

PROGRAM

Monday, July 28, 2008

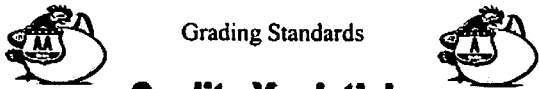
- 8:00 a.m. Registration
- 8:45 a.m. Welcome and Introduction
- 9:00 a.m. Exterior Egg Grading
- 9:30 a.m. Laboratory (Exterior Egg Grading)
- 10:15 a.m. Break
- 10:30 a.m. Interior Egg Grading (Candling)
- 11:00 a.m. Laboratory (Candling Eggs for Interior Egg Quality)
- 12:00 p.m. Lunch
- 1:00 p.m. Combining All Quality Factors
- 1:30 p.m. Laboratory (Combining all Quality Factors)
- 2:30 p.m. Broken out Egg Quality (Combined Laboratory and Lecture)
- 3:00 p.m. NC Grading and Regulatory - Understanding the Regulations and Who is Exempt
- 4:00 p.m. Wrap-up and Evaluation

Table of Contents

U.S. STANDARDS FOR EGG QUALITY EXTERIOR FACTORS	3
Ken Anderson	
U.S. STANDARDS FOR EGG QUALITY INTERIOR FACTORS	18
Ken Anderson	
EGG QUALITY: HAUGH UNIT AN OBJECTIVE MEASURE.....	29
Ken Anderson	
BROKEN OUT EGG QUALITY: HAUGH UNIT AN OBJECTIVE MEASURE.....	33
Ken Anderson	
NORTH CAROLINA EGG LAW	37
Richard Hoyle	
EGG REGULATIONS	40

U.S. Standards for Egg Quality Exterior Factors

Kenneth E. Anderson
Extension Poultry Specialist



Grading Standards

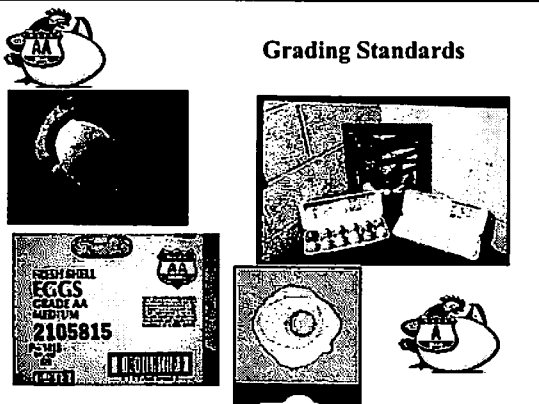
Quality Yardsticks

Establish a common language that enables buyers and sellers to communicate about egg quality.

Basis for settling disputes related to egg quality.

Establishes a basis for fair, competitive bidding between suppliers.

Assures the buyer of product quality on a continuous basis regardless of supplier.



Grading Standards

Grading Factors

Practically Normal?


Clean?

Dirty?

Abnormal?

Sound?

Leaker?



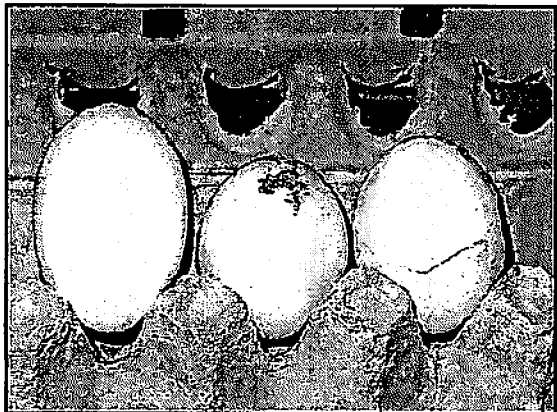
Shell Shape and Texture?

Unbroken?

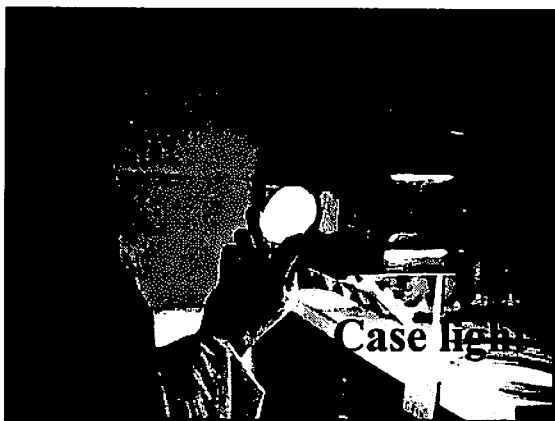
Slight, Moderate, Prominent Stains?

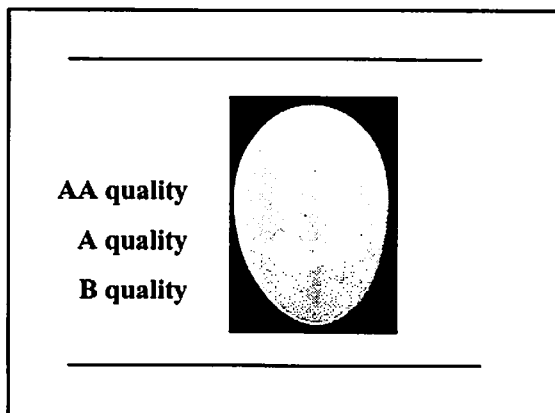
Check?

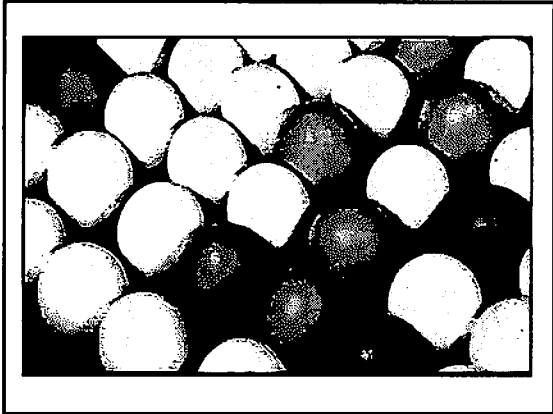


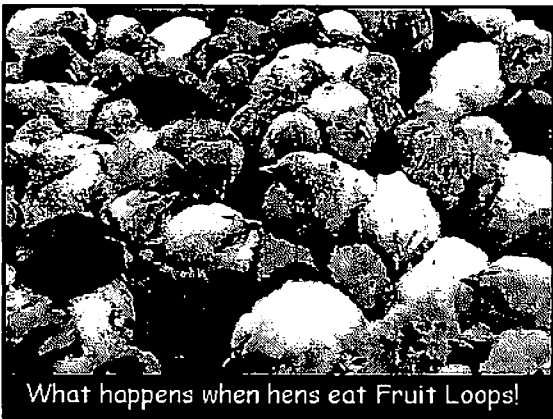












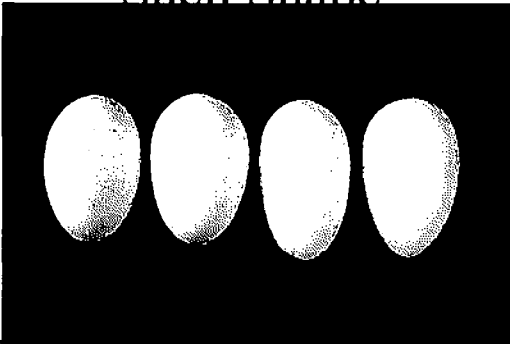
Exterior Quality Factors

- **Shape and strength of the shell**
- **Cleanliness of the shell**
- **Soundness of the shell**

Exterior Quality Factors

Shape and strength of the shell

Shell Shape



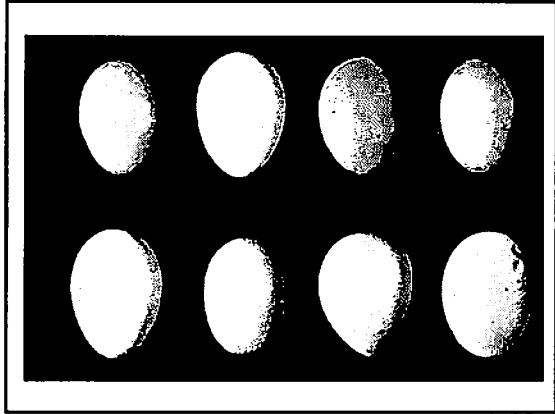


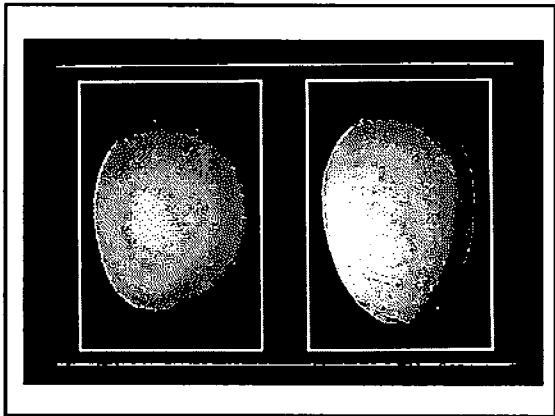
Definitions

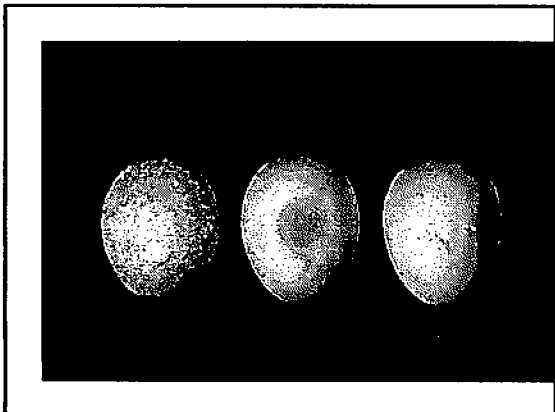


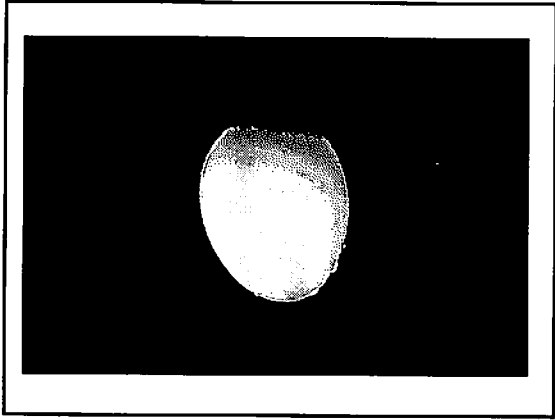
Practically Normal - a shell that approximates the usual shape and is sound and free from thin spots.

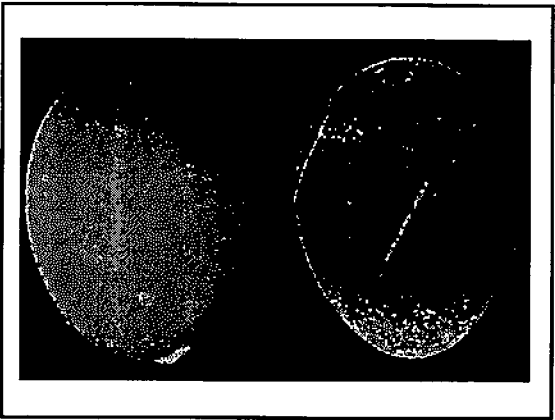
Ridges and rough areas that do not materially affect the shape and strength of the shell are permitted (AA and A quality).

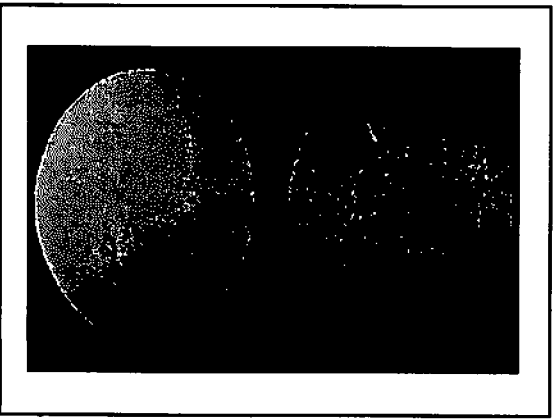


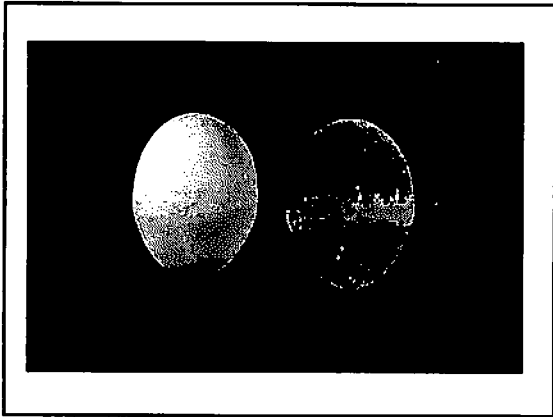






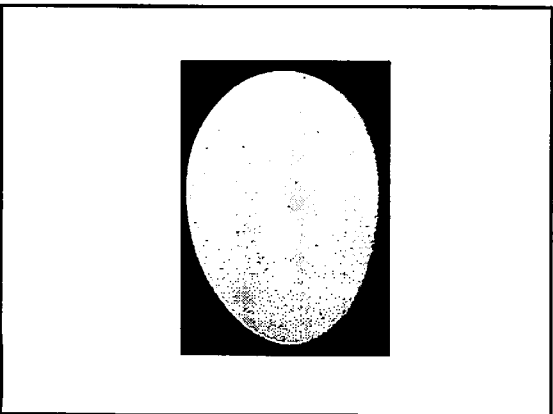






Exterior Quality Factors

Cleanliness of the shell



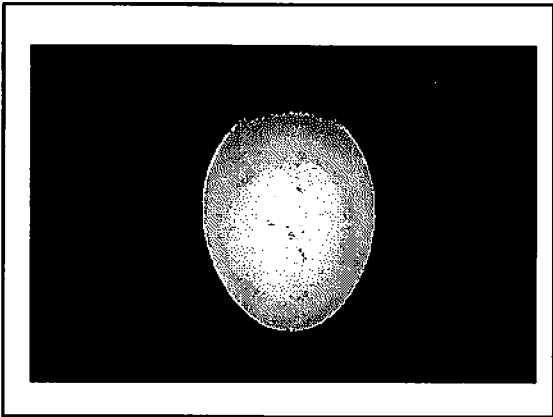


Definitions



Clean - An egg may be considered clean if it has only very small specks, stains, or cage marks, if such specks, stains, or cage marks, are not of sufficient number or intensity to detract from the generally clean appearance of the egg.

Eggs that showed traces of processing oil on the shell are considered clean unless otherwise soiled.



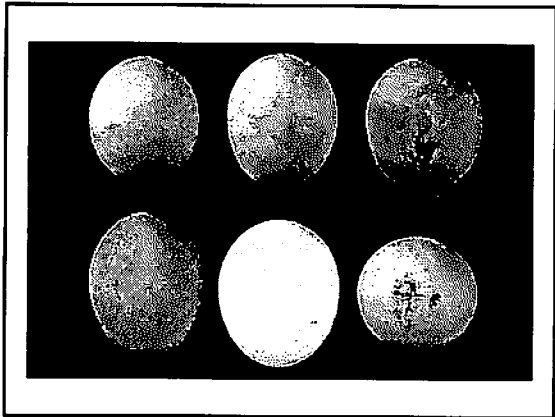


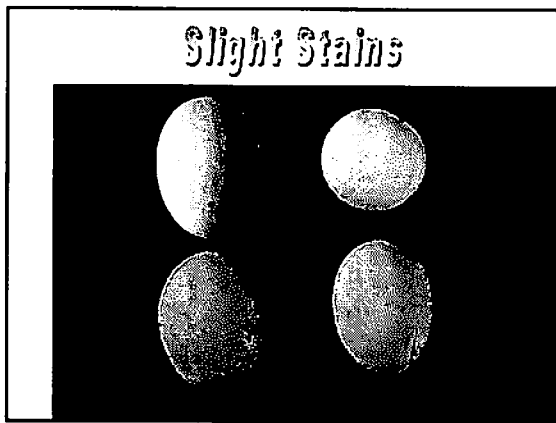
Definitions

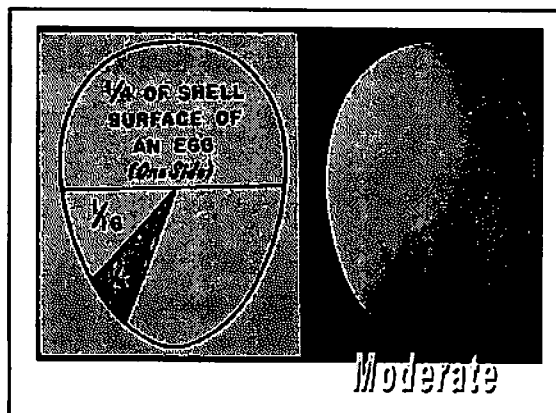


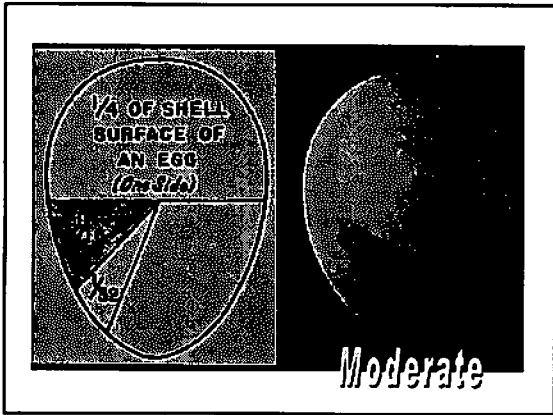
STAINS

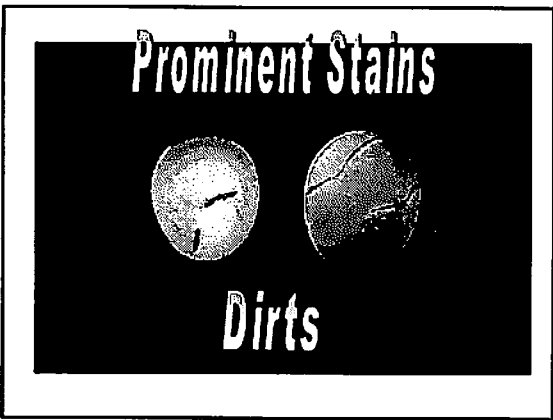


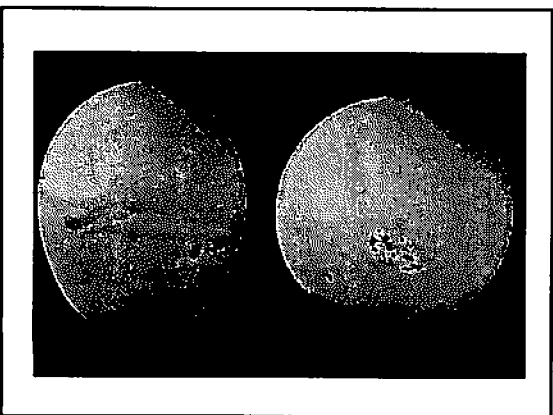


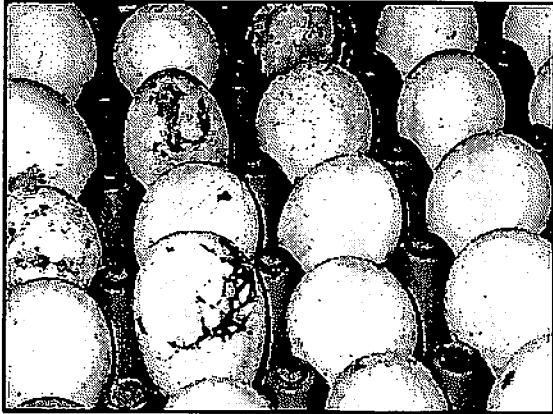










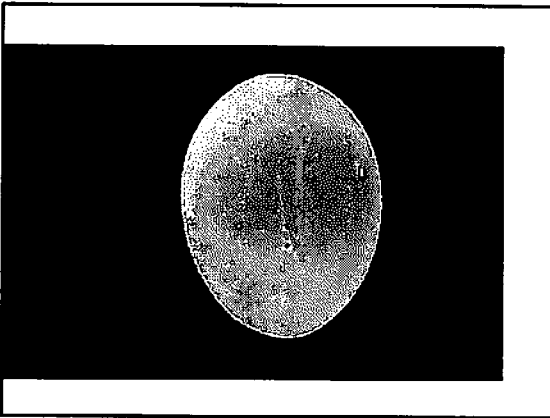


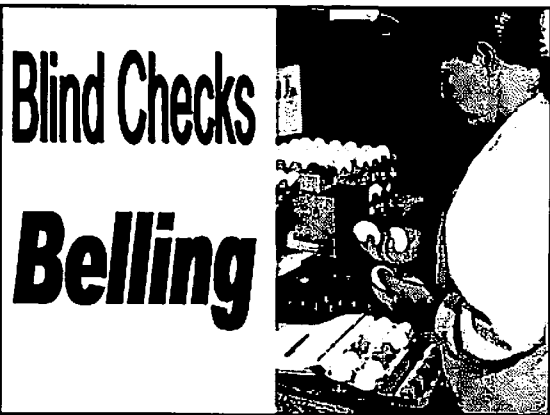


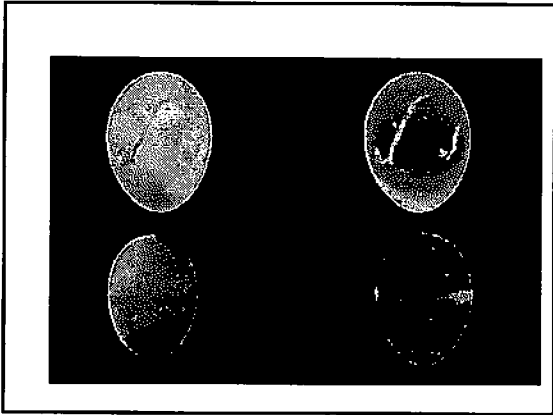
<p>Exterior Quality Factors</p> <hr/> <p>Soundness of the shell</p>

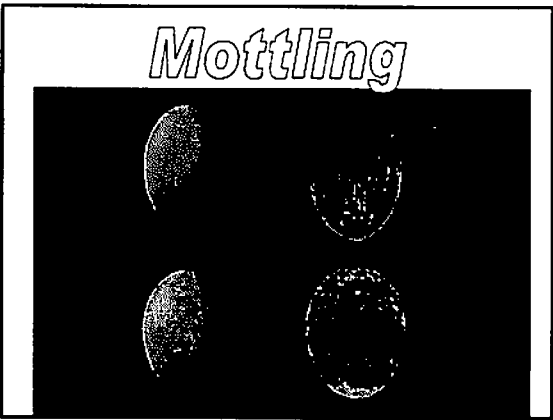
Shell Soundness

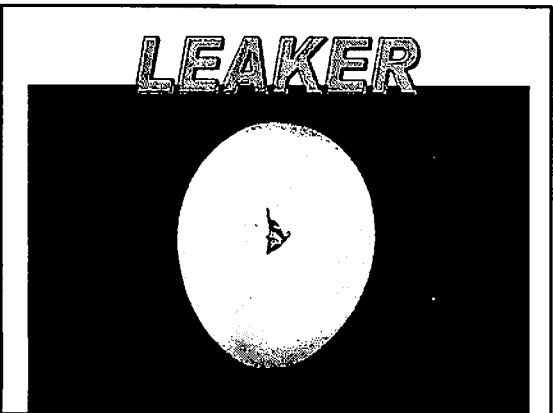


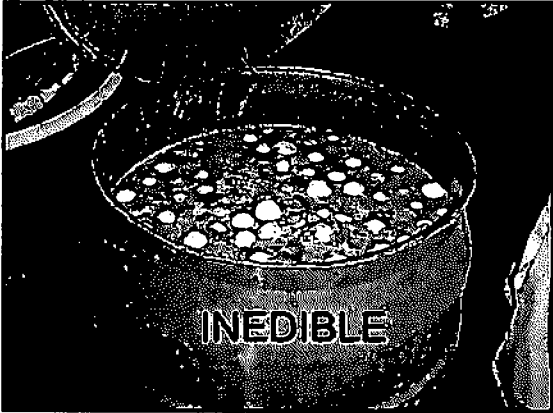












Exterior Quality Factors

- **Shape and strength of the shell**
- **Cleanliness of the shell**
- **Soundness of the shell**

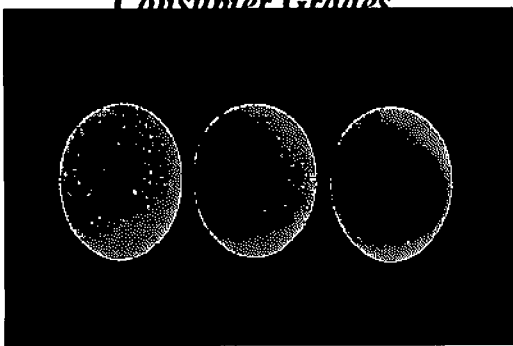
**U.S. Standards for Egg
Quality Interior Factors**

**Kenneth E. Anderson
Poultry Extension Specialist**

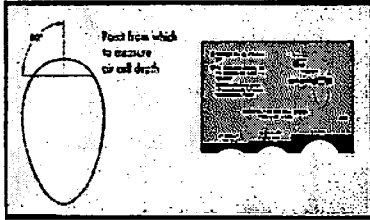
Interior Quality Factors

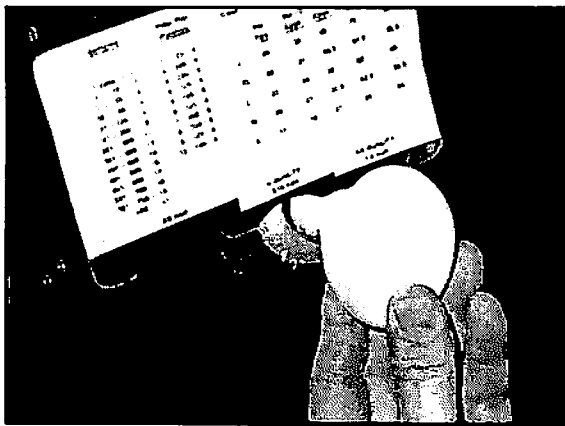
- Condition of yolk
- Condition of white (albumen)
- Size of the air cell

Consumer Grades



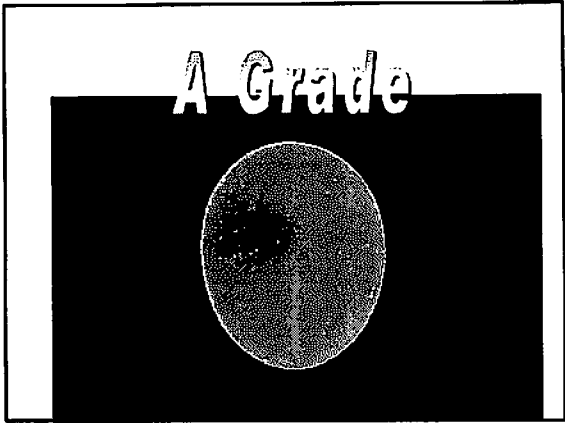
Air Cell Gauge

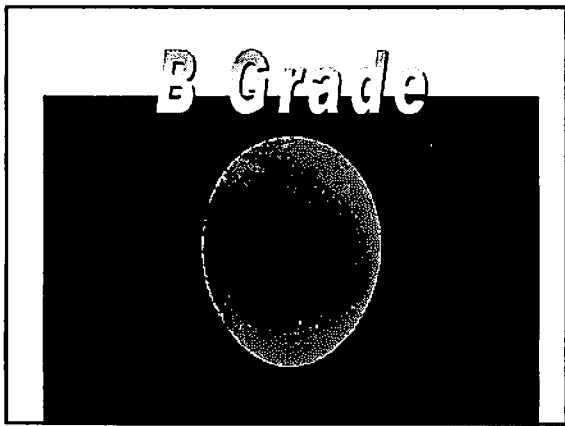


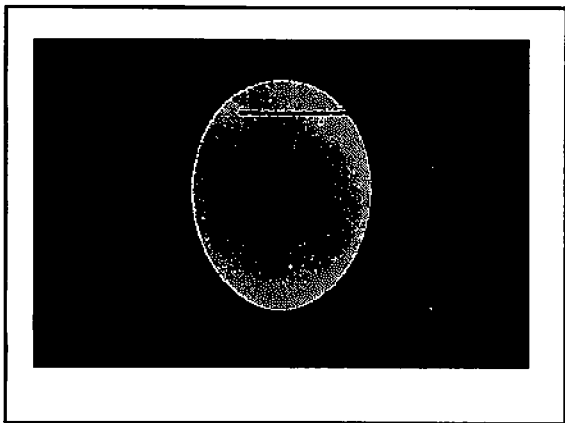


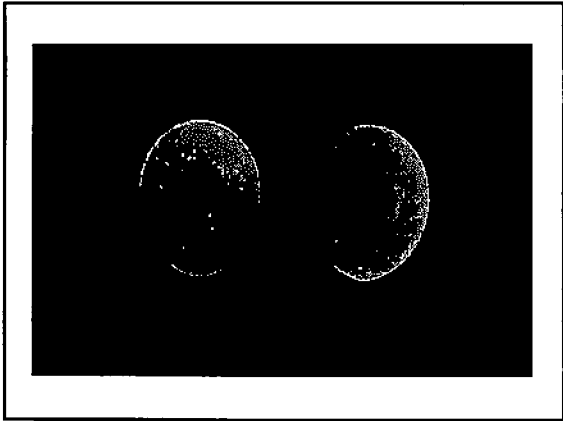
AA Grade

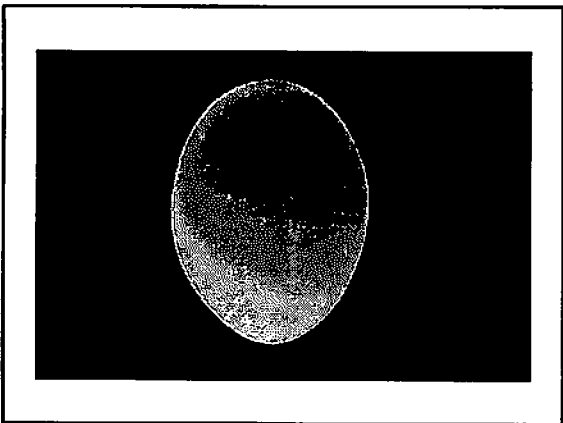










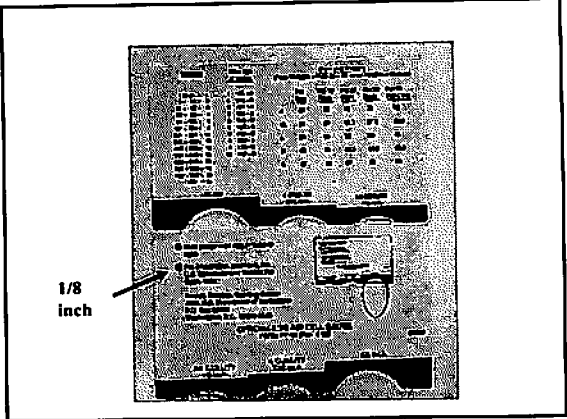


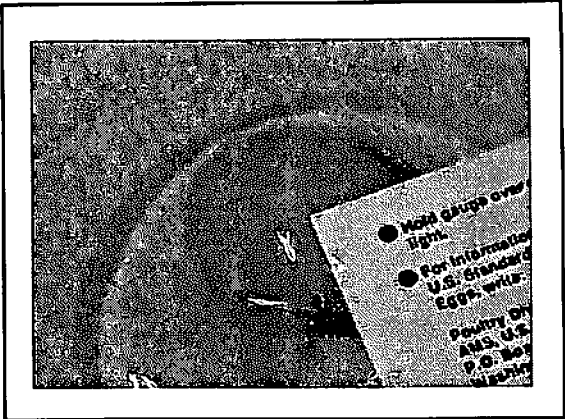


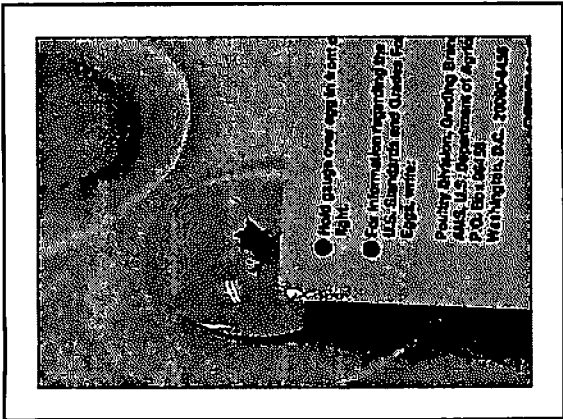
 **Grading Factors** 

B* Eggs

- Blood or meat spots not more than 1/8 inch diameter - Small spot.
- Serious yolk defects.
- Air cell > 3/16 inch in depth

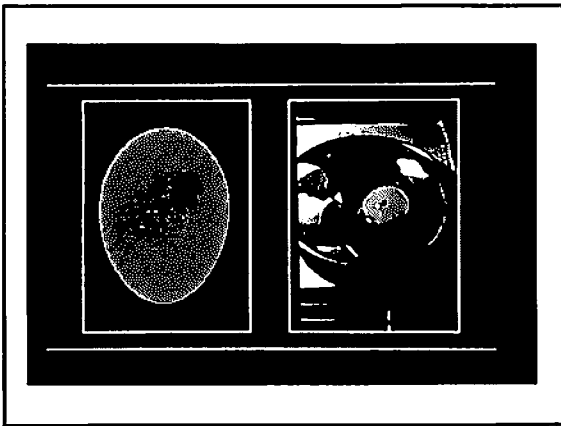


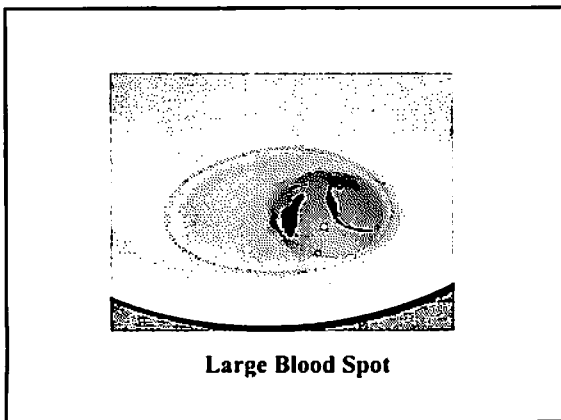


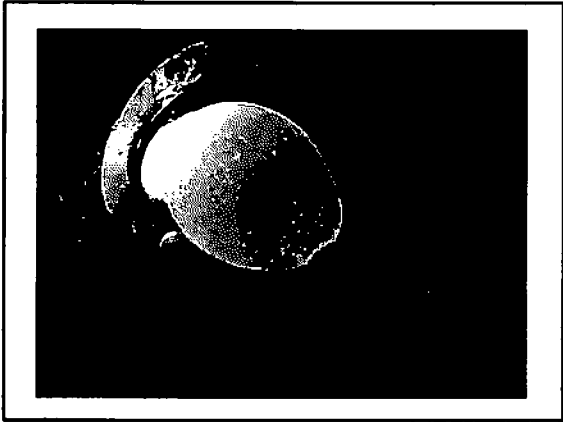


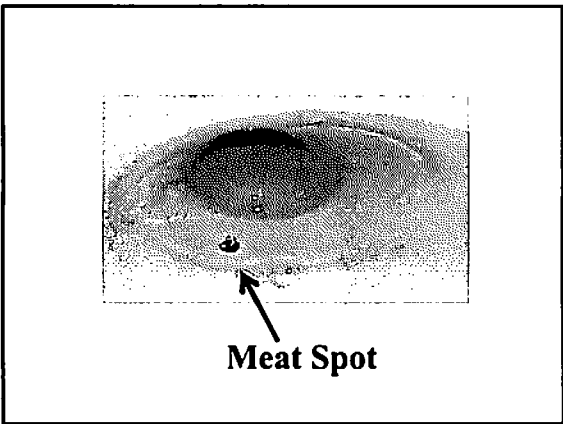
Loss Eggs

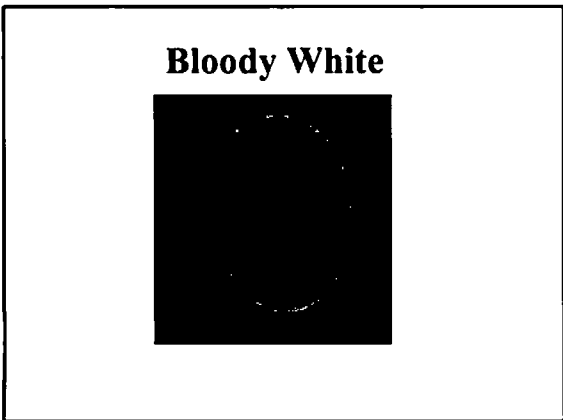
- Leaker
- Cooked
- Frozen
- Contaminated
- Inedible
- Large blood spot
- Large meat spot
- Bloody White
- Other foreign material



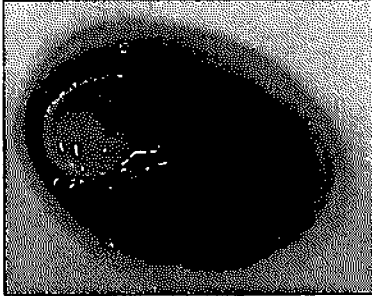




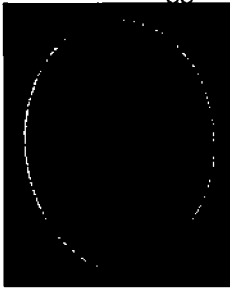




Bloody White



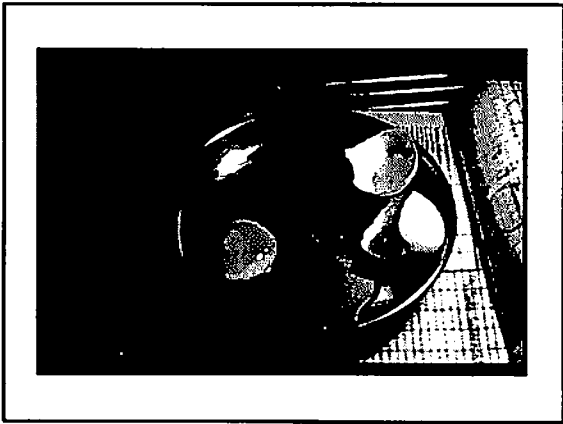
Inedible Eggs

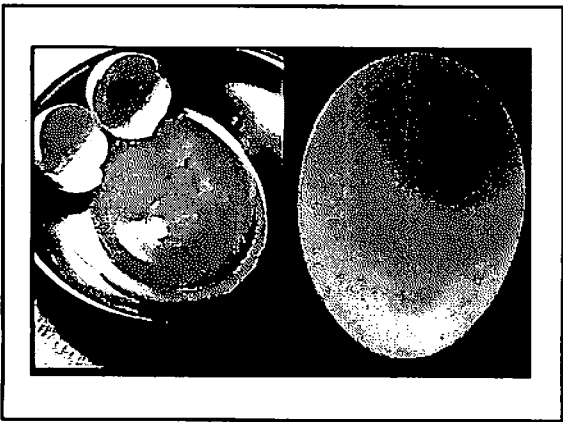


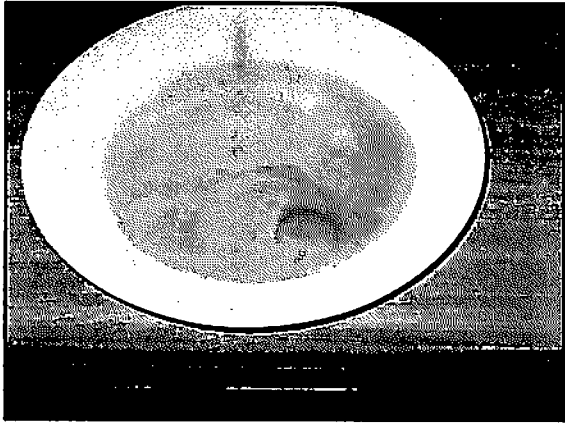
Inedible Eggs

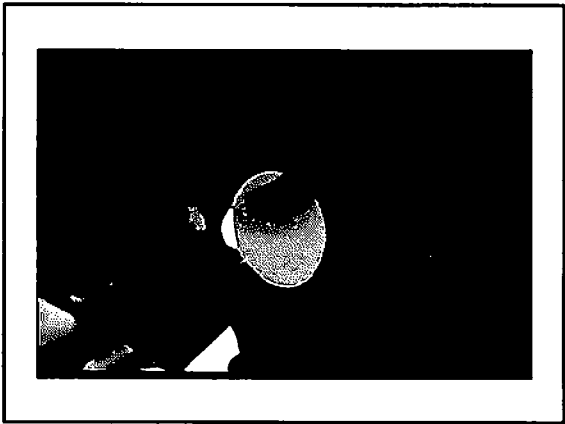
-
- | | |
|------------------------|---------------|
| • Black rot | • Sour egg |
| • Yellow rot | • Moldy egg |
| • White rot | • Musty egg |
| • Mixed rot (addled) | • Green white |
| • Blood ring | • Stuck yolk |
| • Contain embryo chick | • Adulterated |

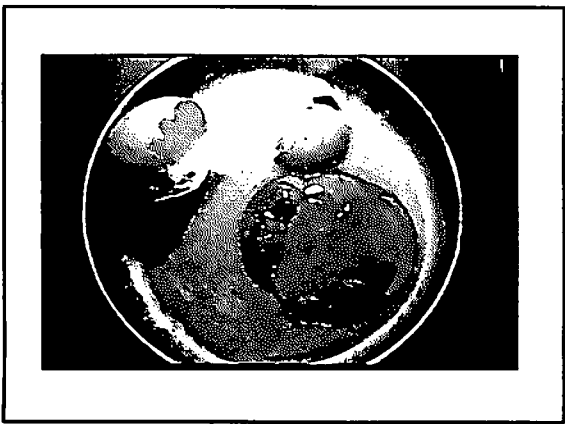








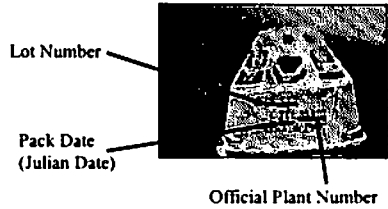




Weight Classes for US Consumer Grades

Size or weight class	Min. net. wt. per dz. oz.	Min. net. wt. per 30 dz. lbs.	Min. net. wt. per individual eggs at rate per dz. (ozs.)
Jumbo	30	56	29
Extra Large	27	50.5	26
Large	24	45	23
Medium	21	39.5	20
Small	18	34	17
PeeWee	15	28	—

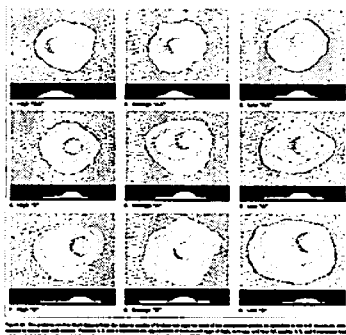
What has to be on an egg carton in the grocery?



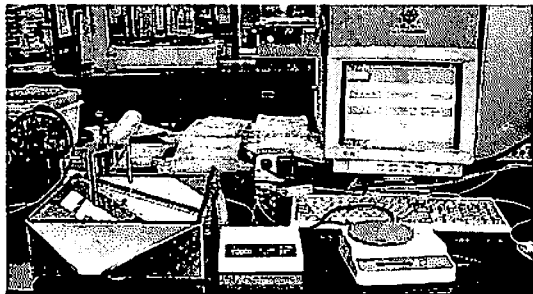
Egg Quality: Haugh Unit an Objective Measure

Kenneth E. Anderson

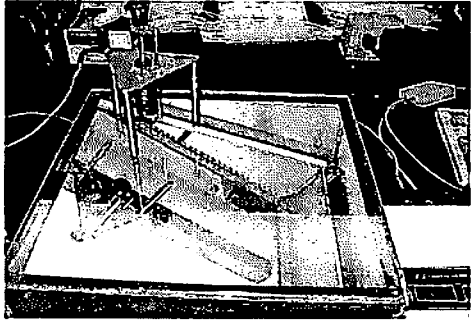
USDA grades for broken out eggs



Computerized Haugh Unit Equipment



Breakout Table



Conventional Breakout Table with Micrometer

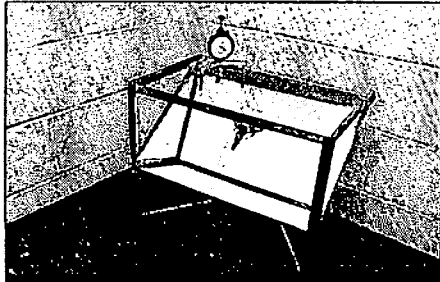
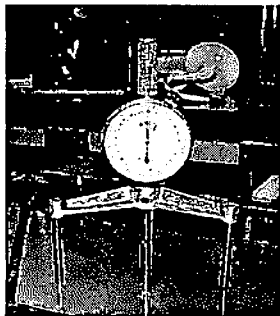


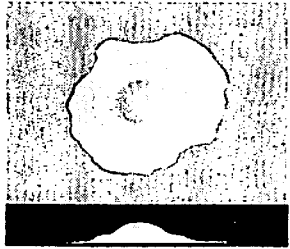
Figure 51. Egg breakouts are conducted on equipment which typically includes a metal stand, glass top, and reflective mirror. (CD 5202 3241 1143-11)

Micrometer
Measures the
height of the
albumen



Location on albumen to measure the height

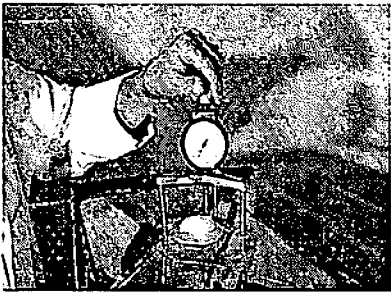
Measure the albumen height at the point $\frac{1}{2}$ the distance from the yolk to the edge of the outer thick albumen.



Note: Stay away from The chalazae

2. Average "AA"

Demonstration of the use of the breakout table and micrometer for the determination of the Haugh Unit Score

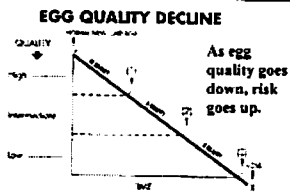


HAUGH UNIT CONVERSION CHART	
HAUGH UNIT	PERCENTAGE OF THICK ALBUMEN
100	100
95	95
90	90
85	85
80	80
75	75
70	70
65	65
60	60
55	55
50	50
45	45
40	40
35	35
30	30
25	25
20	20
15	15
10	10
5	5
0	0

Haugh Unit Scores and USDA Grade Equivalents

Grade	Haugh Unit Score
AA	≥ 72
A	$72 > \text{score} \geq 60$
B	< 60

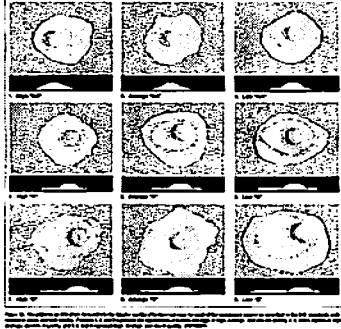
From the moment an egg is laid the interior quality begins to decline. The milestones are indicated by the change in grade from AA to B



**Broken out Egg Quality:
Haugh Unit an Objective Measure**

Kenneth E. Anderson

USDA grades for broken out eggs



Conventional Breakout Table with Micrometer

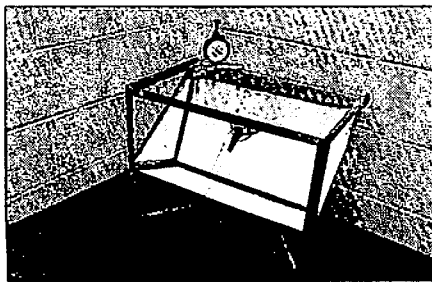
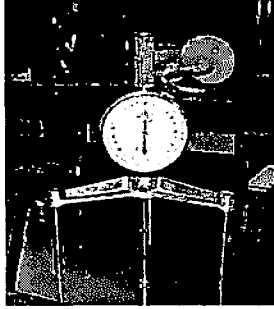


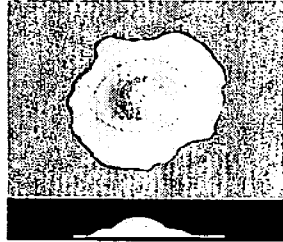
Figure 51. Egg breakouts are conducted on equipment which typically includes a metal stand, glass top, and reflective mirror. (CO 8202 3241 1143-11)

Micrometer
Measures the
height of the
albumen



Location on albumen to measure the height

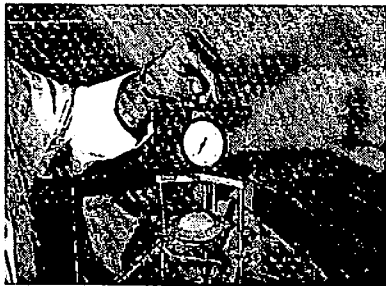
Measure the
albumen height
at the point $\frac{1}{2}$ the
distance from the
yolk to the edge
of the outer thick
albumen.



Note: Stay away from
The chalazae

2. Average "AA"

Demonstration of the use of the breakout table and
micrometer for the determination of the Haugh Unit Score



HAUGH UNIT CONVERSION CHART

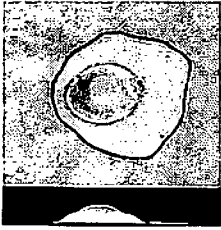
HAUGH UNIT	USDA GRADE	HAUGH UNIT	USDA GRADE
65	B	75	A
66	B	76	A
67	B	77	A
68	B	78	A
69	B	79	A
70	B	80	A
71	B	81	A
72	B	82	A
73	B	83	A
74	B	84	A
75	B	85	A
76	B	86	A
77	B	87	A
78	B	88	A
79	B	89	A
80	B	90	A
81	B	91	A
82	B	92	A
83	B	93	A
84	B	94	A
85	B	95	A
86	B	96	A
87	B	97	A
88	B	98	A
89	B	99	A
90	B	100	A

Haugh Unit Scores and USDA Grade Equivalents

Grade	Haugh Unit Score
AA	≥ 72
A	$72 > \text{score} \geq 60$
B	< 60

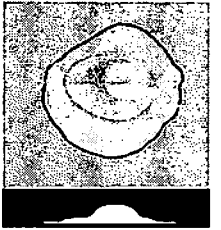
No. 1 High AA

Notice the height of the yolk and albumen



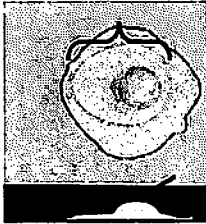
No. 3 Low AA

Note that the yolk still has height but the albumen has flattened further



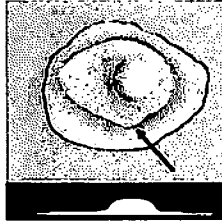
No. 4 High A

The albumen has expanded and the yolk is beginning to flatten



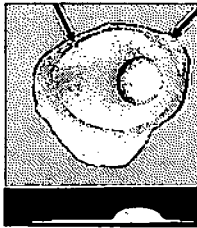
No. 6 Low A

The outer thick albumen is beginning to breakdown.



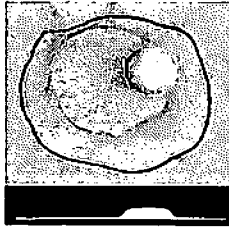
No. 7 High B

Outer thick albumen continues to become thinner and breakdown

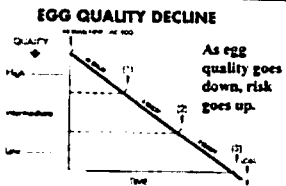


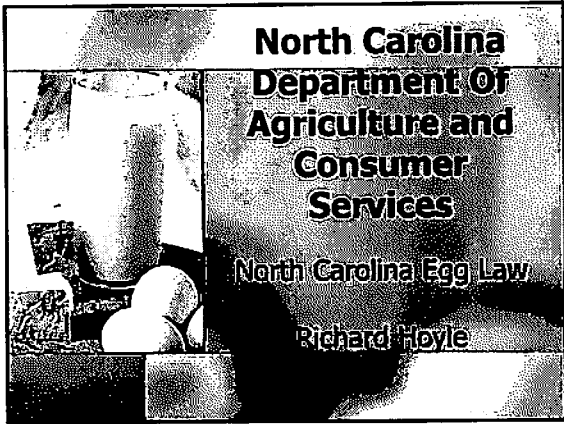
No. 9 Low B

Differentiation between the outer thin and outer thick albumen almost imperceptible



From the moment an egg is laid the interior quality begins to decline. The milestones are indicated by the change in grade from AA to B





**General Statute 106-245.15
Labeling**

- Grade
- Size
- Weight Class
- Numerical Count
- Name and Address
- "Eggs"
- "Fresh"
- Obscure Incorrect Labeling

**106-245.19
INVOICES**

- Date of Sale
- Name and Address of Seller
- Name and Address of Purchaser
- Quantity
- Grade
- Size
- Maintain for 30 days

ADVERTISEMENT

- When price is designated:
 - Grade
 - Size

SANITATION

- Food Establishment
- 60°F or Less Pre Processing
- 45°F or Less Post Processing
- Sanitary Methods of Cleaning Eggs

ORGANIC

- Must be Certified:
 - State
 - Federal
 - Accredited Organization
 - Identified on the Container

MARKETING REQUIREMENTS

- Maintain Identity
- Provide supporting Evidence

EXEMPTIONS

- Own Production
- On Premises of Production
- Ungraded
- Less than 30 Doz. Per Week
- Meet Other Requirements

QUESTIONS?

§ 106-245.32. Levy of tax; rules.

An excise tax is levied on eggs and processed eggs sold for use in this State. The tax on eggs is five cents (5¢) for each case of 30 dozen eggs. The tax on processed eggs is eleven cents (11¢) for each 100 pounds of processed eggs sold for use in this State. The tax imposed by this section is payable only once on the same eggs or processed eggs.

Processed eggs include frozen eggs, liquid eggs, and hard-cooked eggs. "Use" means consumption by the consumer. The Board may adopt rules necessary to administer this tax. (1987, c. 815, s. 1; 1989 (Reg. Sess., 1990), c. 1001, s. 1.)

§ 106-245.33. Report and payment of tax by handler; definition and functions of handler.

(a) The tax imposed by this Article is payable monthly to the Department by the handler of eggs or processed eggs. The tax is due when a report is required to be filed. A handler shall file a report with the Department on a form provided by the Department within 20 days after the end of each month. The report shall state the volume of eggs or processed eggs handled by the handler during the preceding month.

(b) The term "handler" means any person who operates a grading station in North Carolina, a packer, huckster, or distributor who handles eggs in North Carolina, a farmer who packs, processes, or otherwise performs the functions of a handler in North Carolina, or a distributor or seller of processed eggs. The term "handler" includes any person in North Carolina who purchases eggs for sale or distribution or any farmer in North Carolina who sells or distributes eggs to anyone other than a registered handler.

For purposes of this Article, the functions of a handler of eggs or processed eggs include the sale, distribution, or other disposition of eggs or processed eggs in North Carolina regardless of where the eggs or processed eggs were produced or purchased.

The term "registered handler" means any person who has registered with the Department to receive monthly return forms for reporting the tax levied by this Article.

Every person, whether inside or outside the State, who engages in business in North Carolina as a handler is required to register and to collect and pay the tax due on all eggs or processed eggs sold for use in this State. A handler shall maintain a certificate of registration, file returns, and perform all other duties required of handlers. (1987, c. 815, s. 1; 1989 (Reg. Sess., 1990), c. 1001, s. 2.)

§ 106-245.14. Definitions.

The following words, terms, and phrases shall be construed for the purpose of this Article as follows:

- (1) "Authorized representative" means the Commissioner or any duly authorized agent or employee who is assigned to carry out the provisions of this Article.
- (2) "Candling and grading" means selecting eggs as to their conformity to the standards of quality and size or weight class preparatory to marketing them as a specific grade and size or weight class.
- (3) "Commissioner" means the North Carolina Commissioner of Agriculture.
- (4) "Consumer" means any person who purchases eggs for his or her use or his or her own family use or consumption and not for resale.
- (5) "Container" means any box, case, basket, carton, sack, bag, or other receptacle containing eggs. "Subcontainer" means any container used within another container.
- (6) "Distributor" means any person, producer, firm or corporation offering for sale or distributing eggs in the State to a retailer, cafe, restaurant, or any other establishment offering for sale to consumers, including but not limited to institutional consumers as defined in this Article. Distributors also shall include any person, producer, firm or corporation distributing eggs to his or its own retail outlets or stores but shall not include any person, firm or corporation engaged only to haul or transport eggs.
- (7) "Eggs" means product of a domesticated chicken in the shell or as further processed egg products.
- (8) "Facilities" means any room, compartment, refrigerator or vehicle used in handling eggs in any manner.
- (9) "Grades" shall mean and include specifications defining the limit of variation in quality of two or more eggs.
- (10) "Institutional consumer" means a restaurant, hotel, licensed boarding house, commercial bakery or any other institution in which eggs are prepared as food for use by its patrons, residents or patients.
- (11) "Law" means the provisions of this Article and all rules and regulations issued hereunder.
- (12) "Lots" means a physical grouping of eggs or containers with eggs therein, as determined by the North Carolina Department of Agriculture and Consumer Services.
- (13) "Marketing of eggs" or "market" means the sale, offer for sale, gift, barter, exchange, advertising, branding, marking, labeling, grading, or other preparatory operation or distribution in any manner of eggs or containers of eggs as defined in this Article.

- (14) "Packer" means any person that is engaged in grading, shell treating or packing eggs for sale to consumers, direct or through distribution outlets of stores.
- (15) "Person" means and includes any individual, producer, firm, partnership, exchange, association, trustee, receiver, corporation, or any other business organization and any member, officer, or employee thereof.
- (16) "Retailer" means any person who markets eggs to consumers.
- (17) "Size or weight class" means a classification of eggs based on weight at the rate per dozen.
- (18) "Standards for quality" means specifications of the physical characteristics of any or all of the component parts or the individual egg. (1965, c. 1138, s. 1; 1997-261, s. 42.)

§ 106-245.38. Violations.

(a) It shall be a Class 1 misdemeanor for any handler knowingly to report falsely to the Department the quantity of eggs or processed eggs handled by him during any period, to falsify the records of the eggs or processed eggs handled by him, to fail to keep a complete record of the eggs or processed eggs handled by him, or to fail to preserve the records for a period of not less than two years from the time the eggs or processed eggs are handled.

(b) It shall be a violation of the North Carolina Egg Law, Article 25A of this Chapter, for a handler to fail to register as required by this Article. Any eggs transported, sold, or offered for sale by a handler who is not a registered handler shall be subject to the stop-sale and penalty provisions of the North Carolina Egg Law. (1987, c. 815, s. 1; 1989 (Reg. Sess., 1990), c. 1001, s. 5; 1993, c. 539, s. 751; 1994, Ex. Sess., c. 24, s. 14(c).)

§ 106-245.37. North Carolina Egg Fund.

All moneys levied and collected under the provisions of this Article shall be deposited with the State Treasurer to a fund to be known as the "North Carolina Egg Fund". All moneys credited to the "North Carolina Egg Fund" are hereby appropriated to the North Carolina Egg Association, a North Carolina nonprofit corporation, for research, education, publicity, advertising, and other promotional activities for the benefit of producers of eggs sold in North Carolina. Moneys in the North Carolina Egg fund are held in trust for the benefit of producers of eggs sold in North Carolina and such moneys shall not be or become part of the General Fund. (1987, c. 738, s. 138(a); c. 815, s. 1.)

§ 106-245.22. Sanitation.

(a) Any person engaged in the marketing of or the processing of eggs for marketing shall, in addition to maintaining egghandling facilities in a manner commensurate with laws governing food establishments, keep the eggs in a proper environment, in accordance with regulations promulgated by the North Carolina Board of Agriculture, to maintain quality. In addition, any container, including the packaging material therein, when used for the marketing of eggs shall be clean, unbroken and free from foreign odor. In all instances eggs shall, so far as possible and by use of all reasonable means, be protected from being soiled or dirtied by foreign matter. When cleaning is necessary a sanitary method approved by the Commissioner shall be employed.

(b) Repealed by Session Laws 1973, c. 739, s. 3. (1965, c. 1138, s. 1; 1973, c. 739, s. 3.)

§ 106-245.18. Container labeling.

(a) Any container or subcontainer in which eggs are marketed shall bear on the outside portion of the container, but not be limited to, the following:

- (1) The applicable consumer grade provided for in this Article.
- (2) The applicable size or weight class provided for in this Article.
- (3) The word "eggs."
- (4) The numerical count of the contents.
- (5) The name and address of the packer or distributor. Words and numerals used to designate the grade and size shall be in clearly legible bold-faced type at least three-eighths inch in height. Any person intending to reuse a container shall obscure any inappropriate labeling thereon and relabel the container in accordance with this section prior to refilling the container with eggs. In any case, the address of the packer or distributor shall be shown in letters not exceeding three-eighths inch in height.

(b) The term "fresh" may only be applied to eggs conforming to the specifications for Grade A or better. No other descriptive term other than applicable grade and size may be applied. (1965, c. 1138, s. 1; 1973, c. 739, s. 2.)

§ 106-245.15. Designation of grade and class on containers required; conformity with designation; exemption.

No person shall market to consumers, institutional consumers or retailers or expose for that purpose any eggs unless there is clearly designated therewith on the container the grade and size or weight class established in accordance with the provisions of this Article and such eggs shall conform to the designated grade and size or weight class (except when sold on contract to a United States governmental agency); provided, however, a producer marketing eggs of his own production shall be exempt from this section when such marketing occurs on the premises where the eggs are produced, processed, or when ungraded sales do not exceed 30 dozen per week. (1955, c. 213, s. 7; 1965, c. 1138, s. 1; 1973, c. 739, s. 1.)

§ 106-245.16. Standards, grades and weight classes.

The Board of Agriculture shall establish and promulgate such standards of quality, grades and weight classes for eggs sold or offered for sale in this State as will protect the consumer and the institutional consumer from eggs which are injurious or likely to be injurious to health by reason of the condition of the shell, or contents thereof, or by reason of the manner in which eggs are processed, handled, shipped, stored, displayed, sold or offered for sale. Such standards of quality, grades and weight classes as are promulgated and established by the Board shall also promote honesty and fair dealings in the poultry industry. Such standards, grades and weight classes may be modified or altered by the Board whenever it deems it necessary. (1955, c. 213, s. 9; 1965, c. 1138, s. 1; 1969, c. 139, s. 1.)

Part 1A. Collection and Refund of Fees and Taxes.

§ 106-9.2. Records and reports required of persons paying fees or taxes to Commissioner or Department; examination of records; determination of amount due by Commissioner in case of noncompliance.

(a) Every person paying fees or taxes to the Commissioner of Agriculture or to the Department of Agriculture and Consumer Services under the provisions of this Chapter shall keep such records as the Commissioner may prescribe to indicate accurately the fees or taxes due to the Commissioner or Department, and such records shall be preserved for a period of three years, and shall at all times during the business hours of the day be subject to inspection by the Commissioner or his deputies or such other agents as may be duly authorized by the Commissioner. Any person failing to comply with or violating any of the provisions of this section shall be guilty of a Class 1 misdemeanor.

(b) It shall be the duty of the Commissioner of Agriculture, by competent auditors, to have the books and records of every person paying fees or taxes to the Commissioner or Department examined at least once each year to determine if such persons are keeping complete records as provided by this section, and to determine if correct reports have been made to the Commissioner or Department covering the total amount of fees or taxes due by such persons.

(c) If any person shall fail, neglect or refuse to keep such records or to make such reports or pay fees or taxes due as required, and within the time provided in this Chapter, the Commissioner shall immediately inform himself as best he may as to the matters and things required to be set forth in such records and reports, and from such information as he may be able to obtain, determine and fix the amount of fees or taxes due the State from such delinquent person for the period covering the delinquency. The Commissioner shall proceed immediately to collect the fees or taxes due the State, including any penalties and interest thereon, in the manner provided in this Article. (1963, c. 458; 1993, c. 539, s. 736; 1994, Ex. Sess., c. 24, s. 14(c); 1997-261, s. 109.)

§ 106-245.34. Exemptions.

Eggs sold by a handler who sells less than 500 cases a year are exempt from the tax levied under this Article. Processed eggs sold by a handler who sells less than 1,000 pounds of processed eggs a year are exempt from the tax levied under this Article. The Board shall establish a procedure for returning taxes paid on exempt eggs or processed eggs. (1987, c. 815, s. 1; 1989 (Reg. Sess., 1990), c. 1001, s. 3.)

§ 106-245.35. Records to be kept by handler.

The handler shall keep a complete record of the eggs or processed eggs handled by him for a period of not less than two years from the time the eggs or processed eggs were handled. These records shall be open for inspection by the Commissioner or his duly authorized agents and shall be established and maintained as required by the Commissioner. (1987, c. 815, s. 1; 1989 (Reg. Sess., 1990), c. 1001, s. 4.)