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Availability of Graded and Ungraded Eggs In Grocery Stores in Three Idaho Counties

E. A. SAUTER, JR., M. V. ZAEHRINGER, C. A. RICKARD*

The continuous decline in per capita consumption of eggs is of much concern to the poultry industry. Since lack of availability has been offered as one reason for this decline, a study of the various kinds of eggs available to Idaho consumers seemed in order. Factual information of this kind was needed as a basis for expanding the market and/or increasing efficiency of distribution as well as for future research concerning consumer acceptance.

The study reported here was an attempt to learn the "grade of eggs" stocked by grocery stores in Idaho as the first step in learning the "quality" of eggs available to the consumers in the state. It was thought that this was particularly applicable since Idaho law, unlike that of neighboring states, permits the sale of ungraded eggs in retail stores.

No attempt was made to determine the actual quality of the eggs that were in the stores. It was assumed that the grade printed on the carton represented the quality of the eggs in the carton.

Review of Literature

Numerous studies have been made in an attempt to learn the quality of eggs desired by the consumer. Only a few studies have investigated the range of quality

and grades available to the consumer.

Morrison, Stadelman and Darroch (1955) found that eggs from refrigerated displays averaged over six Haugh† units higher than those from non-refrigerated displays. No significant difference in quality was found between brands and more eggs were sold without refrigeration in summer than in winter. An earlier study in Seattle by Slocum and Swanson (1954) reported that 75 percent of the persons interviewed preferred grade AA and 15 percent A grade eggs when selection was based on pictures of broken-out eggs of various qualities shown to the person during the interview. Stadelman *et al.* (1957) reported on a study of egg preferences in Spokane, Washington,* in which consumers were supplied eggs of known quality. They found, on the basis of complaints received, that yolk quality was as important as albumen quality. Waananen, Gislason, and Darroch (1958) reported that, based on a one-year study of Spokane stores, eggs in grades AA and A were almost equal in acceptability.

A study conducted in Gadsden, Alabama, by Hammett and Blackstone (1958) indicated that homemakers using large quantities of eggs were more concerned with quality than price and that very few were dissatisfied with retail marketing and displays.

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† A measure of egg quality based on the weight of the egg and the height of the thick albumen when the egg is broken out on a flat plate of glass.

Procedure

A stratified random sample of 45 stores was selected from Ada, Bannock and Kootenai counties. These three counties contain approximately 25 percent of the retail grocery stores in the state. In each county a sample of stores was statistically selected that would be representative of the county. The survey responses were expanded prior to analysis using the reciprocal of the number of stores drawn from each strata of the sample. This method was used to compensate for the disproportionate number of stores from the various strata. The stores were visited once each month, from April 1957

to March 1958, by a trained enumerator. Information was obtained concerning the grades of eggs available at the time of each visit.

In addition to the monthly visit by the enumerators, stores were visited twice during the survey period by a member of the staff of the Department of Poultry Husbandry to discuss merchandising and retailing of poultry products with the store managers.

Classification of Stores — The stores were classified according to size, ownership and the location in which the store was located. The classification is summarized in Table 1.

Table 1.—Number of stores surveyed and total number of stores in Ada, Bannock, and Kootenai counties classified by size, ownership, and location.

Classification of stores	Number of stores by counties					
	Ada		Bannock		Kootenai	
	Survey	Total	Survey	Total	Survey	Total
Small -----	6	65	4	40	4	64
Medium -----	6	32	4	19	4	13
Large -----	8	19	6	12	3	4
Unaffiliated independent ---	7	77	4	49	5	69
Affiliated independent ----	8	25	4	11	5	10
Chain -----	5	14	6	11	1	2
Rural -----	4	16	2	3	3	17
Urban -----	16	100	12	68	8	64

The number of full-time employees or equivalent part-time employees was used as an indication of the size of the stores. Stores with 1 or 2 employees were classified as "small stores," those with 3 to 6 employees as "medium-sized," and stores with 7 or more employees as "large" stores.

When the stores were classified as to ownership, they were divided

into 3 groups, "unaffiliated independent" stores, "affiliated independent" stores and "chain" stores.

Stores were placed in 2 groups for classification as to location. Those stores located in or around incorporated areas were classified as "urban" and those located outside the above area were classified as "rural" stores. Less than one-fifth of the stores in the sample were classed as "rural."

Results

Eggs were available in most stores. Forty-five percent of all stores surveyed stocked only ungraded eggs. Less than 25 percent of the stores had only graded eggs and the balance of the stores with

eggs in stock, had both. Table 2 shows the seasonal variation in availability of graded and ungraded eggs. Monthly variation is shown in Figure 1.

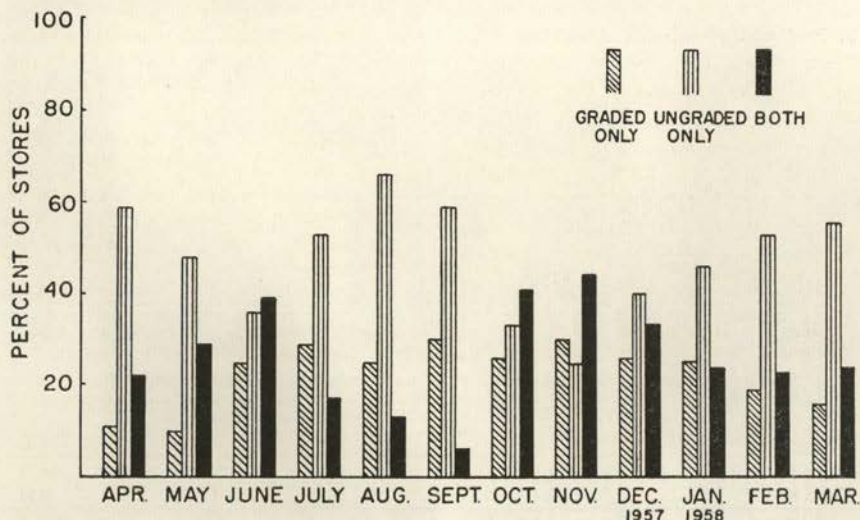


Fig. 1—Monthly variation in availability of graded and ungraded eggs in grocery stores in three Idaho counties.

Only 15 percent of the stores relied entirely on graded eggs during the spring months in contrast to 28 percent during the summer and fall months.

Ungraded eggs were found more frequently than any other type of eggs with three-fourths of all stores having them in stock whereas only

one-half of the stores had graded eggs in stock. Grade AA eggs were available more frequently than other graded eggs. Seventy-six percent of the stores which offered graded eggs stocked grade AA. Grade A eggs were found in only 59 percent of the stores offering graded eggs even though many stores had eggs of both grades.

Table 2.—Seasonal variation in the availability of graded and ungraded eggs in grocery stores in three Idaho counties.

Type of eggs	Percent of stores			
	Apr., May & June 1957	July, Aug. & Sept. 1957	Oct., Nov. & Dec. 1957	Jan., Feb. & Mar. 1958
Graded only -----	15.2	28.4	27.7	20.5
Ungraded only -----	47.8	57.3	32.1	50.5
Both graded and ungraded -	30.0	12.1	39.7	24.9
No eggs in store -----	7.0	2.2	0.5	4.1

The percentages of stores in the various grades of eggs in stock are different size classifications having given in Table 3.

Table 3.—Percentage of stores stocking various grades of eggs classified by size of store.

Size of store	Grade of eggs		
	AA	A	Ungraded
Small -----	27.9	13.6	80.3
Medium -----	55.6	58.3	74.7
Large -----	80.6	75.0	64.0

Eggs of grades B and C were being sold regularly as ungraded eggs in some stores. Eggs labeled B or C grade, however, were not stocked consistently by any of the stores, although they were found occasionally in some stores.

Large eggs were found more frequently than any other size of eggs; "extra large," "jumbo," and "mediums" were stocked by compara-

tively few stores. Small eggs were stocked by very few stores and only on an intermittent basis. Most small eggs were merchandised as ungraded and had no size on the cartons.

Many eggs were marketed on size alone rather than on grade as is evident from Table 4, showing that often more stores were retailing large eggs than graded eggs.

Table 4.—Availability of sized eggs as compared with graded eggs.

Kind of eggs	Percent of stores			
	Apr.-June	July-Sept.	Oct.-Dec.	Jan.-Mar.
Large -----	48.6	54.5	56.0	56.8
Medium -----	23.4	11.8	13.4	8.6
Graded -----	45.2	40.2	67.4	45.4

County—A summary of the variation in availability of graded and ungraded eggs between counties is shown in Figure 2.

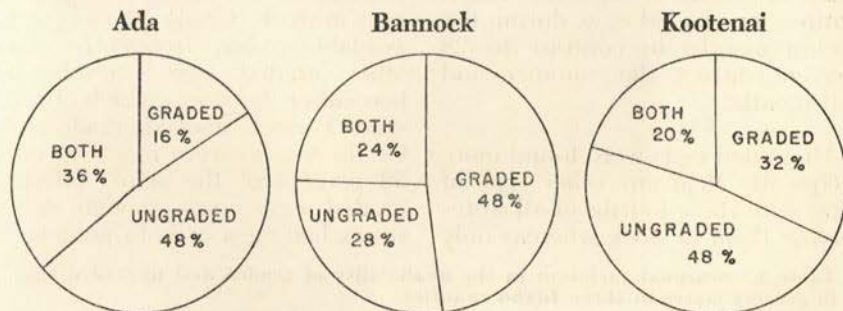


Fig. 2.—Percentage of stores with graded and ungraded eggs classified by county.

Grade AA eggs were found in 32, 53, and 47 percent of the stores in Ada, Bannock, and Kootenai counties, respectively. Grade A eggs

were stocked by 40, 53, and 11 percent of the stores, respectively, in the three counties.

Usually stores either stocked large eggs or they did not specify the size of the eggs. Bannock was the only county surveyed where a

significant percentage of the stores stocked medium eggs. These findings are shown in Figure 3.

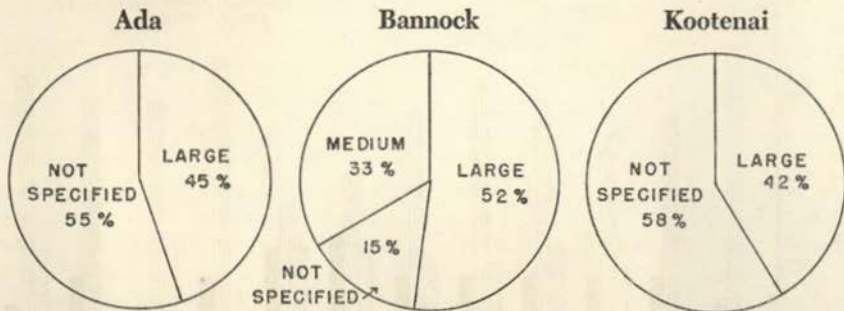


Fig. 3.—Percentage of stores stocking eggs of various sizes in the surveyed counties.

Size of Store—In general the larger stores had a wider selection of eggs available. On the basis of the entire survey 58 percent of the small stores stocked only ungraded eggs as compared with 34 percent

of medium-size stores and 6 percent of the large stores. Figure 4 summarizes the merchandising of graded and ungraded eggs by size of stores.

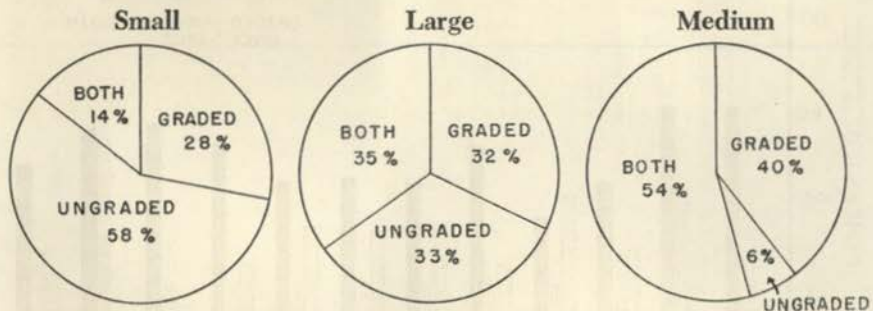


Fig. 4.—Percentage of stores stocking graded and ungraded eggs classified by size of store.

The monthly variation in the availability of graded and ungraded eggs in stores of various sizes are shown in Figures 5 through 7.

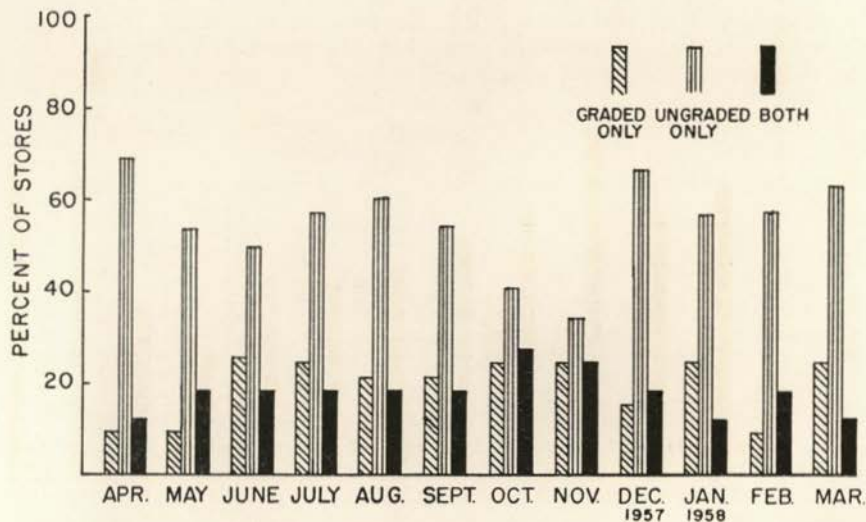


Fig. 5.—Monthly variation in availability of graded and ungraded eggs in small grocery stores in three Idaho counties.

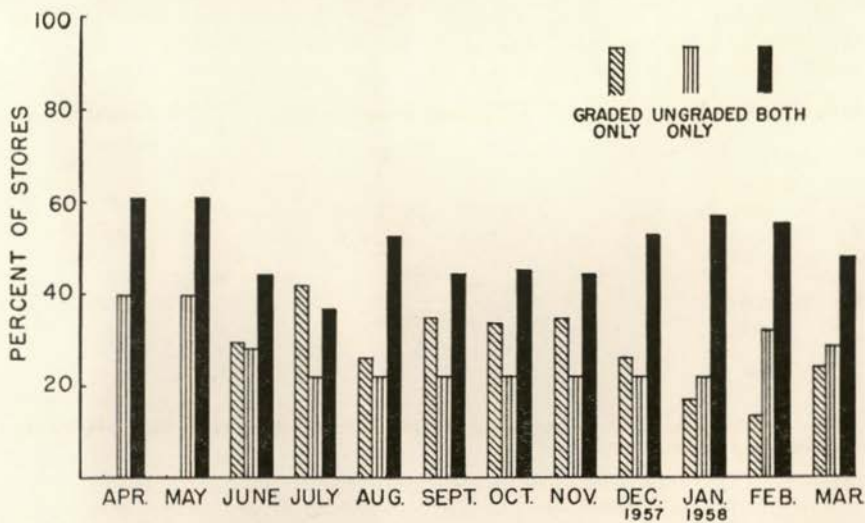


Fig. 6.—Monthly variation in availability of graded and ungraded eggs in grocery stores of medium size in three Idaho counties.

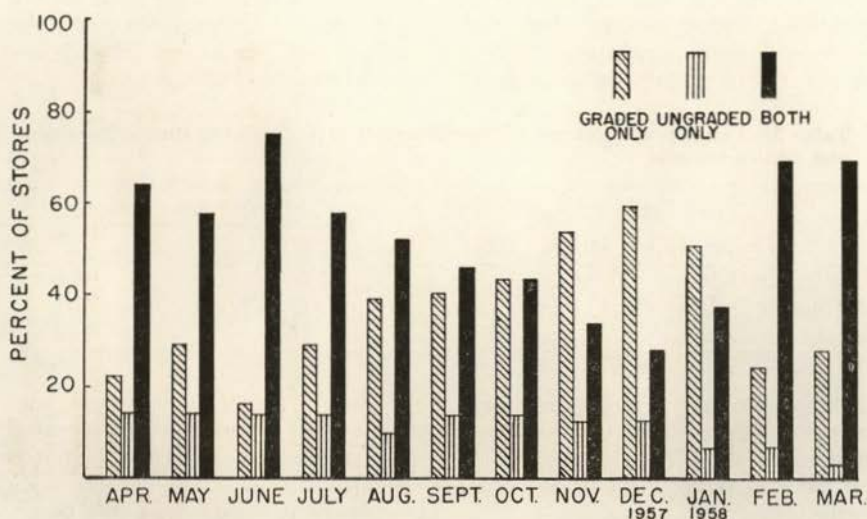


Fig. 7.—Monthly variation in availability of graded and ungraded eggs in large grocery stores in three Idaho counties.

Ownership—A similar, though not identical, pattern was observed when stores were compared on a basis of ownership. These results are shown in Figure 8.

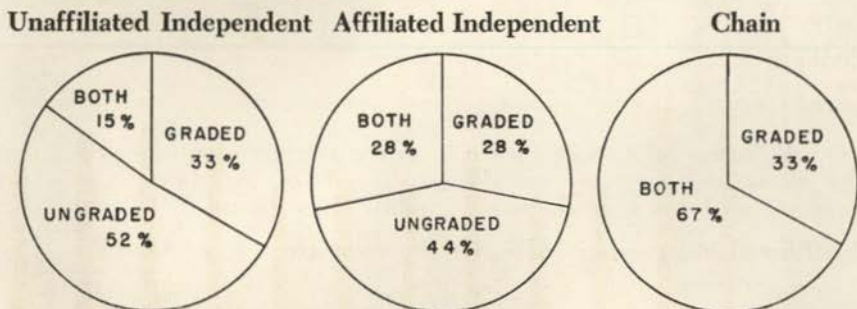


Fig. 8.—Percentage of stores stocking graded and ungraded eggs classified by ownership of the stores.

Location made little difference in the percentage of stores having only graded eggs, but a much higher percentage of the rural than urban stores stocked only ungraded eggs. None of the rural stores stocked both graded and ungraded eggs in contrast to 36 percent of the urban stores. The wide variation may have been due at least in

part to the relatively smaller size of rural stores.

Refrigeration of Eggs—Refrigeration of the entire egg display was practiced by 60 percent of the stores surveyed while 21 percent of the stores refrigerated only part of their eggs. Nineteen percent of the stores did not refrigerate any of their eggs on display.

Refrigeration varied widely at different times during the year with a larger percentage of the stores refrigerating their eggs in

winter than in summer as is shown in Table 5. This agrees with the findings of Morrison, Stadelman, and Darroch (1955).

Table 5.—Percentage of stores refrigerating all eggs displayed during summer and winter seasons.

Ownership of stores	Percentage of stores	
	Summer June, July, Aug.	Winter Dec., Jan., Feb.
Unaffiliated independent -----	62.1	68.0
Affiliated independent -----	69.4	72.1
Chain -----	67.1	83.4

A substantially higher percentage of the stores in Bannock county refrigerated all of their eggs displayed than in either Ada or Kootenai counties.

the large stores were the ones which most frequently refrigerated all of the eggs displayed, whereas the opposite was true in Bannock county, as is shown in Table 6.

In Ada and Kootenai counties

Table 6.—Percentage of stores refrigerating all of the eggs displayed classified by county and size of store.

Size of store	County		
	Ada	Bannock	Kootenai
Small -----	55.5	100.0	58.3
Medium -----	62.5	47.2	58.3
Large -----	87.5	55.5	97.2

On the basis of the entire survey, type of ownership of the store also appeared to have some influence

on the refrigeration of eggs.

Results of the survey are summarized in Figure 9.

Unaffiliated Independent Affiliated Independent Chain

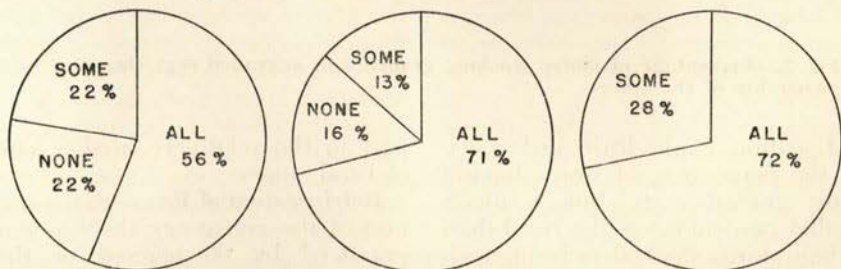


Fig. 9.—Percentage of stores refrigerating their egg displays classified by ownership of the stores.

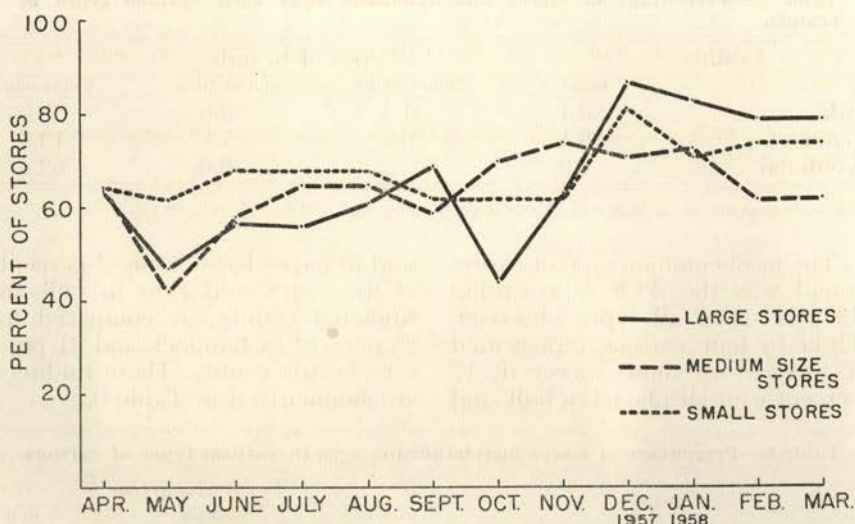


Fig. 10.—Monthly variation in refrigeration of all eggs displayed.

The seasonal variation in refrigeration of eggs is shown in Figure 10.

The effect of the location of the store on refrigeration of eggs is shown in Table 7.

Table 7.—Percentage of rural and urban stores with the entire egg display refrigerated classified by county.

Location of store	County		
	Ada	Bannock	Kootenai
Rural -----	31.3	58.3	61.1
Urban ----	68.7	43.6	68.7

In Ada and Kootenai counties more urban than rural stores refrigerated all of the eggs displayed whereas the opposite was true in Bannock county. Generally rural stores either refrigerated all of their eggs or none of them. One rural store in Ada and one in Kootenai county were the only rural stores on the survey which refrigerated only part of the eggs displayed.

Brand Names and Cartons—On the basis of this survey brand names appeared to be important within all three counties. A total of 15 brands of eggs were observed in Ada County, 11 in Bannock and

12 different brands in Kootenai County. Sixty percent of the egg cartons found in stores in Ada County were branded. The two brands observed most frequently made up more than half of all branded cartons in these stores. In Bannock county 86 percent of the cartoned eggs were branded, with the two most prevalent brands comprising one-half of the total. Only 38 percent of the cartons found in stores in Kootenai county were branded with one brand accounting for one-third of all branded cartons. A summary of the distribution of the various types of brands is given in Table 8.

Table 8.—Percentage of stores merchandising eggs with various types of brands.

County	Types of brands			
	Local	State wide*	Out-of-state	Unbranded
Ada -----	20.1	31.4	9.6	38.9
Bannock -----	39.1	39.3	7.8	13.8
Kootenai -----	6.9	--	30.8	62.3

* Brands available in at least two of the three counties surveyed.

The most common type of carton found was the 2 x 6 representing 48 percent of all types observed. Three-by-four cartons represented 35 percent of those surveyed; 17 percent were displayed in bulk and

sold in paper bags. Only 2 percent of the stores sold eggs in bulk in Kootenai county, as compared to 28 percent in Bannock and 31 percent in Ada county. These findings are summarized in Table 9.

Table 9.—Percentage of stores merchandising eggs in various types of cartons.

County	Type of carton*		
	2 x 6	3 x 4	Bulk
Ada -----	58.9	44.6	31.3
Bannock -----	93.4	30.5	27.5
Kootenai -----	40.3	76.0	2.1

* Numerous stores offered eggs in more than one type of carton.

Frequently, though by no means always, the three-by-four cartons were used for ungraded eggs and the two-by-six cartons for graded eggs. During interviews, store

managers expressed preference for pulp board cartons of types which give the best possible protection against egg breakage.

Discussion

The findings presented are of necessity based on percentages of stores and cannot take into account differences in sales volume of stores within the same size classification.

It is apparent from Table 8 that, while most stores stocked eggs from Idaho sources, an appreciable quantity of eggs is being shipped into the state. The eggs listed in the unbranded column also include those shipped into the state for sale as ungraded eggs as well as unbranded, ungraded eggs produced in Idaho.

Interviews with some store man-

agers indicate that low grade eggs are being shipped into Idaho for sale as ungraded eggs. No quantitative data were obtained in the survey. However, this observation tends to support the industry contention that low grade out-of-state eggs retained as ungraded eggs constitute serious price competition for locally produced eggs. In the long run this or any practice which furnishes the consumer with a product of inferior quality will result in reduced over-all demand for eggs, adversely affecting producers, distributors, and the entire egg industry.

Ungraded eggs constitute a serious merchandising problem for most stores. In reality there are at least three types of ungraded eggs available in the various grocery stores of the surveyed counties. First, there are the ungraded eggs as they come from farm flocks with the usual quality defects found in nest-run eggs. Next, there are the selected ungraded eggs from which all or most of the eggs with quality defects have been removed. Quality is supposedly guaranteed at least to the extent that if the consumer finds certain quality defects the eggs will be replaced by either the retailer or the producer. Finally, and constituting the most serious problem to the industry, are eggs of grades B and C which are being repacked and sold as ungraded eggs.

Ungraded eggs were often retailed at prices 25 percent or more below prices of graded eggs. A price differential of this magnitude between graded and ungraded eggs can discourage the purchase of graded eggs by the consumer. This results in holding of graded eggs in the store for extended periods with subsequent serious quality losses.

Poor quality in graded eggs, whether due to improper handling or to deterioration during prolonged holding in the store, makes it very difficult to justify them to the consumer. This is especially true if these graded eggs are being sold in competition with ungraded eggs which have had most of the eggs with quality defects removed and which are supposedly guaranteed as to quality.

As was shown in Table 4, a substantial percentage of eggs were merchandised on a basis of size rather than grade. According to Waananen, Gislason, and Darroch

numerous consumers associated size of eggs with differences in grade. It is apparent that a comprehensive educational program at the consumer level is necessary to clarify the distinction between various size and quality factors.

The pattern of refrigeration of eggs in retail stores is difficult to explain either on the basis of need or consistency. It certainly cannot be explained on the basis of maintaining egg quality. As shown in Table 5, a higher percentage of stores in all ownership classifications refrigerated their egg displays to a greater extent in winter than in summer. The same situation was found when stores were classified according to size. This is particularly serious in view of the fact that less than half of the stores maintained adequate refrigeration for their reserve supplies of eggs.

It would appear from these findings that eggs are being removed from the refrigerated displays during the warmer period of the year to make cooler space available for other commodities. Items which consumers desire to be cold at the time of purchase are apparently being given cooler space priority over eggs even though eggs are highly perishable and require refrigeration at all times. This situation applies to stores in all size and ownership classifications. Increased availability of ungraded eggs during the spring and summer months is another possible explanation for the relative decrease of refrigeration of eggs at that time. Numerous stores refrigerate only graded eggs while ungraded eggs are displayed at room temperature.

Education of retailers and producers, as to the use and need of brands emphasizing uniformly high

quality eggs, could aid materially in improving the quality of eggs available to consumers. Since the program would be directed at a

relatively small group it could get results much faster than any program directed at consumers.

Summary

A survey of the availability of eggs using a stratified random sample of retail grocery stores was conducted in three counties in Idaho. The stores were classified on the basis of size, ownership and location. The stores were visited monthly by a trained enumerator over a one-year period. The more important findings brought out by the study are as follows.

Most stores sold eggs—a wider selection of both size and grade was available in larger stores.

There was a wide variation in grades of eggs available between stores and between counties.

Most stores provided refrigerated egg displays, but many stores did

not refrigerate their reserve supply of eggs. Fewer stores refrigerated their eggs in the summer than in the winter.

Frequently only part of the egg display was refrigerated—generally graded eggs were refrigerated and ungraded eggs were not.

Twenty-five percent of the stores offered graded eggs only. Few large stores and no chain stores stocked only ungraded eggs. Fifty-eight percent of the small stores offered ungraded eggs exclusively. Some stores sold eggs of grades B and C as ungraded eggs.

Brand-names generally appear to be important in all areas. Thirteen percent of the brands were available in more than one county.

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