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Factors Affecting Prices Received by South Dakota Egg Producers : A Pilot Study

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FACTORS AFFECTING PRICES RECEIVED BY SOUTH DAKOTA EGG PRODUCERS

A PILOT STUDY

by

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This thesis is approved as a creditable, independent investigation by a candidate for the degree, Master of Science, and acceptable as meeting the thesis requirements for this degree; but without implying that the conclusions reached by the candidate are necessarily the conclusions of the major department.

Thesis Advisor

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CHAPTER I

INTRODUCTION

Problem

South Dakota egg producers have long been faced with the fact that they receive the lowest average prices per dozen of any state, with the exception of North Dakota.[1] The average price received by South Dakota egg producers from 1950 through 1952 was 31.2 cents per dozen as compared with a national average of 41.9 cents per dozen for the same period (Table I).

Table I. Average Annual Egg Prices Per Dozen Received by Producers, South Dakota and United States, by Selected Intervals, 1925-1952

Years	South Dakota	United States
	(cents per dozen)	
1925-29	24.5	28.5
1930-34	13.0	17.3
1935-39	16.9	20.8
1940-44	24.3	28.2
1945-49	34.0	42.6
1950-52	31.2	41.9

Source: Trends in the Poultry Industry and the Effects Upon the Midwest, Agricultural Experiment Station, University of Wisconsin, (In Press), Table 19.

It is generally felt that many factors affect the prices received by South Dakota egg producers, which in turn cause the wide

[1] Trends in the Poultry Industry and the Effects Upon the Midwest, Agricultural Experiment Station, University of Wisconsin, (In Press), Table 19.

price differential which occurs between average prices received by South Dakota and United States egg producers. These factors can be broadly classified as: (1) the quality of the egg marketed, (2) the assembling and transportation costs from producer to consumer, and (3) the efficiency of marketing facilities.

Importance of Industry

Eggs provide an important source of year around cash income for South Dakota farmers. In 1954, the cash income from the marketing of eggs amounted to $26,603,000 or about 6.1 percent of South Dakota's cash farm income. Poultry and poultry products ranked fourth in importance of income derived from livestock and livestock products during the period from 1952 to 1955 in South Dakota.[2] South Dakota is the highest per capita egg-producing state in the nation and exports about one billion eggs annually to markets outside of the state.[3]

Egg and poultry production is one of the most important supplementary farm enterprises in the state. According to the 1950 Census of Agriculture, chickens were reported on 61.3 percent of the 66,450 South Dakota farms.[4]

The state's poultry industry is concentrated in the eastern one-third of the state, largely in the southeastern section. Three-

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[2] South Dakota Agriculture, 1955, South Dakota Crop and Livestock Reporting Service, p. 6.

[3] Trends in the Poultry Industry . . ., op. cit., Table 38-39.

[4] Trends in the Poultry Industry . . ., op. cit., Table 5.

fourths of the state's total chicken population are found on farms in the eastern one-third of the state.[5]

Purpose of the Study

It is the role of this pilot study at the producer level to (1) determine the effect of management (production and handling) and marketing practices on prices received by South Dakota egg producers, (2) compare average prices of eggs sold on a non-graded basis with those sold on a graded basis to determine the economic feasibility of marketing eggs on a graded basis, and (3) recommend areas of further research.

Procedure

The data for this study were obtained through the use of a questionnaire mailed to 1750 farmers who reported having chickens to the local assessors at the beginning of 1955. This was a five percent random sample, stratified by counties and crop reporting districts. The sample was chosen by and obtained from the Crop and Livestock Reporting Service.

The two-page questionnaire was mailed to all producers in the random sample at three-month intervals, starting with May 1955 and ending with February 1956. Each time a second mailing of the questionnaire followed the first, one week later, in an effort to obtain a higher percentage of returns. (See Appendix Exhibit C.)

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[5] South Dakota Poultry Production and Marketing, South Dakota Crop and Livestock Reporting Service, November 1951, pp. 1-24. Note--(See this publication for further reference on poultry and egg marketing in South Dakota).

The returned questionnaires were coded, punched on I.B.M. cards, and tabulated. An actual comparison of prices was made rather than employing a statistical analysis because of the nature of the data and the method by which it was obtained. This study does not include a complete list of factors which have been found to affect egg quality in other studies. The reason for this was to keep the questionnaire brief and easy to answer since it was a mail questionnaire. A statistical analysis was not used in this study for two reasons: (1) it was not the purpose of this study to determine the exact effect of each factor on egg prices received by producers, and (2) not enough factors were included in the study to make this type of analysis practical.

CHAPTER II

REVIEW OF LITERATURE

The quality problem and other problems regarding egg production and marketing are quite similar throughout the North Central Region, in which South Dakota is included. Several studies have been conducted in the region in an effort to cope with these and other related problems. This chapter is concerned with a review of some of the more recent studies of problems and conditions in the North Central Region which show a relationship to South Dakota and its problems.

Studies in Factors Affecting Egg Quality

It is generally believed that egg quality is probably the most important problem facing egg producers and merchants in South Dakota today.

Benjamin and co-authors break the factors affecting egg quality control into two groups.[6] The first is interior quality, which is further divided into internal conditions influencing egg quality, such as: inheritance, general physical condition of the hen, feed, ovarian and oviduct conditions; and external conditions influencing quality such as: temperature, humidity, handling, and age. The second group deals with factors affecting exterior quality such as: size, shape, color, soundness, absorption of odors or flavors, and cleanliness.

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[6] Earl W. Benjamin, Howard C. Pierce, and William Termohlen, Marketing Poultry Products, fourth edition; New York: John Wiley and Sons, Incorporated, 1949, pp. 21-46.

Nearly all of these factors can be controlled by the egg producer and merchants through better management and handling practices.

The South Dakota Agricultural Experiment Station conducted a study in 1949, as part of a North Central Regional study, which dealt with factors affecting loss in quality of South Dakota eggs.[7] The study was concerned primarily with factors affecting egg quality in the marketing channel. Results of the study showed that the decline in quality of eggs as they pass from the country buying station to the central plant was higher for South Dakota than for the region. Eggs purchased on a graded basis showed a higher percentage of A quality than those purchased on an ungraded basis. Eggs delivered by the producer also showed a higher percentage of A quality than those picked up by dealers on truck routes. Egg quality was found to be highest in fall, lowest during the summer, with egg quality during the spring months falling in between. Highest quality eggs were received by retail stores. Temperature, humidity, and the time between gradings had a definite effect on egg quality. Little relationship was shown between shell color and quality.

In 1949, Taylor and Waite conducted a study in Minnesota to determine the causes of a wide variation in the quality of eggs delivered by Minnesota egg producers.[8] The findings of this study were as follows:

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[7] Robert J. Treacy, Factors Affecting Loss in Quality of South Dakota Eggs, Unpublished Master's thesis, South Dakota State College, Brookings, South Dakota, 1950, pp. 103-105.

[8] F. R. Taylor, and W. C. Waite, Management Practices Affecting Egg Quality, Farm Business Notes, Number 321, University of Minnesota, October 28, 1949.

1. The larger the flock, the higher the percentage of grade A eggs delivered. This factor was attributed to better management practices followed by large flock owners.

2. Gathering eggs three or more times daily, which is a standard recommendation of poultry specialists, also resulted in a larger proportion of grade A eggs being delivered.

3. Handling of eggs after gathering also showed a definite effect on the percentage of grade A eggs delivered. Eggs should be cooled to recommended temperatures of 50° to 60° F. before being packed in the case.

4. Proper storage of eggs until delivery resulted in a four to seven percent increase in the number of grade A eggs delivered over eggs not properly stored.

5. The proportion of grade A eggs delivered was from three to thirteen percent greater when eggs were sorted than when not sorted.

In 1949 and 1950 H. E. Larzelere conducted a study in the southern half of Michigan state.[9] The study evaluated the changes in egg quality from farm to retail store. The survey covered two types of movements in the marketing channel as follows: First, a three-step channel which involved moving the eggs from the farm to the country buying station, next to the city wholesale plant, and then to the retail store; second, a two-step channel in which the eggs moved from the farm to a country buying station, or directly to a city

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[9] Henry E. Larzelere, Changes in Egg Quality From Farm to Retail Store, Department of Agricultural Economics, Special Bulletin 400, Michigan State University, September 1955, pp. 3-4.

wholesale plant, and then from either the station or the plant directly to the retail store. The eggs in the study were graded at each point in the marketing channel by the same field representative, an egg candler.

Results of the study showed that 91 percent of the eggs marketed fell one grade in the three-step channel, while 73 percent fell one grade in the two-step marketing channel. The average decline in quality for each step in the two-step channel was more than the decline for each step in the three-step channel. Eggs bought on a graded basis showed less decline in quality from farm to first buyer than those purchased on an ungraded basis. Lapse of time and humidity were two important factors affecting interior egg quality. There was also a significant relationship between case temperature and shell damage in movement from farm to station. These factors showed a significant relationship throughout the egg marketing channel.

Egg quality loss from farm to terminal market was studied in Minnesota by Taylor and Jesness.[10] This study indicated that 33 percent of the eggs dropped below grade A by the time they reached the first buyer, another 8 percent did so between that buyer and the central assembler, and another 21 percent fell short of grade A requirements between the central assembler and the terminal market. Thus, only 38 percent of the eggs reached the terminal market as grade A eggs. This loss in quality is an important factor in the difference between the prices paid to farmers and those paid by consumers. This price

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[10] Frederick R. Taylor and O. B. Jesness, The Economic Importance of Egg Quality, Agricultural Experiment Station Bulletin 411, University of Minnesota, April 1952, pp. 14-16.

differential is generally thought to be taken up in handling costs and profits without consideration of loss in quality for which an allowance must be made. Reduction in quality loss is very important in narrowing the price spread between producer and consumer.

The Production and Marketing Administration of the United States Department of Agriculture conducted a study in 1949-1950 dealing with production and handling practices in relation to quality. [11] In this study it was found that the following practices were of greatest importance in producing a high percentage of grade A eggs: (1) confinement of the flock, (2) frequency of gathering, (3) type of container used in gathering eggs, (4) temperature in egg room, (5) humidity in egg room, (6) condition of floor litter, and (7) condition of nesting material. The study also showed that as the number of recommended practices that were followed decreased, the percentage of eggs marketed that were grade A decreased and the percentage of stains and dirties increased.

In 1949, Koudele studied the effects of production and handling practices on egg quality in Kansas. [12] He found that the following production and handling practices appeared to have an important effect on maintaining egg quality: (1) remove breeding males from laying flock during the summer time, (2) remove broody hens from nest at least daily

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[11] Poultry Farm Practices and Egg Quality, United States Department of Agriculture, Production and Marketing Administration, Washington, D. C., Marketing Research Report Number 22.

[12] Joe W. Koudele, Egg Quality and Poultryman's Practice in Kansas, Agricultural Experiment Station, Kansas State College, December, 1951.

and confine, (3) maintain at least moderately clean, dry, floor litter in laying house, (4) maintain clean nesting material, (5) gather eggs at least twice a day, (6) gather and cool eggs in a wire basket, (7) bring eggs immediately after gathering to a cool, humid, storage room, (8) pack eggs in case small end down, (9) pre-cool egg cases, flats, and fillers, (10) hold eggs in storage room where temperature is not over 75° F., and (11) maintain a relative humidity of 75 percent or more in storage room. Producers following these practices marketed 75 percent or more A quality eggs.

Studies in Marketing Graded Eggs

Producers' returns are generally increased when their eggs are marketed on a uniform graded basis. A study conducted by the Poultry Department of the Purdue Agricultural Experiment Station in the late 1920's revealed that producers received an average return of three and two-tenths cents a dozen more when selling on a graded basis than when selling on a "nest run" basis. Another Indiana survey found, "that producers selling eggs on a graded basis generally take better care of their flocks than those selling ungraded eggs."[13]

An Iowa study in 1937 found that the grading of eggs provided a needed incentive for the producer to improve the quality of eggs marketed.[14] A three-grade basis and a two-grade basis were initiated

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[13] Leon Todd, Why Grade Eggs?, Extension Service Leaflet Number 192, Purdue University, April 1937, p. 2.

[14] A. D. Oderkirk, Selling Eggs by Grade, Extension Service Circular 237, Revised, Iowa State College, December 1940, pp. 4-21.

for purchasing eggs on a graded basis. The overall average quality of eggs delivered by producers selling on a three-grade basis was higher than for eggs delivered by producers selling on a two-grade basis. These grading systems, while they did not conform with United States standards and grades, were used because they were more easily accepted by the producer. Through better management practices and a state grading system, Iowa has developed a selling advantage over some states not using a grading system.

The Production and Marketing Administration in cooperation with the North Central Region conducted a study on egg quality deterioration during the marketing process in the late 1940's.[15] It was found that eggs sold on a graded basis averaged about 70 percent grade A, while those sold on an ungraded basis averaged only about 60 percent grade A. Eggs sold on a graded basis contained considerably less than half as many stains and dirties as did eggs not sold on a graded basis.

Dawson and Davidson conducted a study of grading certificates from a cooperative egg grading station in Michigan covering the period 1942 to 1948.[16] They found that the volume of eggs handled doubled over that period of time. Grade A receipts fluctuated from 60 to 85 percent of all graded receipts during the period. The highest percentage of grade A eggs was delivered in November and December, with the lowest

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[15] Deterioration of Egg Quality During Marketing, United States Department of Agriculture, Production and Marketing Administration, PA 79, Washington 25, D. C., September 1949, pp. 9-10.

[16] L. E. Dawson, and J. A. Davidson, Marketing Eggs Through a Grading Station, Reprint from Michigan Agricultural Experiment Station Quarterly Bulletin, Volume 32, Number 1, August 1949, pp. 175-183.

percentage in July and August. The number of checked eggs showed a gradual increase over the period studied. The highest percentage of checked eggs was found in July and August and the lowest in December and January. The number of stained eggs showed a decrease of four percent over the period. The percentage of stained eggs varied between 1.7 percent in October to 3.5 percent in June. Eggs classified as lost averaged about 1.5 percent of the total sales over the period studied.

From 1945 through 1950, J. B. Roberts conducted a study of a graded egg buying program in Kentucky.[17] Results of the study showed that farmers selling under United States Consumer Standards and Grades averaged 17 percent higher prices than those selling on a current receipts basis. During the entire period the gain over current receipts prices averaged six cents per dozen. Producers netted about $1.50 per hour for special handling and cleaning of eggs for sale to the graded market. The percentage of Grade A receipts from producers selling on the graded basis averaged nearly twice as high as grade A receipts from current receipts sales which were graded after they were purchased as current receipts eggs.

Egg prices tended to show a definite and regular seasonal pattern which reflects month by month changes in volume of eggs marketed. In general, prices for graded eggs tended to follow the pattern set by all eggs.

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17 John B. Roberts, Graded Egg Purchasing in Kentucky, Kentucky Agricultural Experiment Station Bulletin 585, University of Kentucky, 1952, p. 24.

As a result of a grading program buyers received twice as many grade A eggs and only one-sixth as many dirty, stained, and low quality eggs as were found in current receipt purchases.

Supply and Marketing in the North Central Region

In 1951 a study of the egg supply and marketing situation was conducted in the North Central Region.[18] Findings of the study revealed that the region produces more than half the total eggs in the United States. Production in the region exceeds consumption by about 40 percent. Lack of specialization is a characteristic of egg production throughout most of the region. The average size flock was found to be slightly larger than one hundred hens. Nearly three-fourths of the eggs marketed came from flocks of from 100 to 300 hens. The study revealed that producers tend to raise larger flocks of light breeds in the northern part of the region and smaller flocks of predominantly heavy breeds in the southern part of the region. Local produce stations received about 40 percent of the eggs marketed, and were the most important outlet for producers in the region. This percentage was more than twice as high west of the Mississippi River. Prices varied considerably both geographically and by basis of payment. Egg prices showed a gradual increase from west to east with producers in areas close to large consuming centers receiving the highest prices. Most large dealers in all areas of the region operated their own pick up routes to insure uniform supply. The percentage of eggs picked up and

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[18] Elmer E. Broadbent and Michal I. Zowadski, Egg Supply and Marketing in the North Central Region, NCR Publication Number 61, University of Illinois, Bulletin 591, August 1955, pp. 29-32.

graded increased in proportion to the increase in eggs produced per square mile.

Summary

This review of literature is brief and by no means a complete study of the articles and research data available on the problems of egg marketing.

Almost all literature on the subject of egg marketing is concerned with the improvement of egg quality. Recommended improvements in egg quality must necessarily begin with the producer and follow through the marketing channel or process to and including the consumer.

The producer plays an important role in this process. He must produce a top quality egg through efficient management and maintain as much quality as possible in that egg until it is placed in the marketing channel.

CHAPTER III

ANALYSIS OF FACTORS AFFECTING EGG PRICES

Introduction

In this chapter an attempt is made to point out the relationship of three types of factors to graded and non-graded prices received by South Dakota egg producers reporting in this study. These factors are listed under the following headings: (1) Management and Handling Practices, (2) Marketing Practices, and (3) "Other" factors. Non-graded prices are "current receipts" or "case run" weighted average prices per dozen. Graded receipts refer to the weighted average price per dozen for all grades sold. All prices are rounded to the nearest tenth of a cent. The price data were obtained from producers reporting egg sales for the last full week of each month covered by the study. Table II shows total average prices received per dozen, the percentage of eggs sold by each method, and the total number of respondents during each period.

Since sales to hatcheries and direct sales to consumers amounted to only a very small portion of the total sales, they were not included in the following analysis of data. Grade A sales are also excluded in the analysis since they are a part of all graded sales. Fewer than ten producers reporting was considered to be an insufficient number to be included in the analysis of the following tables.

The average price difference between graded and non-graded sales is as follows: 1.5 cents per dozen in May, 8.9 cents per dozen

Table II. Average Prices Received by South Dakota Egg Producers, Percent of Total Sales by Each Method, and Total Number of Respondents for May, August, November, 1955, and February, 1956

Type of sale	May 1955		August 1955		November 1955		February 1956	
	cents per dozen	% of total sales	cents per dozen	% of total sales	cents per dozen	% of total sales	cents per dozen	% of total sales
Direct to consumer	32.8	.9	32.3	1.9	35.8	1.0	35.3	.9
Current receipt	26.1	56.0	26.7	43.7	32.3	35.0	32.9	51.6
Grade A	28.7	57.4*	40.7	55.1*	44.5	50.5*	35.0	64.5*
All graded	27.6	43.1	35.6	54.4	38.9	64.0	33.5	47.5
Hatchery							50.1	
Total number of respondents	678		338		278		331	

* Percent grade A of total graded receipts

in August, 6.6 cents per dozen in November and 0.6 cents per dozen in February. Frequent reference to this price difference and also to the average price for each method of sale during each period is made in the following analysis. Average prices are found at the bottom of each table.

The following analysis was also made in the light of what price differential between grades could have occurred during each period. The approximate average price differential per dozen between A and C grade eggs was about 6 cents in May, 21 cents in August, 22 cents in November, and 8 cents in February. These average price differentials

were arrived at by averaging egg price quotations from newspaper market reports over the same periods as covered by the study. The market price quotations included those from Sioux Falls, Brookings, Watertown, and Aberdeen, all of which are located in the major producing areas.

Production and Handling Practices

The ten factors discussed in this section are associated with the quality of an egg. The effect of these factors on the current receipt prices was not included in the analysis of each of the following factors because current receipt prices are not established on an individual producer quality basis as are total receipts from graded sales.

Breed of Layers

Producers were asked what breed of layers they were managing in an effort to determine if this factor has an effect on egg prices received. Table III shows very little price variation between breed of layers when eggs were sold on a graded basis during each period covered in the study. The variation which does occur between breeds is not consistent throughout all four periods. Many of the breeds were reported by only a few producers. Producers raising hybrids and "two or more breeds" received about one cent per dozen above the average graded price in November and February. More producers reported raising white leghorns than any other breed of layer.

Weekly Egg Production

Producers were asked to report their approximate weekly egg production in an effort to determine if volume of production has an effect on price.

Table III. Average Price Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Breed of Layers

Breed of layers	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
Mixed	27.0	35.0*	35.2*	33.1*
White Leghorn	27.1	36.1	37.1	32.4
White Plymouth Rock	27.8	35.5*	44.1*	36.5*
Leg-Hamps	27.8	35.2	37.5*	33.7
New Hamp	26.5	39.7*	37.2*	30.8*
Austra White	26.7	32.6	39.8*	33.0*
Hybrids	27.9	35.4	39.4	34.3
Other Cross breeds	27.6	36.1	39.5*	32.8*
Other breeds	28.4*	41.7*	43.1*	34.3*
2 or more breeds	28.0	34.9	40.0	34.0
Average price received	27.6	35.6	38.9	33.5

* Fewer than 10 producers reporting.

The quantity of eggs produced weekly appears to have very little effect on graded price receipts (Table IV). Producers with flocks producing less than 50 dozen eggs weekly received slightly below average prices during each period covered by the study.

The number of producers marketing more than 150 dozen eggs weekly was insufficient to be included in the comparison. Slightly less than half of the producers reported selling less than 50 dozen eggs weekly.

Table IV. Average Prices Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Weekly Egg Production

Weekly egg production (dozens)	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
Less than 50	27.2	35.5	38.2	33.0
50 - 99	27.5	35.6	37.7	33.5
100 - 149	27.9	36.9*	39.5	33.0
150 and over	27.6*	32.9*	40.3	33.3*
Average price received	27.6	35.6	38.9	33.5

* Fewer than 10 producers reporting.

Size of Flock

Producers were asked what size flock they were managing in an effort to determine if those managing larger than average size flocks received higher prices than those managing below average size flocks. It was felt that egg production would be a more important farm enterprise to large flock owners; thus their production and management practices should be above average, which would warrant an above average price for eggs.

In general, Table V indicates that producers managing larger than average size flocks receive slightly above average egg prices during each period covered in this study. This was found to be especially true for producers managing flocks from 300-399 layers. The number of producers reporting flocks larger than 400 layers was

Table V. Average Prices Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Size of Laying Flock

Number of layers in flock	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
Less than 100	26.9	36.2	38.5*	33.4*
100 - 199	27.2	35.4	37.7	33.3
200 - 299	27.7	36.5	38.3	33.5
300 - 399	28.0	36.4	39.0	34.6
400 - 499	27.5	38.7*	39.5*	32.4
500 or more	27.8*	32.0*	40.5*	34.3*
Average price received	27.6	35.6	38.9	33.5

* Fewer than 10 producers reporting.

insufficient to be included in the price comparison. More producers reported flocks of from 100-199 layers than any other size group.

Effect of Male Birds

The removal of breeding males from the laying flock is a recommended poultry practice, especially in warm weather, since fertile eggs deteriorate in quality much more rapidly than do infertile eggs.

The question concerning the presence of male birds with the laying flock was asked to determine if this quality practice has any effect on prices received by producers. Table VI shows no consistent difference in egg prices received between flocks with or without roosters. During November and February graded egg sales from flocks

Table VI. Average Prices Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Practice of Keeping Roosters with Flock

Roosters	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
With flock	27.6	35.8	38.7	32.6
Not with flock	27.5	35.5	39.1	33.9
Average price received	27.6	35.6	38.9	33.5

without roosters averaged slightly higher prices than did sales from flocks with roosters. This seems logical but the reverse appears to be true in May and August. More producers reported sales from flocks without roosters than with roosters.

Confinement of Flock

A commonly recommended practice is that of confining the laying flock at all times, or at least until such time of day as most of the eggs have been laid. This practice should be followed especially during wet weather to prevent stained and dirty eggs. This is also true in early spring when fresh green feeds are accessible to the layers which cause a much deeper yolk color in the egg.

The question concerning confinement of flock was asked in an effort to determine the effect of confinement on price per dozen received by egg producers because it is an important factor affecting quality. Producers reporting flocks confined received average or above

Table VII. Average Prices Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Confinement of Laying Flock

Confinement	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
Confined	28.1	38.0	39.0	33.5
Not confined	27.4	35.0	38.0*	34.2*
Part time	27.5	35.1*	*	*
Average price received	27.6	35.6	38.9	33.5

* Fewer than 10 producers reporting.

average prices per dozen during each period covered by this study (Table VII). Fifty-five percent of the producers reported flocks not confined over the four periods covered by the survey. No comparisons were made of prices received when flocks were confined part time because too few farmers reported this practice.

Frequency of Gathering

Frequent gathering is a very important factor affecting egg quality. Frequent gathering of eggs reduces the number of stains and dirties, as well as checks and leakers. Gathering eggs frequently also reduces the loss of interior quality that results from high temperature caused by the body heat of layers that frequent the nests.

The number of times eggs were gathered daily appeared to have an effect on graded egg prices received by producers (Table VIII). Producers gathering eggs only once daily received below average prices

Table VIII. Average Prices Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Frequency of Gathering

Number of gatherings daily	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
1	27.2	33.8	37.2	33.3*
2	27.5	35.5	39.1	33.4
3	27.8	37.0	38.7	34.1
4 or more	27.6	35.4*	40.3	33.1
Average price received	27.6	35.6	38.9	33.5

* Fewer than 10 producers reporting.

during each period. Producers gathering eggs three times daily during May, August, and February and four or more times daily in November received above average prices. More producers reported gathering eggs twice daily than any other number of times.

Place Where Eggs Were Stored

Eggs should be stored in a cool, relatively humid room in order to maintain high quality. The question as to where eggs were kept was asked as a substitute for a question regarding humidity, since it was rather difficult for producers to determine the humidity of their egg storage rooms. Basements or cellars were generally felt to be the most ideal storage rooms.

More producers reported holding eggs in basements than in any other type of storage. Producers reported "other" types of egg storage

Table IX. Average Prices Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Type of Storage

Type of storage	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
Basement	27.5	35.5	38.3	33.2
Cellar	27.7	35.6	39.5	36.4
Kitchen	27.5	35.3*	39.3*	32.2
Porch	27.7	35.3*	40.4	34.1
Laying house	28.0*	*	37.9*	33.0*
Barn	*	35.1*	*	*
Other	27.6	36.3	40.9*	33.7
Average price received	27.6	35.6	38.9	33.5

* Fewer than 10 producers reporting.

which included: utility room, pantry, milk and store room, refrigerator, and wash room.

The place where eggs were held between time of gathering and time of sale appeared to have some effect on graded price receipts (Table IX). Producers keeping eggs in cellars and "other" types of storage received average or above average prices during each period covered by the study. Producers storing eggs on porches also received above average prices during May, November, and February. Producers storing eggs in basements received slightly below average prices.

Table X. Average Prices Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Temperature of Egg Holding Room

Temperature of holding room (° F)	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
Below 50°	27.8	37.2*	38.4	33.9
50° to 59°	27.6	36.5	39.3	33.5
60° to 69°	27.3	35.3	38.7	32.7
70° or more	27.6*	34.7	*	32.6*
Average price received	27.6	35.6	38.9	33.5

* Fewer than 10 producers reporting.

Temperature of Egg Holding Room

Temperature as well as humidity is a very important factor affecting egg quality. When eggs are held at temperatures above 60° F., a general breaking down of the structure of the egg white occurs along with water evaporation.

The temperature at which eggs were held between time of gathering and time of sale appeared to affect graded prices received by the producers (Table X). Producers storing eggs at temperatures below 60° F. received average or above average prices during all periods with the exception of storage below 50° F. in November. All producers reporting eggs stored at 60° F. or above received below average prices. Of the producers reporting, the largest percentage reported eggs held at 50° to 59° F. in May, November, and February. In August more producers reported eggs held at 60° to 69° F. than any other temperature.

Table XI. Average Prices Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Egg Storage Containers

Container in which eggs were held	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
Wire basket	27.9	35.9	40.6	35.5
Metal pail	27.3	35.0	37.9	33.6
Fiber box	26.9	34.4*	36.1*	33.1*
Regular case	27.4	34.7	38.2	33.1
2 or more	27.8	37.1	39.6	33.0
Other	*	39.4*	40.0*	45.0*
Average price received	27.6	35.6	38.9	33.5

* Fewer than 10 producers reporting.

Egg Storage Container

The body heat from the hen should be removed from eggs rapidly. The use of a wire basket or similar type container to gather and cool eggs is a recommended practice in maintaining egg quality. The question concerning the type of container used for gathering and cooling eggs may have been misinterpreted since more producers reported holding eggs in regular cases than any other type of storage. The question should have asked in what type of container eggs were gathered and cooled.

The type of container used in gathering and storing eggs appeared to have a definite effect on graded price receipts (Table XI). Producers using wire baskets to gather and cool eggs received consistently higher

prices during each period covered by the study than those using other types of containers. Producers using "two or more" types of containers to gather and cool eggs also received slightly above average prices during May, August, and November. Producers using any of the other types of containers listed received below average prices during each period.

Egg Cleaning Practices

Stained and dirty eggs appear unwholesome; their interior quality is frequently impaired by bacterial infection and by absorption of odors from the dirt. Cleaning eggs the day they are laid is a recommended practice. The use of a damp cloth or dry hand buffer is recommended. If eggs are extremely dirty, they should be washed in hot water without soaking and dried quickly.

The type of egg cleaning practices employed by producers appeared to have some effect on the price per dozen received by producers (Table XII). Producers using the dry hand buffer method to clean eggs received above average prices during all periods covered by the study, although only eight producers reported using this cleaning practice in February. Producers using two or more egg cleaning practices also received above average prices in May and November. Use of other cleaning practices also resulted in above average prices, although usually for only one reporting period. More producers reported using a damp cloth to clean stained and dirty eggs than any other type of cleaning practice.

Table XII. Average Prices Received for All Graded Eggs by Producers in South Dakota for Selected Months 1955-56 by Cleaning Practices

Cleaning practices	May 1955	August 1955	November 1955	February 1956
		(cents per dozen)		
Not cleaned	26.9	36.6	38.4	32.3*
Wiped with damp cloth	27.5	35.6	38.8	33.8
Hand washed in water	27.3	34.7	38.9	33.0
Dry hand buffer	27.8	37.1	39.8	36.3*
2 or more	27.9	35.2	38.9	33.1
Other	27.8*	*	*	32.7*
Average price received	27.6	35.6	38.9	33.5

* Fewer than 10 producers reporting.

Marketing Practices

Buyer's Line of Business

A question concerning the buyer's line of business was asked for the purpose of determining if this factor had any effect on prices received by producers.

The buyer's type or line of business had the greatest effect of any factor covered in the study on price received for both graded and non-graded receipts (Table XIII). The number of producers reporting sales to independent truckers and "others" was insufficient to be included in the analysis.

Although the number of producers reporting graded sales to retail

Table XIII. Average Prices Received for Eggs by Producers in South Dakota for Selected Months 1955-56 by Buyer's Line of Business

Buyer's line of business	May 1955		August 1955		November 1955		February 1956	
	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded
	(cents per dozen)							
Local produce station	25.5	27.2	26.5	35.3	32.0	38.4	32.6	33.3
Egg assembly plant	26.6	27.6	27.3*	36.8	34.2*	41.2*	33.0*	34.3
Retail store	26.8	30.4	27.6	40.0*	33.7	52.5*	33.2	39.9*
Creamery	26.3	27.6	26.2	35.7	31.9	38.6	32.9	32.9
Indep. trucker	26.5*	27.3*	27.0*	37.9*	*	35.8*	*	*
Other	27.8	27.9*	30.4*	32.6*	35.0*	37.3*	33.3*	*
Average prices received	26.1	27.6	26.7	35.6	32.3	38.9	32.9	33.5

* Fewer than 10 producers reporting.

stores was very small during August, November, and February, those producers received prices considerably above average for each period covered by the study. This is possibly because of the unique marketing practices being followed by some of the egg producers in the Rapid City area. Several producers in that area have state candling and grading licenses and sell graded and cartoned eggs directly to retail stores in Rapid City and surrounding towns. As a result of this marketing method, these producers were receiving additional compensation for their added efforts.

Producers selling on a current receipt basis received slightly more per dozen when selling to retail stores than when selling to either local produce stations during all four periods or to creameries during the periods of August, November, and February. This is possibly because some retail stores will pay a small premium to certain producers who deliver frequently in an effort to have fresh eggs for retail sale. Some retail stores also follow the practice of paying a premium in trade to get the producer's grocery business.

Although the number of producers reporting sales to egg assembly plants was insufficient to be given weight in the analysis, graded sales to this type of outlet brought prices equal to or higher than the average price during August, November, and February. Non-graded prices were also slightly above average in August and November. More producers reporting selling eggs to local produce stations than to any other type of buyer. Both graded and non-graded sales to this type of outlet resulted in slightly below average prices during all four periods.

Frequency of Marketing

The age of an egg is a factor affecting its quality. Producers were asked the number of times eggs were marketed weekly to determine if this factor had an effect on prices received.

The number of times eggs were marketed weekly does not appear to have had any consistent effect on either current receipt or graded prices received by producers (Table XIV). During the periods of August, November, and February, producers selling on a graded basis and marketing twice weekly received slightly more per dozen than those marketing only once a week. Producers marketing once weekly and selling on a non-graded basis received below average prices in May and November and above average prices in August and February. Producers marketing twice weekly on a non-graded basis received slightly below average prices during August and February.

Although the number of producers who reported marketing eggs three or more times weekly on a graded basis was insufficient to warrant any conclusions, these producers did receive more per dozen than those marketing less than three times weekly. This was true during all four periods covered by the study.

The majority of producers selling on a non-graded basis reported marketing only once weekly while the majority selling on a graded basis reported marketing twice weekly.

Method by Which Eggs Were Delivered

Producers were asked how eggs were delivered to the first buyer. The purpose of this question was to determine if the method

Table XIV. Average Prices Received for Eggs by Producers in South Dakota for Selected Months 1955-56 by Frequency of Marketing

Frequency of Marketing (times per week)	May 1955		August 1955		November 1955		February 1956	
	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded
	(cents per dozen)							
1	25.8	27.4	27.1	34.5	32.1	37.5	33.0	33.7
2	26.1	27.6	26.4	35.9	32.6	39.5	32.7	33.2
3 or more	26.8	28.6*	23.1*	37.9*	*	39.6*	35.5*	35.9*
Average prices received	26.1	27.6	26.7	35.6	32.3	38.9	32.9	33.5

* Fewer than 10 producers reporting.

of delivery at the beginning of the marketing process has an effect on prices received by producers.

The method by which eggs were transported from the producer to the first buyer appears to have a definite effect on prices received by producers (Table XV). With the exception of current receipt sales in May, all producers delivering eggs to the first marketing point received more per dozen on both a graded and non-graded basis than producers having their eggs picked up at the farm. More producers selling on a non-graded basis delivered their eggs while the majority of eggs sold on a graded basis were picked up at the farm.

Other Factors

Crop Reporting Districts

Geographic location plays an important role in prices received by producers of many farm commodities. Local supply and demand relationships must be considered as one of the factors affecting prices received by South Dakota egg producers.

The most apparent price differences found in this study appeared between crop reporting districts (Table XVI). Insufficient numbers reporting are a characteristic of these apparent price differences. Most of the noticeable price differences appeared in only one or two periods covered by the study.

The number of producers reporting graded receipts in crop reporting districts 1, 2, 4, 5, 7, and 8 are insufficient to be included in the analysis of graded sales. Crop reporting districts 1, 4, and 7 were

Table XV. Average Egg Prices Received by Producers in South Dakota for Selected Months 1955-56 by Method of Delivery

Method of delivery	May 1955		August 1955		November 1955		February 1956	
	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded
	(cents per dozen)							
Delivered	26.0	27.8	26.8	36.7	32.5	39.6	33.1	34.7
Picked up	26.2	27.5	26.6	35.1	32.1	38.8	32.8	33.3
Average prices received	26.1	27.6	26.7	35.6	32.3	38.9	32.9	33.5

Table XVI. Average Prices Received for Eggs by Producers in South Dakota for Selected Months 1955-56 by Crop Reporting Districts

Crop reporting districts	May 1955		August 1955		November 1955		February 1956	
	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded
	(cents per dozen)							
1	24.1	31.4*	25.5*	34.0*	42.9*	*	31.2*	29.9*
2	26.1	26.3*	25.7	32.8*	31.3	38.0*	33.7	34.7*
3	25.7	27.4	26.0	36.4	30.8	38.4	32.4	33.1
4	26.9	38.0*	28.2*	40.0*	41.4*	54.9*	36.5*	49.7*
5	25.9	27.4	27.5	33.3*	32.5	36.1*	32.9	33.8*
6	27.3	27.8	29.3	36.9	33.4	39.3	33.4	33.2
7	27.6	*	35.0*	*	46.2*	*	30.3*	*
8	24.5	26.0*	24.0	*	30.0	*	31.2	*
9	26.1	27.1	27.0	34.5	32.7	38.7	33.0	33.4
Average prices received	26.1	27.6	26.7	35.6	32.3	38.9	32.9	33.5

* Fewer than 10 producers reporting.

entirely excluded from the analysis because of too few numbers reporting. (See Appendix Exhibit B for maps of crop reporting districts with average prices by months.)

Geographic location appears to have a greater effect on non-graded than on graded sales. Producers in crop reporting districts 6 and 9 received average or above average prices during all four periods covered by the study. Producers in crop reporting district 6 also received above average prices when selling on a graded basis during May, August, and November. Producers in crop reporting district 8 received consistently lower prices on a non-graded basis than producers in any other crop reporting district.

Although not explained in the analysis because of insufficient returns, it is interesting to note the large price differential between graded and non-graded sales in crop reporting district 4. This price differential is probably due to the unique marketing situation found in that area. (See Buyer's Line of Business for explanation.)

Distance From Farm to Market

Producers were asked the distance from their farm to market in an effort to determine if transportation costs had any effect upon prices received. Although insufficient numbers reported distances of greater than thirty miles, it would appear that distance does not have any appreciable effect on graded or non-graded price receipts (Table XVII). The only exception to this appears when the farm to market distance is less than ten miles. With the exception of current receipt sales in August, producers in this range received above average prices for both

Table XVII. Average Prices Received for Eggs by Producers in South Dakota for Selected Months 1955-56 by Distance from Farm to Market

Distance from farm to market (miles)	May 1955		August 1955		November 1955		February 1956	
	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded	Nongraded	Graded
	(cents per dozen)							
0 - 9	26.4	27.6	26.4	36.5	32.3	39.1	33.1	33.6
10 - 19	25.5	27.4	27.5	35.4	32.5	38.8	32.8	33.4
20 - 29	26.0	27.9	26.6	34.6*	32.4	41.4	32.7	34.2
30 - 39	27.0	28.0	26.2	33.8*	32.2*	37.4*	32.7	33.3*
40 - 49	26.0*	26.7*	26.8*	34.0*	31.1*	39.8*	34.1*	33.7*
50 or more	26.6	28.7*	27.0*	35.0*	34.6*	38.1*	32.7*	32.9*
Average prices received	26.1	27.6	26.7	35.6	32.3	38.9	32.9	33.5

* Fewer than 10 producers reporting.

graded and non-graded sales during all four periods covered by the study. Above average prices appear without consistency throughout the other ranges.

Seasonal Effects

Waite and Trelogan explain that the range in the average seasonal egg prices is relatively high.[19] Generally egg prices are close to the low for the year from March to July. Egg prices begin to rise in August or September and usually reach a peak in November or December. After reaching the peak, they fall rather rapidly to a low in early spring. The peak of market receipts is usually reached in April or May. From this period on, a definite decline in receipts is apparent. Generally, as the total supply of a product declines relative to demand, price differentials between quality grades tend to widen.

The price pattern described in the above paragraph is borne out by the data in this study (Table II). It gives an explanation of why the price differential between graded and non-graded receipts is great in August and November and small in May and February.

Combination of Factors

An analysis was also made on a combination of seven factors which have been found in other studies to be essential to high quality egg production. Inquiries concerning these seven most desirable factors were made in questions four through ten on the questionnaire. (See Appendix Exhibit C.) Of the 278 returned questionnaires in November, only one producer reported using the most desirable practice under

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[19] Warren C. Waite and Harry C. Trelogan, Agricultural Market Prices, 2nd Edition, John Wiley & Sons, Inc., 1951, pp. 243, 293.

each of the seven factors. Eleven producers reported using six desirable practices and 145 reported using five of the most desirable practices. The difference between the average prices received by producers following five or more of the desirable practices and those following less than five was found to be negligible.

The possibility existed that the apparent combined influence of crop reporting districts and of buyers' line of business was really due to one of these factors alone, if the two factors were closely related. Further analysis indicates that each factor has nearly the same effect as was determined in the separate analysis of each. This further corroborates the findings under crop reporting districts and buyers' line of business. (See Appendix Exhibit A.)

CHAPTER IV

SUMMARY AND CONCLUSIONS

Nearly all factors analyzed in this pilot study appeared to have had some effect on prices received by South Dakota egg producers. The effect of production and marketing factors on graded egg prices was most apparent at times when the price differential for quality was greatest. The exact effect of each factor on prices received was not determined in this study because of the nature of the data and the method by which it was obtained.

Eight of the ten factors discussed under production and handling practices appeared to have a consistent effect on average graded prices received by producers throughout all four periods covered by this study. These factors are: (1) breed of layers, (2) size of the laying flock, (3) confinement of the laying flock, (4) frequency of gathering, (5) place where eggs were stored, (6) temperature of the egg storage room, (7) container in which eggs were gathered and stored, and (8) egg cleaning practices. The remaining two factors, weekly egg production and the presence of male birds with the laying flock, both appeared to affect average prices received, but the effect was not consistent throughout all four periods covered by the study.

Some of the factors listed under marketing practices appeared to have a greater effect on price than production and handling practices. The buyer's line of business seemed to have a greater effect on price than any other factor studied. Producers generally received a higher price if they delivered eggs to the buyer. Higher prices appeared to have

resulted when eggs were delivered more frequently during the week, although no consistent effect was apparent.

Geographic location, a factor over which producers have little or no control, appeared to have a considerable effect on prices received by producers. Producers located in areas accessible to larger marketing outlets generally received more per dozen than those in less ideal locations but no consistent price pattern was apparent. The distance from farm to market usually affected prices received by producers. The seasonal effect found in this study follows the historical cycle of price variation rather closely.

The proportion of grade A eggs sold by South Dakota producers reporting in this study averaged about 10 to 15 percent below the average of the North Central Region. Slightly less than half of the eggs marketed by producers in this study were sold on a non-graded basis. These are perhaps two important reasons why South Dakota egg producers receive below average prices for their eggs.

In general, this study would appear to indicate that quality is an important factor affecting prices received by South Dakota egg producers. Production and marketing practices not directly affecting quality also appear to have an important effect on egg prices received.

From this study it would appear that the economic feasibility of improving egg quality and marketing on a graded basis would be rather doubtful during certain seasons of the year while the reverse is definitely true during other seasons of the year.

This study further indicates that the majority of South Dakota egg producers reporting were using only slightly more than half of the

recommended handling practices essential to maintaining high egg quality. This is perhaps an important reason for the relatively low percentage of grade A eggs delivered. Other studies have found that it is necessary for a producer to follow all recommended quality maintenance practices, if improved quality is to be achieved. Producers adopting one or two new quality improvement practices may not get the desired result because the quality gained by these practices may be lost by failure to employ other practices.

The probable reasons why South Dakota producers are not following all the recommended practices essential to high quality egg production are: (1) lack of knowledge as to what are the recommended practices, (2) lack of facilities and the time required for proper handling of flocks and eggs, and (3) the price differential between graded and non-graded receipts is very small during certain seasons of the year. This last factor alone destroys the desire of the producer to put forth the extra effort required for top quality egg production.

Recommendations For Future Studies

The problem of factors affecting the prices received by South Dakota egg producers needs to be studied in much more detail. A future study dealing with this problem should include all factors known to have an effect on egg quality. Data could perhaps best be obtained by personal interview. The study should be set up in such a manner that it would be possible to determine the interaction of the effects of one factor on another by the use of a statistical analysis. It

would probably not be necessary to gather data over the entire state, since about three-fourths of the state's total chicken population is located in the eastern one-third of the state.

There is also need for a study which will determine what proportion of the difference between average egg prices received by South Dakota and United States producers is taken up by transportation costs.

A future study might also be directed toward determining the possibility of developing specialized marketing outlets for fresh eggs produced in South Dakota.

The loss in egg quality which occurs between the first buyer and central assembly plant is known to be high in South Dakota. A future study might be directed toward determining what effect this loss in quality has on prices received by producers and also compare the efficiency of South Dakota's egg marketing system with those of neighboring states.

Although educational work has been done in the field of egg quality improvement, there still remains room for considerable advancement. South Dakota egg producers and buyers have often been encouraged to improve the quality of eggs marketed, which should result in greater returns for them. However, the additional costs involved in the process of improving egg quality must be investigated thoroughly by producers and buyers to determine if the additional returns will at least offset the additional cost resulting from attempted egg quality improvement. The economic feasibility of maintaining high egg quality depends on favorable price, cost and marketing conditions.

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APPENDIX EXHIBIT A

TABLES

Table XVIII. Average Prices Received for Eggs by South Dakota Producers Selling to Various Types of Dealers, by Crop Reporting Districts, May, 1955

Crop Reporting District	Local Produce Station		Egg Assembly Plant		Retail Store		Creamery		Independent Trucker		Other	
	CR[1]	AG[2]	CR	AG	CR	AG	CR	AG	CR	AG	CR	AG
1	*	*	*	*	24.8	*	*	*	*	*	*	*
2	25.2	*	*	*	25.3	*	28.4	*	*	*	30.8	*
3	25.0	27.0	26.9	26.7	*	*	26.3	27.7	27.0	*	*	*
4	*	*	*	*	26.9	38.0	*	*	*	*	28.0	*
5	25.9	*	*	*	27.0	*	24.8	27.3	*	*	26.0	*
6	26.1	27.7	26.3	27.6	29.5	28.3	27.4	27.9	*	*	27.1	27.6
7	*	*	*	*	27.3	*	*	*	*	*	*	*
8	24.3	*	*	*	26.5	*	*	*	*	*	*	*
9	26.0	26.7	*	27.7	27.1	*	25.5	27.0	*	*	*	*

[1] CR = Current receipts price in cents per dozen.

[2] AG = Average graded price in cents per dozen.

* Omitted because of purchases of fewer than 100 dozen.

Table XIX. Average Current Receipt Prices Received by Producers Selling Eggs to Various Types of Dealers, by Crop Reporting Districts, August, 1955

Crop Reporting District	Local Produce Station		Egg Assembly Plant		Retail Store		Creamery		Independent Trucker		Other	
	CR[1]	AG[2]	CR	AG	CR	AG	CR	AG	CR	AG	CR	AG
1	*	*	*	*	*	*	*	*	*	*	*	*
2	25.3	*	*	*	25.4	*	24.1	36.0	*	*	*	*
3	29.3	35.4	*	*	*	*	25.2	37.2	*	*	*	*
4	*	*	*	*	28.5	*	*	*	*	*	*	*
5	27.6	*	*	*	26.4	*	27.6	34.5	*	*	*	*
6	27.3	36.7	27.5	38.6	41.3	*	27.2	36.3	*	*	*	*
7	*	*	*	*	*	*	*	*	*	*	*	*
8	24.4	*	*	*	*	*	*	*	*	*	*	*
9	26.8	33.9	*	35.7	27.5	*	26.9	34.1	*	*	*	*

[1] CR = Current receipts price in cents per dozen.

[2] AG = Average graded price in cents per dozen.

* Omitted because of purchases of fewer than 100 dozen.

Table XX. Average Current Receipt Prices Received by Producers Selling Eggs to Various Types of Dealers, by Crop Reporting Districts, November, 1955.

Crop Reporting District	Local Produce Station		Egg Assembly Plant		Retail Store		Creamery		Independent Trucker		Other	
	CR[1]	AG[2]	CR	AG	CR	AG	CR	AG	CR	AG	CR	AG
1	*	*	*	*	*	*	*	*	*	*	*	*
2	31.3	35.8	*	*	31.5	*	*	39.9	*	*	*	*
3	31.0	38.3	*	*	*	*	30.5	38.2	*	*	*	*
4	*	*	*	*	*	54.5	*	*	*	*	*	*
5	32.9	*	*	*	*	*	31.3	36.1	*	*	*	*
6	34.0	39.3	*	41.8	*	*	32.8	39.1	*	*	*	*
7	*	*	*	*	*	*	*	*	*	*	*	*
8	30.0	*	*	*	*	*	*	*	*	*	*	*
9	32.8	37.4	*	40.9	*	*	32.0	36.6	*	*	*	*

[1] CR = Current receipts price in cents per dozen.

[2] AG = Average graded price in cents per dozen.

* Omitted because of purchases of fewer than 100 dozen.

Table XXI. Average Current Receipt Prices Received by Producers Selling Eggs to Various Types of Dealers, by Crop Reporting Districts, February, 1956

Crop Reporting District	Local Produce Station		Egg Assembly Plant		Retail Store		Creamery		Independent Trucker		Other	
	CR[1]	AG[2]	CR	AG	CR	AG	CR	AG	CR	AG	CR	AG
1	*	*	*	*	*	*	*	*	*	*	*	*
2	32.9	*	*	*	33.2	*	34.5	*	*	*	33.9	*
3	32.1	32.8	*	*	32.9	*	32.6	33.4	*	*	*	*
4	*	*	*	*	36.3	49.7	*	*	*	*	*	*
5	32.7	*	*	*	32.7	*	*	32.7	*	*	*	*
6	33.7	33.7	*	35.5	*	33.6	32.9	32.5	*	*	*	*
7	*	*	*	*	*	*	*	*	*	*	*	*
8	31.3	*	*	*	*	*	*	*	*	*	*	*
9	33.3	33.2	33.5	34.1	33.1	*	32.5	33.1	*	*	*	*

[1] CR = Current receipts price in cents per dozen.

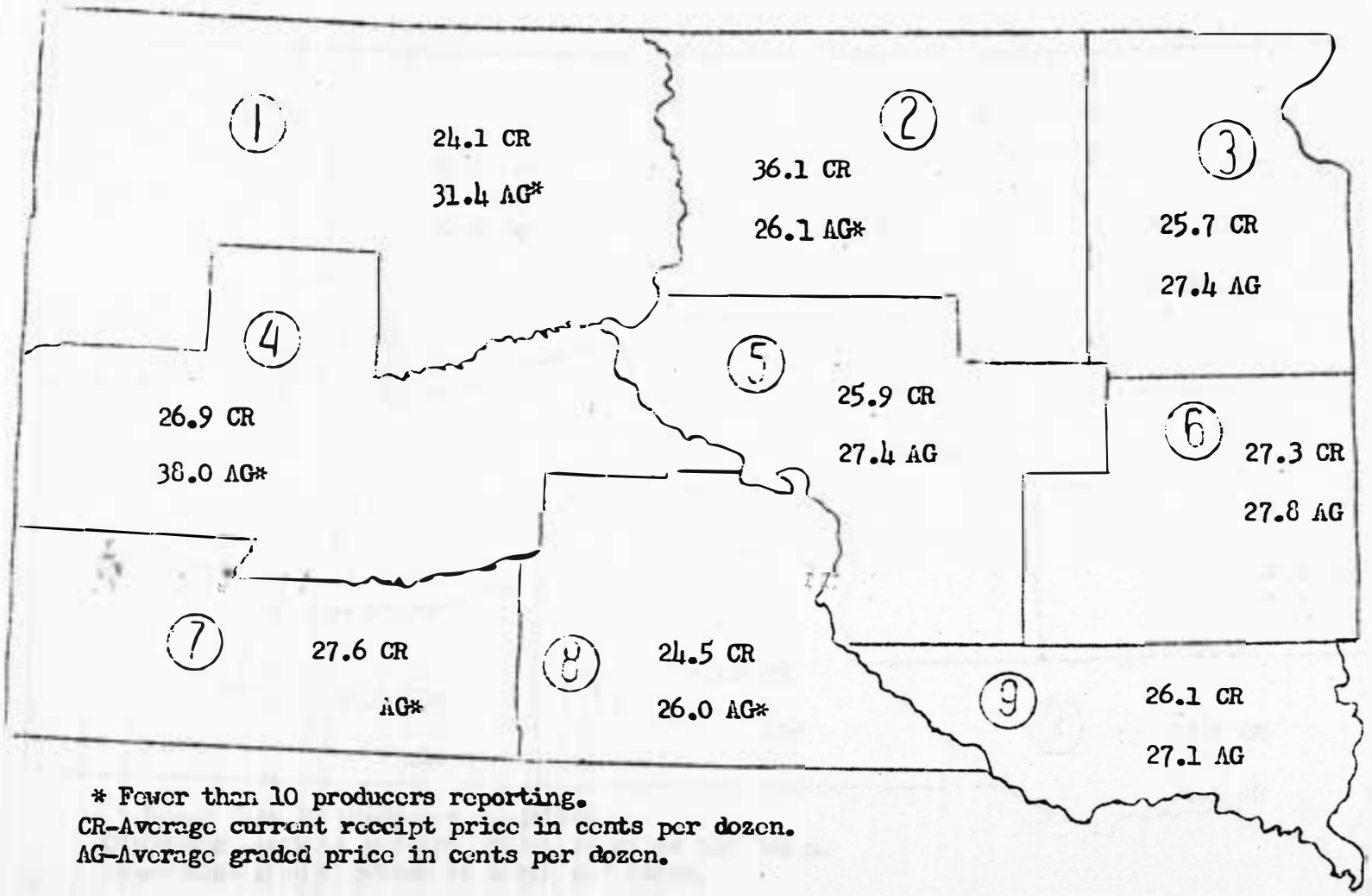
[2] AG = Average graded price in cents per dozen.

* Omitted because of purchases of fewer than 100 dozen.

APPENDIX EXHIBIT B

MAPS

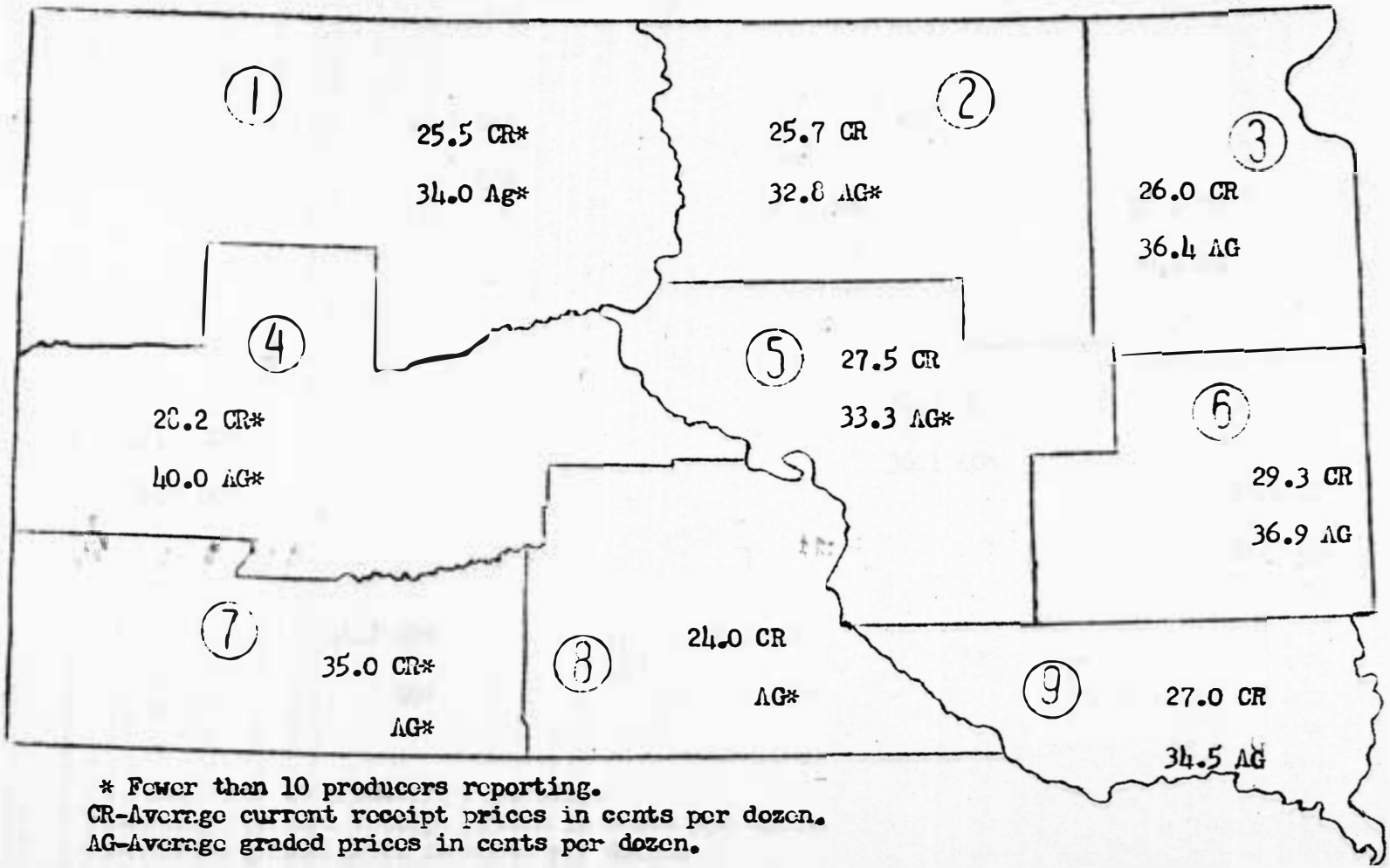
Average Current Receipt and All Graded Egg Prices Received by South Dakota Producers by Crop Reporting Districts, May 1955



* Fewer than 10 producers reporting.
CR-Average current receipt price in cents per dozen.
AG-Average graded price in cents per dozen.

FIGURE 1.

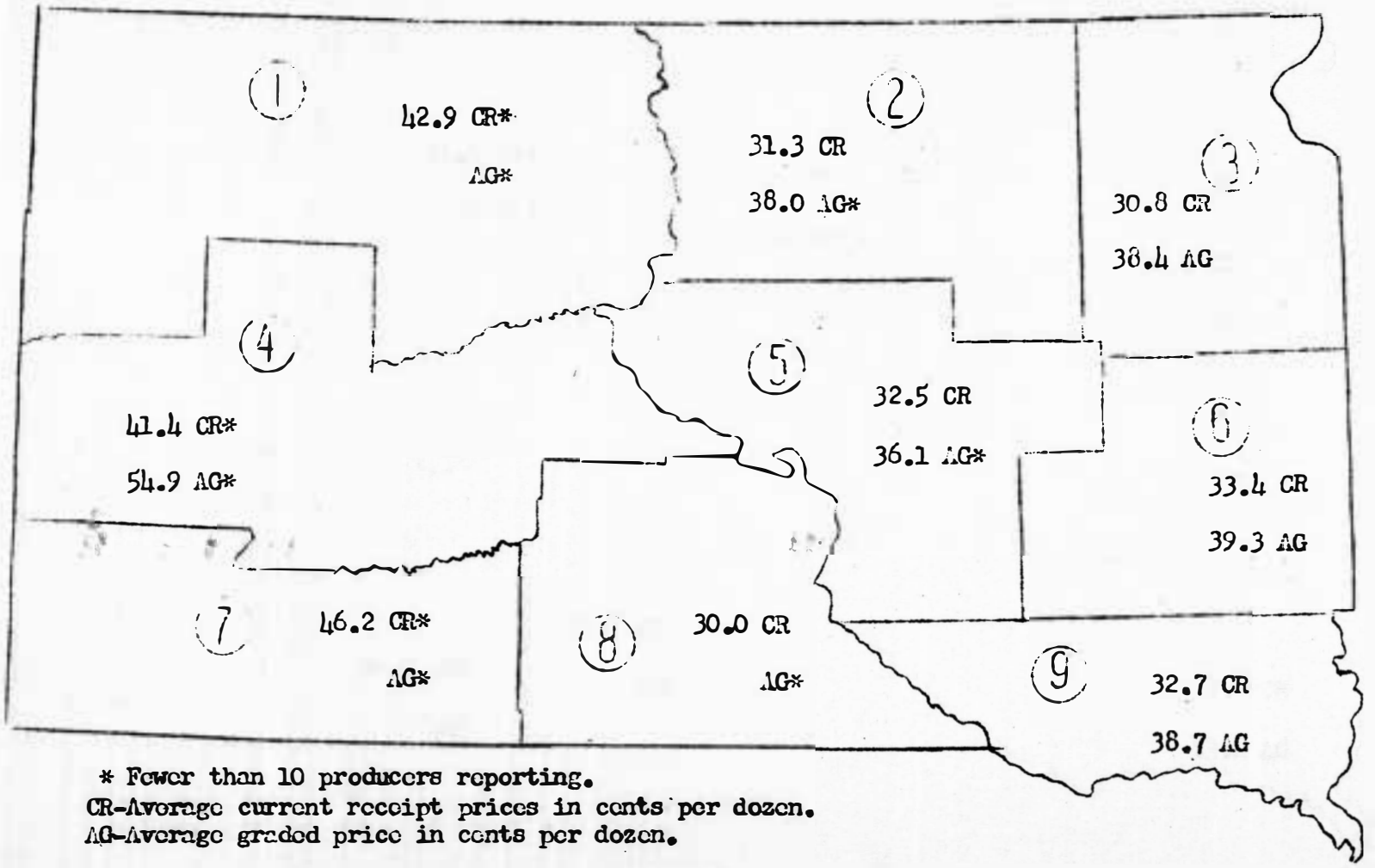
Average Current Receipt and All Graded Egg Prices Received by South Dakota Producers by Crop Reporting Districts, August 1955



* Fewer than 10 producers reporting.
CR-Average current receipt prices in cents per dozen.
AG-Average graded prices in cents per dozen.

FIGURE 2.

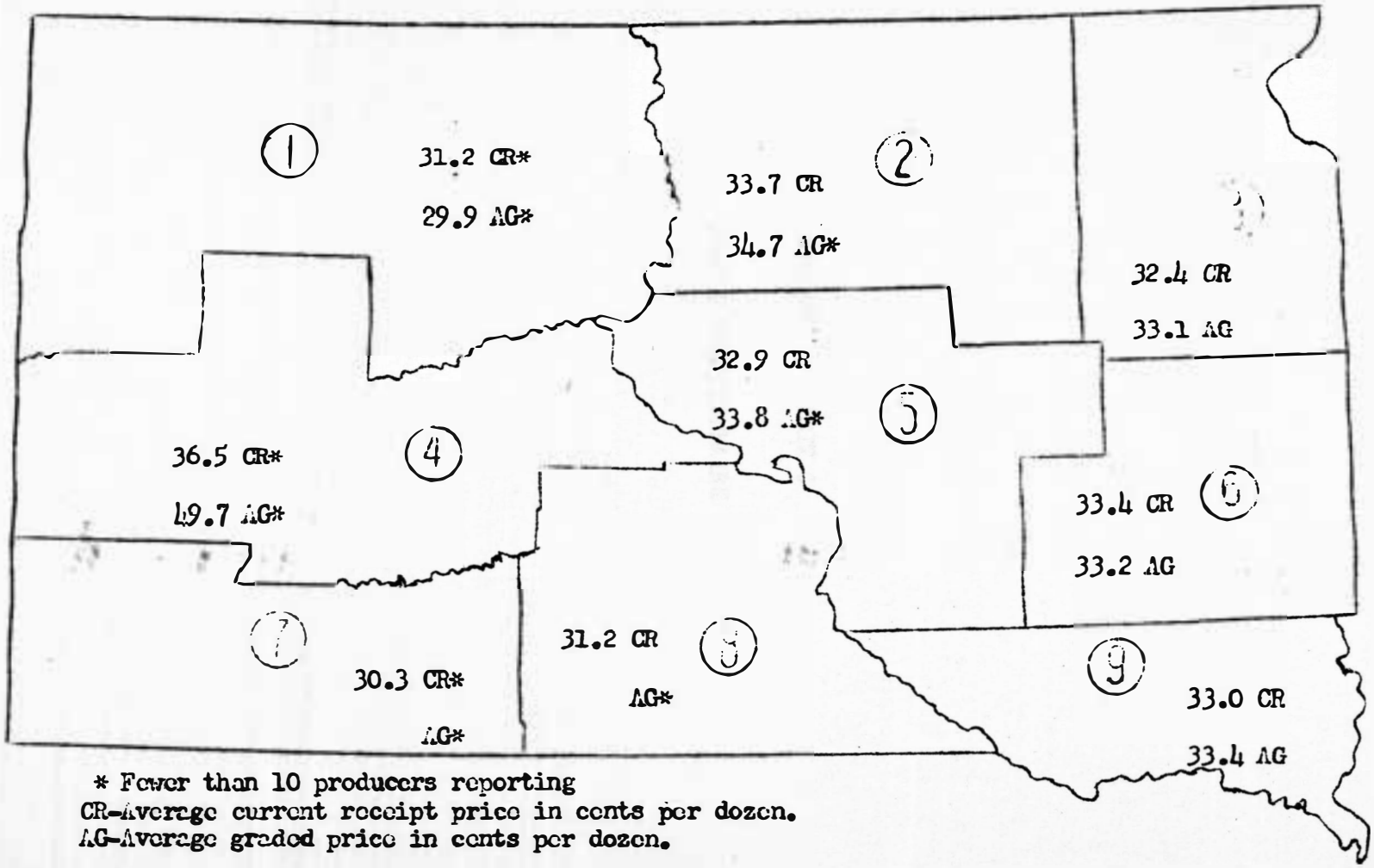
Average Current Receipt and All Graded Egg Prices Received by South Dakota Producers by Crop Reporting Districts, November 1955



* Fewer than 10 producers reporting.
CR-Average current receipt prices in cents per dozen.
AG-Average graded price in cents per dozen.

FIGURE 3.

Average Current Receipt and All Graded Egg Prices Received by South Dakota Producers by Crop Reporting Districts, February 1956



* Fewer than 10 producers reporting
CR-Average current receipt price in cents per dozen.
AG-Average graded price in cents per dozen.

FIGURE 4.

APPENDIX EXHIBIT C

SAMPLE QUESTIONNAIRE

SCHEDULE USED IN SURVEY OF EGG PRODUCTION AND MARKETING METHODS

1. Number of laying chickens in your flock _____

2. Breed of layers _____

3. Egg production for the week _____ dozen

4. Were roosters allowed to run with the layers during that week?
   1. yes ( ). 2. no ( ).

5. Were hens confined to laying house this week?
   1. yes ( ). 2. no ( ).

6. How many times per day were eggs gathered? _____

7. Where were eggs held until marketed? 1. basement of dwelling house ( ). 2. cellar ( ). 3. kitchen ( ). 4. porch ( ). 5. laying house ( ). 6. barn ( ). 7. other (specify) _____

   _____

8. What was the approximate average temperature of the storage place during the week? 1. below 50° ( ). 2. 50 to 59° ( ). 3. 60 to 69° ( ). 4. 70° and over ( ).

9. In what type of container were eggs kept? 1. wire basket ( ). 2. metal pail ( ). 3. fiber box ( ). 4. regular case ( ). 5. other (specify) _____

10. Egg cleaning practice: 1. not cleaned ( ). 2. wiped with damp cloth ( ). 3. hand washed in water ( ). 4. dry hand buffer ( ). 5. other (specify) _____

11. Egg sales for hatching purposes during week: A. amount _____ dozen. B. total value _____ or average price _____

(Schedule continued)

12. Egg sales direct to consumers during week: A. amount _____ dozen. B. total value _____ or average price _____

13. Major egg buyer during week (except eggs sold to consumers and for hatching).

A. Name of firm _____

B. Address _____

C. Distance from farm _____

D. Buyers's main line of business: 1. local produce station ( ). 2. egg assembly plant ( ). 3. retail store ( ). 4. creamery ( ). 5. independent trucker ( ). 6. other (specify)

_____

E. Did you deliver eggs to buyer ( ) or were they picked up at the farm ( ).

F. How many times during the week were they delivered or picked up? _____

G. Egg sales during the week (deduct hauling charges, if any, from value and price).

	Amount	Total value	Average price
(1) current receipts (ungraded)	_____ dozen	_____	_____
(2) grade A large eggs	_____ dozen	_____	_____
(3) all eggs sold on graded basis (including grade A).	_____ dozen	_____	_____

14. All egg sales during the week which were not listed under 11, 12, or 13: A. amount _____ dozen. B. total value _____ or average price _____.

15. General comments _____

_____