54,977	71,768	57,543
Fremont	208,945	539,955	300,918
Huerfano	137,595	198,430	85,388
Las Animas	265,958	522,837	237,514
Otero	335,867	600,370	412,274
Prowers	401,577	819,396	468,613
Pueblo	405,318	725,152	505,724

¹ (58:184-9), (54:262-7), (55, vol. I, part 6:258-60)

APPENDIX E.--NUMBER OF CHICKENS SOLD BY COUNTIES OF EAST-
ERN COLORADO, 1919, 1929, 1939¹

District and county	1919	1929	1939
North Central and Northeast District	265,081	738,230	705,104
Boulder	47,839	121,551	120,465
Jefferson	49,273	152,569	120,250
Larimer	24,508	110,366	105,808
Logan	22,637	79,921	68,067
Morgan	18,630	64,973	67,610
Sedgwick	6,694	27,587	20,026
Weld	95,500	181,263	172,878
East Central District	207,504	752,619	491,098
Adams	27,162	87,075	64,725
Arapahoe	26,274	112,282	64,714
Cheyenne	6,039	29,354	10,924
Denver	7,004	29,455	17,374
Douglas	6,425	16,926	12,373
Elbert	13,934	42,175	24,142
El Paso	29,242	90,624	63,335
Kiowa	6,166	21,107	10,125
Kit Carson	17,522	64,806	29,572
Lincoln	11,306	45,918	28,643
Phillips	8,936	41,846	34,654
Washington	22,772	68,201	58,058
Yuma	24,722	102,850	72,459
Southeast District	158,878	390,010	228,057
Baca	12,551	46,052	16,560
Bent	11,833	28,262	24,839
Crowley	9,675	21,608	12,771
Custer	3,258	3,694	2,858
Fremont	16,522	56,104	23,532
Huerfano	7,621	14,487	8,025
Las Animas	18,367	39,643	15,278
Otero	20,795	46,765	48,726
Prowers	24,960	68,595	44,403
Pueblo	33,296	64,800	31,065

¹ (54:262-7), (55, vol. I, part 6:258-60)

APPENDIX F.--FARMERS MARKETING EGGS 0, 1, 2, 3 TIMES PER WEEK, BY SEASONS (PERCENT)

	WINTER				SPRING				SUMMER				FALL			
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3
Very small	94.07	--	5.93	--	--	80.32	17.67	2.01	8.43	74.30	17.27	--	54.54	29.25	16.21	--
Small	26.82	31.67	41.51	--	--	41.98	58.02	--	--	40.72	56.26	3.02	9.90	44.29	45.81	--
Med- ium	13.52	44.43	42.05	--	--	37.82	62.18	--	--	50.22	48.14	1.64	.97	63.67	35.36	--
Large	1.53	65.13	33.34	--	--	28.46	71.54	--	--	26.42	73.58	--	--	70.38	29.62	--

APPENDIX G.--FARMERS MARKETING EGGS LOOSE OR IN CASES (PERCENT)

	Loose	In cases					All in cases	Total
		10%	25%	50%	75%	90%		
Very small	89.13	---	10.87	---	---	---	---	100.00
Small	22.76	11.66	41.82	17.92	5.84	---	---	100.00
Medium	1.03	1.03	1.86	27.08	20.95	13.44	34.61	100.00
Large	---	---	---	---	11.18	3.03	85.79	100.00

APPENDIX H.--DISTRIBUTION OF FIVE CLASSES OF LOCAL BUYERS BUYING FROM FOUR
CLASSES OF FARMERS (PERCENT)

	Chain stores	Independent supermarkets	Independent medium-sized stores	Independent small stores	Cream stations and produce houses
Very small	8.93	14.38	5.70	25.00	3.16
Small	25.00	24.84	23.57	11.96	13.63
Medium	45.36	36.60	51.14	38.59	25.26
Large	20.71	24.18	19.59	24.45	57.95
All farmers	100.00	100.00	100.00	100.00	100.00

APPENDIX I.--LOCAL BUYERS USING NEW EGG CASES (PERCENT)

Percent of new cases	Chain stores	Independent supermarkets	Independent medium-sized stores	Independent small stores	Cream stations and produce houses
0	25.00	75.00	54.55	75.00	38.46
1 - 24	37.50	25.00	36.36	---	23.08
25 - 49	12.50	---	---	---	---
50 - 74	---	---	9.09	12.50	15.38
75 - 99	12.50	---	---	12.50	15.39
100	<u>12.50</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>7.69</u>
Total	100.00	100.00	100.00	100.00	100.00

APPENDIX J.--LOCAL BUYERS USING NEW FILLERS AND FLATS (PERCENT)

Percent of new fillers and flats	Chain Stores	Independent supermarkets	Independent medium-sized stores	Independent small stores	Cream stations and produce houses
0	25.00	75.00	45.45	25.00	38.46
1 - 24	37.50	25.00	27.27	---	23.08
25 - 49	---	---	18.19	---	---
50 - 74	12.50	---	9.09	75.00	15.38
75 - 99	12.50	---	---	---	15.39
100	<u>12.50</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>7.69</u>
Total	100.00	100.00	100.00	100.00	100.00

APPENDIX K.--LOCAL BUYERS STORING EGGS 1 TO 3 DAYS AND 4 TO 7 DAYS
BEFORE SHIPPING (PERCENT)

Length of storage	Chain stores	Independent supermarkets	Independent medium-sized stores	Independent small stores	Cream stations and produce houses
1 to 3 days	100.00	50.00	72.72	75.00	92.31
4 to 7 days	<u>---</u>	<u>50.00</u>	<u>27.28</u>	<u>25.00</u>	<u>7.69</u>
Total	100.00	100.00	100.00	100.00	100.00

APPENDIX L.--PERCENT DISTRIBUTION OF FIVE CLASSES OF LOCAL BUYERS STORING
EGGS IN VARIOUS KINDS OF STORAGE PLACES

Storage places	Chain stores	Independent supermarkets	Independent medium-sized stores	Independent small stores	Cream stations and produce houses
Store proper	---	25.00	---	33.33	7.69
Adjoining room	87.50	75.00	72.72	66.67	76.92
Basement	---	---	27.28	---	---
Special room	<u>12.50</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>15.39</u>
Total	100.00	100.00	100.00	100.00	100.00

APPENDIX M.--LOCAL BUYERS AND THEIR COOLING FACILITIES FOR EGGS (PERCENT)

Cooling facilities	Chain stores	Independent supermarkets	Independent medium-sized stores	Independent small stores	Cream stations and produce houses
Refrigeration	12.50	---	---	---	15.39
Air conditioner	---	25.00	---	---	---
Basement	---	---	36.36	12.50	---
California cooler	---	---	---	12.50	---
No cooling facilities	<u>87.50</u>	<u>75.00</u>	<u>63.64</u>	<u>75.00</u>	<u>84.61</u>
Total	100.00	100.00	100.00	100.00	100.00

APPENDIX N.--LOCAL BUYERS AND THEIR SHIPPING OUTLETS (PERCENT)

Shipping outlet	Chain stores	Independent supermarkets	Independent medium-sized stores	Independent small stores	Cream stations and produce houses
Trucker	---	---	17.00	25.00	15.38
Central dealer	---	100.00	50.00	75.00	61.55
Local dealer	---	---	33.00	---	15.38
Own central plant	<u>100.00</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>7.69</u>
Total	100.00	100.00	100.00	100.00	100.00

EGG MARKETING SURVEY

Spring 1943

Firm: _____ Address: _____ Kind of store: _____

Interviewed: _____ Schedule No.: _____

Total Number of farmers	Very small (less than 4 doz. p. week)	Small (4-11.99 doz. p. week)	Medium (12-29.99 doz. p. week)	Large (1 case and over p. week)
% of weekly volume	M T W T F S	M T W T F S	M T W T F S	M T W T F S
Times p. wk.	W Spr. S F	W Spr. S F	W Spr. S F	W Spr. S F
Doz. at a time				
No. of farmers paid cash				
Kind of packing	loose(%) _____ case (%) _____	loose(%) _____ case (%) _____	loose(%) _____ case (%) _____	loose(%) _____ case (%) _____
Which end up if used:	large, small, either	large, small, either	large, small, either	large, small, either
Exterior condition	clean (%) _____ sound (%) _____	clean (%) _____ sound (%) _____	clean (%) _____ sound (%) _____	clean (%) _____ sound (%) _____
Method of buying	cc w lo gr	cc w lo gr	cc w lo gr	cc w lo gr
No. of farmers				
Inedibl. p. case				

Abbreviations: V. sm = very small
 sm = small
 m = medium
 l = large

cc = case count
 w = by weight
 lo = loss off
 g = by grade

(8304-43)

Cases

	Rec'd from farmers				Shipped in	Shipped out	Retailled
	V. sm.	Sm.	Med.	L			
May							
June							
July							
August							
September							
October							
November							
December							
January							
February							
March							
April							

Price paid today per doz.: cash _____¢, trade _____¢

Purchase of eggs from nonstore customers: yes _____ no _____

Percentage of grocery business risked if discontinue buying eggs: V.sm _____ %

Sm _____ %

M _____ %

L _____ %

Packing material:

Origin of egg cases _____

Condition of egg cases - new _____ %, used _____ %

Condition of folders and flats: New _____ %, used _____ %

Which end up when packed: Large, small, either.

Shipping outlet: trucker, central dealer, local dealer, other: _____

Method of selling: case count _____ by weight _____ loss off _____ by grade _____

% of inedibles rejected: _____

Method of payment by shipping outlet: cash _____ %

Retail price today: _____ ¢

Shipping price today: _____ ¢

Labeling: grade _____ size _____

Grading: Candling lamp: yes _____ no _____ Candle all eggs: yes _____ no _____

Scale: yes _____ no _____

Storage a- Place: store proper _____, adjoining room _____, store basement _____, special room _____

b- Time in weeks before shipping: $\frac{1}{2}$ 1 $1\frac{1}{2}$ 2 $2\frac{1}{2}$ 3

c- Cooling facilities: basement, refrigerator, other: _____

Continue egg shipping if all stores were required to candle all eggs, retail as well as shipped: yes ___ no ___ Margin necessary:

Willing to act as central candling place for all stores of the community:
yes ___ no ___ Margin necessary:

Continue egg shipping if it was required to identify eggs before shipping according to producer and to pay the farmer by grade based on grading slip sent back by wholesaler. (This means that you would be paid according to grade by your outlets): yes ___ no ___

License carried: retail ___, country receiver ___, wholesaler ___, trucker ___

Frequency of inspection per year: 1 2 3 4 5 6 8

Is the inspection in your opinion valuable? _____

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