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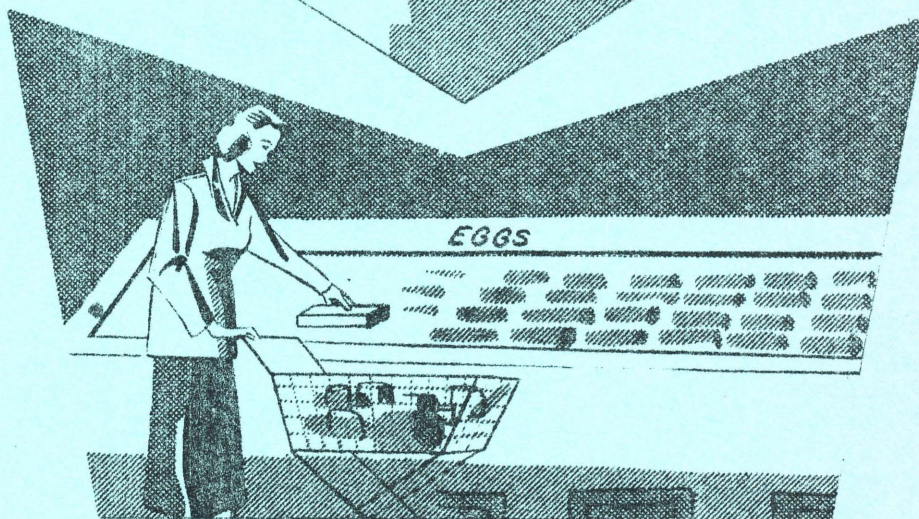
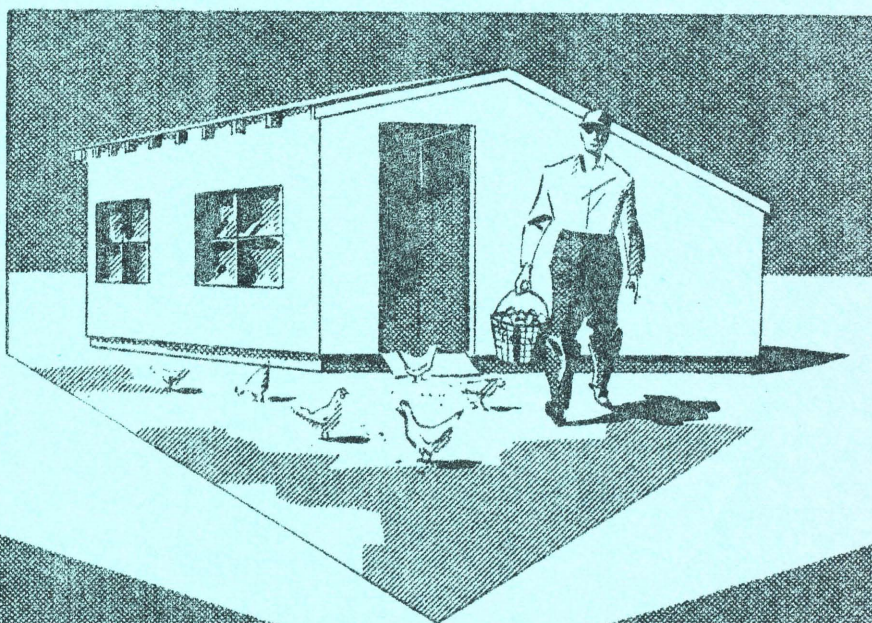
Egg Marketing II  
Michigan State University Cooperative Extension Service  
4-H Club Bulletin  
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# EGG MARKETING II

**Suggested  
Experiments  
For  
4-H'ers 12 - 14**



Michigan State University  
Cooperative Extension Service  
4-H Program  
East Lansing, Michigan

## INTRODUCTION

Eggs have always been a major source of income to farmers in the United States. In 1960, the poultry industry was third in importance as a source of income for farmers. It was exceeded only by the income from meat animals and dairy products. The income from eggs alone represented more than 55 per cent of the farm income from poultry.

The egg is one of the most perfect foods known to man. It is especially valued for its proteins, vitamins and minerals for building and maintaining strong, healthy bodies.

Egg prices change during the year because of factors over which individual producers have no control. Even though there is much less seasonal change in egg prices now than in past years, prices still vary from the spring surplus-producing season to the fall months of low production.

Although there is little you can do to influence prices, there is a great deal you can do to maintain your present customers (and to gain future customers).

First of all, packaging is important to quality and appeal. All containers and materials used to package eggs for sale should be clean and strong enough to carry the eggs in good condition.

Proper handling is important too. Eggs should be cooled promptly after they have been gathered from the hen's nest, and kept under refrigeration until they are ready to be used.

Experiments suggested in this 4-H Bulletin are designed for members enrolled in Egg Marketing II, or ages 12 - 14. You are free to choose experiments according to your age and likes. 4-H Bulletin 187.2B suggests some experiments that are more difficult and are designed for members 14 and over. When you reach 14, secure this bulletin for more interesting experiments.

Good luck with your egg marketing project!

HOW'S AN EGG PUT TOGETHER?

Suggested for age group 12 - 14

- OBJECTIVE:** To appreciate egg quality we really need to know the various parts of the egg. Words like "vitelline", "blastoderm" and "chalaza" are more meaningful after you work out this experiment.
- MATERIALS:** One (1) newly laid egg  
Dinner plate
- PROCEDURE:** Carefully study the cross-section of the egg shown on page .  
Become acquainted with the various parts and where they are located.
- A. Wet a dinner plate and then break the egg on it. Be very careful---do not break the yolk or distort the albumen. Make the following observations and do not proceed to the next observation until you have (1) made the observation, (2) understand what has been done, and (3) recorded the observation.
1. Observe the two shell membranes clinging to the shell. In part of the egg are they most easily observed?.....
  2. Observe the germinal disc (blastoderm) on the yolk. What is its color? .....
  - Purpose? .....
  3. Observe the chalaza (whitish cords on both ends of the yolk).  
    What is the purpose of the chalaza? .....
  - .....
  4. Find the vitelline membrane. What is its purpose?  
    .....
  5. A test of a good egg is whether or not the yolk can be picked up between the thumb and index fingers without breaking the vitelline membrane. Can you do this?.....  
    .....

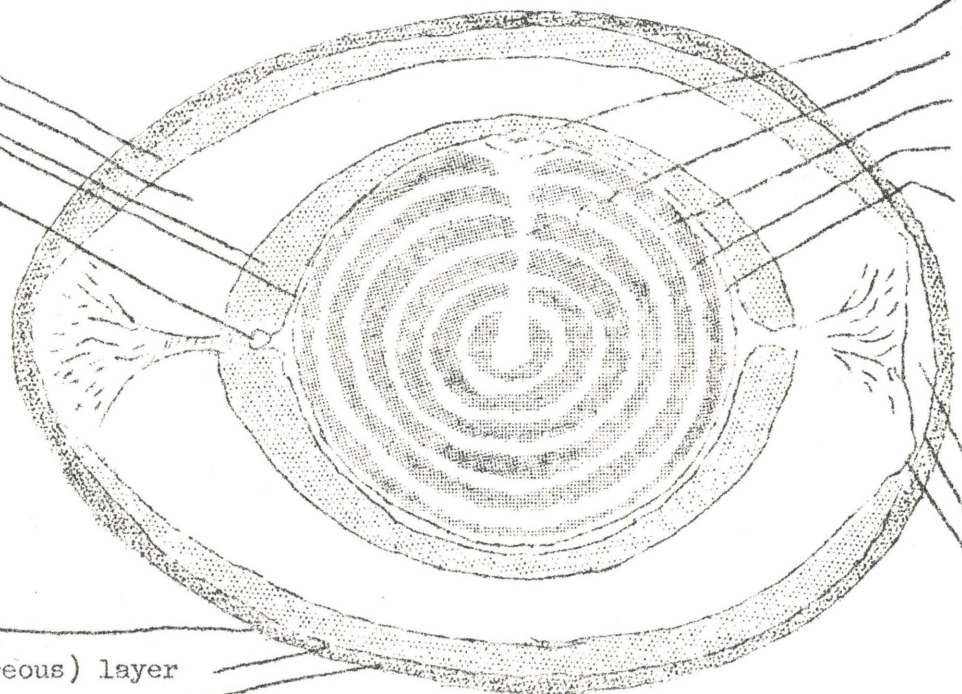
THE PARTS OF AN EGG

ALBUMEN

Outer thin  
Firm  
Inner thin  
Chalaziferous  
Chalazae

Germinal disc  
(Blastoderm)  
Letebra  
Light yolk layer  
Dark yolk layer  
Yolk (Vitelline)  
membrane

-  
3  
-



SHELL

Cuticle  
Spongy (Calcareous) layer  
Mammillary layer

MEMBRANE  
Air cell  
Outer shell  
membrane  
Inner shell  
membrane

DOES TEMPERATURE AFFECT EGG QUALITY?

Suggested for age group 12 - 14

- OBJECTIVE:** Once an egg is laid its quality can never be improved. By proper handling though, deterioration can be slowed down. This study will show the effect temperature has on egg quality over time.
- MATERIALS:** Eighteen (18) newly laid eggs.  
Two - - - 1 dozen cartons.  
"Marketing Eggs" - - - Farmer's Bulletin 1378 (available from Poultry Science Department, 113 Anthony Hall, M.S.U., East Lansing, Michigan).  
Candling light.  
Dinner plates (6).
- PROCEDURE:**
- A. Select eighteen (18) day-old eggs of approximately the same interior and exterior quality. Place 9 eggs in each of two cartons. Store 9 eggs at 50° - 60°F. (or in refrigerator) and 9 at room temperature. Candle and break 3 eggs from each carton at the end of 1, 2 and 3 weeks. Make these comparisons:
    - (1) In front of candling light determine for each egg: Air cell size, appearance of white (clear, watery, blood spots, etc.) and appearance of yolk (centered, off center, enlarged, flattened, etc.). Grade each egg according to U.S. Standards (AA, A, B or C).
    - (2) Break each egg on a plate and observe the amount of thick white and size and shape of yolk. (Grade eggs again)
  - B. Report your findings.

DOES TEMPERATURE AFFECT EGG QUALITY?

NAME \_\_\_\_\_

		CANDLED GRADE				BROKEN - OUT	
		Air Cell Size	Appearance of White	Appearance of Yolk	Grade	Grade	Comments
1 Week	Room Eggs	1					
		2					
		3					
	50°-60°F Eggs	1					
		2					
		3					
2 Weeks	Room Eggs	1					
		2					
		3					
	50°-60°F Eggs	1					
		2					
		3					
3 Weeks	Room Eggs	1					
		2					
		3					
	50°-60°F Eggs	1					
		2					
		3					

DO YOUR CUSTOMERS KNOW THEIR "EGGS?"

Suggested for age group 12 - 14

- OBJECTIVE: The poultryman depends on the consumer to buy his eggs. It is extremely important that the type of eggs be produced that the consumer wants. This experiment can help you learn what home-makers know about egg grades and how she buys eggs.
- MATERIALS: Questionnaires (you will need to make arrangements to have the following questionnaire mimeographed or reproduced so that you can leave it with your customers).  
At least 10 egg customers.
- PROCEDURE: A. Select at least ten (10) egg customers, and ask them (or leave questionnaire with them) the questions listed below.

## QUESTIONNAIRE

1. What grade of eggs do you prefer?  
AA    A    B    C            (circle one)
2. Are eggs refrigerated in your home?  
..... Yes  
..... No
3. What troubles do you have when you buy eggs? (check only the one or ones which concern you)  
..... Too high price  
..... Rough shells  
..... Shells dirty  
..... Desired size or color unavailable  
..... Lack of freshness  
..... Aesthetic -- "don't look as attractive as other foods"  
..... None  
..... Others (list)



4. What is your main complaint about eggs? (check one)

- ..... Poor flavor
- ..... Shells break too easily
- ..... Watery white
- ..... Off-color yolks
- ..... Blood and/or other spots
- ..... Bad odor
- ..... None

5. What do you consider most important when buying eggs?  
(check one)

- ..... Price
- ..... Size
- ..... Shell color or cleanliness
- ..... Quality or freshness
- ..... Reputation of seller
- ..... Others (list)

6. Why do you buy eggs from present supplier? (check one)

- ..... Price paid
- ..... Friend or relative
- ..... Convenience or habit
- ..... Fresher quality
- ..... Others (list)

7. If you saw the following prices for eggs, which would you think was a better buy for the money?

- ..... Large Grade A @ 60¢ per dozen
- ..... Medium Grade A @ 48¢ per dozen

8. How do you determine high egg quality?

.....

B. Report your findings.

DO YOUR CUSTOMERS KNOW THEIR "EGGS?"

NAME:

1. What grade of eggs do you prefer? (List number responding to each. Grade AA or A should be checked most.)

..... AA

..... A

..... B

..... C

2. Are eggs refrigerated in your home? (List number responding to each. Eggs should be refrigerated.)

..... Yes

..... No

3. What troubles do you have when you buy eggs? (List number responding to each.)

..... Too high price

..... Rough shells

..... Shells dirty

..... Desired size or color unavailable

..... Lack of freshness

..... Aesthetic

..... None

4. What is your main complaint about eggs? (List number responding to each.)

..... Poor flavor

..... Shells break too easily

..... Watery white

..... Off-color yolks

..... Blood and/or other spots

..... Bad odor

..... None

SHOULD I OIL TREAT MY EGGS?

Suggested for age group 12 - 14

- OBJECTIVE:** Egg producers are constantly advised that they must produce a top quality product. To do this, various practices are recommended. One such practice is shell treatment with oil. This experiment will compare oiled eggs with eggs not oiled. Are oil treated eggs of better quality? Let's find out!
- MATERIALS:** Aerosol oil bomb (these sprays containing a colorless, odorless mineral oil are available from most poultry suppliers or the Anderson Box Company, 700 West Morris St., Indianapolis 6, Indiana)  
Two (2) dozen eggs  
Two 1 - dozen egg cartons  
"Marketing Eggs", Farmers' Bulletin No. 1378 (available from Poultry Science Department, 113 Anthony Hall, M.S.U., East Lansing, Michigan).
- PROCEDURE:**
- A. Select two dozen eggs which are nearly alike in all respects - quality, shape and size.
  - B. Oil one dozen with aerosol spray and place in a clean carton. Place other dozen (not oiled) in another clean carton.
  - C. Store eggs at same temperature (50° to 60°F. if egg cooler is available or in refrigerator).  
Remove 3 eggs from each carton at end of 3, 6, 9 and 12 weeks and make the following observations:
    - (1) In front of candling light determine for each egg: Air cell size, appearance of white (clear, watery, blood spots, etc.) and appearance of yolk (centered, off center, enlarged, flattened, etc.). Grade each egg according to U. S. Standards (AA, A, B or C).
    - (2) Break each egg on a plate and observe the amount of thick white and size and shape of yolk.
  - D. Report your findings on attached sheet.

5. What do you consider most important when buying eggs? (List number responding to each.)

- ..... Price
- ..... Size
- ..... Shell color or cleanliness
- ..... Quality or freshness
- ..... Reputation of seller
- ..... Others (list)

a -

b -

c -

d -

e -

6. Why do you buy eggs from present supplier? (List number responding to each.)

- ..... Price paid
- ..... Friend or relative
- ..... Convenience or habit
- ..... Fresher quality
- ..... Others (list)

a -

b -

c -

d -

e -

7. If you saw the following prices for eggs, which would you think was a better buy for the money? (List number responding to each. Medium Grade A is the correct answer.)

..... Large Grade A @ 60¢ per dozen

..... Medium Grade A @ 48¢ per dozen

8. How do you determine high egg quality? (List the comments you received. Do your eggs meet their requirements?)

SHOULD I OIL TREAT MY EGGS?

NAME \_\_\_\_\_

			CANDLED GRADE			BROKEN - OUT		
			Air Cell Size	Appearance of White	Appearance of Yolk	Grade AA,A,B,C	Grade AA,A,B,C	Comments
3 Weeks	Oiled Eggs	1						
		2						
		3						
	Eggs Not Oiled	1						
		2						
		3						
6 Weeks	Oiled Eggs	1						
		2						
		3						
	Eggs Not Oiled	1						
		2						
		3						
9 Weeks	Oiled Eggs	1						
		2						
		3						
	Eggs Not Oiled	1						
		2						
		3						
12 Weeks	Oiled Eggs	1						
		2						
		3						
	Eggs Not Oiled	1						
		2						
		3						

DOES TIME ALONE AFFECT EGG QUALITY?

Suggested for age group 12 - 14

- OBJECTIVE:** The egg is a perishable product. It leaves the hen as a clean, neatly packaged, high quality, ready to eat product. Yet many things can happen to cause poor quality before they reach the consumer. One of these "things" is time. The purpose of this study is to see how time affects the egg quality.
- MATERIALS:** Twelve (12) newly laid eggs  
One dozen egg cartons  
"Marketing Eggs" --- Farmers' Bulletin 1378 (available from Poultry Science Department, 113 Anthony Hall, M.S.U., East Lansing, Michigan)  
Candling light  
Dinner plates (3)
- PROCEDURE:**
- A. Select twelve (12) day-old eggs of approximately the same interior and exterior quality. Examine three of the eggs immediately (1-day old) before the candling light and break each on a separate plate. Place the other nine eggs in a carton and store them at 50° - 60°F. Candle and break three eggs at each of the following intervals - - - 3, 6 and 9 weeks. Make the following observations:
- (1) In front of candling light determine for each egg: Air cell size, appearance of white (clear, watery, blood spots, etc.) and appearance of yolk (centered, off center, enlarged, flattened, etc.). Grade each egg according to U. S. Standards (AA, A, B or C).
  - (2) Break each egg on a plate and observe the amount of thick white and size and shape of yolk. (Grade each egg)
- B. Report your findings.

SHOULD I OIL TREAT MY EGGS?

NAME \_\_\_\_\_

			CANDLED GRADE			BROKEN - OUT		
			Air Cell Size	Appearance of White	Appearance of Yolk	Grade AA,A,B,C	Grade AA,A,B,C	Comments
3 Weeks	Oiled Eggs	1						
		2						
		3						
	Eggs Not Oiled	1						
		2						
		3						
6 Weeks	Oiled Eggs	1						
		2						
		3						
	Eggs Not Oiled	1						
		2						
		3						
9 Weeks	Oiled Eggs	1						
		2						
		3						
	Eggs Not Oiled	1						
		2						
		3						
12 Weeks	Oiled Eggs	1						
		2						
		3						
	Eggs Not Oiled	1						
		2						
		3						

DOES TIME ALONE AFFECT EGG QUALITY?

NAME \_\_\_\_\_

		CANDLED GRADE			BROKEN - OUT		
		Air Cell Size	Appearance of White	Appearance of Yolk	Grade	Grade	Comments
1 Day	1						
	2						
	3						
3 Weeks	1						
	2						
	3						
6 Weeks	1						
	2						
	3						
9 Weeks	1						
	2						
	3						