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74863

United Egg Producers

March 2, 2001

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Dear Dr. Lewis:

United Egg Producers (UEP), a national cooperative representing the interests of 80 percent of the nation's table egg production is hereby submitting the results of a consumer opinion survey that will have a bearing on FDA's placement of Safe Handling Statement, 21 CFR § 16, 101, and 115.

With reference to II. Shell Egg Labeling 7. Placement and Prominence, the final rule specifies that (a) Placement and type size of the safe handling statement, section 403(f) of the FD&C Act requires that mandatory label information be placed on the label with such conspicuousness as to render it likely to be read and understood by ordinary individuals under customary conditions of use. Placement of the safe handling message would be well served on the inside lid of egg cartons. The enclosed research conducted by Dr. Richard D. Reynnells, U.S. Department of Agriculture- Extension Service in cooperation with the University of Georgia has shown that 91.5 percent of those surveyed open up egg cartons to check for cracked eggs (page 12). Placement of a safe handling message on the inside lid of egg cartons would be assured that it would *"likely to be read and understood by ordinary individuals."*

Placement of a safe handling message on the inside lid of egg cartons is consistent with the research findings as stated on page 53. Egg consumers are quality conscious and this 91.5% who examine for quality would also be likely to see and read a safe handling message on the inside lid of the egg carton.

FDA has generally required label statements required by Sec. 101.17 (21 CFR 101.17) to be placed on the information panel.

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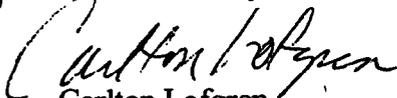
Dr. Christine Lewis
Page Two

The agency stated in the final rule that the principal display panel (PDP) would provide even more prominence. Accordingly, the agency tentatively concluded to require the proposed safe handling statement either on the information panel or the PDP. The agency also noted in the proposal that Sec. 101.2(c) (21 CFR 101.2(c)) requires that mandatory information appearing on the PDP and information panel, including information required by Sec. 101.17, appear prominently and conspicuously in type size no less than 1/16 inch. The principal display panel would provide prominence, but the inside lid of egg cartons would also provide readership as supported by research. The majority of consumers, 91.5 percent, open egg cartons to check for cracked eggs and to check for egg quality. Furthermore, the agency has stated placement "tentatively concluded" which suggests that supportive research is being sought on the best possible placement site.

UEP respectfully requests that FDA offer an option to egg producers and carton manufacturers to either place the safe handling message on the principal display panel or on the inside lid of egg cartons where 91.5 percent of all egg consumers will more likely read the safe handling message.

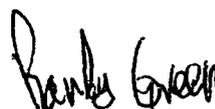
Thank you for consideration of this request.

Yours sincerely,


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Enclosure: Consumer Opinion Survey Special Report #294, February 1987

CONSUMER OPINION SURVEY

FOR THE

GEORGIA EGG INDUSTRY

SUMMARY FOR THE GEORGIA EGG COMMISSION

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February, 1987
Special Report #294

Acknowledgements

We gratefully acknowledge the Georgia Egg Commission's role in partially funding this project, as well as their effort in sending the selection of recipes to participating customers.

This work would not have been nearly as successful, and probably not possible, had it not been for the 4-H'ers, county Extension staff, and volunteer workers.

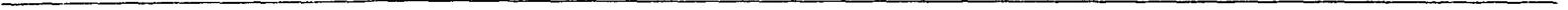


TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
Methods and Materials	2
<hr/>	
Summary of Questions, by category	4
- Purchase Preferences (6 questions)	4
- Merchandizing (3 questions)	8
- Education (3 questions)	9
- Recipes (4 questions)	11
- Egg Quality (10 questions)	12
 Questions Evaluated by Demographic	 17
- By Sex (D1)	17
- Q1	18
- Q2	18
- Q4	18
- Q5	18
- Q8,9	18
- Q10-13	19
- Q14-16	19
- Q18,19	20
- Q21	20
- Q23,24	20
- Q25,26	20
- By Marital Status (D2)	21
- Q1	21
- Q2,3	21
- Q5	22
- Q8,9	22
- Q13	22
- Q14,17	22
- Q18-20	23
- Q21	23
- Q22	23
- Q26	23
- By Total Family Size (D6)	24
- Q5	24
- Q6	24
- Q10-13	24

- By Age (D7)	25
- Q1	25
- Q2,3	25
- Q5	25
- Q6	26
- Q7-9	26
- Q13	27
- Q16-21	27
- Q22	27
- Q23,24	28
- Q25,26	28
- By Level of Education (D8)	29
- Q1	29
- Q4	29
- Q5	29
- Q7-9	30
- Q13	30
- Q18,19	31
- Q20,21	31
- Q22	31
- Q23	31
- Q26	32
- By Race (D9)	33
- Q1,3	33
- Q4	33
- Q5	34
- Q6	34
- Q7,8,9	34
- Q10,12,13	34
- Q15	34
- Q18,20,21	34
- Q22	35
- Q23,24	35
- Q26	35
- By Family Income (D10)	36
- Q1	36
- Q3	36
- Q4	36
- Q5,6	37
- Q7	37
- Q10,13	37
- Q15,18,20,21	37
- Q22	38
- Q23	38
- Q25,26	38

- By Town or Rural (D11)	39
- By Stone	40
- Q1	40
- Q3	40
- Q4-6	41
- Q7	41
- Q8	42
- Q13	42
- Q14	42
- Q15-17	43
- Q18,19	43
- Q20-22	44
- Q23,24	44
- By District	45
- Q3	45
- Q4	45
- Q5	45
- Q6	45
- Q7,8,9	46
- Q13	46
- Q14,15,17	46
- By Size of City	47
- Q1	47
- Q14	48
- By Place (County)	48
- Q3	48
- Q6	48
- Q7-9	48
- Q13	49
- Q16	49
- Q18,19	49
- Q20,21	50
- Q22	50
- Q23,24	50

Summary	51
- Purchase Preference	52
- Merchandizing	52
- Education	52
- Recipes	53
- Quality	53
- Question by Demographics	54
- Sex	54
- Marital Status	55
- Family Size	55
- Age	55
- Education	56
- Race	56
- Income	57
References	58

Appendices

- A. Copy of survey, including question and demographic code number, overall percentage and number of responses for each question or demographic
- B. List of Counties and Personnel assisting with the survey.
- C. Instructions to the 4-Her's
- D. Summary of solicited and unsolicited comments.
- E. Data Tables discussed in the text.
- F. Cost comparison between eggs and meat or milk (for question 4).

INTRODUCTION

As observed by Baker(1), in order to sell to a consumer, the seller must be aware of the values of the consumer and offer products and services accordingly. But as Lunde(6) and Siebert(8) have noted, the poultry industry does not effectively merchandize their product. Work by the American Egg Board, the Georgia Egg Commission and other state groups would indicate the industry is putting forth some effort to pull the eggs through the marketplace. The real test of the effectiveness of these merchandizing efforts is to note a reduction in negative consumer comments (for example: eggs sold as large are really medium; there are too many cracked eggs), and to see an increase in the per capita consumption of eggs. A positive image of the industry must be maintained through quality promotional activities and products, as well as by other creative merchandizing efforts. Apparently, there is an abundance of merchandizing work left to do.

The purpose of this survey was to determine the consumer's attitude toward various aspects of egg quality and merchandizing, and how their attitude may affect their egg buying patterns. This new and updated information will allow the industry to better understand the needs and views of consumers. They may then use that information to better educate retailers and members of the poultry industry, and therefore may be able to more effectively merchandize eggs. The survey format is included as Appendix A.



MATERIALS AND METHODS

Seventeen counties in Georgia were selected for participation in this project based on interest expressed by the County Extension Agent (CEA), the population of the county seat, and on geographical location. An attempt was made to achieve representation from South, Central and North Georgia, as well as a cross section of population densities. The survey was conducted in 35 store locations, the number per county being dependent upon the county population and availability of stores. These locations were in towns that ranged in size from one in a town of about 1,000 people, to those in the metro-Atlanta area. County Extension Agents, 4-H Leaders, and 4-H club members were given the opportunity to volunteer to work on this project. Personnel participating in this project, and their county, are listed in Appendix B. The CEA contacted the store(s) and, usually along with an Extension Specialist, was responsible for overseeing the project at each store location.

The 4-H'ers were given pre-survey instructions (Appendix C) and practice. The school grade range of 4-H'ers was from the 6th to the 12th grade. At the store, the survey station was located where it was most convenient for the store manager. The survey station was identified by a sign prepared by the 4-Hers, and associated equipment such as a table and chairs. At about four stores the survey location was outside, at three it was near the egg display, and in the rest it was located inside the store at either the entrance or exit. The 4-H'ers contacted most of the consumers, but were assisted by Extension personnel. Suggested ways for 4-H'ers to approach the customer are included in Appendix C.

Clipboards, pencils, and assistance were provided to facilitate completion of the survey in the store. Respondents were given the option of completing the survey at home and returning it via business reply mail. All respondents were asked to fill out an address label. The Georgia Egg Commission sent each of these persons a selection of recipes in appreciation for taking the time to provide their opinions.

The survey had a total of 26 questions, and was intended to obtain information in the areas of purchase preferences (6 questions); merchandizing (3 questions);

education (3 questions); recipes (4 questions); egg quality (10 questions); and demographics (8 questions). A total of 2,975 questionnaires were filled out. Surveys were coded numerically for the specific town and store location. In addition, paper color was used as a code for each Extension district. Comments were requested only for the question asking the consumer's carton preference (no. 6), with general comments being requested at the end of the survey. These and unsolicited comments are summarized in Appendix D.

As Hammond (2) mentioned (when evaluating survey data), we are dealing with statements rather than observed behavior. For this reason, we are usually more interested in relationships between groups (within or between questions) than we are in absolute levels. Each opinion question was analyzed in relation to each demographic question using the Chi-Square analysis. Data will be presented and discussed first using percentages of all responses, then as a summary of selected question by demographic relationships. These relationships will be reported if there is a significant ($P \leq 0.05$) level of probability that a difference does exist in the data. This means that there are no more than 5 chances out of 100 of being wrong that there is a difference in the data, and is a generally recognized minimum level of statistical significance.

SUMMARY OF QUESTIONS BY CATEGORY

Percentages are the portion of total responses to that question. The question number represents the order of the question in the survey, and is located to the left of each question.

Purchase Preferences (6 questions)

Question number -

- 1) Do you buy eggs mostly based on:
 - 1) 57.8% Size
 - 2) 0.8% Color of cartons
 - 3) 2.7% Producer or brand name
 - 4) 26.2% Price difference between sizes
 - 5) 12.5% Only by priceTotal responses - 2,839

- 2) Would you rather buy eggs priced by:
 - 1) 88.7% The dozen
 - 2) 4.4% The pound
 - 3) 6.9% No opinionTotal responses - 2,958

- 3) Would having the price per pound stated along with the price per dozen help you?
 - 1) 36.8% Yes
 - 2) 46.1% No
 - 3) 17.1% No opinionTotal responses - 2,958

- 5) What size carton would be most convenient for you?
 - 1) 9.0% 1/2 dozen (six eggs)
 - 2) 2.1% 10 eggs
 - 3) 64.1% One dozen
 - 4) 8.0% 1 1/2 dozen (18 eggs)
 - 5) 9.4% 2 dozen (24 eggs)
 - 6) 7.4% a 2 1/2 dozen flat (30 eggs)Total responses - 2,950

6) Which type of carton do you prefer?

- 1) 52.3% Styrofoam
 - 2) 8.9% Paper
 - 3) 12.1% See-through (clear plastic cover)
 - 4) 26.7% Does not matter
- Total responses - 2,935

22) Which color egg do you prefer to buy?

- 1) 48.2% White shell
 - 2) 18.3% Brown Shell
 - 3) 33.5% No preference
- Total responses - 2,865

In question number one (Q1) a majority (57.8%) of the respondents purchased eggs based mostly on size. To the question of what size egg is usually purchased, Thomas and Painter (9) found about two-thirds of their respondents purchased large eggs. Only 2.7% of those interviewed in this study considered brand name or producer the main criteria for egg purchases. This is similar to results from a study by Jasper (5), where 5.8% considered the brand name an important part of the egg carton. Hoyt et al. (4) found definite preferences by consumers regarding carton color and style, but these preferred styles did not increase total sales, rather they gave the producer using the preferred cartons a marketing advantage. The low level of importance respondents (0.8%) gave to carton color support the data of Hoyt et al. (4).

The educational programs of egg groups appear to have had a beneficial effect on the knowledge level of consumers, as 26.2% of respondents stated they bought eggs based mostly on the price difference between egg sizes. Because only 12.5% said they bought eggs only on price, and about 58% were mostly interested in a certain size egg, the tradition of using eggs as a loss leader (the farmer often takes or shares the loss) may not be as beneficial as once thought. The purposes of using eggs as a special, or loss leader, are to produce an overall gain on products with a highly positive cross elasticity of demand (bacon, easter egg dye, etc.), or to draw customers to the store as part of the weekly package of sale items. Perhaps other merchandizing techniques could be used to increase sales of these other

products. Additionally, as most industry people are aware, continual use of eggs as loss leaders only serves to lessen the perceived value of eggs. Adding the two price related categories, at least 38.7% (26.2 + 12.5) are willing to buy cheap eggs, but two-thirds of these people may be just looking for the better buy.

As would be expected, most respondents (88.7%) preferred to buy eggs by the dozen, while 4.4% preferred to buy eggs by the pound, and 6.9% had no preference (Q2). In answer to question three which asked if having both the price per pound and per dozen stated on the carton would be helpful, only 36.8% said yes, while 46.1% said it would not be helpful and 17.1% had no opinion. Comparing these questions, the traditional dozen sales appear to be intact, with many people apparently reluctant to make comparisons based on a unit price. Even though effort has been expended to educate consumers of the value of eggs, about 63% of these respondents exhibited a lack of desire, or knowledge of how, to make valid comparisons of the egg's value versus other foods (e.g. cereals). This may indicate that our educational efforts which compare the value of eggs with other foods, are not as effective as they should be. Conversely, our efforts may be effective in that about 63% these people may have already known eggs were inexpensive, so there was no need to make comparisons. Because over one-third of respondents were interested in having unit pricing available, effort in this area may prove to be beneficial.

In other countries, such as Japan, eggs may be sold by the egg, or in ten-egg cartons. In America, one-half dozen cartons (split cartons), eight egg cartons, or cartons in multiples of one dozen may be available. Eleven percent of those responding to question five preferred a carton having less than 12 eggs, while most (64.1%) people preferred the traditional one-dozen carton, and 24.8% wanted eggs packed in containers having more than 12 eggs. This 24.8% was about evenly split among the choices offered (1.5, 2.0, 2.5 dozen). This information agrees with data collected by Thomas and Painter(9) where 71% preferred the one dozen carton, 20.5% a carton containing more than 12 eggs per carton, and 8.4% wanted less than 12 eggs per carton. These data suggest the possibility of a merchandizing advantage to producers that offer a split pack, a six or eight egg carton, or to those willing to package eggs in cartons that

are multiples of one dozen. Also, a producer may be able to specifically target certain markets with these special packs. In 1957, Hoyt et al. reported consumers preferred one dozen, non-divisible cartons rather than those that could be separated in two. A divisible carton would be the same as offering a six egg package. This preference may be merely due to the particular carton style or it may be an indicator of changing eating habits due to a variety of factors, including lifestyle and health concerns.

The majority (52.3%) of respondents (Q6) preferred the styrofoam carton, as was the case in 1967 when Zehner (10) reported 40% (all other choices were less than 40%) preferred molded polystyrene cartons. In this study, more protection was the reason indicated by most respondents when commenting on why styrofoam was preferred (see Appendix D). Many respondents that preferred paper cartons did so because they were "biodegradable". While paper cartons were preferred by 8.9%, and the see-through cartons by 12.1%, there were 26.7% that did not care how the eggs were packaged - as long as they were properly protected. This question will be discussed further in another section.

Egg color was not considered an important factor when purchasing eggs by 33.5% of respondents (Q22). This differs from the 60% having no preference in a Georgia study, as reported by Thomas and Painter(9). In the present study, 48.2% preferred white shelled eggs, and 18.3% brown shelled eggs, while in the Thomas and Painter(9) study, 30% preferred white and 10% brown eggs. This indicates the possibility of expanding the brown egg market in Georgia. However, the logistics of supplying these markets may be a problem. A continuous flow of this product in the correct size and grade categories may be achieved by having the brown egg layers in selected rows or lines in various houses.

Merchandizing (3 questions)

7) Does a neat and attractive egg display encourage you to buy eggs?

- 1) 52.1% Yes
 - 2) 23.0% No
 - 3) 24.9% Does not matter
- Total responses - 2,900

8) When you see broken eggs in open cartons or in the egg display area, does it make you want to buy eggs from another store?

- 1) 41.4% Yes
 - 2) 47.5% No
 - 3) 11.1% Does not matter
- Total responses - 2,920

9) When you see several open cartons in the egg display area, does it make you want to buy eggs from another store?

- 1) 38.3% Yes
 - 2) 47.1% No
 - 3) 14.7% Does not matter
- Total responses - 2,907

A proven fact of merchandizing any product is that an attractive and neat display encourages sales. However, in too many stores the egg display area is a shambles, with open cartons laying anywhere in the area, and even broken eggs (with the contents dried) lying on or in cartons. These questions were intended to determine if these less than appealing conditions really did affect the consumer's egg purchases. The results were not as clear-cut as had been expected. Even though 52.1% answered that a neat display did encourage their purchase of eggs (Q7), 24.9% said it did not matter. This one quarter of the respondents may be understanding, and realize that there is a continuous problem with maintenance of the egg case. The 23% that said a neat display did not encourage their purchases of eggs may have been affected by the conditions, but were simply not encouraged by a neat display. However, if half of the

consumers are encouraged to buy eggs by a neat display, then it would seem logical the store would make every effort to maintain this condition. Hughes (3) has noted, "quality control does not stop at the point of removal of low quality items (e.g., egg processing plant). There is a role for quality control in the passage of eggs through the marketing channels to ensure that quality is retained and that, where detected, damaged or inferior goods are removed and most certainly not offered to consumers."

The next two questions attempted to define any difference in the effect on consumers according to the degree of inferior merchandizing. Broken eggs (Q8) in the display area bothered 41.4% of consumers enough for them to possibly change the location of their egg purchases, while having open cartons in the egg display (Q9) would make 38.3% of survey participants want to buy eggs elsewhere. This was roughly a three percentage point shift (at the expense of the Does Not Matter category) when eggs were broken, versus having open cartons in the egg display area. If 40% of a store's customers wanted to shop elsewhere for their eggs due to inferior management of the egg case area, this could result in a tremendous loss of income to the store. Thomas and Painter (9) reported the primary reason for buying eggs at locations other than where most of the grocery shopping was done centered around issues of quality, not price, which may imply product quality at some outlets in their study was not adequate. Price ranked third after quality and location as the reason to shop elsewhere. This also supports the opinion that the use of eggs as a loss leader should be reduced or eliminated.

Education (3 questions)

- 4) Compared to other sources of protein (such as meat or milk), are eggs:
- 1) 68.7% Less expensive
 - 2) 16.4 About the same
 - 3) 2.9 More expensive
 - 4) 11.9 Do not know
- Total responses - 2,966

23) Does keeping eggs in their original carton help maintain their freshness?

-
- 1) 35.1% Yes
 - 2) 15.4 No
 - 3) 16.4 No difference
 - 4) 33.0 Do not know
- Total responses - 2,909

24) Are Grade B eggs as good as Grade A for baking or scrambling?

- 1) 42.5% Yes
 - 2) 15.6 No
 - 3) 41.8 Do not know
- Total responses - 2,894

Educational efforts appear to have had a beneficial effect on consumer recognition of eggs being a better buy than other high quality sources of animal protein (Q4), because over 2/3 of respondents (68.7%) said eggs were the least expensive. As previously indicated, perhaps this is a reason stating the price per pound and per dozen was only helpful to 36.8% of respondents of question three. However, more effort may need to be expended in this area because a total of about 19% indicated incorrect choices (about the same value, 16.4%; more expensive, 2.9%), and 11.9% did not know.

Only 35.1% said keeping eggs in the original carton helped maintain egg freshness, about one-third did not know, and the other third gave the "incorrect" answers (Q23). Cartons having open areas would effectively eliminate any quality preservation benefits of storing the eggs in the carton. If egg quality is important to the consumer for specific types of egg preparation (poached, sunny side up, etc.), egg quality and storage information should be provided. By maintaining interior quality for these specific types of egg preparation, egg sales may be encouraged.

Because Grade B eggs are now rarely sold in the store, many people did not know (41.8%) or gave an incorrect "No" response (15.6%) to question 24 which asked if Grade B eggs were as good as Grade A for baking or scrambling. Consumer

information on this subject would allow eggs stored the longest by the consumer to be used for baking, and if they wanted high interior quality, fresher eggs should be used. This may also encourage egg sales. The purpose of this question is not to promote the sale of Grade B eggs in the store, but is intended to ensure the consumer recognizes this quality factor, and how to use these eggs to her/his maximum benefit.

Recipes (4 questions)

10) Is it helpful to have recipes printed inside the carton top?

- 1) 46.5% Yes
 - 2) 26.1 No
 - 3) 27.4 Does not matter
- Total responses - 2,905

11) Is it helpful to have loose recipes placed inside the carton?

- 1) 40.1% Yes
 - 2) 29.7 No
 - 3) 30.3 Does not matter
- Total responses - 2,911

12) Would you like recipes included in the egg display area?

- 1) 51.4% Yes
 - 2) 14.4 No
 - 3) 34.1 Does not matter
- Total responses - 2,905

13) Which do you prefer?

- 1) 26.1% Recipes printed inside carton top
 - 2) 33.3 Recipes loose inside carton
 - 3) 18.8 As a case display
 - 4) 21.7 Do not use recipes
- Total responses - 2,860

Forty to fifty-one percent of respondents to these first three questions indicated a preference for some form of recipes at the egg display or in the carton. In ~~answering question 13, which asked for a specific recipe~~ preference, only 21.7% indicated they do not use recipes (so 78% do, at least occasionally, use recipes). These data emphasize the value of product promotion, and assistance to the consumer in using the product. Also, the excellent work by our promotional/educational organizations is still needed and must be supported.

An important point to remember when producing recipes is the income level of the user. In this study, 11.8% had an income of \$7,000 or less; 12.1% earned \$7,000-\$12,000; and 21.6%, \$12,001-\$20,000. This means 23.9% of respondents were below or slightly above the current poverty level. The 1984 poverty level for a single person was \$5,300, and for a family of four it was \$10,600. While obviously needed, if primarily expensive or exotic recipes are distributed, they certainly will not be used by these lower income families. Perhaps more emphasis should be placed on recipes and other information geared to the lower income families.

Quality (10 questions)

14) Do you check for cracked eggs before buying them?

- 1) 91.5% Yes
 - 2) 3.9 No
 - 3) 4.6 Sometimes
- Total responses - 2,913

15) How much does finding cracked eggs after you get home bother you?

- 1) 55.5% A great deal
 - 2) 24.4 Some
 - 3) 14.4 A little
 - 4) 5.7 None
- Total responses - 2,917

16) Would finding cracked eggs after purchase make you want to buy eggs elsewhere the next time?

-
- 1) 32.8% Yes
 - 2) 47.9 No
 - 3) 19.3 Sometimes
- Total responses - 2,908

17) Would continually finding cracked eggs make you want to buy fewer eggs?

- 1) 46.0% Yes
 - 2) 40.7 No
 - 3) 13.3 Sometimes
- Total responses - 2,885

18) How much does finding small colored streaks (cage stains) on an eggshell bother you?

- 1) 28.8% A great deal
 - 2) 26.5 Some
 - 3) 21.4 A little
 - 4) 23.4 None
- Total responses - 2,906

19) How much does finding large (the size of a dime) discolored or stained areas on the egg bother you?

- 1) 46.0% A great deal
 - 2) 26.2 Some
 - 3) 16.2 A little
 - 4) 11.7 None
- Total responses - 2,901

20) How important is a smooth eggshell to you?

- 1) 26.9% A great deal
 - 2) 24.1 Some
 - 3) 16.0 Little
 - 4) 33.1 None
- Total responses - 2,895

21) What do you do when you find a blood spec in an egg?
Do you:

- 1) 56.5% Throw the egg out
 - 2) 35.3 Remove the spot with the tip of a knife?
 - 3) 8.2 Nothing
- Total responses - 2,876

25) Are the eggs you usually buy USDA inspected?

- 1) 81.4% Yes
 - 2) 2.9 No
 - 3) 15.6 Do not know
- Total responses - 2,884

26) Are USDA inspected eggs of better quality than those not inspected by the USDA?

- 1) 37.1% Better
 - 2) 15.3 No difference
 - 3) 1.2 Worse
 - 4) 46.5 Do not know
- Total responses - 2,850

There are many aspects of quality that may affect the sale of eggs. Cracked eggs are one of the most apparent and therefore critical aspects of quality. Saunders (7) reported 52% of housewives interviewed in six Maine cities liked a plastic carton because they could see if the eggs they were buying were cracked or dirty. According to Zehner (10), "A housewife is not concerned whether the eggs were broken in shipment, ..., she just thinks she was cheated when she gets home to find cracked or broken eggs." Why else in the current study (Q14) would 91.5% of respondents indicate they check, and 4.6% sometimes check for cracked eggs prior to purchase? This agrees with Thomas and Painter (9), who stated that 93+% of respondents opened cartons to check the contents. This mistrust can also be confirmed by observing customers at the egg display. The follow-up question (Q15) also confirms the consumers apparent need to check for cracked eggs as only 5.7% said it did not bother them to find cracked eggs after purchase. The probable reason "only" 32.8% may find another egg supplier if cracked eggs were found after purchase (Q16) was because they had checked them at the egg display, as was indicated in

unsolicited comments. The 32.8% of respondents in question 16 that were willing to buy eggs elsewhere if they found cracked eggs after purchase is similar to the roughly 40% of respondents that said an unsightly egg display would tempt them to buy eggs elsewhere (questions 8 and 9), which confirms the consumer's desire for quality. At least one store chain has the check-out person inspect the eggs, which indicates some store managers realize the importance of ensuring egg quality. Even though demand for eggs is relatively inelastic, 46% indicated that continually finding cracked eggs would make them want to buy fewer eggs, and 13.3% said it would do so "sometimes" (Q17). So, nearly 60% of consumers in this survey can be inhibited from making egg purchases by poor quality control at the processor or store level.

Only 23.4% said cage stains did not bother them, while 28.8% said they definitely did not like to see these stains (Q18). This question may have been unclear regarding the source of the stain, but does indicate that a clean shell is important to about three-fourths of the respondents. The number of people wanting a clean egg increased to about 88% when asked if a large stain bothered them (Q19). One person indicated she didn't mind a stain but did not like "do-do" on the egg.

A smooth shell was not considered important by about one-third of the respondents, while 26.9% said a smooth shell was very important to them (Q20).

Blood spots are often confused with the presence of an embryo. Probably for this reason, 56.5% threw the egg out if blood was present (Q21). There were 8.2% that ignored the blood, and 35.3% that removed it and used the egg. This is an area that may require more educational efforts. Also, some people think the chalazae is the embryo. If people are better informed, small defects (blood, meat spots) may not be a deterrent in the use of eggs.

The last two questions in this section address the quality of USDA inspected eggs. Eighty-one percent indicated they usually purchase USDA graded eggs, and 15.6% did not know (Q25). The final question of the survey asked how these USDA inspected eggs compare with non-inspected eggs (Q26). Only 37.1% indicated the USDA inspected eggs were of better quality. There were 15.3% that thought there

was "no difference", and 46.5% did not know if USDA inspected eggs were of better quality than non-inspected eggs. This can be understood from complaints such as "the large eggs are really medium", and from the number of people that find it necessary to check for cracked eggs prior to purchase. A producer/packer from the Midwest recently visited a store in Georgia, and checked egg quality. In only one dozen of six were there no cracked eggs (but that dozen had one Grade B, exterior); there were two dozen with five cracked eggs in each; and the rest with one or two cracks per dozen. These eggs were from a USDA graded plant. Unfortunately, this situation occurs in the rest of the country.

Part of the poor egg quality problem at the store level rests with no consumer feedback to the state inspection service, and part is due to inferior training at the store level (stock personnel, dairy/egg case manager, or other personnel). Part of the responsibility must be accepted by the processing plant and delivery personnel. As these and previously cited data indicate, a better training and quality assurance program at all levels would benefit the industry through possibly increased sales, and a better concept of the industry by the consumer. The psychological effect of poor product quality could have other consequences for the industry. If the eggs are of poor quality, or the manner in which they are merchandized is inferior, can the chickens be well cared for? This may require a giant leap of the imagination for some individuals, but the animal rights/welfare issue rests on unfounded generalizations and frequently on emotional, illogical reasoning. This situation may be influenced by our product quality as presented to the consumer.

QUESTIONS EVALUATED BY DEMOGRAPHICS

Rather than repeat each question, refer to Appendix A for the complete question and related demographic question. For purposes of brevity, only a code (e.g. Q7, D3) will be used to identify the question and demographic being discussed. All referenced tables are included in Appendix E. The demographic question will be inserted beneath each major heading. Only surveys in which respondents answered both the opinion and demographic questions were used for this analysis. Therefore, percentages reported in this section may be slightly different than the overall averages reported in the first section.

The Chi-square analysis was used to test for differences in the pattern of responses within demographic categories. A significant Chi-square analysis only indicates there is a difference somewhere in the data set, not the precise location of that difference. To pursue the matter further would not necessarily be productive. The ($P \leq 0.0xx$) value in each table heading indicates the chances out of 100 or 1000 (the probability) that there is really no difference in the information presented. A probability of less than or equal to 5% (i.e. $P \leq 0.05$) is usually considered to be significant. Because of the large number of surveys, small differences in percentages between demographic categories were significantly different. Unless otherwise stated, only relationships at the $P \leq 0.05$ level of significance, are discussed. Some statistically significant information is not discussed because consistent trends did not exist. The statement "data not shown" indicates there is no table in Appendix E for the information being discussed.

Questions by Sex

D1 What sex are you?

- (1) 18.9% male
- (2) 81.1% female

Total responses - 2,858

Q1;D1 - There was a sex difference ($P \leq 0.004$) for the primary reason eggs were purchased (Table 1). The females appeared to be the more informed shopper, as about 3.5% more ~~females than males bought eggs based on the price difference~~ between sizes. Other patterns existed (color of carton, producer) but may not be meaningful.

Q2;D1 - About 4% more females than males preferred to buy eggs by the dozen, this difference being reflected in the higher percentage of males that preferred to buy by the pound (Table 2). Comparing these differences with the previous table, the males appeared to prefer the easier method of comparison when buying eggs (e.g. large at .60 cents/dozen are .40 cents/pound and jumbo at .75 cents/dozen are also .40 cents/lb.). Also, in Q3:D1 (data not shown), even though a higher percentage of males (39.11%) than females (35.85%) chose the "yes" answer when asked if it would be helpful to have both the price per pound and per dozen stated, the difference was not significant ($P > 0.05$).

Q4;D1 - Females were more knowledgeable regarding the relative cost of eggs versus other foods (Table 3). More males (5.01%) than females (2.38%) stated eggs were more expensive, while more females (69.9%) than males (65.68%) said eggs were less expensive than meat or milk. Examples of these relative costs are included in Appendix F.

Q5;D1 - A greater percentage of males (13.39%) than females (9.84%) preferred to purchase eggs in quantities of less than one dozen, while more females (26.00%) than males (21.19%) preferred the greater than one dozen packs (Table 4). A similar percentage in both sexes preferred the traditional one dozen package.

Q8,9;D1 - More males than females said broken eggs (Table 5), or open cartons (Table 6) in the egg display would make them want to purchase eggs elsewhere. However, about 53% of both sexes indicated "yes" when asked if a neat egg display encouraged egg purchase (Q7:D1 - data not shown). Even though the 37-40% of female shoppers that may change stores is less than the 43-44% of males that would change, females represented 78% of the respondents and so were a greater number of potentially lost sales. These data may indicate greater store loyalty, or a more forgiving attitude on the part of female versus male shoppers. Store managers should

address this problem, possibly through formal training programs for their personnel.

Q10,11,12,13:D1 - The section on recipes was interesting in that it showed that males do use recipes, or are interested in them, nearly to the same extent as females (Tables 7,8,9 and 10). Therefore, recipes that are simple and quick to fix, and oriented toward those with limited cooking ability or desire may be beneficial. Only for the loose recipe question was there no statistical difference ($P \leq 0.061$) for this relationship, and that was a strong trend (Table 8). For the printed and loose recipe questions, the values for the category "does not matter" were similar for both sexes. Other than possibly a problem with the construction of the questions, or the respondents already had a collection of favorite recipes, it is not clear why about 30% of females indicated "does not matter" for the first three questions, then for the summary question only 19+% checked the "do not use" category. Overall, only 21.7% of respondents said they did not use recipes. Industry efforts in this area appear to be well received, with the greatest potential for improvement in the area of loose recipes (Table 10). In the summary question, recipes offered at the egg display were the least preferred, even though 51% of respondents said they would like this type recipe in the egg display area (Q12). The reason for the change in preference for loose recipes may be dependent on the type display recipe used. In pre-test locations, pull-off recipes on small pegs have not been nearly as popular as those packs with a sticky back.

Q14,15,16:D1 - About 8% more females than males check for cracked eggs prior to purchase (Table 11). A difference such as this could be predicted based on the percentage of females bothered by the discovery of cracked eggs after purchase (Table 12). A consistent pattern shown in all these questions was that males were less concerned about cracked eggs than were females. When asked if they would buy eggs elsewhere if cracked eggs were found after purchase (Table 13), females again excused defective merchandizing more than males (31% of females but 39% of males said they might change stores). However, to the last cracked egg question (Q17:D1 - data not shown), there was no statistical difference between the sexes. Here, 46.9% of females and 43.1% of males said they would buy fewer eggs if cracked

eggs were continually found. In all cases, the sale of eggs would be hindered by poor merchandizing practices.

Q18,19:D1 ~~Small cage stains (Q18 - data not shown)~~
bothered males and females about equally ($P \leq 0.054$), with these discolorations apparently being more of a problem for females. Here, 28.1% of males and 22.5% of females indicated "none" when asked how much these small stains bothered them. Listed in Table 14 are the responses for question 19, which is concerned with the effect of large stains on consumer acceptance. Females again were more annoyed than males by the presence of dirty eggs.

Q21:D1 - There was no differences between sexes regarding the importance of a smooth eggshell (Q20), or its color (Q22). For the question regarding blood spots, about the same percentage of both sexes threw out the egg (56%), but more males stated they ignored the blood, while more of the females removed the spot (Table 15).

Q23,24:D1 - More males (38%) than females (34%) correctly as well as incorrectly (19.5% vs. 14.5%) answered the question about egg freshness (Table 16). More females responded in the "do not know" category (35% vs. 27%) than males, which suggests that more males may have guessed at the "correct answer". Only slightly more than one-third of the respondents gave the correct answer, which may indicate a need for more information in this area. Of course, cartons having open spaces which directly expose the eggs to the environment would not help maintain egg freshness. This option may have had a confounding influence on this question. The same conclusion and recommendation could be made for question 24 (data not shown), where about equal percentages of each sex (44.65% male; 42.02% female) indicated Grade B eggs were adequate for baking or scrambling, but more females (43%) than males (36%) indicated they did not know the answer.

Q25,26:D1 - The USDA and state inspections are intended to ensure that high quality food is shipped to and sold at stores. These inspected products should have the confidence of consumers. However, the results of the last two questions may not bear this out. The total blame can not be placed on the USDA, because USDA responsibility ends at the processing plant, and the state inspection system has the

role of ensuring stores and producers comply with various regulations.

~~Females were more aware if the eggs were USDA inspected~~ (Table 17) but were about the same as males in their opinion of the final egg quality being better than non-shielded eggs (Table 18). Males were more skeptical of the value of the inspection service, as a greater proportion of males indicated there was no difference or the quality was worse for inspected eggs.

Questions by Marital Status

D2 What is your marital status?

- 1) 15.4% single
 - 2) 70.9% married
 - 3) 7.2% widowed
 - 4) 6.5% divorced or separated
- Total responses - 2,859

The only data shown for this section is for Q13 (Table 19).

Q1:D2 - About four times as many single people bought eggs mostly by carton color (1.9% vs. about 0.55% for those that had been or were currently married). There were less married (11.8%) or widowed (12.2%) than single (14.0%) or divorced (17.0%) people that bought eggs mostly by price. Those married (58.5%) or widowed (60.6%) considered size more important than single (54.7%) or divorced (52.0%) people.

Q2,3:D2 - Compared with married (3.6%) or widowed (4.4%) people, more of those that were single (7.3%) or divorced (5.9%) would rather buy eggs priced by the pound (Q2). In question 3 by D2, more single people than those in other categories said having the price stated per dozen and per pound would be helpful (single 46.5%; married 34.6%; widowed 35.2%; and divorced 33.0% said "yes"). This may be due to the current emphasis in the schools on the metric system, and new high school classes such as consumer mathematics or consumer economics. These data indicate dual unit pricing would be beneficial.

Q5:D2 - As expected, carton sizes of less than one dozen were preferred by people that were not married (13.7 - 17.9%; 16.5% weighted average) at a rate of about two times that of married people (8.1%). The opposite pattern was evident for the 1.5 dozen carton size, but not for the 2.0 and 2.5 dozen packs. Of interest are the responses for two dozen packs, where values for single (11.0%), divorced (10.3%), and married (9.6%), respondents were much greater than for widowed (4.9%) people. The values for 2.5 dozen packs were similar to, but lower than, those for 2.0 dozen packs. More widowed (74.5%) respondents than those in other classifications (57.9% - 65.4%) preferred the one dozen packs.

Q8,9:D2 - Widowed respondents (47.0%) were more likely to decrease egg purchases due to broken eggs in the cartons and egg display area (Q8) than those that were married (41.5%), single (39.5%), or divorced (35.8%). Single people were more adversely affected by open cartons in the egg display area (Q9), than by broken eggs in this area, where "Yes" responses by those who were single increased to 45.3%. Responses in the other categories of Q9 declined to 43.9% (widowed), 36.4% (married), and 32.3% (divorced).

Q13:D2 - Marital status had no effect on responses in the first three recipe questions (Q10,11,12) regarding helpfulness of certain recipes, but did when asked the preferred recipe format (Table 19). More single than other respondents wanted recipes printed in the carton, while the opposite was true for loose recipes in the carton. Similar numbers in each category did not use recipes. Case display recipes were the least preferred method of distribution. However, this display format was preferred by more married respondents than consumers in other groups.

Q14,17:D2 - Single people (6.5%) were more likely to NOT check for cracked eggs (Q14) than those that were widowed (4.0%), divorced (3.7%) or married (3.1%). In Q17, there was a strong trend ($P \leq 0.059$) for fewer widowed people (31.6%) than those that were single (41.8%), married (41.2%), or divorced (44.9%) to say they would NOT decrease their egg purchases if they continually found cracked eggs. Therefore, the effects if inferior quality would be felt more in market areas with a high proportion of widowed customers.

Q18,19,20:D2 - In both questions concerning stained eggs, widowed people (therefore, older?) indicated stained eggs bothered them "a great deal" at the rate of about 16 percentage points greater than the other categories. In Q18, 43.7% of widowed people indicated they were bothered "A great deal" by cage stains; and in Q19, by large stains at the rate of 59.3%. In Q18, the "none" category was checked by 13.6% of widowed, 20.9% of single, 24.7% of married, and 27.3% of divorced persons. The pattern for the "none" category was the same in Q19. Producers supplying any market, but especially one with a high percentage of widowed customers may benefit from taking special effort to ensure eggs are spotless. A similar pattern was evident when asked the importance of a smooth shell (Q20). More divorced or married people (about 37%) indicated they were not concerned about shell smoothness than were single or widowed people (both about 23%).

Q21:D2 - Fewer widowed people (2%) ignored blood spots, compared with 8-10% of those in other categories. More single people (61.1%) threw out an egg that contained a blood spec, compared with married (55.5%), widowed (55.6%), or divorced (56.3%) people.

Q22:D2 - A brown shelled egg was preferred by 28.1% of widowed respondents versus 14.0% for single, 17.6% for married and 23.5% for divorced respondents. This may indicate brown shelled eggs of very high exterior quality should be targeted for areas having a high elderly population. This is confirmed by the interaction data showing the relationship between shell color and age, where the percentage that preferred brown shelled eggs rose from 14.4% for those 17 - 25 years old, to 23.5% for those over 65 years of age.

Q26:D2 - Married people had less faith in the quality of USDA inspected eggs (35.6% indicated inspected eggs were better) than divorced (38.8%), single (39.6%), or widowed (42.3%) respondents. More single (20.6%) or divorced (18.6%) respondents said there was "no difference" between egg sources compared to values for those that were married (14.4%) or widowed (9.5%).

Questions by Total Family Size

- D3 Number of adults
- D4 Number of boys
- D5 Number of girls
- D6 Calculated total family size

Data were summarized and analyzed by the total family size. See Appendix A for specific values.

Q5:D6 - Listed in Table 20 are the percentages for responses to the question of carton size. Values conform to expected patterns except in family sizes of 8, or 9 and greater. The high demand of 0.5 dozen packs by large families could have been due to spurious information, or to the effect of valid information from a relatively few surveys.

Q6:D6 - data not shown - Larger family size was associated ($P \leq 0.028$) with a decreasing preference for styrofoam cartons up to a family size of 6, where it increased (59 to 47 to 54%). The opposite trend was true for paper cartons (7 to 12 to 5%). This may be the result of the current practice of selling multiples of one dozen in paper board sleeves, with most one dozen and smaller packs being in styrofoam containers.

Q10-13:D6 - In some of the 7, 8, and 9+ categories, there was variability in the response; but otherwise, the first three questions about recipes all showed a general increase in the use of recipes with family size (data not shown). Table 21 contains data from the summary question of recipe preference. Even though the differences within the table were highly significant, the only recognizable pattern is that of family sizes of four through seven and nine or greater using recipes the most. Loose recipes were preferred by all family sizes, with the case display the least preferred, except in the family size of 8.

Several subsequent questions had a significant Chi-square value, but were not presented because consistent patterns did not exist. Also, the major points for these questions have been discussed in other sections.

Questions by Age

(D7) Your age?

- | | | |
|----|-------|---------|
| 1) | 17.4% | 17-25 |
| 2) | 25.0% | 26-35 |
| 3) | 21.9% | 36-45 |
| 4) | 13.3% | 46-55 |
| 5) | 12.8% | 56-65 |
| 6) | 9.7% | over 65 |

Total responses - 2,830

Q1:D7 - data not shown - More younger people purchased eggs by carton color (1.68%) than those in other age groups (0.39-0.83%). This may not become an important factor in merchandizing eggs even though those in the younger group tended to be the less proficient shoppers. Also, respondents in the two younger groups also buy eggs only by price to a greater degree than those in the other groups (14% vs. 10-12%). In general, eggs were increasingly purchased mainly by size as the customer's age increased (56.4 - 63.9%). The youngest (23.9%) and oldest (19.61%) group of respondents purchased eggs by the price difference between sizes less than the other groups (26.7 - 29.8%).

Q2,3:D7 - There was a definite effect of age on pricing preferences (Table 22). As the customer's age increased, more preferred to have eggs priced by the dozen, with the preference for pricing by the pound generally decreasing with age. The opposite pattern generally existed for the question asking if having the price per dozen and per pound would be helpful (Table 23). Perhaps this is the reason unit pricing of eggs has not become established as a merchandizing tool. These attitudes may not only be present in consumers, but also industry and store personnel. Certainly other commodity and interest groups (cereal manufacturers) would want to discourage - or not encourage - this dual unit pricing.

Q5:D7 - Preference decreased for cartons having less than one dozen eggs (14.7% to 8.1%), and increased for one dozen packs (55.6% to 85.4%), with increasing age of respondents (Table 24). The preference for carton sizes greater than

one dozen generally declined with increasing age (29.6%; 34.3%; 28.1%; 18.1% 16.5%; 6.6%; for respective ages listed in table 24).

There was a greater preference for smaller cartons of eggs by younger people especially those 17-25. If egg purchases by these young people were based on family size and not eating habits, the percentage of respondents in the one or two member household categories for the 17-25 age group would be expected to be greater than the values for the other age groups. The opposite was true, as for example, the percentage of one and two member households in the youngest group was about one half that of the oldest age group, (Table 25; also see Table 20, Appendix E). This indicates the probability of a continued decline in per capita consumption of eggs. This possible further decline in consumption must be compensated for through education, promotion, further processing of eggs, and better merchandizing. The industry must continue to promote and properly manage its valuable product.

Q6:D7 - data not shown - There was a decline in the preference for styrofoam cartons in the 26-45 age groups (48.6%), compared with the other group's values of 51-65%. A concurrent greater preference for paper cartons was observed in the 26-35 (12.2%), and 36-45 (9.6%) year olds, versus the 5.6 to 8.5% values for other groups. This is possibly in part a reflection of changing social values, as there were several comments that paper was preferred because it is bio-degradable, etc. See-through cartons were preferred by 13-14% of people through age 55, by 11% for those 56-65, and by 6% for those over 65. Therefore, if feasible, a company could market to these specific age groups by using specific carton styles.

Q7,8,9:D7 - data not shown - A neat display (Q7) was less important to people in the 26-35 and 36-45 age groups (45.9-51.5% said this would encourage them to buy eggs) than those in other age groups (54.1 - 57.2%). Also, more respondents in these two age categories (27-29%) than in other categories (20-23%) stated that neatness of the egg display did not matter. In Q8, with the exception of the 26-35 age group (33%), as age increased an increasing percentage of respondents said broken eggs in the display area would make them want to buy eggs elsewhere (38 - 50%). The 26-35 year olds (30% "yes" responses) were less

negatively influenced than other groups (36 - 46%) by open cartons in the egg display area (Q9). In Q9, as in Q8, the oldest two groups had fewer people (12.3%) check the "does not matter" choice than the other four groups (15.1 - 17.3%). These data indicate stores catering to the elderly have an even greater need to maintain a neat egg display than stores serving other age groups. But egg sales in all stores may be severely damaged by inferior merchandizing.

Q13:D7 - For the recipe questions, the desirability of recipes generally decreased with increasing age. This may be due to the number of accumulated recipes, or the lack of desire to try new ones, as can be seen in the responses to the "do not use" answer. In the recipe preference question (Table 26), printed recipes generally lost favor with increasing age. Recipes loose in the carton were most accepted, peaking at the age group of 56-65. Case displays were least preferred, with interest generally increasing to age 56 when the response declined.

Q16-21:D7 - data not shown - Compared to the 26-35 age group respondents (55% gave "NO" responses), less people in other groups (45-48%) would still purchase eggs from the same store if they found eggs to be cracked after purchase (Q16). In Q17, as the age categories increased, there was an increasing number of people (41 to 55%) that said they would reduce their egg purchases if they continually found cracked eggs. Also, as the age categories became greater, there was a decreasing tolerance for stained eggs (24 to 12%, Q18; 12 to 7%, Q19; were not bothered by stains).

In Q20, smooth shells were less important to respondents 26-65 years old (33-38% answered "none") than those less than 26 or older than 65 (24% answered "none"). Blood spots (Q21) were ignored more by those through age 35 (8.5 - 11.3%) than respondents older than 35 (4.3 - 5.3%). There were fewer respondents less than age 45 (31-35%) than over 45 (38-41%) that removed the blood spot. Too many people (56%) were offended by blood spots to the point they threw the egg out. This lack of education can only hurt the sale of eggs.

Q22:D7 - data not shown - White shelled eggs were preferred by those in the first two, compared to the other age groups (53.7 - 54.6% vs 38.6 - 47.2%), and the preference for brown eggs increased with increasing age, from 14.4% to 23.5%.

Q23,24:D7 - data not shown - People in the older two age groups tended to be better informed regarding the value of the egg carton in retaining egg freshness, although no group scored higher than 43% "correct" answers (Q23). In Q23, a greater percentage of those over 56 indicated the "correct" choice than those less than 56 years old (5-14 percentage point difference).

When asked if Grade B eggs were as good as Grade A for baking or scrambling (Q24), those over 36 had 9-13 percentage points greater correct scores than those less than 36 years old. However, the highest correct score was only 49.2%. These questions may reflect the need for more educational information for the consumer, as well as the lack of exposure of the younger people to Grade B eggs (see comments in education section).

Q25,26:D7 - data not shown - Compared with the younger four age groups (82.1-84.0%), less people 56 and older (76.9-78.4%) thought their eggs were USDA inspected (Q25). In Q26, those 26-45 years old were less inclined (32.4-34.6%) than respondents in other groups (37.1 - 45.1%) to think these inspected eggs were of better quality. Those over 65 appeared to have the most faith in the USDA, showing 45% for better (compared with 32.4-39.7% for other consumers), 9.5% for no difference (vs. 13.7 - 17.4%), and 0.37% for the "worse" category (vs. 0.43 - 2.04%).

Questions by Level of Education

D8) What is the highest level of education which you completed?

- 1) 4.5% Grade School
 - 2) 10.8% Some High School
 - 3) 35.1% High School Graduate
 - 4) 20.7% Some College
 - 5) 15.7% College Graduate
 - 6) 8.5% Post Graduate
 - 7) 4.8% Technical school
- Total responses - 2,786

Q1:D8 - data not shown - There were less people with a grade school education (12.9%) that bought eggs using the price difference between sizes than respondents in other categories (23.6 - 36.5%). Those with some high school (3.9%) or technical school training (4.8%) had more brand loyalty than college graduates (1.9%), or the approximately 2.5% of customers in the rest of the education categories that indicated producer or brand was a major purchase criteria. Those with some high school or technical school training also recorded the lowest values (48.5%) for importance of size in their purchase, the responses in the other categories ranging from 57.6 - 61.2%. People with less than a high school education were more likely to buy eggs only by price (18.4-22.4%) than those with a high school (14.4%) or higher education (5.8-11.6%).

Q4:D8 - data not shown - Those with less than a high school diploma were also less informed of the value of eggs, as only about 56% said they were less expensive, compared with people in other classifications having a range of correct answers of 65.4-75.2%. Those with less than a high school diploma also responded "do not know" 16-17.7% of the time vs. a 7.6-12.7% range for the other categories, so guessing may have been less of a factor in the answers of those with less education. Educational information and recipes should be geared to include the 50.4% of the people in this survey having less than a college education.

Q5:D8 - data not shown - The percentage of respondents wanting packs of less than one dozen generally increased

indicate it may be beneficial to shift the emphasis of egg recipes, to include recipes people in lower income brackets (education levels) can afford to use.

Q18,19:D8 - data not shown - Cage stains bothered more people with the lesser amounts of education than those with more training (the "none" category was 12.9% for those with a grade school education to 30.5% for those with post-graduate training). The same pattern existed for the "a great deal" category, ranging from 42.7% (grade school) to 16.3% (post-graduate). Although not significant, this pattern was seen in responses to the question about large stains (Q19). Everyone was more offended by larger stains.

Q20,21:D8 - The data is not shown for Q20, in which there was an inverse relationship between amount of education and how important a smooth shell was to the person (more education, shell quality of less importance), with the "none" category ranging from 15.3 to 46.1%. This relationship held true for the customer's reactions to blood spots (Table 28). Eggs with blood specs were discarded by 30 percentage points more grade school than post-graduate trained people (73.8 vs. 41.5%). Although admittedly a small percentage of eggs have blood or meat spots, those who can least afford to discard quality food, do so the most (and see Q21:D10). If a quality factor is sufficiently low to require part or all of a food to be discarded, then one could expect consumption of that food to decline. Perhaps people would have a more favorable image of eggs and therefore increase egg consumption if they knew more about the product.

Q22:D8 - data not shown - Preference for a specific shell color decreased with increasing education, the percentages of those having "no preference" ranged from 24.2% to 45.4% of respondents in the grade school through post-graduate categories. Those respondents with less than a high school education (24.7 - 26.7%) preferred brown shelled eggs more than those in other categories (10.9 - 19.9%).

Q23:D8 - data not shown - As education increased, a generally decreasing number of people correctly answered the question asking if keeping eggs in the carton maintained egg freshness (39 down to 28%). As education increased, people were also more likely to indicate they "do not know" (28.4 up to 43.4%). This may indicate better communication of

this type of educational material to those with less education, or possibly more common sense by the lesser educated people. Overall, only 34% knew that carton storage helped retain freshness, which means more consumer information is needed in this area.

Q26:DB - data not shown - As education level increased, the responses that indicated USDA inspected eggs were of better quality than non-inspected eggs decreased from 45.1 to 29.1%. Also, the "do not know" answers generally increased with increasing education level from 37.7 to 56.1%. This may indicate a greater awareness of quality factors, which would in general be expected for those with a greater educational background. Also, customers with more education could be less trusting of the government than people in other categories, and therefore believe that USDA quality does not necessarily indicate "better" quality.

Questions by Race

D9) (OPTIONAL) What racial or ethnic group are you a member of?

- 1) 78.2% White
 - 2) 19.2% Black
 - 3) 1.1% Hispanic
 - 4) 1.4% Other
- Total responses - 2,739

Unlike Hammond(2) who found no difference in responses to food safety questions according to race, there were several areas in this study where race was a definite factor. Data obtained for the black and white race categories is probably the most reliable, as the hispanic and "other" categories generally only had 30-40 respondents out of an average of 2,704 surveys having both this demographic and the respective opinion questions on their survey completed.

Q1,3:D9 - data not shown - In question 1, more whites (59.9%) than blacks (48.7%) indicated they bought eggs based mostly on size, with fewer whites (10.6%) than blacks (18.8%) buying eggs only by price, the other choices being about the same for these races. In question 3, 46.9% of the blacks but only 33.5% of whites said having the price per pound and per dozen would be helpful. Also, 50.6% of whites, compared to 32.9% of blacks indicated this information would not be helpful. The values for Hispanics (43.3% yes; 30% no) was similar to that of blacks. Apparently, more blacks and hispanics than whites would like an opportunity to comparison shop.

Q4:D9 - data not shown - Whites appeared to be better informed than people in other categories regarding value and egg quality. More blacks (6.7%; 52 suveys) than whites (1.9%; 2139 surveys) or hispanics (0.0%; 30 surveys) thought eggs were the more expensive form of protein. These values were less than the 12.8% (39 surveys) of "other" races for this question. However, "other" included several apparently oriental immigrants whose command of the English language may not have been complete, or may have had less opportunity to be aware of our grading systems. More whites (72%) and hispanics (70%) than blacks (62%) or "other" races (46%) knew eggs were the most economical source of protein.

Q5:D9 - There were interesting differences in carton preference between races (Table 29). Blacks showed greater preference for two dozen or larger packs (30.9% vs. 10.0-14.1% for the remaining groups), and less preference for one dozen packs than these other racial groups. When compared to these other groups, the 13% of hispanics that preferred the 10 egg pack may have been due to sampling error, or may be due to exposure to the metric system. The need for eggs in cartons of more than one dozen may be greater for blacks because of the greater percentage of black families having five or more members (Black, 31.8%; "other", 32.4%; Hispanic, 20.0%, White, 17.0%).

Q6:D9 - data not shown - More hispanics (26.7%) than whites (9.8%) or blacks (3.8%) preferred the paper cartons, with more blacks (55.9%) and whites (50.9%) opting for the styrofoam carton than hispanics (40.0%). Although the differences are small, they may have benefit when marketing to specific population centers.

Q7,8,9:D9 - data not shown - More blacks (57.4%) than whites (51.7%) were encouraged to buy eggs if the display was neat and attractive (Q7). But no differences existed for Q8 or Q9, which asked what effect an unattractive display had on egg purchases.

Q10,12,13:D9 - data not shown - More blacks (58.8%) and hispanics (53.3%), than whites (43.1%) or "other" races (39.5%) indicated recipes printed on cartons would be helpful (Q10). More blacks (57.6%) than other groups (white, 50.0%; hispanic, 48.3%; and "other", 30.8%) indicated they would like to have recipes included in the egg display area (Q12). In the summary question for recipes (Table 30), the preference by race generally followed the previous questions. All races, except blacks, showed the greatest preference for recipes loose in the carton, with blacks preferring recipes printed in the carton top.

Q15:D9 - data not shown - Finding cracked eggs after arriving home bothered whites and hispanics more than people in the other two categories. The "none" response was 4.6% for whites and 3.5% for hispanics, but 9.2% for blacks and 13.2% for "other" races.

Q18,20,21:D9 - data not shown - More blacks were adversely affected by cage-stained eggs than people in the remaining

racial groups (Q18). The "none" response to this question was checked by 14.4% of blacks, 18.9% of "other" races, 26.2% of whites, and 26.7% of hispanics. Although not significant ($P < 0.075$), this pattern was the same for question 19. Shell smoothness (Q20) was very important to 42.9% of blacks and 36.8% of "other" races, but only to 21.8% of whites and 20.0% of hispanics.

There was also a definite racial difference in the responses to the blood spec question (Table 31). Blacks and "other" races threw out eggs with a blood spec more than did whites or hispanics. Exterior and interior quality defects appeared to more drastically affect blacks and "other" races than whites or hispanics.

Q22:D9 - data not shown - White shelled eggs were preferred by 58.1% of blacks, 51.4% of "other" races, 46.3% of whites, and 44.8% of hispanics. Brown shelled eggs were preferred by more hispanics (24.1%) and "others" (21.6%) than by whites (18.2%) or blacks (15.4%). According to this information, brown shelled eggs would be marketed most effectively in districts with a high hispanic population, and least effectively in black neighborhoods.

Q23,24:D9 - data not shown - There was a large difference in correct "yes" responses between races (hispanics, 60.0%; other, 50.0%; black, 36.8%; white, 33.5%), for question 23, which asked if storing eggs in the carton helped maintain egg freshness. Whites (35%) and blacks (27%) indicated they "did not know" the answer more than the other two groups (16-20%). In Q24, more hispanics (46.7%) and whites (44.1%) than other races (37.8%) and blacks (33.7%) knew Grade B eggs were as good for baking or scrambling as Grade A eggs. Educational efforts on this subject are needed by all racial groups.

Q26:D9 - data not shown - Less whites (35%) and hispanics (37%) and "other" races (37%), than blacks (42%), thought that USDA inspected eggs were better than non-inspected eggs. These do not represent wide variations from the average of 37% that stated USDA inspected eggs were better.

Questions by Family Income

D10) (Optional) What is the family's annual total household income before taxes?

- 1) 11.8% \$7,000 or less
 - 2) 12.1% \$7,001 - \$12,000
 - 3) 21.6% \$12,001 - \$20,000
 - 4) 22.8% \$20,001 - \$30,000
 - 5) 31.6% \$30,000 or more
- Total responses - 2,347

Q1:D10 - data not shown - In each income category, most people purchased eggs mostly by size, with the percentage generally increasing with increasing level of income (48.1-60.2%). As income increased, the percentage of people buying by the price difference between sizes increased (21.6% for \$7,000 or less, to 29.8% for \$30,001+). As expected, those buying only by price decreased from 25.8% for those earning \$7,000 or less, to about 12.5% for the income ranges \$7,001 - \$30,000, and 6.5% for those earning over \$30,000. As income increased, people appeared to be more aware of the value of different sizes of eggs but also could afford to purchase the preferred size.

Q3:D10 - data not shown - As would be expected, those people with lower family incomes were more responsive to a way to comparison shop. The percentages for "yes" responses to this question about unit pricing were 43.0% for \$12,000 or less; 40.6% for \$7,001 - \$12,000; 38.2% for \$12,001 - \$20,000; and 32.8% for those earning more than \$20,000.

Q4:D10 - Listed in Table 32 is the comparison of family income and opinion of egg value. These data clearly show the need to better educate a large number of consumers, especially those in the two lower income groups, regarding the value of egg protein versus that from meat or milk. At the beginning of this section, or in Appendix A, it is shown that about 11.8% of respondents had an income of 7,000 or less, and that 23.9% of respondents earned \$12,000 or less. This is a substantial percentage of respondents that were much less aware of the comparative value of eggs than people at the highest income level. Perhaps these consumers do not relate to the educational package as it is now being presented.

Q5,6:D10 - According to information presented in Table 33, there are differences in preference for certain carton sizes according to income level. For example, people earning ~~\$7,001 or more~~ were 1.8 to 2.6 times as likely to buy the 1.5 dozen pack as people earning less money. Those in the lower income categories preferred the larger cartons of eggs. As income rose, the preference for the ten egg carton increased slightly, but the choice of the one-half dozen carton did not appear to be affected by income. In Q6 (data not shown) as income increased, the preference for paper cartons also appeared to increase (6.2% to 11.0%; $P < 0.08$). This and other demographic information may be used to better target egg merchandizing practices for specific location or neighborhoods.

Q7:D10 - data not shown - More people (55-58%) earning less than \$12,001 per year indicated they would be encouraged to buy eggs if the display was neat and attractive, than those earning greater than \$12,000 (about 50%). Fewer people in the lower two income brackets (18-20%), than those earning more than \$12,000 (25-29%), indicated the egg display appearance "did not matter".

Q10,13:D10 - data not shown - In general, as income rose, fewer people (57 to 39%) considered the recipes printed in the carton to be helpful (Q10). In question 13, about 36% of people in the lower two income groups preferred recipes printed in the carton tops while in the other groups the percentage decreased with increasing income level from 29% to 19%. More people in the two higher income groups (22-23%) than in the lower income groups (15% - 16%) preferred recipes as part of the case display. Perhaps a reason case display recipes have failed is that they have not been put in stores where the people with higher income shopped?

Q15,18,20,21:D10 - data not shown - In Q15, people with lower incomes were less bothered about finding cracked eggs after they arrived home than those in higher income brackets (\$7,000 or less, 8.7%; \$7,001 - \$12,000, 8.9%; \$12,001 - \$20,000, 5.4%; \$20,001 - \$30,000, 5.1%; and for \$30,001 or more, 3.8% indicated "none"). But in Q18, the people in the lower income levels were bothered most by cage stains. For people earning less than \$12,001, 17-19.6% of respondents indicated cage stains did not bother them, but for those earning \$12,001-30,000 or more the range was 23.5-27.6%.

The average was 24.0%, from 2,328 surveys. Although not significant, there was less tolerance, but the same pattern of responses for question 19 about large stains on the egg shell.

As income increased (Q20), the number of people that said a smooth shell was not important to them also increased, from 20% to 40%. The percentages by income group are: \$7,000 or less, 20.4%; \$7,001 - \$12,000, 26.4%; \$12,001 - \$20,000, 33.9%; \$20,001 - \$30,000, 35.3%; \$30,001 or more, 40.2%. A similar pattern of concern for quality existed for question 21 regarding what the person did with an egg having a blood spec. Here, 68.3% (\$7,000 or less income) down to 51.4% (\$30,000 or more income) threw the egg out, and 4.5% (\$7,000 or less income) up to 10.7% (\$30,000 or more income) did nothing about the spec. As stated in Q21:D8, these data also indicate the need to address egg quality issues with a person's economic background in mind.

Q22:D10 - data not shown - As income increased, preference for eggs with a white shell decreased (52.9% down to 45.5%). The no preference category for this question increased with increasing income (21.3% up to 38.9%). The people in the higher income groups evidently were more aware there is no real nutritional difference between eggs based on shell color. Alternatively, because it is more difficult to see all blood/meat spots in brown shelled eggs, perhaps the lower tolerance for these defects by lower income people had a bearing on their preference for white eggs.

Q23:D10 - data not shown - The higher the family income, the fewer people were aware the egg carton helped to maintain egg freshness (40.9% down to 32.3%). This corresponds to the higher education categories (Q23:D8) being less aware of the storage value of the egg carton.

Q25,26:D10 - data not shown - More people in the lowest income group (6.2%) purchased eggs that were not USDA inspected than in other income brackets (2.2-3.4%). Over 80% of the people in each category purchased USDA graded eggs, yet no more than 42% of respondents in any category could say inspected eggs were better than eggs not USDA inspected. As income increased, fewer people indicated inspected eggs were better than non-inspected eggs: \$7,000 or less, 41.7%; \$7,001 - \$12,000, 40.8%; \$12,001 - \$20,000, 38.8%; \$20,001 - \$30,000, 35.9%; \$30,001 or more, 32.9%.

Questions by Town or Rural

D11) Do you live in:
1) 61.1% Town
2) 38.9% Rural
Total responses - 2,802

In no comparison of a specific question by town or rural setting did a significant difference exist. This means we can say with varying levels of confidence that any differences in percentages were due to chance. Most significance levels were not close to the $P \leq 0.05$ level of probability.

Questions by Store

There were thirteen different independent or types of chain stores. See Appendix A for the total surveys completed for each store, or chain of stores. About one-third of the responses were from shoppers at Piggly Wiggly stores. The proportion of each store was by chance, and not by design. In many towns, there was a limited number of stores available, but in larger towns, the relationship between each store manager and the county Extension agent had a major bearing on the final choice of a store. Because of the low number of completed surveys at some locations, questions 1 and 5 had a warning statement that the expected counts per cell were not present. Therefore the results for these relationships may not be valid, and is noted in the discussion.

Q1:Store - data not shown - The categories of brand, and carton color had a low number of responses, hence the warning statement for this question. At the Ingles store, 9% bought eggs based mainly on the brand. This value is much greater than the 4% at IGA, or 3.4% at Bi-Lo, the rest of the values were generally 2-3%. Color of carton was considered a major purchasing criteria by 3.6% of Ingles, and 3.0% of Big Star customers. Five stores had zero people choosing the color category.

Seventy percent of Big Star and 65% of Big Star/Massey respondents, compared to 44% of A&P customers bought eggs mostly on size. The other values ranged from 50-61% for the "size" category. Big Star customers were the least (12%), and M&M customers (36%) the most interested in buying eggs by the price difference. Other values for this category ranged from 20-30%. The response patterns shown here illustrate the potential merchandizing advantage of those that are aware of specific needs or wants of customers, and how this may change by location.

Q3:Store - data not shown - More people at Food Town (45.6%) and M&M (50.5%), than customers at other stores (25.6% to 40.7%), said that eggs priced by both the pound and dozen would be helpful. There may be a merchandizing advantage for certain - or all - stores to display the current cost per dozen and per pound of eggs at the egg display. Some research has indicated case displays are often not noticed.

Therefore, it may be better to prominently place these prices on the carton. In either case, the two prices should be stated together.

Q4,5,6:Store - data not shown - There was a wide range among stores in the response of people that thought eggs were more expensive than other sources of protein, such as meat or milk (Q4). This range was zero (50 surveys) at an A&P, to 8.7% at Ingles (115 surveys), the average being 2.9% (2,966 surveys). A&P customers also had the lowest percentage (56%) of customers that said eggs were less expensive than meat or milk, while Big Star (73%), Kroger (76%), and M&M (76%) had the highest percentages of customers that said egg protein was less expensive than that from meat or milk. A reason so many people at Ingles thought eggs were expensive may be because in question 5, 22.1% of people at Ingles preferred the one-half dozen carton, and 7.1%, the 10 egg carton. The price of smaller than one dozen packs may have been more expensive than intact dozen packs. The average of 9.0% of customers for all stores preferred the one-half dozen carton of eggs, and 2.1% preferred the 10 egg carton (Q5).

Information in question 6 also indicated the need to tailor your services to the desires of consumers at individual stores. For example, 8.9% of all respondents (2,935 surveys) preferred paper cartons, while at A&P, 18.0% (50 surveys), at Ingles, 15.8% (114 surveys), and at Kroger, 14.8% (534 surveys) said paper cartons were preferred. Also, an average of about 52% (2,935 surveys) said they would prefer a styrofoam carton, but the range for this choice was 42% (Kroger) to 67% (M&M). The percentages for see-through cartons ranged from 9.8% (153 surveys at Foodtown) to 16.0% (50 surveys at A&P). The important point to remember is that it may be necessary to alter merchandizing efforts to meet the needs or desires of the customer of specific stores, and periodically provide new items they may prefer. Choice of new material can come from surveys such as this, in-house surveys, or by direct communication with the customers.

Q7:Store - data not shown - The percentage of participants who said a neat display would encourage purchase of eggs, exceeded the overall average (52.1% - 2,900 surveys) at Food Town (66.5% - 155 surveys), M&M (64.7% - 102 surveys), Ingles (58.8% - 114 surveys) and at Bi-Lo (58.2% - 153

surveys). The lowest percentages of 37.5% (48 surveys at A&P) and 45.5% (523 surveys at Kroger) do not necessarily reveal inferior merchandizing at these stores. Rather they indicate the importance of good merchandizing at even the locations where customers may expect less than others. Management of the egg display obviously plays a role in meeting the varied demands of consumers. A better job could be done with the case display in many stores with only a little effort. Unsolicited comments in the surveys indicated several of the store locations were doing an excellent job and the consumers were very proud of, as well as loyal to, the individual stores.

Q8:Store - data not shown - Broken eggs in the display area would tempt an average of 41.4% (2,920 surveys) of respondents to buy eggs elsewhere. At Food Giant, 60.0% (80 surveys), IGA 56.0% (175 surveys), Big Star/Masseys, 51.4% (111 surveys), and Cation Food Store 50.8% (61 surveys), a greater than average number of people expected the egg display to be free of broken eggs. The lowest values for the "yes" answer to this question still had 31.3% (48 surveys at A&P), 34.4% (154 surveys at Bi-Lo), 35.5% (420 surveys at Winn-Dixie), and 36.3% (526 surveys at Kroger) of respondents willing to take their egg purchases elsewhere if the egg case was poorly managed. The same general pattern was evident when consumers were asked if several open cartons would make them buy eggs elsewhere.

Q13:Store - data not shown - There was considerable variation associated with preference of recipe format by people shopping certain stores. For example, consumers at Food Town (42.3%; 149 surveys), Bi-Lo (35.8%; 151 surveys), and Ingles (37.2%; 113 surveys) said recipes printed in the carton were preferred, versus the overall average of 26.1% (2,860 surveys). Loose recipes were preferred by 41.2% of M&M customers (102 surveys), the average for all stores being 33.3%. The case display recipes had better than average (18.8%) acceptance at A&P (27.7%; 47 surveys); Big Star/Masseys (27.8%; 108 surveys), and Big Star (30.3%; 66 surveys), and was least accepted at Bi-Lo (11.9%; 151 surveys). The consumer must be offered information in a form she/he prefers. From these data, it is clear all stores can not be treated alike.

Q14:Store - data not shown - As previously discussed for question 14, when over 95% of consumers at least sometimes

check for cracked eggs, something is wrong with our system. Few other products have less consumer confidence in its quality. There was an average of 91.5% of respondents (2,913 surveys) that checked for cracked eggs. Consumers at M&M always checked (zero "no" responses, 103 surveys), and at Food town, there was one "no" out of 156 surveys. The best store was Ingles, where 12.4% of respondents indicated "no" (out of 113 surveys) to this question. Other relatively good percentages of "no" answers were 7.4% (IGA; 175 surveys), 6.6% (Bi-Lo; 153 surveys), and 5.4% (Big Star/Masseys; 111 surveys).

Q15,16,17:Store - data not shown - Finding cracked eggs after purchase, their effect on subsequent purchases at that store, and total purchases all showed considerable variation among stores. The percentage of respondents in question 15 that stated finding cracked eggs after they got home did not bother them, ranged from 2.7% (Big Star/Masseys; 111 surveys) to 8.8% (Ingles; 114 surveys). Ingles also had the greatest number of customers that did not check for cracked eggs in Q14 (12.4%). Therefore, even though a store had a high percentage of "no" responses to Q14 (which may indicate trust of the product quality) it may only mean the customer was not concerned about cracked eggs.

The percentage of people that would not buy eggs elsewhere if they found cracked eggs after purchase (Q16) ranged from 31.6% (IGA; 174 surveys) to about 53% for Winn-Dixie (417 surveys) and Bi-Lo (154 surveys). The range for "no" responses to question 17, which asked if egg purchases would be reduced due to cracked eggs was 28.3% (Cation Food Store; 60 surveys) to 50.0% (Food Giant; 82 surveys), with the average being 40.7% (2,885 surveys). These figures indicate the need of the industry and store owner to meet the expectations of the customer, or risk reduced sales.

Q18,19:Store - data not shown - The consumers' response to cage stains was more severe in certain stores. The range of percentages for "no" answers to question 18, which asked if cage stains bothered the customer ranged from 14.0% (Foodtown; 157 surveys) to 28.3% (Cation Food Store; 60 surveys). About 27% of customers at Kroger, Winn-Dixie, and Big Star answered "no" to Q18. The average for this "no" response was 23.4%, for 2,906 surveys. There were no differences ($P > 0.06$) in the response to large stains (Q19),

the pattern being similar, but less charitable to that in Q18. The range was 8.1% (IGA; 173 surveys) to 17.9% (Big Star; 67 surveys), with an average of 11.7% (2,901 surveys) that said large stains did not bother them.

Q20,21,22:Store - A smooth shell (Q20-data not shown) was considered not important by 14.9% (Ingles; 114 surveys) to 44.8% (Big Star; 67 surveys) of respondents at the various stores. The average for "no" answers was 33.1% (2,895 surveys). It would appear to be beneficial for the producer or distributor to know in which stores they have difficulty moving Grade A eggs of marginal exterior quality, so these eggs can be sold in more tolerant markets.

An average of 8.2% of respondents (2,876 surveys) said they ignored a blood spec. Three-fourths of the A&P customers (47 surveys) and 44% of customers at M&M (102 surveys) threw out the bloody egg (Q21), compared to the survey average of 56.5%. All respondents at A&P (0.0%; 47 surveys) and 3.7% (82 surveys) at Food Giant either discarded the egg or removed the blood spec.

The producer must also be aware of the potential brown egg sales for each store so production may be scheduled accordingly (Q22). An in-store survey would be helpful, as may the information in Table 34.

Q23,24:Store - data not shown - Compared with the average of 35.1%, more customers at Big Star (46.3%; 67 surveys), and Big Star/Masseys (45.1%; 111 surveys) knew that storing eggs in the carton would help maintain the egg's freshness (Q23). The lowest percentage of "yes" responses to Q23 (28.6%; 416 surveys) came from customers at Winn-Dixie.

In Q24, the fewest number of people that knew Grade B's were equivalent to Grade A's for baking or scrambling were customers at A&P, and at Ingles (34%; 47 and 113 surveys, respectively). The largest percentage of "yes" answers to Q24 were from customers at Big Star (59.7%; 67 surveys).

Questions by District

As previously discussed, the attempt was made to obtain information from several areas of Georgia. This data could then be considered representative of the entire state and possibly show differences between North and South Georgia, or between specific districts. The number of completed surveys, by District, are included in Appendix A, Part 2. Districts were those of the Cooperative Extension Service, which are included as a map in Appendix B.

Q3:District - data not shown - More people in the southeast (40.1%) and central districts (37.9%), preferred to have eggs priced both by the pound and by the dozen than respondents in the north (32.8%) or north central districts (29.3%). The southeast or central districts would appear to be the best places to initiate such a program, and to test results in terms of changes in sales of eggs and competitive products.

Q4:District - data not shown - People in the north central district (metro-Atlanta) appeared to be better informed regarding the value of eggs. This may be due to differences in advertising efforts for Atlanta compared to the rest of the state, or to the higher number of post-high school educated people in this area (North Central, 68%; North, 48%; Central, 48%; and Southeast, 45%). In the north central district, only 1.0% said eggs were more expensive than other protein foods such as meat or milk, versus the central district where 2.7%, the north district where 3.0%, and southeast district where 3.7% gave that answer. Also, 75.6% in the north central said eggs were less expensive compared to 66-70% of people in the other areas.

Q5:District - The larger than one dozen cartons were preferred by more people in the central (28.6%) and southeast (25.8%) districts than customers living elsewhere (about 20%) (Table 35). The one-half dozen packs were preferred by north and north central district respondents (12%) more than those in the central (9%) and southeast (7%) districts. These differences should be reflected in the marketing strategies of poultry companies.

Q6:District - data not shown - Styrofoam cartons were preferred by more people in the southeast district (57.6%;

1171 surveys) than in other areas (north central, 43.4%, 386 surveys; central, 49.4%, 856 surveys; and north, 51.5%, 522 surveys). Paper cartons found the least favor in the southeast district (4.9% preferred paper) versus other districts (central, 10.5%; north, 11.3%; and north central, 14.3%). The use of paper cartons probably would not enhance a current or proposed marketing program in the southeast district.

Q7,8,9:District - data not shown - These three questions related to the neatness of the egg display. All have the same pattern of responses, and similar number of completed surveys as question seven. That is, neatness of the display was relatively less able to encourage egg purchases by north central district respondents (Q7). In the north central district, 41.9% (372 surveys) said a neat display encouraged the purchase of eggs, while in the central district - 51.2% (854 surveys), the north district - 52.1% (524 surveys), and in the southeast district - 56.1% (1150 surveys), answered "yes" to question 7. These north central people were also less likely to change stores because of shoddy egg merchandizing (Q8). The "no" responses to Q8 were: north central, 55.1%; central, 47.9%; southeast, 46.0%; north, 44.9%. Answers to question 9 ($P \leq 0.075$) followed the pattern of Q8, but with more people indicating "does not matter".

Q13:District - The preferred format of recipes, by district, are listed in Table 36. This information may be useful in determining the mix of recipes to be used by each company. However, this information must be balanced against the requirements of individual stores. Recipes printed in the carton top were about equally accepted in all districts (about 28%) except in the north central district where only 15.4% wanted recipes in this form. In all districts, recipes loose in the carton was the preferred format, but they found even greater acceptance in the north central district (38.4% vs. 32.4%).

Q14,15,17:District - data not shown - In the north district, 7.2% (527 surveys) of the respondents did not check for cracked eggs prior to purchase, compared with only 2.1% (374 surveys) for the north central district, 3.2% (1158 surveys) for the southeast district, and 3.6% (854 surveys) for the central district. This may indicate eggs of better quality are reaching the consumer in the north district than in

other districts. As the responses to question 15 generally indicate, these people were as concerned as others about finding cracked eggs after purchase because they answered "none" to this question as follows: north central district - 3.0%; north district - 5.3%; central district - 6.2%; and southeast district - 6.3%. In Q17, the north central district customers appeared to have a greater need for eggs than those in other districts because 49.2% of those in the north central district responded they would not buy fewer eggs if cracked eggs were continually found after purchase. This is compared to values in the north district of 41.9%; central district of 39.9%; southeast district of 38.1%. Also, more respondents in the north central district checked eggs prior to purchase (Q14) and were bothered more by finding cracked eggs after they got home (Q15).

Questions by Size of City

There were significant differences among percentages in 14 of the 26 questions, but most are not discussed because based on the change in population, trends did not exist. See Appendix A for the distribution of surveys by city size.

Q1:Size - data not shown - As would be expected, there was more producer or brand loyalty in cities having less than 20,000 people. In these towns, 3.9 - 4.9% of the people bought mostly because of the producer or brand, compared to 1.7 - 2.8% of respondents in cities having a greater than 20,000 population. In population centers of 40,000 and above, 27.9 - 30.0% of respondents purchased eggs based on the difference in price between sizes, while in cities of less than 40,000 people, the range was 21.7 - 24.6%. This could be partially due to the relatively higher percentage of residents of small towns having less than a high school education. In areas having less than 10,000 people, 18.2% had less than a high school education. Other values for these education categories are: 10,000 - 19,999 (22.1%); 20,000 - 39,999 (16.8); 40,000 - 99,999 (10.2%); and greater than 100,000 people (11.7%). Also, when comparing Q1 by level of education, only the 13% value for grade school educated people was a lot lower than the 27% average that bought on the price difference between sizes.

Q14:Size - data not shown - In Q14, more people in towns having less than a 20,000 population did not check for cracked eggs before buying them than the percentage in larger towns (6.0 - 7.3% vs. 2.2 - 4.4%).

Questions by County

Selected data are summarized by individual counties in an attempt to increase the relevance of this information to specific stores and poultry companies. There was the expected wide variation among different locations for all questions. Because of the large difference in the populations of Perry and Warner Robins they were treated separately, so the equivalent of eighteen counties were analyzed for this demographic. Listed in Appendix A are the numbers of completed surveys, by county.

Q3:County - Having the price per pound and per dozen stated together was most helpful to people in Chatham County, and least requested by those in Lamar, Barrow, and Gwinnett Counties (Table 37). The average of 36.8% "yes" answers to this question indicates the potential value to the industry of again promoting this practice.

Q6:County - As indicated in Table 38, there was generally more support for see-through packs than for paper cartons. In Bulloch and Candler counties, less than 2% preferred the paper cartons. In Gwinnett and Houston (W.R.) counties more people preferred the paper carton versus the see-through pack, and in Elbert and Clarke counties the numbers were similar for these choices. Glynn, Chatham, and Bulloch county respondents showed a preference for styrofoam cartons. These data also support the need to know the preferences of customers in your market area. These desires may then be capitalized on to give a company a marketing advantage. Comments by respondents favored the styrofoam for its strength and versatility, the paper for its strength and biodegradable properties, but see-through for the ability to check the eggs without opening the carton (see Appendix D).

Q7,8,9:County - A neat egg display encouraged egg purchases by over half (52.1%; 2,900 surveys) of respondents (Table 39). In Q7, the range of "yes" responses was from 40.2% in

Fulton, to 63.6% in Chatham. More customers (34-35% "no" responses) in Fulton and Candler counties than in Bacon and Chatham counties (17-18% "no" responses) were not encouraged to buy eggs by a neat and attractive egg display.

In Q8 (data not shown), broken eggs in the egg display area adversely affected more customers in Barrow (55% said they would want to buy eggs elsewhere; 191 surveys) Candler (55%; 60 surveys), Bacon (58%; 48 surveys) and Bryan counties (61%; 62 surveys) than the 34% of customers in Clarke County (117 surveys) or the 32% of respondents in Liberty (206 surveys), Fulton (117 surveys) or Gwinnett (257 surveys) counties. The average for "yes" responses was 41.4% out of 2,920 surveys. The presence of open cartons in the egg display area (Q9) resulted in a lower percentage of "yes" responses (38.2%; 2,907 surveys), but a similar pattern of responses as in question 8. In all cases, superior merchandizing will most certainly help sell eggs.

Q13:County - Listed in Table 40 is the preference of customers for various types of recipes. People in Bacon, Richmond and Liberty Counties used recipes the most, and those in Bulloch County the least. Respondents in Elbert County preferred carton-printed recipes the most while those in Glynn found them least helpful. Loose recipes were most helpful to those in Gwinnett and Lamar Counties, while case display recipes were preferred by more people in Clarke County than those in other counties

Q16:County - Stores in Bryan County had the greatest risk of losing customers due to selling cracked eggs (Table 41). Even though those supplying Lamar County residents could expect the greatest customer loyalty, 41% said they might buy eggs elsewhere if they found damaged eggs.

Q18,19:County - data not shown - Customers in Liberty, Clarke, Bryan, and Houston (W.R.) counties were most affected (29-33% said "none"), and those in Bacon and Candler counties (16-17% said "none") were least affected by finding eggs with cage stains (Q18). The average for this category was 23.4%.

In Q19, customers in Atkinson, Liberty, and Houston (W.R.) were most affected by large stains (15-17% said "none"; 11.7% average). Those in Clarke, Candler, Barrow,

McDuffie, and Bacon counties were the least bothered by large stained areas on the egg (8.0-8.5% said "none").

Q20,21:County - data not shown - A smooth shell (Q20) was least important to respondents in Houston (W.R.), Gwinnett and Liberty counties (39.5-44.5% marked "none") but most important to customers in Bacon and Elbert counties (18.8-20.2%; 33.1% average).

Interior quality, as determined by the presence of blood specs (Q21), was more important to customers in Bacon, Candler, and Lamar counties (2.1-4.1% indicated they ignored blood specs; average was 8.2%), than those in Bulloch, Gwinnett, Atkinson, and Clarke counties (12.3-13.9% marked "nothing").

Q22:County - data not shown - In Fulton (8.9%; 113 surveys), Clarke (9.9%; 111 surveys), Bulloch (12.1%; 132 surveys) and Bacon (12.5%; 48 surveys) counties, the preference for brown eggs was much less than the average of 18.3%. Places with good potential for brown egg sales appear to be in Elbert (213 surveys), Atkinson (60 surveys), or Candler (61 surveys) counties where 23% of the customers preferred brown eggs. Lamar county had the highest percentage of customers with a preference for brown eggs (31%; 48 surveys).

Q23,24:County - data not shown - Almost twice as many customers in Barrow or Bulloch counties (42-44%) than in Bacon or Clarke counties (21-24%) knew that keeping eggs in the carton could help retain their freshness (Q23). The average number of "yes" responses for this question was 35%. In Q24, there were more survey participants in Bulloch (53%), Lamar (52%) and Houston (W.R.) (49%) counties than the average of 42% that knew Grade B eggs were as good as Grade A's for baking or scrambling. Respondents in Fulton (29%), Glynn (36%) and Liberty (37%) counties were less informed regarding this aspect of egg quality and use than customers in other counties. Targeting educational programs should increase their effectiveness and efficiency.

SUMMARY

A consumer opinion survey was conducted in the summer and fall of 1984 for the purpose of updating and providing new marketing information for the egg industry in Georgia. The impetus for the survey was the observation of inferior merchandizing of eggs, and less than acceptable quality of eggs being sold. If the current attitudes of consumers regarding the industry's efforts to provide a quality product were documented, possible adjustments could be made by the industry. Additionally, an attempt was made to measure the effectiveness of the industry's promotional and educational programs.

The survey was conducted with the assistance of 4-H Club members and county Extension personnel. The County Agent was responsible for contacting the store or stores and for scheduling the 4-H members. There was a pre-survey training session for 4-Her's, conducted by the county agent and/or Extension specialist. Most customer contacts were made by 4-H members, supervised by a county agent, volunteer, assistant or Extension specialist.

A total of 2,975 surveys were completed, which were distributed at 35 stores in 17 counties throughout Georgia. There were 26 egg related questions and 8 demographic questions in the survey. Data were summarized as percentages for each question, as well as the relationship between each demographic and each question. The Chi-square analysis was used to indicate the statistical significance of these relationships.

Purchase Preference

About 58% of respondents purchased eggs mostly by size and 26% by the price difference between sizes. While almost 89% preferred to buy eggs by the dozen, 37% would like to have the price per pound stated along with the price per dozen as an aid to comparison shopping. Sixty-four percent found the one dozen pack most convenient, 11% preferred less than one dozen cartons, and about 25% would rather buy eggs packed in some multiple of one dozen. Almost 27% said the

type carton did not matter - the major concern was that the egg be protected - but 52% preferred styrofoam cartons. Paper (9%) and see-through (12%) cartons were less preferred and reflect the presence of paper, but not see-through, cartons in the stores. Egg color was not considered important by one-third of these customers, and 48% preferred a white shelled egg. There may be room for more brown shelled eggs in the market place as 18% preferred these type eggs.

Merchandizing

The industry needs to encourage neat and attractive (clean) egg displays, as 52% of the people said this would encourage their egg purchases. Those stores with a consistently poorly managed egg display can expect to lose about 41% of their egg customers if there are broken eggs in the display area, and 38% if there are just open cartons in the area. When a customer takes part of their business to another store they will buy more than that one item at the other location.

Education

Two-thirds of the customers were aware that eggs were a less expensive form of protein than meat or milk, and so a more economical food. These educational efforts appear to be having a positive impact on the consumer. Customers were less knowledgeable regarding the value of refrigerating eggs in the carton to retain freshness as only 35% said this would help. Grade B eggs are not seen in stores very often; but as eggs are kept in the refrigerator, they lose quality and may become Grade B for interior quality. If consumers used these older eggs for baking, and fresher ones for frying or poaching, they would be more pleased with the results. Only about 43% of respondents said B's were as good as A's for baking. More educational effort, targeted toward specific groups, may be needed in these and other quality areas.

Recipes

There were discrepancies in these questions, as people said certain recipes would be helpful but their specific preference changed in the summary question. Carton-printed recipes would be helpful to about 46%, loose recipes helpful to 40%, and recipes offered as a case display would be helpful to about 51% of these customers. In the summary question, loose recipes were most preferred (33%) than printed recipes (26%), and as a case display, only about 19%. Twenty-two percent did not use recipes; therefore, 78% of the people did use them. Industry efforts using recipes to promote eggs are, therefore, undoubtedly very advantageous.

Quality

An indicator of egg quality reaching the consumer is the number of people checking for cracked eggs prior to their purchase. Only 3.9% said they do not check for cracks, 91.5% said they did, and 4.6% said they check sometimes. This information favorably compares to the 5.7% that said it would not bother them to find cracked eggs after getting them home, but about 56% said it would bother them a great deal. Only 48% said they would not change stores if they found cracked eggs after purchase. Forty-six percent would want to buy fewer eggs if they continually found they were damaged. Only about 41% said damaged eggs would not cause them to alter their purchasing pattern.

Dirty eggs were also not well tolerated by customers. Small cage stains did not bother only about 23%, and large stained areas did not bother only about half as many people. Cage stains were very troublesome to about 29% of the consumers, with large stains a disadvantage to marketing eggs to about 46% of respondents. Further studies should be made to confirm this data prior to any re-evaluation of grade standards.

About one third of respondents did not consider a smooth eggshell important, but 27% said it was very important to them. A blood spec was ignored by only 8%, but the offending egg thrown out by about 57% of respondents. The rest picked out the spec and used the egg.

About 81% said their eggs were USDA graded, but only about 37% indicated their eggs were of better quality because they were inspected. This is not entirely a problem with USDA, because they only have responsibility to the egg processor's back door. Delivery and in-store handling also influence the quality of eggs offered to the customer.

Questions by Demographics

Only selected questions, all at the 5% level of significance, were discussed. Demographic data collected were: sex; marital status; calculated total number in household; age; level of education; race; income; and location of residence. Data were also evaluated by store, Extension district and county. There were many significant relationships but in some cases, no obvious trends were evident. These latter data were not discussed.

Sex

Responses by females differed from males for most questions. Females appeared to be better shoppers, and were more forgiving of inferior merchandizing than males. Males used or were interested in having recipes available nearly as much as females.

Marital Status

Although a low percentage, about four times as many single people bought eggs mostly on carton color than those that had been or were married. More single people than those in other categories said having unit pricing would be helpful. Carton sizes of less than one dozen were preferred by people that were not married with the opposite pattern existing for greater than one dozen sizes. Recipes as a case display were preferred most by married people, but single respondents preferred recipes printed in the carton top. Widowed respondents were bothered much more by cage stained eggs, or by eggs having a large stain, or bloodspots than people in other categories. Brown shelled eggs were preferred by more widowed customers than people in other groups.

Family Size

Larger families preferred carton sizes greater than one dozen, generally having an increasing need for cartons greater than one dozen as family size increased. Family size of four through seven, and over nine, used recipes the most. Loose recipes were preferred by all family sizes.

Age

In general, eggs were increasingly purchased by size as the customer's age increased. Eggs priced by the dozen were more preferred, and by the pound, less preferred as age increased. The preference for unit pricing generally decreased as the respondent's age increased. Preference for less than one dozen packs decreased, and increased for one dozen packs, as age increased. There was a decline in the preference for styrofoam cartons, and an increase in the

preference for paper cartons, for respondents 26-45 years old. These people were also less affected by the neatness of the egg display. But enough people in all groups were affected by merchandizing practices to warrant making product quality and merchandizing quality top priority issues. As expected, the need for recipes generally decreased with increasing age. As age increased, egg exterior and interior quality became more important. Brown eggs were preferred as age increased.

Education

Education level played a role in the way eggs were purchased. Price difference was used by fewer with a grade school education than other groups. People having less than a high school education also were less informed regarding the value of eggs. Less than one dozen packs were preferred by those with more education. Those with more education were less encouraged to buy eggs when merchandized in an attractive manner. Egg quality factors were of diminishing importance as the education level of respondents increased. Likewise, preference for a specific shell color decreased with increasing education. As education increased, the demand for printed recipes decreased, but increased for loose recipes. Dirty eggs bothered more people with less education. As education increased, a generally decreasing number of people knew that storage of eggs in the carton helped retain freshness.

Race

More whites than blacks bought eggs mostly on size, with less whites than blacks buying eggs mostly by price. There was 1.4 times the percentage of blacks as whites that said unit pricing would be helpful. More blacks than whites thought eggs to be more expensive source of protein than meat or milk.

Blacks showed greater preference for the two larger cartons of eggs than whites. Blacks preferred printed recipes, and used recipes more than other races. White shelled eggs were preferred most by blacks and brown shelled

preferred least by blacks. Blacks were more adversely affected by inferior egg quality such as shell texture, cage stains, and blood spots than were whites.

Income

In each income category, the majority of people purchased eggs mostly by size, but people in the lower income categories were more responsive to ways to comparison shop. There is a need to better inform people in the lower income groups of the value of eggs, and to provide recipes and other educational material that address their needs. People in the lower income categories preferred the larger cartons of eggs. As income increased, the preference for paper cartons appeared to increase. More respondents in the lower income levels indicated they would be encouraged to buy eggs if the display was neat and attractive. More people in higher income groups preferred recipes as part of the case display than those in other groups. As income increased, the preference for white shelled eggs decreased.

Data summarized by store, district and county indicate the need to more specifically target marketing programs. This survey has defined areas where more research needs to be conducted and where there have been successes and shortcomings in the industry's education and promotion programs.

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APPENDIX A

Part 1

Copy of survey, including question and demographic code number, overall percentages and number of responses for each question or demographic.

Part 2

Survey frequency and percentage information for other demographic data

- a) Store
- b) District
- c) Size of city
- d) County



Part 1

CONFIDENTIAL INFORMATION

CONSUMER OPINION SURVEY FOR THE EGG INDUSTRY

THE UNIVERSITY OF GEORGIA COOPERATIVE EXTENSION SERVICE

Please answer the following questions by marking the answer. There are no correct answers.

EXAMPLE: The egg is an excellent source of all nutrients, except vitamin C:

- 1) True
2) False

Question

1) Do you buy eggs mostly based on:

- 1) 57.8% Size
2) 0.8% Color of carton
3) 2.7% Producer or brand name
4) 26.2% Price difference between sizes
5) 12.5% Only by price
Total responses - 2,839

2) Would you rather buy eggs priced by:

- 1) 88.7% The dozen
2) 4.4% The pound
3) 6.9% No opinion
Total responses - 2,958

3) Would having the price per pound stated along with the price per dozen help you?

- 1) 36.8% Yes
 - 2) 46.1% No
 - 3) 17.1% No opinion
- Total responses - 2,958

4) Compared to other sources of protein (such as meat or milk), are eggs:

- 1) 68.7% Less expensive
 - 2) 16.4% About the same
 - 3) 2.9% More expensive
 - 4) 11.9% Do not know
- Total responses - 2,966

5) What size carton would be most convenient for you?

- 1) 9.0% 1/2 dozen (six eggs)
 - 2) 2.1% 10 eggs
 - 3) 64.1% One dozen
 - 4) 8.0% 1 1/2 dozen (18 eggs)
 - 5) 9.4% 2 dozen (24 eggs)
 - 6) 7.4% a 2 1/2 dozen flat (30 eggs)
- Total responses - 2,950

6) Which type of carton do you prefer?

- 1) 52.3% Styrofoam
 - 2) 8.9% Paper
 - 3) 12.1% See-through (clear plastic cover)
 - 4) 26.7% Does not matter
- Total responses - 2,935

WHY? _____

7) Does a neat and attractive egg display encourage you to buy eggs?

- 1) 52.1% Yes
 - 2) 23.0% No
 - 3) 24.9% Does not matter
- Total responses - 2,900,

8) When you see broken eggs in open cartons or in the egg display area, does it make you want to buy eggs from another store?

- 1) 41.4% Yes
 - 2) 47.5% No
 - 3) 11.1% Does not matter
- Total responses - 2,920

9) When you see several open cartons in the egg display area, does it make you want to buy eggs from another store?

- 1) 38.3% Yes
 - 2) 47.1% No
 - 3) 14.7% Does not matter
- Total responses - 2,907

10) Is it helpful to have recipes printed inside the carton top?

- 1) 46.5% Yes
 - 2) 26.1 No
 - 3) 27.4 Does not matter
- Total responses - 2,905

11) Is it helpful to have loose recipes placed inside the carton?

- 1) 40.1% Yes
 - 2) 29.7 No
 - 3) 30.3 Does not matter
- Total responses - 2,911

12) Would you like recipes included in the egg display area?

- 1) 51.4% Yes
 - 2) 14.4 No
 - 3) 34.1 Does not matter
- Total responses - 2,905

13) Which do you prefer?

- 1) 26.1% Recipes printed inside carton top
 - 2) 33.3 Recipes loose inside carton
 - 3) 18.8 As a case display
 - 4) 21.7 Do not use recipes
- Total responses - 2,860

14) Do you check for cracked eggs before buying them?

- 1) 91.5% Yes
 - 2) 3.9 No
 - 3) 4.6 Sometimes
- Total responses - 2,913

15) How much does finding cracked eggs after you get home bother you?

- 1) 55.5% A great deal
 - 2) 24.4 Some
 - 3) 14.4 A little
 - 4) 5.7 None
- Total responses - 2,917

16) Would finding cracked eggs after purchase make you want to buy eggs elsewhere the next time?

- 1) 32.8% Yes
 - 2) 47.9 No
 - 3) 19.3 Sometimes
- Total responses - 2,908

17) Would continually finding cracked eggs make you want to buy fewer eggs?

- 1) 46.0% Yes
 - 2) 40.7 No
 - 3) 13.3 Sometimes
- Total responses - 2,885

18) How much does finding small colored streaks (cage stains) on an eggshell bother you?

- 1) 28.8% A great deal
 - 2) 26.5 Some
 - 3) 21.4 A little
 - 4) 23.4 None
- Total responses - 2,906

19) How much does finding large (the size of a dime) discolored or stained areas on the egg bother you?

- 1) 46.0% A great deal
 - 2) 26.2 Some
 - 3) 16.2 A little
 - 4) 11.7 None
- Total responses - 2,901

20) How important is a smooth eggshell to you?

- 1) 26.9% A great deal
 - 2) 24.1 Some
 - 3) 16.0 Little
 - 4) 33.1 None
- Total responses - 2,895

21) What do you do when you find a blood spec in an egg?
Do you:

- 1) 56.5% Throw the egg out
 - 2) 35.3 Remove the spot with the tip of a knife?
 - 3) 8.2 Nothing
- Total responses - 2,876

- 22) Which color egg do you prefer to buy?
- 1) 48.2% White shell
 - 2) 18.3% Brown Shell
 - 3) 33.5% No preference
- Total responses - 2,865
- 23) Does keeping eggs in their original carton help maintain their freshness?
- 1) 35.1% Yes
 - 2) 15.4 No
 - 3) 16.4 No difference
 - 4) 33.0 Do not know
- Total responses - 2,909
- 24) Are Grade B eggs as good as Grade A for baking or scrambling?
- 1) 42.5% Yes
 - 2) 15.6 No
 - 3) 41.8 Do not know
- Total responses - 2,894
- 25) Are the eggs you usually buy USDA inspected?
- 1) 81.4% Yes
 - 2) 2.9 No
 - 3) 15.6 Do not know
- Total responses - 2,884
- 26) Are USDA inspected eggs of better quality than those not inspected by the USDA?
- 1) 37.1% Better
 - 2) 15.3 No difference
 - 3) 1.2 Worse
 - 4) 46.5 Do not know
- Total responses - 2,850

In order for us to evaluate your responses, please answer the following questions about yourself and your family.

D1) What sex are you?

- 1) 18.9% Male
- 2) 81.1 Female

Total responses - 2,858

Average number of surveys having both the opinion questions and this question completed - 2,820

D2) What is your marital status?

- 1) 15.4% Single
- 2) 70.9 Married
- 3) 7.2 Widowed
- 4) 6.5 Divorced or separated

Total responses - 2,859

Average number of surveys having both the opinion questions and this question completed - 2,821

How many do you feed in your family?

- D3) _____ Number of adults
- D4) _____ Number of boys
- D5) _____ Number of girls
- D6) Calculated total family size

	<u>Adult</u>	<u>Male</u>	<u>Female</u>	<u>Total Family Size</u>
0	9.14	59.16	60.54	-
1	16.44	23.53	24.00	11.68
2	61.48	12.81	10.56	27.07
3	7.63	2.92	3.23	19.09
4	3.77	0.94	1.01	22.04
5	0.98	0.34	0.44	10.24
6	0.30	0.20	0.17	4.82
7	0.03	0.07	0.03	1.47
8	0.13	-	-	1.62
9+	<u>0.10</u>	<u>0.03</u>	<u>0.03</u>	<u>1.98</u>
Total responses	2,975	2,975	2,975	2,782

Average number of surveys having both the opinion questions and this question answered - 2,746

D7) Your age?

- 1) 17.4% 17-25
- 2) 25.0 26-35
- 3) 21.9 36-45
- 4) 13.3 46-55
- 5) 12.8 56-65
- 6) 9.7 Over 65

Total responses - 2,830

Average number of surveys having both the opinion questions and this question completed - 2,793

D8) What is the highest level of education which you completed?

- 1) 4.5% Grade School
- 2) 10.8 Some High School
- 3) 35.1 High School Graduate
- 4) 20.7 Some college
- 5) 15.7 College graduate
- 6) 8.5 Post graduate
- 7) 4.8 Technical school

Total responses - 2,786

Average number of surveys having both the opinion and this question completed - 2,750

D9) (OPTIONAL) What racial or ethnic group are you a member of?

- 1) 78.2% White
- 2) 19.2 Black
- 3) 1.1 Hispanic
- 4) 1.4 Other

Total responses - 2,739

Average number of surveys having both the opinion questions and this question completed - 2,704

D10) (OPTIONAL) What is the family's annual total household income before taxes?

- 1) 11.8% \$7,000 or less
- 2) 12.1 \$7,001 - \$12,000
- 3) 21.6 \$12,001 - \$20,000
- 4) 22.8 \$20,001 - \$30,000
- 5) 31.6 \$30,001 or more

Total responses - 2,347

Average number of surveys having both the opinion questions and this question completed - 2,318

D11) Do you live in:

- 1) 61.1% Town
- 2) 38.9 Rural

Total responses - 2,802

Average number of surveys having both the opinion and this question completed - D11 - 2,766

Other comments: (one-half of the back page was specifically allocated for this section.)

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Part 2

Survey frequency and percentage information for other demographic data

- Table A) Store
- Table B) District
- Table C) Size of city
- Table D) County

Table A: Survey frequency by store or store chain

<u>Store</u>	<u>No. of surveys completed</u>	<u>Percent</u>
1) A&P	50	1.68
2) Bi-Lo	155	5.21
3) Big Star	67	2.25
4) Big Star/Masseys	112	3.76
5) Cation Food Store	61	2.05
6) Food Giant	82	2.76
7) Foodtown	159	5.34
8) IGA	175	5.88
9) Ingles	115	3.87
10) Kroger	542	18.22
11) M&M	103	3.46
12) Piggly Wiggly	928	31.19
13) Winn-Dixie	<u>426</u>	14.32
Total	2,975	

Table B: Survey frequency by Extension District:

<u>District</u>	<u>No. of surveys completed</u>	<u>Percent</u>
1) Central	869	29.21
2) North	532	17.88
3) North Central	390	13.11
4) Southeast	<u>1184</u>	39.80
Total	2,975	

Table C: Survey frequency by size of city:

<u>Size</u>	<u>No. of surveys completed</u>	<u>Percent</u>
1) less than 10,000	271	9.11
2) 10,000 - 19,999	487	16.37
3) 20,000 - 39,999	535	17.98
4) 40,000 - 99,999	610	20.50
5) 100,000 or more	<u>1,072</u>	36.03
Total	2,975	

Table D: Survey frequency by county:

<u>County</u>	<u>No. of surveys completed</u>	<u>Percent</u>
1) Fulton	120	4.03
2) Gwinnett	270	9.08
3) Elbert	221	7.43
4) Barrow	194	6.52
5) Clarke	117	3.93
6) Houston - Warner R.	250	8.40
7) Houston - Perry	97	3.26
8) Lamar	49	1.65
9) McDuffie	155	5.21
10) Richmond	318	10.69
11) Atkinson	61	2.05
12) Bacon	48	1.61
13) Bryan	62	2.08
14) Bulloch	132	4.44
15) Candler	65	2.18
16) Chatham	364	12.24
17) Glynn	243	8.17
18) Liberty	<u>209</u>	7.03
Total	2,975	



APPENDIX B

List of Personnel that assisted with this survey, according to their county and district within the University of Georgia Cooperative Extension Service.

A map of the Extension Districts is included on the last page of Appendix B.

CENTRAL EXTENSION DISTRICT

Houston

1. Lee Ann Bennett, CEA
2. Michael O'Toole, CEA
3. Ashleigh Andrews
4. Cameron Andrews
5. Nancy Andrews
6. Johnny Bagley
7. Shandrell Bass
8. Angel Bowen
9. John Chiappetta
10. John Courson
11. Brenda Hunt
12. Russ Nelson
13. Leon Porter, PA
14. Gina Self
15. Samantha Shane
16. Shannon Shepherd

Lamar

1. Bob Waldorf, CEA
2. Beth Aiken
3. Lisa Whitaker

McDuffie

1. Laura Meadows, CEA
2. Leslie Arrington
3. Beverly Bell
4. Kelly Brooks
5. David Cato
6. Russell McHatton
7. Brenda Neal
8. Tina Rabun
9. Michael Reeves

Richmond

1. Moya Walker, CEA
2. Cheryl Hutto, PA
3. Gary Fulcher
4. Theresa Fulcher
5. Corina Burris
6. Jennifer Jenkins
7. Jettie Streetman

NORTH CENTRAL EXTENSION DISTRICT

Fulton

1. George Hollinger, CEA
2. Abbie Jones, PA
3. Sandra Veasley, PA
4. Michele Barbosa
5. Jill Langford
6. Jolyn Langford
7. Lisa Sexton

Gwinnett

1. Donna Barnes, CEA
2. Pat Warrenn, PA
3. Jo Finnick
4. Guy Garrett
5. Wendy Mathews
6. Lezly McDaniel
7. Vicki Warren

NORTH EXTENSION DISTRICT

Barrow

1. Kate Nicholson, CEA
2. Doug Garrison, CEA
3. Susan Kiley
4. Tommy Burson
5. Carla Carlyle
6. Connie Day
7. Jan Garrison
8. Tina Glass
9. Myra Hamilton
10. Pam Lee
11. Sheila Mack
12. Melodee Miller
13. Angie Nichols
14. Shelby Smith
15. Amy Stewart
16. Gennie Strickland
17. Pam Thomas

Clarke

1. Roger Ryles, CEA
2. Marilyn Poole, CEA
3. Rejeana Taylor, PA
4. Christy Duffell
5. Tiffany Duffell
6. Katie Fedd
7. Rachael Guthrie
8. Rochelle Guthrie
9. April Kelley
10. Steve Pontzer
11. Mike Powell
12. Jennifer Reynolds
13. Timmy Riden
14. Carol Risher
15. Mike Risher
16. Jenny Ward

Elbert

1. Kathy Maxwell, CEA
2. Mark Shirley, CEA
3. Leslie Bond
4. Stephen Brown
5. Lance Dickerson
6. David Jones
7. Renee Perkins
8. Tammy Tate

SOUTHEAST EXTENSION DISTRICT

Atkinson

1. Gloria Kirkland, CEA
2. Phil Torrance, CEA
3. Michelle Joyner
4. Karmen McDonald
5. Monica Mullis
6. Darren White

Bacon

1. Danny Stanaland, CEA
2. Jennie Boatright
3. Buddy Herrington
4. Laura Rigdon
5. Tammy Rigdon
6. Lee Sears
7. Bonnie Smith
8. Judy Boatright, PA

Chatham

1. Scott Daniell, CEA
2. Sarah Stevens, CEA
3. Loyer Bolden, PA
4. Evelyn Curry, PA
5. Dorothy Jackson, PA
6. Marie Wright, PA
7. Evans Brigham
8. Jackie Brinson
9. Stacy Bryant
10. Yolanda Bryant
11. Dionne Clark
12. Rebecca Collins
13. Patricia Gardner
14. Alloceia Hall
15. Stacey Jackson
16. Ramon Lewis
17. Lisa Livesay
18. Sandra Nix
19. Brenda Ray
20. Angela Rivers
21. Lawrence Strobert

Bryan

1. Dianne Moore, CEA
2. Lori Bryant
3. Lisa Burnsed
4. Doug Haymans
5. Joannie Miller
6. Benny Smith

Bulloch

1. Sandy Anderson, CEA
2. Lee-Ann Bland
3. Angela Hill
4. Kristie Lewis
5. Natasha Newberry
6. Brenda Rich

Candler

1. Gwenda Rotton, PA
2. Adina Crooms
3. Jimmy Hildebrandt
4. Dawn Mills
5. Jim O'Brien
6. Belinda Wilson

Glynn

1. Janice Horn, CEA
2. Brenda Antonio, Sec.
3. Jeff Doke
4. Kim Kramer
5. Sandra Wiggs
6. John Zell

Southeast District Continued

Liberty

1. Alfreta Adams, CEA
2. Jones Peebles, CEA
3. Suzanne Clark
4. Andrew J. Diggs, VL
5. Kirk Filbey
6. Buddy Pipkin, VL
7. William Sinrich
8. Chris Woods
9. Melissa Wright

NOTE: CEA: County Extension Agent
PA: Project Assistant
VL: Volunteer Leader

APPENDIX C

Instructions to 4-H'ers



CONSUMER OPINION SURVEY FOR THE EGG INDUSTRY

Guidelines for 4-H'ers

Store owners have stated the following items are important:

- 1) A neat, orderly survey area is important
- 2) Use a sign at booth
- 3) Proper conduct is essential - be professional!
- 4) Do not badger or plead with customers
- 5) Dress neatly (no tank tops, etc.). 4-H T-shirts are encouraged if possible.

Examples of ways to approach the customer:

- 1) Good morning! Would you be interested in helping us with a survey? We are trying to gather information for the Georgia egg industry so they will know more about what the consumer wants.
- 2) Good morning! We are helping the UGA Extension Service conduct a survey of consumers for the Georgia egg industry. Would you mind filling one out?
- 3) If the customer does not want to fill out the survey at the store, ask them if they could fill it out at home and return it in a postage paid envelope.
- 4) If they do not want to fill out a survey, thank them anyway.
- 5) Be polite! Thank all respondents.

Note: The surveys are color coded by district and numbered by town and store location.

Equipment at each location:

- Card table
- 4 chairs
- 4 clip boards
- Sign - 4-H Consumer Survey
- Box/pan



APPENDIX D

Summary of Solicited (Q6) and Unsolicited Comments. Reasons correspond to selection by respondents. Reasons for a particular carton preference (Q6) are summarized by Extension district, and as a total (Appendix Tables Di-6).

Unsolicited comments were found throughout the survey and in the space provided at the end of the survey. Only selected comments are included in Appendix D7.

Question 6. Which type carton do you prefer?

- 1) Styrofoam
- 2) Paper
- 3) See-Through (clear plastic cover)
- 4) Does not matter (DNM)

WHY? _____

TABLE D1. Summary of Comments; North Central District

<u>Reason</u>	<u>Number of reasons given, for each carton selection</u>		
	<u>Styrofoam</u>	<u>Paper</u>	<u>See-through</u>
More protection	33	5	--
Less cracked eggs	10	--	--
Convenience/handling	8	1	--
Stronger/sturdier	9	12	--
Other uses	11	--	--
Cleaner/appearance	1	--	--
Habit	3	--	--
Retain freshness	2	1	--
Doesn't leak	1	--	--
Biodegradable/recycle	--	2	--
Can see eggs easily*	--	--	32
No reason	--	--	1
Other	<u>1</u>	<u>3</u>	<u>--</u>
Total	79	24	33

*To check for cracked, missing, dirty eggs and size of eggs.

TABLE D2. Summary of Comments; North District

<u>Reason</u>	<u>Number of reasons given for each carton selection</u>		
	<u>Styrofoam</u>	<u>Paper</u>	<u>See-through</u>
More protection	37	2	--
Less cracked eggs	12	2	--
Convenience/handling	17	3	--
Stronger/sturdier	10	11	--
Other uses	3	--	--
Cleaner/appearance	1	--	--
Habit	1	--	--
Retain freshness	1	--	--
Doesn't leak	3	--	--
Biodegradable/recycle	--	10	--
Can see eggs easily*	--	--	30
No reason	4	--	1
Other	<u>3</u>	<u>--</u>	<u>--</u>
Total	92	28	31

TABLE D3. Summary of Comments: Central District

<u>Reason</u>	<u>Number of reasons given for each carton selection</u>		
	<u>Styrofoam</u>	<u>Paper</u>	<u>See-through</u>
More protection	89	7	--
Less cracked eggs	19	4	--
Convenience/handling	24	4	--
Stronger/sturdier	21	17	--
Other uses	11	1	--
Cleaner/appearance	3	--	--
Habit	5	--	--
Retain freshness	11	3	--
Doesn't leak	5	1	--
Biodegradable/recycle	--	9	--
Can see eggs easily*	--	--	61
No reason	5	1	--
Other	<u>3</u>	<u>5*</u>	<u>2**</u>
Total	206	52	63

*Styrofoam squeaks - do not like that

**One was: No one will touch your eggs

TABLE D4. Summary of Comments: Southeast District

<u>Reason</u>	<u>Number of reasons given for each carton selection</u>		
	<u>Styrofoam</u>	<u>Paper</u>	<u>See-through</u>
More protection	117	1	--
Less cracked eggs	10	--	--
Convenience/handling	46	3	--
Stronger/sturdier	30	13	--
Other uses	11	--	--
Cleaner/appearance	8	--	1
Habit	6	--	--
Retain freshness	20	2	--
Doesn't leak	5	--	--
Biodegradable/recycle	--	3	--
Can see eggs easily*	--	--	91
No reason	9	1	1
Other	--	--	--
Total	262	23	93

TABLE D5. Summary of all comments from Question 6.

<u>Reason</u>	<u>Number of reasons given for each carton selection</u>		
	<u>Styrofoam</u>	<u>Paper</u>	<u>See-Through</u>
More protection	276	15	---
Less cracked eggs	51	6	---
Convenience/handling	95	11	---
Stronger/Sturdier	70	53	---
Other uses	36	1	---
Cleaner/appearance	13	--	1
Habit	15	--	---
Retain freshness	34	6	---
Doesn't leak	14	1	---
Biodegradable/recycle	---	24	---
Can see eggs easily*	---	--	214
No reason	18	2	3
Other	<u>7</u>	<u>8</u>	<u>2</u>
Total	629	127	220

* To check for cracked, missing, or dirty eggs, and size of eggs.