5-1952

Marketing of Chickens in Utah

Glen Downs
Utah State University

MARKETING OF CHICKENS IN UTAH

by

Glen R. Downs

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Agricultural Economics and Marketing

1952

UTAH STATE AGRICULTURAL COLLEGE
Logan, Utah

ACKNOWLEDGMENTS

The author expresses sincere appreciation to Dr. R. K. Anderson, Associate Professor, Department of Agricultural Economics, Utah State Agricultural College, for his assistance in outlining this problem and his constructive criticisms and suggestions; to Dr. W. F. Thomas, Head, Department of Agricultural Economics, for his helpful suggestions; to the Production and Marketing Administration for financial assistance which made this study possible; to the various processing plants throughout the state who cooperated by making their plant records available to the author; and to Mrs. Kathleen Horton for her generous clerical help in tabulating and recording the results of this study.

Glen E. Downs

TABLE OF CONTENTS

LIST OF FIGURES AND PLATES

INTRODUCTION

Chickens and eggs rank fourth among the farm enterprises in Utah as a source of farm cash receipts. In 1943 about 21 million dollars of cash receipts were received from sales of chickens and eggs which represented 13.2 percent of total receipts from farm marketings (table 1). In the same year 17.7 percent of total receipts were derived from cattle and calves, the largest enterprise. Receipts from dairy products represented 15 percent and sheep, lambs, and wool 13.8 percent.

Receipts from chickens and eggs have increased in comparison with other enterprises since 1924. In that year only 5 percent of total farm receipts came from eggs and chickens, but by 1930 the percentage from this source had increased to 12 percent (table 2). Since 1930 the importance of the chicken enterprise has remained fairly constant.

The contribution of chicken sales has usually represented from one-sixth to one-fifth of the receipts from both chickens and eggs, but since 1924 has varied from a low of 12 percent to a high of 25 percent (table 2). During times of full employment and good payrolls, chicken meat has been relatively important when compared with eggs; although scarcity and rationing of red meats during World War II may have increased the importance of chicken meat in that period.

The chicken enterprise fits well into the organization of small farms that are close to accessible feeds, good transportation facilities, and markets. A relatively large business can be developed on a small land base. The enterprise gives employment to a large amount of labor which is available on many small farms in Utah.

Production of chicken meat in Utah is from three separate sources, cockerels produced jointly with laying flock replacements, cull layers, and chickens raised for meat only. Cockerels produced jointly with laying flock replacements are largely of the Leghorn breed. These birds represent a small percent of the chickens sold for meat, as egg producers usually buy sexed birds for replacements because profits from cockerels are relatively small.

The chickens culled from the laying flocks are sold mostly as stewing hens; and they are the largest source of chicken meat, being a by-product of egg production. These birds may be culls for laying purposes and yet be of good quality for eating. Most of the chickens produced exclusively for meat are sold as fryers and are predominantly of the New Hampshire breed.

The demand for ready to cook style of processing in recent years has required more sanitation and inspection work in connection with processing plants. This fact has resulted in concentrating the chicken processing business into larger and better plants in Utah (plate 1).

Largest chicken processing plant in Utah

Evisceration department of processing plant with government inspection service

PLATE I

Table 1. Receipts from farm marketings of specified products and from government payments, Utah, 1948 1/

Source	Millions of dollars		Percent of total	
	U. S. Dol.	Utah Dol.	U. S. %	Utah %
Cattle and calves	5223	28	17.0	17.7
Dairy products	4433	24	14.4	15.1
Eggs	1857	17	6.0	10.7
Chickens (including broilers)	923	4	3.0	2.5
Turkeys	255	10	0.8	6.3
Hogs	3728	7	12.0	4.4
Sheep, lambs, and wool	522	22	1.7	13.8
Other livestock products	128	1	0.4	0.6
Cotton and cottonseed	2492	—	8.1	—
Fruits and nuts	1562	7	5.1	4.4
Tobacco	975	—	3.2	—
Potatoes	566	4	1.8	2.5
Vegetables, except potatoes	1198	7	3.9	4.4
All other crops	6741	27	21.8	17.0
Government payments	257	1	0.8	0.6
Total	30,862	159	100.0	100.0

1. Farm Income Situation, U. S. Department of Agriculture, March and June, 1949.

Table 2. Relative importance of chickens and egg enterprise in Utah as measured by income from farm marketings, 1924-1950 1/

Year	Receipts from Chickens	Receipts from Eggs	Total eggs and chickens	Total income from farm marketings	Percent income from eggs and chickens	Percent chickens of total eggs and chickens
	1,000 Dol.	1,000 Dol.	1,000 Dol.	1,000 Dol.	Percent	Percent
1924	578	2127	2705	50012	5	21
1925	629	3067	3696	59098	6	19
1926	900	3048	3948	56026	7	21
1927	946	3260	4206	55215	8	22
1928	1198	3968	5086	65635	8	23
1929	1485	5573	7056	63365	11	21
1930	1357	5021	6378	51553	12	21
1931	983	4189	5172	37528	14	19
1932	691	2872	3563	26372	14	19
1933	629	2610	3238	29317	11	19
1934	540	3321	3861	30604	13	14
1935	651	4523	5174	34831	15	13
1936	747	4056	4803	43245	11	16
1937	736	5029	5765	49772	12	13
1938	629	4770	5398	44332	12	12
1939	601	3868	4469	45091	9	14
1940	668	3584	4252	46601	9	16
1941	974	5042	6016	60411	10	16
1942	1907	7562	9496	83451	11	20
1943	3600	11102	14861	102589	14	25
1944	3183	11715	14898	115253	13	21
1945	4499	13493	17942	126534	14	25
1946	2945	14304	17249	136761	13	17
1947	3618	16802	19620	155442	13	17
1948	3825	15976	20701	157921	13	18
1949	3871	15946	19817	150832	13	19
1950	2962	14745	17707	147333	12	16

1. Farm Income Situation Reports, U. S. Department of Agriculture.

OBJECTIVES OF THE STUDY

The objectives of this study were: (1) to ascertain the volume of chickens produced by classes and channels of marketing chickens in Utah, (2) to ascertain weight loss from farm to plant and weight loss through processing different classes of chickens, (3) to determine the relationship between grading live and dressed chickens, and (4) to show relationships and monthly variations in prices of the various classes of chickens.

REVIEW OF LITERATURE

There has been no specific study made in Utah of marketing of chickens in regard to the weight loss in transportation from farm to plant or weight loss through processing. This thesis is also the first specific study made to ascertain relationships between live and dressed grading in the state.

A study of chicken slaughter and prices in the western states was made by H. H. Anderson in 1940.[1] This study showed trends in chicken slaughter from 1925 to 1940, comparing the United States and the eleven western states. The source of chickens slaughtered and chicken prices were also studied.

A study of quality of fresh chicken meat and causes of down-grading in the Los Angeles market was made by Kenneth D. Naden and George A. Jackson, Jr.[2] This study also gives reasons for down-grading and classification as to cause such as production, processing, or retailing.

"Trends in Agricultural Production Costs and Returns", by the staff of the Agricultural Economics Department, Utah State Agricultural College, Logan, Utah, presents trends of the chicken and egg enterprise in the state of Utah. This study shows the trends and relationship in production and total farm receipts from this enterprise.[3]

---

1. Anderson, H. H. Chicken slaughter and prices in the western states.

2. Naden, Kenneth D. and George A. Jackson, Jr. Quality of fresh chicken meat. Causes of down-grading of chickens handled in the Los Angeles market revealed in representative survey.

3. Thomas, W. Preston, et. al. Trends in agricultural production costs and returns in Utah.

Regulations governing the grading and inspection of poultry were streamlined and revised by the United States Department of Agriculture.[1] These revisions were made to better meet the changing demand in marketing of this product.

A study of hauling shrinks and why they vary was made by Richard A. King, University of Connecticut, and shows the results of various kinds of feed on percent shrink of chickens in hauling.[2] The relationship of age, time, and miles traveled on account of shrink was shown. The data of this study show that method of handling the birds is a very important factor affecting shrinkage.

---

1. Regulations Governing the Grading and Inspection of Poultry and Domestic Rabbits and Edible Products Thereof and United States Specifications for Classes, Standards, and Grades with Respect Thereto.

2. King, Richard A. "Why hauling shrinks vary."

SOURCES OF DATA AND PROCEDURE

The data in this study were obtained from two separate surveys of processing plants covering the period from July 1, 1949, to June 30, 1950. Excellent cooperation was received from the processors in making records, materials, and help available in obtaining information for this study.[1/]

One survey was made by a personal visit to all processing plants in the state to obtain total volume of purchases and sales of chickens, both in and out of the state. Channels of distribution for chickens, methods of operation, and plant facilities, were part of the information obtained. These data were received from nearly 100 percent of the processing plants. From some of the larger plants of the state, more detailed information was obtained such as sales by months, head count, and weight at farm and also at plant on the same shipments of chickens. These data were punched on IBM cards to facilitate the analysis.

The other survey was made through cooperation with the larger processors. The processing plants were visited by a qualified U.S.D.A. grader approximately every two weeks from July, 1949, through June, 1950. The primary objective of this survey was to obtain information on the relationship between live and dressed grading of chickens in Utah. Information was also obtained on days fed, weight on and off feed at processing plant, percent dress-off, and reasons for down-grading. The following procedure was used: sample batteries of

---

1. For samples of schedules used in obtaining information, see appendix.

various classes of chickens were selected at random on the feeding floor and tagged for identification. The head count, weight on and off feed, was recorded before the birds were processed. The birds were then cooled over night and graded the next day in accordance with standards governing U.S.D.A. grading of poultry, the grading being done by a qualified U.S.D.A. grader. The number and weight in each grade was recorded, and for all birds grading below grade "A" the reason was recorded. An attempt was made to compare the dressed grading as done by the plants with U.S.D.A. standards; but due to the lack of uniformity in grading methods used in the plants, such a comparison was impossible.

In order to get a histroical description of the chicken enterprise and trends in its importance, data were obtained from "Farm Income Situation, U.S.D.A" and current data published by U. S. Bureau of Agricultural Economics.

PRESENTATION AND ANALYSIS OF DATA

Trends in chicken marketing

The trend in number of chickens marketed in the United States, western states, and in Utah has varied considerably in the past 25 years (figure 1). The number marketed fluctuated irregularly from 1935 to 1940 and then increased phenomenally by 1943. The high peak in 1943 to 1946 was partially due to World War II which increased the demand for chicken because of rationing of red meats, although the general trend is still up. Chickens marketed in Utah followed the same general trend as the United States, but with somewhat greater fluctuations.

Quantity of chickens processed in Utah

For the purpose of this study chickens processed in Utah have been classified in four classes, heavy hens, light hens, fryers, and broilers. Light hens are usually of the Leghorn breed, and the average weight is about 4 pounds per bird at time of marketing (table 3). Light hens sold for meat are a by-product of the egg enterprise. The fact that they are cull layers does not mean they are culls for meat purposes. In most cases they have more fleshing and finish than the hens which are laying.

The fryer class of chickens is raised exclusively for meat purposes and has better quality of meat than those bred for laying purposes. Fryers are generally produced from the heavy cross breeds of chickens, but in this state most fryers are of the New Hampshire breed. Birds of this class are of either sex, and the average weight at time of slaughter

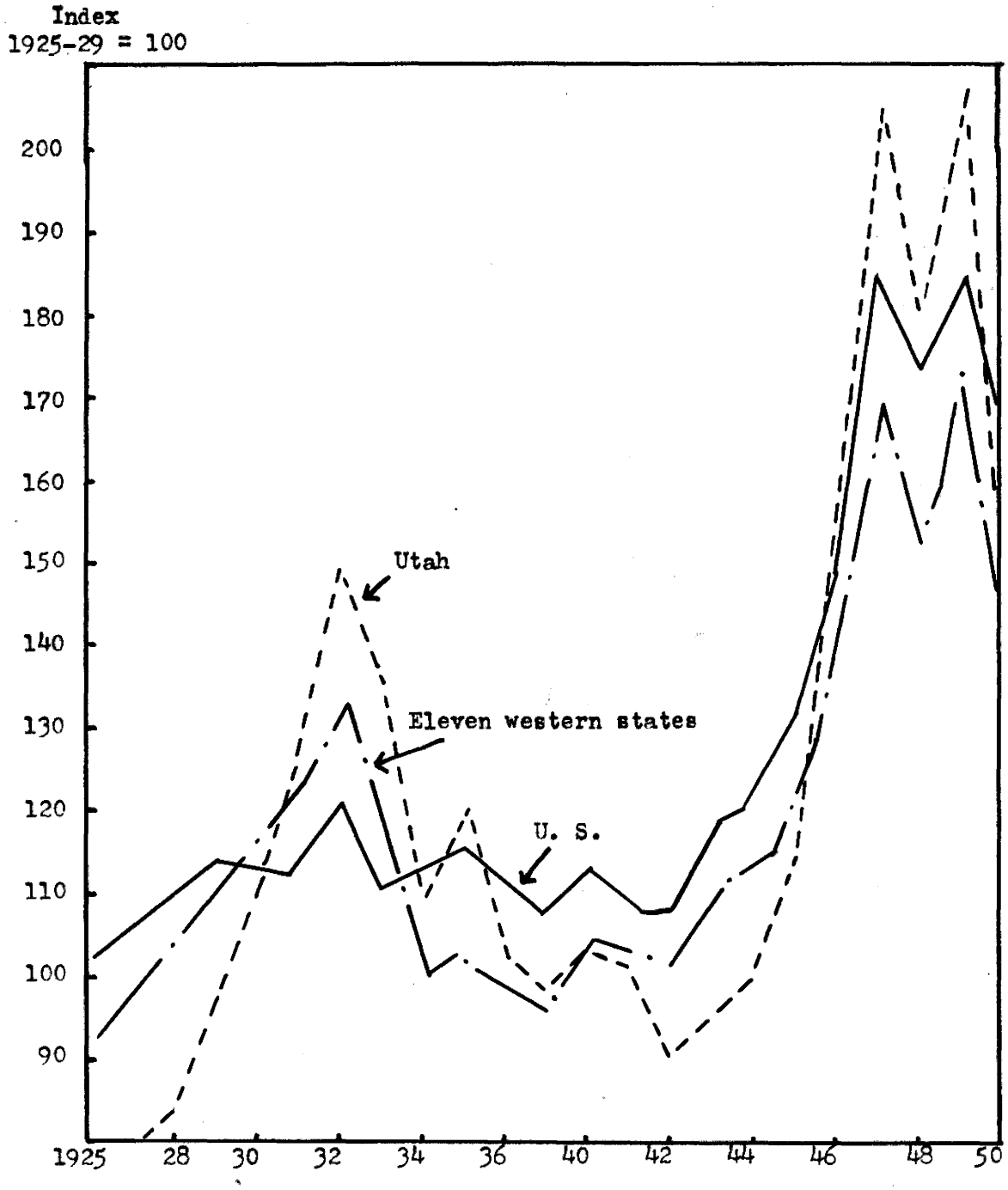

Figure 1. Relative changes in number of chickens slaughtered in the United States, eleven western states, and Utah, 1925-49.

is about 3 1/3 pounds at an age of 10 to 12 weeks. The demand by the consumer for a fresh supply of fryers the year around has caused the processing plants to contract for a constant, uniform supply of this class of birds.

Table 3. Average live weight per head of various classes of chickens processed in Utah, 1949-50

Class of chickens	Average weight per head
	Pounds
Heavy hens	5.2
Light hens	4.0
Fryers	3.3
Broilers	2.3
All classes	3.6

Leghorn chickens which are slaughtered for meat at 10 to 12 weeks are classified as broilers. These birds are generally male birds or cockerels from small flocks of unsexed chicks being raised primarily for pullet replacements. This class of chickens known as broilers is generally slaughtered at 10 to 12 weeks of age at an average weight of 2 1/3 pounds per bird. The meat of these birds is soft and tender but does not compare in quality to the meat from the young colored chickens slaughtered as fryers.

The heavy hens marketed are generally a by-product of the small laying flock. These chickens are of a higher quality meat than the Leghorn hens and at time of slaughter weigh more than 5 pounds.

With the large number of chickens used in egg production in Utah, it is not surprising that the Leghorn, the light hen class of chicken, accounted for 59 percent of the total chickens marketed in the state (table 4).

Table 4. Pounds of various classes of live chickens purchased by type of buyer, Utah, 1949-50

Class of chickens	Type of buyer: Cooperative processor	Independent processor	Consumer	All buyers
	Lbs.	Lbs.	Lbs.	Lbs.
Heavy hens	118,693	119,038	16,640	254,367
Light hens	3,648,814	1,540,130	363,226	5,906,537
Fryers	1,672,479	1,009,069	106,181	2,760,721
Broilers	405,515	266,964	134,495	806,974
All classes	5,845,497	2,003,193	620,542	9,374,232
	Percent of total pounds			
	Percent	Percent	Percent	Percent
Heavy hens	2	4	3	3
Light hens	62	53	59	59
Fryers	29	34	17	29
Broilers	7	9	21	9
All classes	100	100	100	100

The fryer class of chickens, the class produced commercially for meat purposes, amounted to 29 percent of the total chickens marketed. The quantity of these birds produced has increased in recent years, mainly because the processors are contracting for production of these birds to help maintain their business on a year around basis.

Broilers and heavy hens processed in Utah are relatively unimportant, accounting for 9 and 3 percent, respectively, of the total marketings. These two classes as well as the light hens are primarily by-products of the egg enterprise.

Cooperatives, the leaders in the chicken and egg enterprise of Utah, processed 62 percent of their total volume from the light hen class. The independent processing plants do not process as high a

percentage of their total from the light hen class as do cooperatives, but do their largest portion, 53 percent, from this class. The independent processors do 38 percent of their volume from fryers as compared to 29 percent for the cooperatives.

Twenty-one percent of the chickens purchased by consumers direct from producers were broilers.

The chicken processing in Utah as a whole was brought about as a result of the development of the egg industry, but has now developed into a fair business of its own.

Sources of live chickens obtained by processing plants

Processing plants receive chickens from three sources: those produced by the processing plants for their own slaughter, those delivered from farm to plant by the producer, and those purchased from the farm by one of the various types of buyers. About 4 percent of the total birds processed in 1949-50 were produced by processors. All of these were produced by independent processors and represented 13 percent of their volume (table 5). Most of the birds produced by processors were fryers produced by small independent processors who have a regular demand for a small volume of these birds either wholesale or retail. The larger plants regulate their volume by contracting with producers for production of fryers and staggering these contracts throughout the year.

About one-sixth of the volume obtained by processing plants was delivered to the plant by producers. Farmers living close to the plant sometimes use company crates and deliver their own chickens. This procedure was used particularly for small lots of chickens culled from the laying flock.

Table 5. Sources of live chickens obtained by processing plants, Utah, 1949-50

Sources of chickens	Cooperative processors	Independent processors	All processors
	Pounds	Pounds	Pounds
Production by plant	—	373,517	373,517
Delivered by producers	1,096,402	402,540	1,498,938
Plant buyers	4,748,989	645,130	5,394,119
Huckster	—	1,487,006	1,487,006
Total	5,845,487	2,908,193	8,753,680
	Percent of pounds by:		
	Percent	Percent	Percent
Production by plant	—	13	4
Delivered by producers	19	14	17
Plant buyers	81	22	62
Huckster	—	51	17
Total	100	100	100

The remaining 79 percent of the chickens were obtained through some type of buyer. Both plant buyers and independent buyers or hucksters operate in the state. Plant buyers are of two types, commission buyers who buy for one concern on a commission basis and company buyers who are employees of the processing plant. Both of these plant buyers are agents of the processing plant. They differ only in method of compensation; the commission buyer being paid on the basis of volume of chickens delivered, and the company buyer receiving a salary from his principal. The huckster or independent operator buys with his own capital and sells to the processing plants.

The processing plants obtained 17 percent of their chickens from hucksters and 62 percent from plant buyers. Hucksters sold their entire volume to independent processors, which accounted for about

one-half of the volume processed by these processors. The cooperative processing plants employ the commission method for most of their volume obtained through plant buyers. The independent plants, on the other hand, use company buyers almost exclusively.

Regardless of the type of buyer, weighing and grading was usually done at the farm. The birds were graded individually and placed in crates to be weighed or loaded on trucks and weighed by the truck load at public scales. The chickens delivered to the plant by producers were graded individually and weighed by the crate or battery at the plant platform. Whether purchased at farm or plant, the grading was done by the buyer and birds were weighed on the buyers' scales.

Sales of dressed chickens from processing plants

The proportion of chickens going from the processing plants through the various stages of distribution is determined by many factors. Some chickens may need further processing to meet the demand of the consumer. The processing plants of small volume and not connected with a direct market for their product use the broker to some extent in the distribution of chickens; even the larger processing plants use the broker in times of over-supply particularly for sales to distant markets. The plants that are highly integrated perform the wholesaling function and sell direct to retail stores and restaurants. Some of the smaller independent processing plants have a retail sales room and sell part of their volume direct to consumer.

Outlets to which processors market their chickens were retail stores and restaurants, wholesalers, consumers, other processors, and through brokers. More than one-half of the total volume was sold to retail stores and restaurants (table 6). Most of these sales were

made in nearby cities and towns where direct personal contacts were relatively easy to make. About 44 percent of the total chickens were marketed to wholesalers who were located in more distant markets.

The remaining 5 percent of chickens were sold by processors direct to consumers, brokers, and other processors. While these outlets were relatively unimportant in total, some plants sold as much as 10 percent of their volume direct to consumers through their retail sales rooms.

The cooperatives, the type of processors doing the largest amount of chicken processing in the state, sold two-thirds of their chickens to retail stores and restaurants; whereas, independent processors sold only 20 percent of their volume through this outlet. The independent processors sold 74 percent of their volume through wholesalers as compared with 29 percent sold through this outlet by cooperative processors. The main reason for the independents having to go through the wholesaler with a larger percent of their chickens is that they are smaller and are not as highly integrated. The cooperatives sold practically no birds direct to consumers, while the independents sold 5 percent of their volume to consumers.

Table 6. Percent of chickens sold from processing plants to various types of outlets, Utah, 1949-50

Type of outlet	Percent of pounds sold from: Cooperative processors	Independent processors	All processors
	Percent	Percent	Percent
Other processors	—	0.4	0.2
Brokers	2.7	1.4	3.0
Wholesalers	29.1	73.9	43.9
Retail stores & restaurants	67.2	19.4	51.3
Consumers	—	5.0	1.6
All outlets	100.0	100.0	100.0

Fifty-eight percent of the chickens processed in Utah in 1949-50 were sold within the state, and the remaining 42 percent were sold out of state (table 7). No attempt was made to follow sales out of state to their final destination, but most of the chickens were sold to the armed forces or to outlets located in neighboring states. There were seven of the processing plants that sold 100 percent of their volume within the state. Most of these were small operators doing business in cities adjacent to the processing plants. One processor sold 95 percent of the chickens processed to buyers located out of state.

Table 7. Percent of chickens sold within the state and out-of-state by Utah processing plants, 1949-50

Plants	Percent of chickens sold by processors:		
	Within state	Out of state	Total
	Percent	Percent	Percent
1	60	40	100
2	5	95	100
3	50	50	100
4	100	0	100
5	70	30	100
6	100	0	100
7	100	0	100
8	90	10	100
9	100	0	100
10	100	0	100
11	100	0	100
12	100	0	100
All plants	58	42	100

Chickens marketed in Utah in 1949-50 were classified as to style of dressing, New York style[1] or ready to cook. During the year 1949-50, 60 percent was marketed as New York dressed and 40 percent as

1. New York style of dressing refers to birds bled and plucked only. Head and feet are left on and the birds are undrawn.

ready to cook (table 8). Some plants processed as much as 95 percent of their volume New York dressed, while other dressed only 15 percent this style. There was one processor who dressed 100 percent of his chickens ready to cook style during the year studied. The butcher shops and restaurants in the past have performed the job of eviscerating the chickens for the patrons if they desired, but today a large percent of the restaurants and butcher shops prefer to handle ready to cook chickens. The consumer demand is fast becoming one for ready to cook chickens, and the processing plants are changing their style of dressing to meet this demand.

Table 8. Extent of dressing chickens in various Utah processing plants, 1949-50

Processing plant	Percent processed	
	New York dressed	Ready to cook
	Percent	Percent
1	50	50
2	80	20
3	50	50
4	85	15
5	85	15
6	—	100
7	60	40
8	90	10
9	90	10
10	90	10
11	15	85
12	95	5
Total	60	40

Channels of distribution

There are two important paths or routes which Utah chickens follow in getting from producer to consumer. One of these is used primarily by cooperative processors and the other by independents.

About 62 percent of the chickens processed in the state were processed in cooperative plants, and about half as many were processed in independent plants. The channel most commonly used by the cooperative processors was from producer to commission buyer, to retail store or restaurant, and then to consumers. More than 40 percent of Utah's chickens took this route to market (figure 2). There were two variations of this marketing channel used by cooperatives: (1) by-passing the commission buyer for those chickens delivered to the plant by producers, and (2) adding the wholesaler as a stage of distribution between the processing plant and the retail store or restaurant.

For birds processed at the independent processing plants the most common channel was from producer to hucksater, to processor, to wholesaler, to retail store or restaurant, and then to consumers. Variations of this channel substituted direct deliveries by producers and company buyers for the hucksater in assembling the chickens. Another variation was to by-pass the wholesaler and sell direct to retail stores and restaurants. This was done for about 6 percent of the state's chickens.

Other marketing channels of less importance were direct from producer to consumer through which about 7 percent of the chickens travel, and direct from processing plant to consumer through which less than 2 percent of the birds travel. Less than 3 percent of the chickens were distributed through brokers. Sales were made through brokers by both cooperative and independent processors and were used to dispose of surplus supplies or for sales in distant markets.

The cooperatives have a more integrated channel of distribution than the independent processors. The integration of the cooperatives

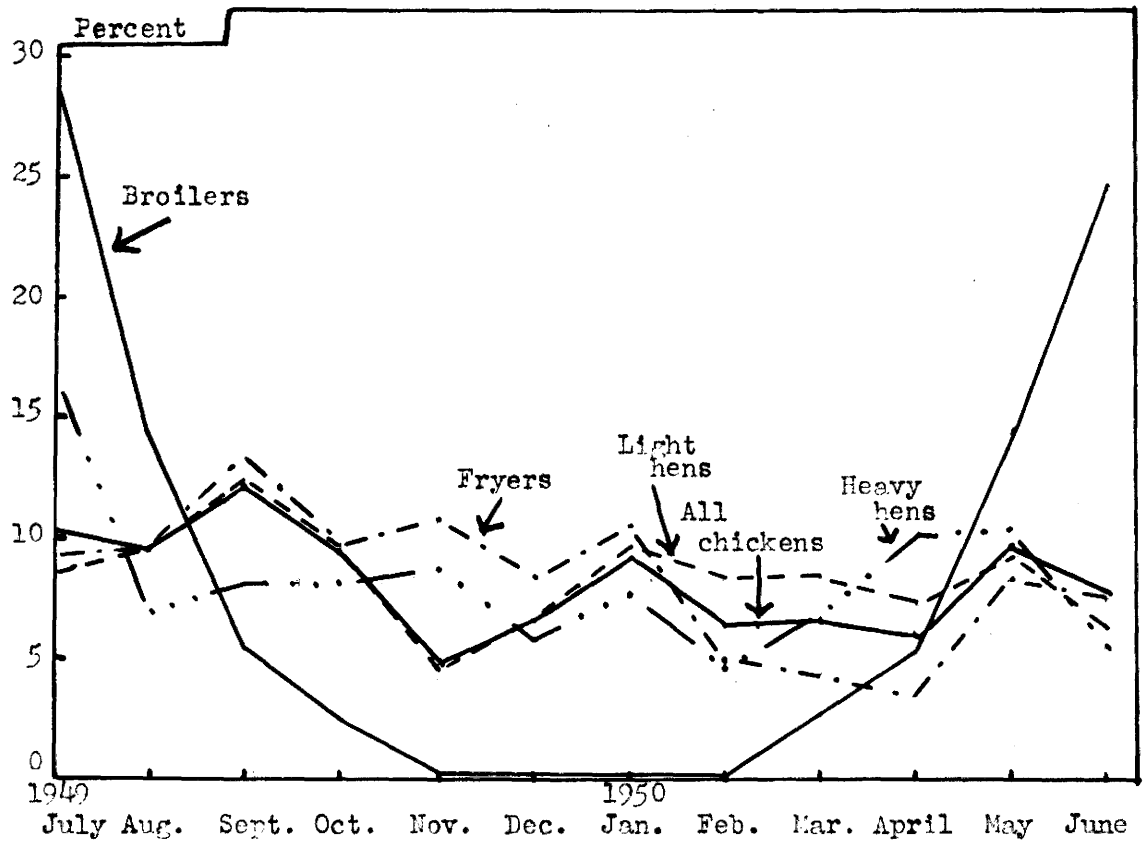

Figure 3. Percent of total pounds of various classes of chickens processed in each month, Utah, 1949-50.

does not mean that part of the marketing functions are being eliminated. The functions are being performed by the cooperatives; thus, eliminating some middlemen. The independent buyer or huckster and the independent wholesaler were often eliminated by the cooperatives by their integrated system of marketing.

Seasonal variations in quantity processed

Data on monthly quantity of the various classes of chickens processed were obtained from processing plants to ascertain seasonal variations in processing. The seasonality of all chickens processed was fairly constant at 6 to 9 percent per month except in the fall months when it rose to 13 percent due to replacements of hens in laying flocks. The light hens, the largest class of chickens marketed in Utah, was less seasonal than other classes. During the months of August and September this class hit a peak of 12.5 percent of annual volume as compared to a low in November of 4.6 percent. The peak in September was due to the replacing of the chickens in the laying flocks (figure 3).

The volume of fryers processed varied from a low of 3.5 percent in April to a high of 13.1 percent in September. The September peak was due to influx of fryers from regular spring hatchings. The need for a constant supply of chickens to help stabilize labor and overhead of processing plants and to meet the almost constant demand of consumers has resulted in greater uniformity of production throughout the year.

Broiler production in this state was of small importance as compared to the fryer and light hen classes. This class of chickens in Utah was extremely seasonal, varying from practically zero from

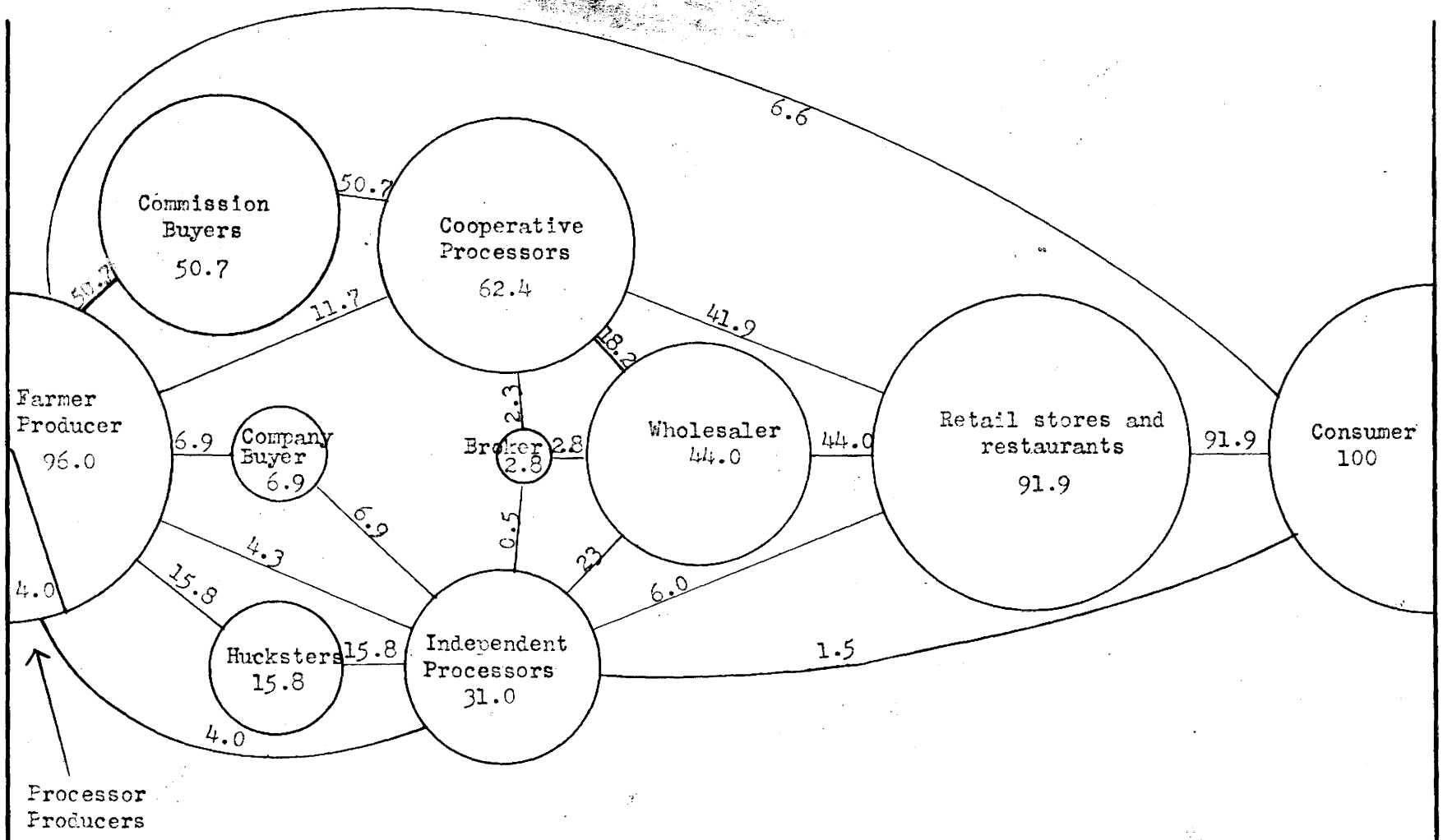

Figure 2 Channels of distribution for chickens in Utah, 1949-50.

November to February to 29 percent of yearly total in each of June and July. Nothing is being done to overcome this seasonality, since the main source of broilers is from unsexed chicks raised primarily for laying flock replacements.

The seasonality of the heavy or colored hens followed the same pattern as Leghorn hens, but they were of such small importance in this state that their effect on seasonality of total chickens processed was very small.

Weight loss of live chickens from farm to processing plant

Both farm and plant weights and head count were obtained on about 50 percent of the chickens marketed in the state for the 1949-50 year. These data were available for chickens of all classes and from all areas of the state, making it possible to ascertain the weight loss in transporting chickens from farm to processing plant for varying distances. The loss in weight as recorded may be due to errors in weighing at farm or plant as well as to shrinkage enroute.

The loss in weight of live chickens from farm to plant varied with class of chickens and distance from farm to plant. The loss in weight of all chickens that came from an area less than 20 miles was 0.6 percent (table 9). The usual practice was to load and deliver these chickens the same day. The chickens hauled a distance of 20 to 100 miles were usually handled the same as above, but the extra distance resulted in a greater weight loss, 1.4 percent. For distances over 100 miles the percent loss was 3.6 percent for all chickens. These chickens were usually loaded and left on the trucks over night and delivered to the processing plant the next day. Some of the chickens reported in the area of over 100 miles came from

a distance as great as 300 miles.

Table 9. Percent loss of weight in transporting live chickens from farm to processing plant, Utah, 1949-50

Distance from farm to plant	Percent loss of farm weight		
	Hens	Fryers and broilers	All chickens
	Percent	Percent	Percent
20 miles or less	0.2	1.5	0.6
20 to 100 miles	1.3	1.6	1.4
More than 100 miles	2.6	4.3	3.6

Broilers and fryers lost 1.5 percent of their farm weight within a distance less than 20 miles from processing plant and 4.3 for distances over 100 miles. Hens transported similar distances lost considerably less weight from farm to plant.

A study was made on weight losses in transporting and handling by the Department of Agricultural Economics and Poultry Husbandry of the University of Connecticut.[1/] Growing rations, handling methods, holding conditions, and time were the factors considered affecting loss in weight from farm to plant. One conclusion was that under this test a rough estimate of shrinkage would be: allow 1 percent for the first two hours and 1/2 percent for each subsequent hour. It appeared that the weight losses in the Connecticut study were slightly higher than the Utah study.

Feeding of chickens prior to killing at the processing plant is a custom that in the past was used more extensively than at the present time. In the past the processing plant would feed the chickens not only to regain the transportation loss but to put on weight and

1. King, Richard A. "Why hauling shrinks very."

bloom or finish. With the trend toward commercial production of chickens for meat purposes, a more concentrated feed is being fed by producers with the result that chickens at time of marketing have a better finish and need not be fed for further finish at the plant. The processing plants have found it economical to feed chickens only to regain the loss in weight from transportation and to regulate their daily dressing volume.

Hens will gain less on feed than will the young, soft-meated birds. Young birds are more vigorous in their eating and will put on weight as growth as well as finish, while older chickens put on weight only as finish. Chickens were held an average of 2.3 days on feed at processing plants before slaughtering. Stewing hens were fed an average of 2.0 days as compared with 2.7 for broilers and fryers (table 10). The broilers and fryers were purchased in larger lots and less frequently, thus requiring the processors to hold them longer in order to regulate their daily slaughter.

Table 10. Feeding chickens prior to slaughter at plant

Class	Ave. days on feed	No. of chickens	Ave. wt. on feed	Ave. wt. off feed	Percent gain per day on feed	Total gain
	Days	No.	Lbs.	Lbs.	Percent	Percent
Hens	2.0	6112	4.09	4.21	1.5	2.9
Broilers & fryers	2.7	4388	3.97	3.16	2.4	6.4
All chickens	2.3	10500	3.62	3.77	1.8	4.1

The average daily gain of hens was 1.5 percent of original weight compared with 2.4 percent for broilers and fryers. Chickens were fed

an average of 2.3 days and gained 4.1 percent. This weight gain was more than sufficient to offset the weight lost in transporting chickens from farm to plant.

Weight loss in dressing chickens

Weight loss in dressing chickens was determined by weighing the chickens before and after dressing. Sample batteries of the various classes of chickens were selected at random for this purpose from the feeding floor of the processing plants. The dress-off for hens, both light and heavy, was 11 to 12 percent of the live weight as compared with nearly 15 percent for the younger soft-meated birds (table 11).

Table 11. Weight loss in dressing various classes of chickens from live to New York dressed

Class of chickens	Number of chickens dressed	Live weight per head	Dressed weight per head	Percent dressing loss
	Number	Pounds	Pounds	Percent
Heavy hens	178	5.24	4.65	11
Light hens	5920	4.18	3.69	11.7
Fryers	3421	3.30	2.81	14.9
Broilers	965	2.65	2.26	14.7

Some birds included in the sample were dressed by the hand pinning and some by the wax pinning method of processing. There was no appreciable difference in dress-off which could be attributed to the method of processing.

Similar weight losses in dressing chickens was found by Williams and Gardner in a study of how to buy poultry.1/ In their study broilers and fryers lost 14 percent and hens 10 percent from live to New York dressed.

1. Williams, I. L. and B. W. Gardner. How to buy poultry.

Employment and facilities of processing plants

The trend in poultry processing is toward larger units and more efficient operation. The demand for processing to the ready to cook stage has brought on stricter laws of sanitation and inspection. With the enlargement of size of unit came the unions and demands for full-time employment and better management of labor.

Over 300 people in the state of Utah were fully employed in buying, processing, and selling chickens. There were approximately 25 buyers of live chickens who purchased from producers, some of whom were independent operators while others were plant buyers. Approximately 237 people were employed in processing chickens, about one-half of whom were women. Sixteen persons were employed in selling the dressed chickens from processing plants.

Twenty-three trucks were used for transportation of live chickens, 14 of which were owned by buyers themselves and nine by processors.

Fourteen trucks were used for delivery of dressed chickens, all of which were owned by processing plants. A large percent of the chickens shipped to distant markets were transported by truck-line service. Railroad facilities were available at three of the larger processing plants but were not being used very extensively.

Grading of chickens in Utah

The fact that most of the chickens sold from Utah farms are purchased on a live grade basis raises the question of the accuracy of such grading, particularly since the grading is done by the buyers rather than by some unbiased party. Such a method, based on grades determined by the buyers, reduces the market information of the producers as a basis of his bargaining power in establishing the selling

price. The grade A price quoted by various buyers may be essentially identical, but the value received by producers may be determined to a much greater extent by the grade-out of the lot of chickens, the price differential between grades and other practices which may be entirely under the control of the buyer.

In order to throw some light on the question of grade-out as related to the pricing of chickens, a random sample of various classes of chickens was selected every two weeks at two processing plants of the state and followed through the processing plants. These birds which had been previously graded live basis were cooled overnight and then graded dressed basis according to federal specifications and the two gradings were then compared.

The standards of grading live chickens by plants and buyers in the state is patterned after U.S.D.A. specifications, but is being followed very loosely. Each chicken is picked up by the grader and the breast is felt for condition and deformities. The usual practice is to use a three fold grade classification. The price differential is relatively small between the two top grades, with a much wider spread between the second and third grades. Grade C chickens are a very poor quality; and if they are sold to buyers at all, they pay only three to four cents per pound and are usually used in animal foods. Many of the birds purchased in this grade either die or are discarded before they are processed.

After grading, the chickens are placed in batteries according to grades and stationed in feeding rooms until time of slaughter. The surprising thing is that after the chickens have been graded as a basis of paying the producers and kept separate by grade prior to processing,

there is no attempt made to maintain the identity of the various grades after processing.

The grade-out of chickens on a live basis was obtained for about 50 percent of the total chickens sold in the state in 1949-1950. The data show that a small percentage of the various classes of chickens were graded below the top grade (table 12). Light hens graded about 83 percent A, 12 percent B, and 5 percent C.

The other three classes of chickens were fairly uniform in grade, being 94 percent or more grade A, about 4 to 6 percent B, and less than 1 percent C.

Table 12. Proportion of various classes of chickens graded A, B, and C by Utah chicken buyers, 1949-50

Class of chickens	Proportion graded, live basis			
	Grade A	Grade B	Grade C	Total
	Percent	Percent	Percent	Percent
Heavy hens	93.9	5.9	0.2	100
Light hens	82.9	11.8	5.3	100
Fryers	95.4	3.7	0.9	100
Broilers	94.1	5.3	0.6	100

Reasons for grade-down of dressed chickens

In order to compare dressed grading with live grading of chickens in Utah, sample batteries of each class of chickens which had been previously graded live basis were selected from chickens on feeding floor of two processing plants and followed through the dressing process. After processing, the chickens were hung on racks according to original batteries and placed in a cooler overnight. They were graded the next day according to the U.S.D.A. specifications for grading dressed chickens of the various classes. Examples of light hens grading A, B, and C are shown in plate II.

U.S.D.A. Grade A

U.S.D.A. Grade B

U.S.D.A. Grade C

Plate II. Examples of light hens grading A, B, and C

The light hen class of chickens, which had previously been live graded grade A by the buyer, according to federal specifications graded 82.4 percent grade A, 15.1 percent grade B, and 2.5 percent grade C (table 13). The discrepancy of grading was less in this class than the other classes. Light hens which are culls from the laying flocks vary more in condition and defects, and under live grading these defects are more readily overlooked.

Table 13. Dressed grade-out according to federal specifications of chickens previously graded A, live basis, by Utah buyers, 1949-50

Class of chickens	Number of chickens graded	U.S. grade A	U.S. grade B	U.S. grade C
	Number	Percent	Percent	Percent
Heavy hens	178	87.6	10.6	1.8
Light hens	4707	82.4	15.1	2.5
Fryers	3001	89.7	10.2	0.5
Broilers	965	89.4	10.5	0.1

The other three classes of chickens, previously graded A live basis by buyer, graded about 89 percent grade A, 10 percent grade B, and slightly under 1 percent grade C dressed basis by U.S.D.A. specifications.

There was considerable variation in the grade-out among the various batteries of chickens, particularly of light hens. The average grade-out of this class was 82.4 percent, and the coefficient of variation among the 40 batteries graded was 9.1 percent. One battery graded as low as 58 percent grade A, and one battery 95 percent. This variation in grade-out indicates that buyers, in addition to being rather loose in their grading of light hens, were also rather inconsistent, (table 14).

Table 14. Variability in grade-out among batteries of various classes of chickens, Utah 1949-50

Class	Number of batteries Number	Average percent grade A Percent	Average deviation	Coefficient of variability 1/
Heavy hens	2	97.6	1.3	1.3
Light hens	69	82.4	7.5	9.1
Fryers	30	88.7	3.7	4.2
Broilers	9	89.4	1.8	2.0

1. Based on average deviation

The coefficient of variation among batteries of fryers was 4.2 percent, or about half as great as for light hens. The rather low variation among batteries of the heavy hens and broilers was probably not greater than would be expected because of the subjective nature of the grading procedure; however, the number of batteries graded of these classes was small.

While variation in grade-out among flocks of chickens of individual producers was not possible in this study, the chickens in each battery are often those of only one producer.

In order to ascertain the specific grading factors most often overlooked in live grading of chickens, the reason for down grading was recorded and tabulated for all chickens grading below grade A. These reasons were classified as to the main factor responsible for down grading, and these reasons were grouped into two groups: those associated with the growing of the chickens and those caused by processing. Some common defects which cause chickens to be down-graded are shown in plate III.

From 13 to 21.6 percent of the chickens of various classes were graded below A because of processing, and most of these were due to

Skin abrasions

Cyst and calloused breastbone

Hunchback and dented breastbone

Curved breastbone and poor fleshing

Plate III. Common defects of chickens

skin tears, cuts, and abrasions (table 15).

Table 15. Percent of chickens graded below U. S. grade A for various reasons1/

Growing	Heavy hens Percent	Light hens Percent	Fryers Percent	Broilers Percent
Curved & dented breastbone	22.6	23.5	18.9	17.4
Conformation	5.0	2.0	3.6	3.5
Fleshing	18.2	23.5	46.3	58.3
Finish	32.6	30.7	3.0	—
Excessive abdominal fat	13.6	3.1	—	—
Calloused breast	—	4.2	6.6	3.5
Total growing	82.0	87.0	78.4	82.7
Processing				
Wholesomeness	9.0	0.6	—	—
Discoloration	—	1.0	—	—
Pin feathers	—	0.3	2.7	—
Skin tears, cuts & abrasions	9.0	9.2	15.7	10.4
Disjoined bones	—	0.3	1.6	2.6
Blood clots	—	1.6	1.6	4.3
Total processing	18.0	13.0	21.6	17.3

1. Chickens graded A, live basis, by Utah buyers, 1949-50

It is obvious, of course, that factors causing down grading, which are assignable to processing, would not be evident when grading live birds. About 80 percent of the down grading was assignable to reasons associated with the chicken itself rather than the dressing of the chicken. Of these factors, the ones most frequently overlooked by buyers, who graded chickens live basis, were curved or dented breastbone, fleshing, and finish. The fact that from 17 to 25 percent of the grade-down of various classes of chickens was due to curved or dented breastbones is evidence of the looseness of the grading done by these live graders. Curved or dented breastbones can be more readily detected on live birds than factors such as fleshing and finish. Finish was a factor of less

importance in causing down grade of fryers and broilers than hens. This was due to the fact that federal specifications require less finish on the young classes of chickens than on the old classes.

The small volume of broilers and heavy hens processed at the two processing plants sampled made it impossible to get a sample of these classes graded B by Utah buyers. Of 1,227 light hens graded B, live basis, 4.2 percent graded A, 92.6 percent graded B, and 3.2 percent graded C, dressed basis (table 16). The dressed grade-out of fryers previously graded B, live basis, was 16.3 percent A, 81.3 percent B, and 2.4 percent C. These data are further evidence of loose grading on a live basis.

Table 16. Dressed grade-out according to federal specifications of chickens previously graded B, live basis, by Utah buyers, 1949-50

Class of chickens	Number of chickens graded	Percent of total graded: U.S. grade A	U.S. grade B	U.S. grade C
	Number	Percent	Percent	Percent
Light hens	1,227	4.2	92.6	3.2
Fryers	421	16.3	81.3	2.4

From 80 to 90 percent of the birds of B grade were graded lower dressed than live because of factors associated with the chicken itself rather than dressing defects (table 17). From one-half to two-thirds of these graded below B because of insufficient finishing, and most of the remainder because of curved or dented breastbones and conformation.

Based on the grade-out of Utah chickens, live basis (table 12) and the relationship between tables 13 and 16, the grade-out of Utah chickens, using federal specification, was approximated for 1949-50 (table 18).

Table 17. Percent of chickens graded below U. S. grade B for various reasons 1/

Growing	Light hens	Colored broilers
	Percent	Percent
Curved and dented breastbone	8.3	11.4
Conformation	11.3	11.4
Fleshing	67.7	52.4
Finish	—	—
Excessive abdominal fat	—	—
Calloused breast	1.6	4.5
Total growing	88.9	79.7
Processing		
Wholesomeness	0.7	—
Discoloration	4.5	4.5
Pin feathers	—	4.5
Skin tears, cuts and abrasions	—	4.5
Disjoined bones	—	—
Blood clots	6.0	6.8
Total processing	11.2	20.3

1. Chickens graded B, live basis, by Utah buyers, 1949-50

Table 18. Approximate grade-out of various classes of Utah chickens, 1949-50 1/

Class of chickens	Approximate percent grading: U.S. grade A	U.S. grade B	U. S. grade C
	Percent	Percent	Percent
Heavy hens	83	15	2
Light hens	69	23	8
Fryers	85	13	2
Broilers	85	14	1

1. Calculated from grade-out shown in tables 12, 13, and 16

In other words, if all chickens had been federally graded in 1949-50, the grade-out for light hens would have been 69 percent A, 23 percent B, and 8 percent C. The other three classes would have graded somewhat higher: 83 - 85 percent grade A, 13 - 15 percent grade B, and 1 - 2

percent grade C.

A study of quality of fresh chicken meat graded at city processors in the Los Angeles market revealed similar results as reported here (table 19). The percent of dressed chicken of various classes falling into these various grades when graded under federal specification compared favorably with those found in this study.

Table 19. Quality of fresh dressed chickens, by classes, graded at city processors in Los Angeles, January-June, 1950

Class	Number graded	Proportion graded meeting USDA specifications: A quality	B quality	C quality	No grade
	Number	Percent	Percent	Percent	Percent
Broiler	6,954	77	20	2	1
Fryer	11,577	82	15	2	1
Rooster	1,191	87	12	1	-
Meat hen	3,327	85	14	1	-
Egg hen	1,825	76	20	2	1

Haden, Kenneth D. and George A. Jackson, Jr., Quality of Fresh Chicken Meat, California Agriculture, February, 1951. p. 11.

Chicken prices in Utah, 1949-50

The prices paid by buyers for the different grades and classes of chicken in Utah are shown in table 20 and figure 4. The monthly prices quoted were compiled from weekly data obtained from processing plants representing about 50 percent of the state's volume. Prices for heavy hens of all grades varied from a low of 18.6 cents in February to a high of 25.4 cents per pound in July. Light hen prices for all grades averaged about 6 cents lower per pound than for heavy hens, and varied from a low of 12.3 cents in February to a high of 20.1 in July.

The price paid for colored or heavy fryers was the highest paid for any class of chickens in the state, and the price fluctuated more

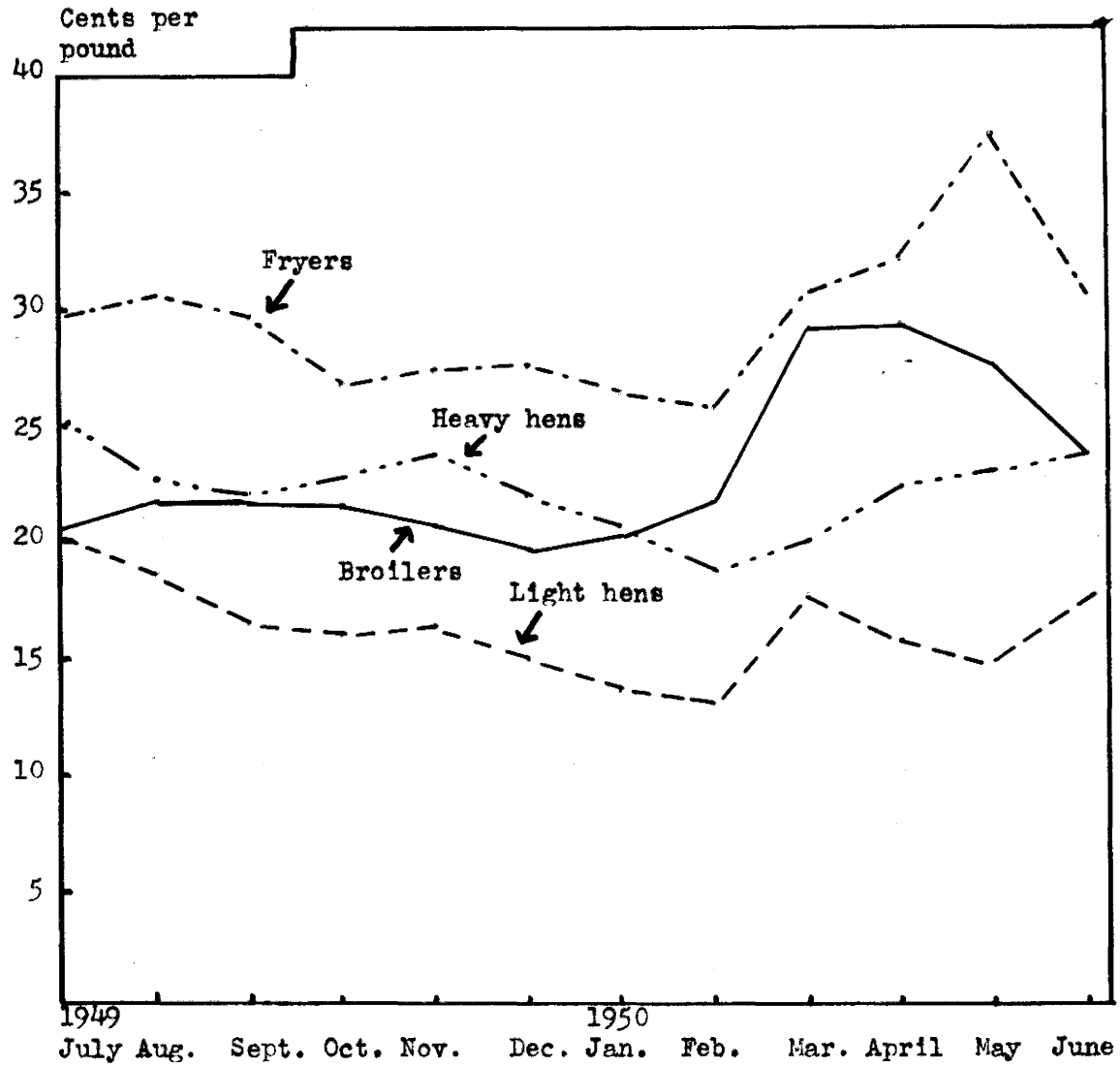

Figure 4. Monthly prices paid Utah producers for live chickens of various classes, 1949-50.

from month to month. The highest price, 37.6 cents, was paid in May and the lowest price, 25.2, was paid in February. The processing plants are now doing some contracting for this class of chickens to assure them a uniform supply from month to month. This factor will help to equalize the volume and hence the price throughout the year.

Table 20. Prices paid producers for various classes and grades of chickens, Utah 1949-50

	Price per pound							
	Heavy hens				Light hens			
Month	Grade A	Grade B	Grade C	All grades	Grade A	Grade B	Grade C	All grades
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1949								
July	24.8	21.2	--	23.4	21.3	16.3	03.1	20.1
Aug.	22.6	17.5	--	22.4	19.2	14.3	03.3	18.2
Sept.	22.2	16.9	--	21.9	17.4	11.8	03.0	16.2
Oct.	22.6	16.2	--	22.4	17.0	11.7	02.8	16.0
Nov.	23.2	18.5	--	23.4	17.4	12.4	02.9	16.2
Dec.	22.1	19.0	--	21.8	16.8	12.2	03.0	14.9
1950								
Jan.	20.2	14.6	03.5	20.3	14.4	09.6	03.0	13.5
Feb.	18.7	13.2	--	18.6	13.1	08.4	03.1	12.3
Mar.	21.7	14.4	--	19.6	19.1	10.7	03.0	17.7
Apr.	22.3	15.6	--	22.1	17.0	11.1	02.9	15.8
May	22.9	19.6	03.3	22.4	15.4	10.8	02.9	14.3
June	24.4	21.4	03.2	23.8	19.1	13.5	03.0	17.8

	Fryers				Broilers			
1949								
July	30.1	25.3	--	29.9	20.8	15.1	--	20.7
Aug.	30.7	25.4	03.9	30.6	22.0	17.3	03.5	21.9
Sept.	30.1	25.1	02.9	29.6	21.9	17.6	03.0	21.2
Oct.	27.2	21.4	03.2	26.9	21.9	16.8	--	21.5
Nov.	28.1	23.3	03.1	27.7	22.1	16.5	02.8	20.7
Dec.	27.9	21.9	02.9	27.6	22.5	17.7	03.1	19.2
1950								
Jan.	27.1	22.0	03.0	24.1	20.0	--	--	20.0
Feb.	25.7	19.8	03.1	25.2	21.0	--	--	21.0
Mar.	30.5	25.4	02.7	30.2	29.0	--	--	29.0
Apr.	31.9	23.4	02.9	31.9	29.6	20.6	03.0	29.1
May	37.8	25.0	02.9	37.6	23.0	23.0	03.2	27.9
June	30.5	26.1	03.5	30.4	24.0	18.0	03.5	23.8

An average premium of about 6 cents per pound was paid for fryers over broilers for the year 1949-1950. This price differential between these classes varied from about 1 cent to 10 cents in the various months. The lowest differential occurred in March and April, the months of lowest supply of young birds on the market. The short supply in these months would tend to reduce the price differential between these two classes of birds during this period.

For the various classes of chickens there seemed to be little, if any, relationship between the volume processed and the prices paid by months. In fact in July, the month of highest prices paid for hens, the pounds processed was relatively high and in February, the month of lowest prices, the volume processed was relatively low.

The differential in prices paid for chickens of various grades varied considerably from month to month. For the various classes the highest monthly differential in prices paid for grade A and grade B chickens was about two or three times as high as the lowest monthly differential (table 21). The price differential between grade A and grade B for the entire year was similar for various classes of chickens, but the differential in any one month was considerably different among the classes.

Prices paid for grade C chickens was similar for all classes of chickens and did not vary greatly from month to month. Prices paid for this grade averaged about 3 cents per pound (table 20).

Prices paid to Utah producers for various classes of chickens were compared with f.o.b. Los Angeles monthly prices for live chickens during 1949-50. For all months of the year prices paid in Utah were lower than the Los Angeles price, but the differential varied considerably

Table 21. Price differentials between grade A and grade B, live chickens, as graded by Utah buyers, 1949-50

Month	Price differentials per pounds			
	Heavy hens	Light hens	Fryers	Broilers
	Cents	Cents	Cents	Cents
1949				
July	3.6	7.0	4.8	5.7
Aug.	5.1	4.9	5.2	4.7
Sept.	5.3	5.6	5.0	4.2
Oct.	6.4	5.3	5.8	5.1
Nov.	4.7	5.0	4.8	5.6
Dec.	4.1	5.6	6.0	4.8
1950				
Jan.	5.7	4.8	5.1	—
Feb.	5.5	4.7	6.2	—
Mar.	7.3	8.4	5.1	—
Apr.	6.7	5.9	9.5	9.8
May	3.3	4.6	12.8	5.0
June	3.0	5.6	4.4	6.0

from month to month (figure 5). The differential in prices paid for fryers was as low as one cent per pound in some months, but was almost 6 cents for the month of October. Since fryers processed reached a peak in September and it is likely that some fryers were shipped to distant markets during that period, Utah prices were determined by the distant market prices less transportation. For most other months the fryers were sold in the local markets and enjoyed a higher price.

The differential between Utah and Los Angeles prices for heavy hens varied from about 3¢ to 10 cents per pound in the different months and averaged about 7 cents for the entire year. The scarcity of this class of chickens compared with light hens on west coast markets has resulted in a premium being paid for heavy hens. The volume of this class in Utah was not large enough and the supply was not regular enough to create a similar differential in the local market; and for the same reason it is impossible to take advantage of the favorable

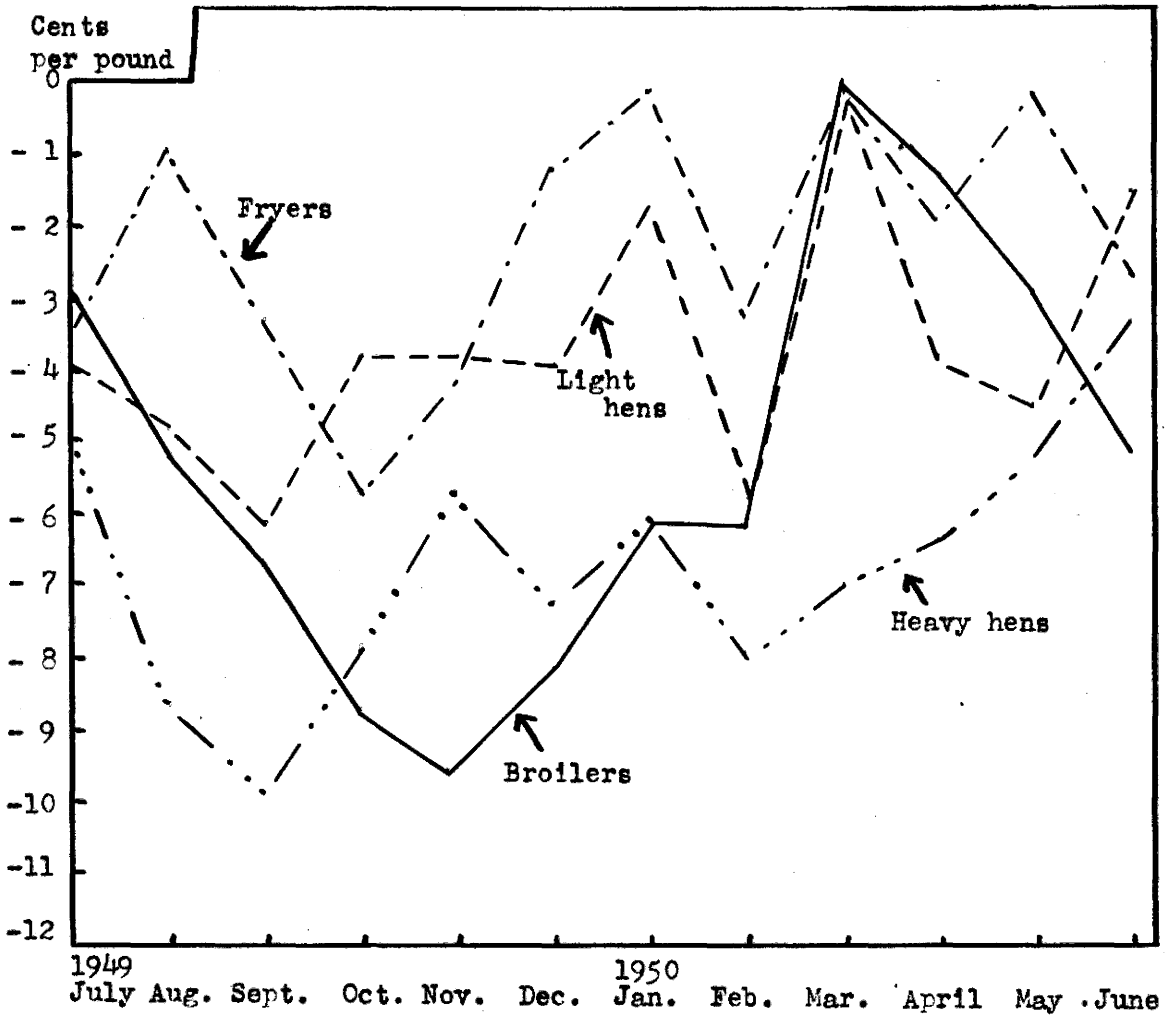

Figure 5. Difference between prices paid to Utah producers and f.o.b. Los Angeles prices for live chickens of various classes, 1949-50.

price for this class on the west coast.

Light hen prices in Utah average about 4 cents below Los Angeles. For most months of the year some of this class was shipped to the west coast, resulting in a price to Utah producers sufficiently low to permit shipment to this market and cover transportation and handling costs.

SUMMARY AND CONCLUSIONS

1. The production of chickens for meat in the State of Utah is largely an outgrowth and an enterprise fostered by the egg industry. Of the total volume of chickens processed in 1949-50, 62 percent were stewing hens, a by-product of the egg industry. Another 9 percent of the chickens processed was broilers, produced as a joint product with the production of pullets for laying flock replacements.

Changes in consumer demand for more extensive processing, trends in union labor, and development of larger enterprises to meet competition have resulted in the processors having to regulate their chicken processing on a year around business. In order to regulate their volume the processors have contracted for production of fryers; thus, causing chicken production to become less seasonal. These meat birds represented almost 30 percent of the chickens processed in 1949-50 and were largely responsible for the increase in volume processed in recent years.

2. To a large extent the chickens marketed in Utah follow one of two major channels from producer to consumer. Cooperative processors, handling about two-thirds of the state's volume, use a channel which is highly integrated, the assembly and wholesaling stage of distribution being performed largely by the cooperative. The other main channel, usually used by independent processors, involves more independent agencies in performing the functions of marketing.

3. Weight loss in chickens from farm to consumer is of two types: the loss of weight in transporting chickens from farm to processing plant, and the weight loss in dressing. The weight loss in transportation

from farm to plant for all chickens varied from 0.6 to 3.6, depending on the distance involved. The soft-meated young birds showed approximately 100 percent more loss in weight than the older stewing hens under the same conditions. Processing plants followed the practice of battery feeding the birds from 2 to 3 days prior to processing. The gain in weight from feeding was more than sufficient to offset the loss in weight due to transporting chickens from farm to plant.

The weight loss in dressing chickens New York style was about 11 percent for stewing hens and 15 percent for fryers.

4. Prices paid to Utah producers for chickens in 1949-50 varied with the different classes of chickens and also between grades of the same class. Fryers were purchased at a premium of about 6 cents per pound over broilers and about 13 cents per pound over light hens. Differentials between first and second grade was 5 to 6 cents per pound among the various classes but varied from about half this amount to twice this amount from lowest to highest months.

Prices paid to Utah producers in all months of the year 1949-50 were lower than the f.o.b. Los Angeles price for live poultry; however, for some classes, particularly fryers, the price paid was within 1 cent of the Los Angeles price in many months.

5. The average value of the chickens purchased in Utah is based on the price paid for various grades and the percentage graded various grades. The grading is done by the buyers, and the system is patterned after the federal regulations, but is being followed very loosely and inconsistently between lots of chickens. Money and time are being spent in this live grading only to be disregarded when grading the final product for market. One redeeming feature of the system of buying now used is

that about two-thirds of the chickens are processed by cooperatives who, if operated according to cooperative principles, will return excess earnings to the producers on a patronage basis.

Marketing chickens in the absence of an unbiased grading system limits the bargaining power of the producer. The grade A price offer is essentially the same among buyers, the grade-out, price differential between grades, and weighing becoming the competitive factors in determining value. In order to improve the equality of bargaining power between buyer and seller in establishing the price of chickens in Utah, the system of buying might be changed in either of two ways. One method would be to retain the identity of the birds until graded, preferably dressed basis, by some unbiased grader. This system would be difficult because of the small size of lots sold at one time, particularly of culled layers, and the resulting difficulty of retaining identity of birds. The other system would be to sell birds on a flock run basis rather than a graded basis. By this system the seller would know, prior to sale, the price per pound for all chickens in the lot, and the competition among buyers would be reflected in price offer rather than grade-out, price differentials between grades and other factors unknown to the seller prior to the sale.

In view of the small percentage of birds graded below first grades, live basis, in the state and the rather high variability in grade-out among lots of chickens, it would seem that buying chickens flock run would not greatly influence the total price paid for chickens by all buyers, but would be more equitable among producers selling chickens. Since selling on a flock run basis would be much more simple in its operation and would make the pricing of chickens more competitive, it would probably be more feasible than the other system suggested.

BIBLIOGRAPHY

Abbott, J. C. and E. O. Voorhies. An Experiment in Poultry Marketing. The Petaluma Live Poultry Auction. Berkeley, 1941. 90 p. Calif. Agri. Exp. Sta. Mimeographed Report No. 114.

Anderson, R. H. Chicken Slaughter and Prices in the Western States. Unpublished manuscript. Logan, Utah: School of Agriculture, Utah State Agricultural College, 1949.

Fine, Richard A. "Why Hauling Shrinks Vary." U. S. Egg and Poultry Magazine, June, 1950. p. 14-15, 29-30.

Haden, Kenneth D. and George A. Jackson, Jr. Quality of Fresh Chicken Meat. Causes of Down-grading of Chickens Handled in the Los Angeles Market Revealed in Representative Survey. Calif. Agri. Exp. Sta. California Agriculture, vol. 5, no. 2, Feb. 1951, 10-11, 15.

Regulations Governing the Grading and Inspection of Poultry and Domestic Rabbits and Edible Products Thereof and United States Specification for Classes, Standard, and Grades with Respect Thereto. Effective Jan. 1, 1951. Reprinted from the Federal Register of Nov. 15, 1950, Washington, D. C.

Thomas, W. Preston, et. al. Trends in Agricultural Production Costs and Returns in Utah. Special Report No. 3, Agri. Exp. Sta., Utah State Agricultural College, Logan, Utah.

Williams, I. L. and H. M. Gardner. "How to Buy Poultry." Food Industries. June, 1946.