



## 4-H Egg Preparation Demonstration

---

The Poultry Science and 4-H Departments offer a wide variety of contests and activities for the competitive 4-H youth. One of the most popular and rewarding contest is the Egg Preparation Demonstration. The following material is organized into topics that inform youth about the value of eggs in food preparation and the details needed to prepare for the contest. The topics include:

[Egg Characteristics](#)  
[Nutritional Composition](#)  
[Quality Determination](#)  
[Storage & Handling](#)  
[Cooking Methods](#)  
[Contest Rules](#)  
[Demonstration Tips](#)  
[Support Materials](#)

### Egg Characteristics

Eggs are a unique product of nature. They are among nature's most nutritional and perfectly packaged foods. As a source of high quality protein, they are classified as being alternatives to meats. Eggs also contribute cooking characteristics that cannot be provided by any other food. Eggs are also among the most economical foods and are available in all supermarkets. Therefore, eggs are ideal as a food when nutritional and economic values, versatility, and availability are considered.

Each egg is composed of internal yolk and albumen contents sealed within a seamless, hard shell. The calcium carbonate shell makes up about 11% of total egg weight while the yolk and albumen form 31% and 58%, respectively. The proportions of these egg constituents remain relatively constant regardless of the egg's quality or size.

Egg shell color does not affect the quality, taste, nutritional value, or cooking quality of eggs. The shell color is determined by the breed of hen laying the egg and cannot be altered. Yolk color, however, can be altered by changes in the composition of the hen's feed. Yolk color has no effect on nutritive value.

**Blood spots in the albumen do not change the flavor or nutritive value, although they are unsightly and repulsive. They can be easily removed prior to cooking by using a spoon or pointed knife. These spots do not indicate whether the egg is fertile or not. They form when a blood vessel in the oviduct of the hen ruptures during the egg formation process. Only about 1% of all eggs contain blood spots and most are removed during the egg grading process.**

**White, stringy objects are often observed in the albumen of some eggs. Many persons think that these are meat spots or that they indicate a fertile egg. Neither assumption is true! These structures are called chalazae (pronounced "ka-lay-zee") and are a natural portion of the thick albumen of a fresh egg. These strands function as anchors to hold the yolk centered in the egg. Their presence is desirable in that only the freshest eggs have chalazae that disappear after extended storage or improper storage conditions.**

## **Nutritional Composition**

**Eggs are an excellent source of high-quality protein. Nutritionists rate eggs as equivalent to the meat foods group. It is stated that eggs contain "complete protein" with all essential amino acids needed for growth and body repair. They are also present at levels higher than most other foods.**

**The protein in eggs is the most nutritious and readily available form known. It is used as the standard against which all other food proteins are compared. Since all amino acids are present at high levels, eggs are often used to supplement the nutritional value of other foods.**

**Eggs also contain high levels of vitamins and trace minerals. They are an excellent source for vitamins A, D, and the B-complex. All vitamins required by man are present in eggs except for vitamin C. They also contain many trace minerals including iron, copper, iodine and zinc.**

**The yolk contains essentially all the fat within the egg. Almost two-thirds of the egg fat is in unsaturated forms that are liquid and readily digestible. Lecithin and other fat components make the egg a valuable ingredient in many recipes. These substances contribute to improved stability of salad dressings and baked items.**

**When considering all nutrients present in eggs, it is often assumed that eggs are high in energy. However, each large egg contains only 80 calories. They are ideal for diets of persons who must control their weight by eating nutritious, light-energy foods.**

**Eggs have often been maligned because of their cholesterol content. However, cholesterol is an essential component of our bodies and is required for the synthesis of vitamin D and many hormones. Although cholesterol is essential for health, it is not an essential nutrient in the human diet. The body can readily manufacture all the cholesterol it requires.**

In the past, some scientists have suggested that a reduction of dietary cholesterol will help protect against heart disease; other scientists with equal authority disagree. Recent research indicates that moderating dietary energy intake, controlling of body weight within the recommended range, and having a physically active lifestyle may be more important for reducing heart disease than reducing dietary cholesterol intake. Additional medical research will clarify the relationship between dietary nutrients and heart disease. Until more information is available, it is advisable that persons with elevated blood cholesterol levels consult with and follow the advice of their physicians.

The nutritional characteristics of eggs are shown below:

**Serving = Two USDA Large Eggs (108 gram edible portion)**

Calories .....	160	Fat .....	12 g
Protein .....	13 g	Polyunsaturated fat .....	1 g
Carbohydrates .....	1 g	Saturated fats .....	4 g
Sodium .....	140 mg	Cholesterol .....	520 mg

**Percent of US Recommended Daily Allowances (U.S. RDA)**

Protein .....	30	Vitamin B <sub>12</sub> .....	15
Vitamin A .....	10	Biotin .....	8
Vitamin D .....	15	Calcium .....	6
Vitamin E .....	6	Phosphorus .....	20
Thiamin .....	6	Iron .....	10
Riboflavin .....	20	Copper .....	4
Vitamin B <sub>6</sub> .....	6	Zinc .....	10
Folic Acid .....	15	Iodine .....	35
Pantothenic Acid .....	15	Magnesium .....	4

**Quality Determination**

Egg grade is determined by standards established by the USDA and is based on both the quality and size of the eggs. The determination of egg value is based upon both attributes and each characteristic is evaluated independently.

The consumer grades for shell eggs are AA, A, and B grades. Each grade is determined based on identification of interior and exterior characteristics of individual eggs. High exterior quality is indicated by a clean, smooth, well-shaped egg shell showing no indication of weakness or cracks. Interior quality is evaluated based on albumen and yolk appearances.

All eggs sold in retail markets must meet quality standards of grade B or higher. Most eggs sold in supermarkets are of grades AA or A. Grade B eggs are normally processed for their

contents and are sold to bakeries and food service establishments for manufacturing of other foods.

High quality egg contents are indicated by firm, thick albumen and yolks. The air cell is very small (less than  $\frac{3}{16}$ -inch in depth), and the albumen contains no blood or meat spots. Grade B egg contents may have watery albumen, enlarged-friable yolks, and blood spots less than  $\frac{1}{8}$ -inch in diameter. Eggs with large blood spots are classified as loss eggs and are considered "inedible". The grade of each egg is determined individually by the lowest exterior or interior quality factor. Most downgraded shell eggs are due to external shell factors, but have high quality egg contents.

Eggs that meet AA or A grade standards are also evaluated upon size or weight standards. Six categories of egg sizes are recognized by the USDA. They are listed below with minimum weights per dozen eggs.

Grade		Weight per dozen
Jumbo	--	30 oz
Extra Large	--	27 oz
Large	--	24 oz
Medium	--	21 oz
Small	--	18 oz
PeeWee	--	15 oz

### Storage and Handling

Proper storage of eggs is essential to preserve quality and cooking characteristics. Poor storage conditions can reduce AA grade eggs to B grade eggs within a few days. The principle degrading factors are high storage temperature and dehydration. Eggs held for one day at room temperature of 70 degrees F. or higher will lose more quality than a refrigerated egg stored for one week. Storing eggs in cartons at 40-50 degrees F. will maintain Grade A status for several weeks.

Improper storage will produce easily observed changes including:

- A change of thick albumen to watery albumen.
- Enlargement of yolk that breaks easily when the shell is broken.
- Enlargement of the air cell.
- Absorption of off-odors and off-flavors if stored near pungent foods.

Proper storage conditions will minimize changes to egg quality.

Eggs are best stored in the carton in which they were packaged. Place them in the rear of the refrigerator away from foods with strong odors (onions, apples, cabbage, and various

fruits). Do not store eggs in trays molded into the refrigerator door. Exposure to warm, dry air when the door opens will quickly reduce egg quality.

Eggs are often stored after breaking or cooking. Place hard-cooked eggs in the refrigerator as soon as they are cool and use them within one week. Raw egg whites will keep 7-10 days if refrigerated in tightly covered containers. Unbroken raw egg yolks should be covered with water, placed in a tightly covered container, refrigerated, and used within 2-3 days.

Raw egg contents and hard-cooked yolks can be successfully frozen. Hard-cooked whole eggs or albumen will become tough and rubbery if frozen. Eggs cannot be successfully frozen while in the shell.

Freeze raw egg albumen by pouring them into freezer containers and sealing tightly prior to freezing. An alternative method is to freeze each egg albumen in an ice cube tray and then transfer the frozen cubes to a freezer container for long-term storage. In this way, the contents of each egg can be kept separate and measurement of egg contents is unnecessary.

Yolks or whole eggs require special treatment before freezing. When frozen, the yolk may thicken or gel. Slow gelling by adding  $\frac{1}{8}$  teaspoon salt or  $1\frac{1}{2}$  teaspoons sugar or corn syrup for each four yolks or two whole eggs.

Thaw frozen eggs overnight in the refrigerator or under cold running water. Use yolks or whole eggs as soon as they are thawed. Albumen will beat to a greater volume if allowed to sit at room temperature for about 30 minutes. Salted egg contents can be used in main dishes or baked goods and sweetened eggs can be used in desserts. The finished product may be somewhat thicker than if made with fresh eggs

## Cooking Methods

Eggs are a very versatile food. They can be used as a main dish or as an ingredient in more complex dishes. Eggs provide a wide variety of attributes for the finished dish. In addition to adding color and flavor, eggs provide the following characteristics to dishes:

**Thickening** Eggs thicken foods like custards puddings, sauces, and creamy fillings.

**Leavening** Souffles, sponge & butter cakes, quick breads, and puffy omelets are leavened by eggs.

**Coating** Meat dishes, breads, and cookies are some foods with egg components as the base ingredients for coatings.

**Binding** Eggs bind other ingredients for making meat loaves, casseroles, and croquettes.

**Emulsifying** Eggs prevent mixture separation in mayonnaise, salad dressing, and cream puff filling.

**Clarifying**      Tiny particles are coagulated in soups and coffee to create a clear solution.

**Retarding Crystallization**      Crystallization of sugar is slowed in cake icings and candies.

In general, slow cooking over moderate heat is the best method for cooking eggs. An exception is the preparation of omelets which require fast cooking over a higher heat source. High temperatures and over-cooking causes protein in the eggs to shrink, thus making the albumen tough and the yolk mealy. Egg albumen is basically a solution of protein in water. It is more sensitive to high heat than the yolk. Albumen solidifies at 140-150 degrees F. while yolks cook at 150-158 degrees F. A properly cooked egg has a tender, moist albumen and a smooth, creamy yolk.

Most recipes express egg ingredients as number of large eggs while others cite the requirements in terms of liquid measurement. The number of eggs (of any size) needed to satisfy liquid or large egg measurements is shown in the following chart.

#### Guide for Using Whole Eggs of Various Sizes

<u>Number of large eggs</u>	<u>Extra Large eggs</u>	<u>Medium eggs</u>	<u>Small eggs</u>	<u>Approximate volume</u>
1	1	1	1	3 tablespoons
2	2	2	3	¼ cup plus 2 tablespoons
3	3	4	4	½ cup plus 2 tablespoons
4	3	5	6	¾ cup plus 1 tablespoon
5	4	6	7	1 cup
6	5	7	8	1 cup plus 3 tablespoons
8	6	10	11	1½ cups plus 2 tablespoons
10	8	12	14	2 cups
12	10	14	17	2¼ cups plus 2 tablespoons

When recipes require beaten egg contents, it is recommended that they be warmed to room temperature before beating. Usually 30 minutes is enough time for eggs to warm up. If whites and yolks are beat separately, it is best to beat the whites first to save time or else beaters must be washed between beatings. Egg yolks on beaters will interfere with good beating of egg whites.

A slightly beaten egg is used to thicken or bind ingredients, and increases volume when scrambling eggs or cooking omelets. One-half minute of brisk beating with a fork or egg whisk is adequate for the purpose. Test the results by lifting the fork with adhering egg. If the egg flows from the fork easily and contains only a few air bubbles, it is slightly beaten.

A well beaten egg used for leavening is best performed using a rotary hand beater or electric mixer. Beat the egg until it is very frothy and changes to a white or light cream color. Egg yolk is thoroughly beaten when it becomes thick and has a uniform lemon color. A description of various egg beating stages as indicated in recipes are as follows.

*Slightly beaten white* is used to clarify, emulsify, and thicken solutions or in used in coating for meats and baked dishes. When beat for one-half minute, the white is slightly foamy but is still transparent and flows easily.

*Stiff foam white* is used in meringues that require a shiny, glossy and moist albumen. When the beaters or whisk is withdrawn, the albumen follows to form rounded peaks.

*Stiff white* is used in hard meringues, cakes, omelets, cooked frostings, candies, and marshmallows. Properly beat stiff white is no longer foamy and does not stick to the bowl when tipped, but remains glossy, smooth and moist.

There are five basic egg cooking methods for preparing eggs as a main dish. They are fried, scrambled, cooked in the shell (hard or soft), poached, and baked. Properly cooking eggs requires experience to produce a high quality dish.

*Fried* eggs are best cooked in a skillet that is preheated until it is just hot enough to sizzle a drop of water. A skillet with non-stick coating will aid in producing a more attractive final dish. Addition of a small amount of margarine or butter will add flavor and help in preventing sticking. Break one or two eggs into the skillet and reduce heat. Cook slowly until reaching the desired degree of doneness. Turning the eggs with a spatula will allow complete cooking without overcooking the egg surface.

Begin preparation of *scrambled* eggs by slightly beating two eggs, two tablespoons milk,  $\frac{1}{4}$  teaspoon salt, and a dash of pepper. Pour mixture into a pan prepared as if cooking fried eggs. As the mixture begins cooking, draw the cooked portion across the skillet with a spatula and allow any uncooked egg mixture to come in contact with the hot skillet. Continue cooking until eggs reach the desired degree of doneness, but do not over stir. It is better to remove the eggs from the pan when they are slightly underdone. The less cooked portion will cook by heat from the well cooked portion.

**Eggs *cooked in the shell*** can be cooked to various degrees of doneness, but the procedure is the same for all. Eggs are placed one level deep in a saucepan with enough cool water to cover eggs about ½-inch. Cover saucepan with a lid and heat until rapid boiling is reached. Remove from heat and allow to cook for the desired period of time. Soft-cooked eggs are allowed to cook for about four minutes while hard-cooked large eggs cook for 15 minutes. Cooking time for hard-cooked eggs is increased by approximately 3 minutes for each increase in egg size. After the correct degree of doneness is reached, the eggs are immediately placed in cold water. Rapid cooling will prevent a dark surface from forming on the yolk. Removing the shells from hard-cooked eggs is made easier if the eggs are one-week or more in age. Shells of fresh eggs will be easier to remove if the eggs are allowed to remain unrefrigerated overnight prior to cooking.

***Poach*** eggs in a lightly oiled sauce pan containing about two-inches of water. Bring the water to boiling and reduce heat until the water remains simmering. Break eggs into a sauce dish and slip the dish into the simmering water while holding the dish close to the water's surface. Simmer for three to five minutes, depending on degree of doneness. When done, remove eggs with a spatula or spoon, drain on paper towel and trim edges, if necessary.

***Bake*** eggs by breaking two eggs into a greased, shallow baking dish. Add one tablespoon of milk or light cream, if desired. Season with salt and pepper. Bake in preheated 325 degree F. oven for eight-minutes, or until done. Serve in the baking dish.

One of the more popular modern methods for cooking eggs requires the use of a microwave oven. Several important practices must be remembered to prevent undesirable results when cooking eggs in this way. Never attempt to cook an egg in the microwave oven without removing the shell. Heating can cause the contents to expand so rapidly that the shell may explode. Eggs cooked in the microwave will continue to cook after being removed from the oven. Therefore, remove the dish when it is still underdone to prevent tough, rubbery eggs.

When poaching or frying eggs in a microwave oven, pierce the yolk to prevent splattering when yolk membrane bursts. Cover the eggs with water when poaching assures even cooking. Placing a glass of water in the microwave oven when frying eggs will allow the albumen and yolk to cook more evenly. The cooking time will vary depending on the number and size of eggs cooked and the desired degree of cooking. Consult the oven manual from the manufacturer for recommended procedures.

## **Contest Rules**

The rules for conducting the Mississippi 4-H Egg Preparation Demonstration Contest are coordinated as closely as possible to rules used at the national contest. This avoids drastic changes in preparation for the contestant who will compete as Mississippi's representative and the National 4-H Poultry and Egg Conference. These rules are:

1. Each county is eligible to enter one or two senior 4-H Club members in the contest.

2. The contest is held at 4-H Congress the same day as other miscellaneous contests.
3. Each participant must present a demonstration on the preparation of an egg dish. Dish size is suggested for but not limited to 1-4 servings.
4. The demonstration must include the following:
  - Information on nutritional value, quality, and versatility of eggs.
  - Steps in preparation of the dish.
  - A finished dish ready for sampling (may be prepared prior to the demonstration).
5. The demonstration must be no more than 12 minutes in length. An additional three minutes will be provided for the judges to ask questions.
6. The contestant must have demonstrated the selected recipe no less than three times prior to the contest.
7. Each contestant must submit to each judge a copy of the recipe used in the demonstration. The recipe must conform to the recipe check sheet shown below:
  - The recipe must include the name of recipe, list of ingredients, and instructions for combining ingredients.
  - Ingredients are listed in order they are used in the dish preparation.
  - Measurements are given in common fractions.
  - No abbreviations are used.
  - No brand or trade names will be used.
  - Instructions for combining ingredients must have:
    - a. Clear instructions of each step for combining and cooking ingredients.
    - b. Short, clear, concise sentences.
    - c. Correct food preparation terms describing processes.
    - d. Size of pan stated (if used).
    - e. Temperature and cooking time stated (if used).
    - f. Number of servings prepared.
8. The egg dish must contain a minimum of:
  - ½ egg per serving if the dish is an appetizer, snack, dessert, or beverage
  - one egg per serving for a salad or main dish
9. Each contestant is responsible for clean-up after his or her demonstration.
10. Easels will be provided, but slides will not be allowed.
11. The preparation room will be off limits to everyone except the contestants and judges.
12. Contestants will work alone unless an emergency arises. The contest staff and judges are responsible for final procedural decisions.
13. Fresh eggs, range, oven and refrigerator will be furnished at the contest. Each contestant is responsible for bringing all other ingredients and cooking utensils (pots, pans, bowls, spoons, etc.).
14. In case of a tied score, all ties will be broken by the following method in the order listed:
  - Contestant with highest score in "Finished Product Quality" will win.
  - Contestant with highest score in "Presentation" will win.
  - Contestant with the highest score in "Recipe" will win.
  - A method will be decided upon by the contest committee.
15. See General Instructions at the beginning of *4-H Contest Handbook* for national and state rules about participation.

16. All contestants will be scored according to the points listed and described on the [Egg Preparation Demonstration Score Sheet](#).

## Demonstration Tips

Preparing and presenting a demonstration is exciting. It takes a great deal of practice to present demonstrations that are not distracting and pleasing to the audience. Only through practice can errors be eliminated that makes the presenter feel uncomfortable. Evaluate your presentation using the following recommendations.

### Appearance

- Dress neatly without excess jewelry and "frilly" clothing. This can interfere with dish preparation or be unduly distracting.
- Wear a hair style that eliminates the possibility of hair falling into the dish. Use an attractive hair covering or cap if necessary.

### Organization

- Pre-measure ingredients prior to the presentation except for those you are emphasizing. Unnecessary measuring of ingredients during the presentation will bore the audience.
- Prepare trays for holding ingredients and small utensils, one for unused items and another for used items. As each ingredient/utensil is used, place it on a tray out of sight from the audience.
- Use clear storage containers and mixing bowls. This allows the audience to easily see what you are doing.
- Remove lids from all containers prior to the start of the presentation. Removal during the presentation is very distracting.
- Assemble and use the proper utensils. Blend mixtures with plastic/wooden spoons, scrape bowls with a rubber spatula, measure or drop mixtures with metal spoons, etc.
- Limit the use of electrical devices that create excessive noise. Substitute a less noisy alternative or have a prepared second dish ready to substitute into the presentation.

### Presentation

- The presentation's title should have a catchy theme or name to grab the attention of the audience. This makes your presentation unique to all others.
- Be familiar with your presentation and recipe so that you do not need cue cards for assistance. Note cards are distracting and make your presentation appear "amateurish".
- Deliver the presentation in an easy, comfortable manner with few interruptions. This requires a great deal of preparation. Avoid extended periods of silence or consistent talking. Learn to talk while conducting the demonstrating procedures.
- Prepare extra "filler" comments or facts so you can use them during periods when the demonstration takes longer than expected. This eliminates long periods of silence.
- Stand erect with a comfortable stance or posture. Do not lean on the table or podium.

- Maintain good eye contact with the audience. Good eye contact makes your presentation more convincing and credible. Never direct your attention to the floor, ceiling or inanimate objects.
- Eliminate distracting mannerisms that interfere with an effective delivery. You may not be aware of these mannerisms unless your videotape your presentation and observe yourself as a member of the audience.
- Always speak clearly, distinctly, and with confidence. Avoid slurring your speech. A shy or timid presentation may reflect your personality, but is not desirable for the presentation.
- Avoid using meaningless nervous comments such as "uh", "the ah", and "you know". They are very distracting. In this case, silence is preferable to injecting the comments.
- Do not use personal pronouns such as "my flour" or "your eggs" when referring to materials used in the demonstration.
- Do not talk to yourself. A mistake is emphasized if you make a self critical remark during the demonstration.
- Learn the correct pronunciation of unfamiliar or scientific words. Judges use them as "red flags" for follow-up questions to detect weakness in your knowledge of the subject.
- The presentation should use the full allotment of 12 minutes. Do not exceed the limit, however. Timing of delivery is perfected by continued practice.

### Visual Aides

- Visual aides must contain statements using proper grammar usage. Be sure all words are spelled correctly.
- Design visual aides so that they are visually appealing, without excessive clutter. Be sure that they are clean and undamaged.
- Make posters large enough so they are easily seen by the judges.
- Make lettering attractive and large enough to be read easily. Attractive lettering can be produced by using stencils or rub-on lettering.
- Select a suitable color scheme for your visual aides and maintain a consistent color pattern throughout the presentation. Avoid colors that create a circus-like atmosphere.
- Handle posters properly during the presentation. Do not drop used posters on the floor or waste time by unnecessarily rearranging posters. Be sure all are in order prior to starting the presentation.
- The back surfaces of posters may serve for additional visual aides and reduce the bulk of materials to be handled.

### Demonstration

- Prior to beginning the demonstration, present each judge with a neat, concise copy of your recipe.
- Avoid any preparation practice that creates an unappealing impression of the finished dish.
- Avoid procedures that create distracting noises like crumbling of wax paper or aluminum foil.
- Always use an extra bowl to break eggs into before using them in the recipe. Use a knife or spatula to crack the egg cleanly. Never break eggs on the side of the bowl.

- If an egg is defective (blood spots, inferior quality, etc.) point this out with an explanation. Do not use the defective egg in the dish.
- Add all ingredients in the same order as listed in the recipe or present reasons for deviations from the recipe.
- Let the audience see everything you do during the demonstration. Describe every step and tell why it is being done. If something goes wrong, you gain points by explaining why it happened, rather than covering up the mistake.
- Avoid unnecessary duplications of routine preparation procedures. These become very distracting and you will lose the attention of the audience very quickly.
- Keep a clean, well-maintained working surface. Avoid creating a messy, dribbled table. If an accident occurs, clean it up quickly or remove it from sight of the audience. Keep a damp cloth or paper towel handy for spills.
- If using sharp utensils, handle them with care to avoid injury. A cut finger automatically reduces any chance of winning the contest.
- Learn to properly use all utensils with either hand. Transferring utensils from one hand to the other indicates nervousness and makes the audience uneasy for you.
- If time-consuming or repetitive procedures are required in the dish preparation, it is better to have a previously prepared dish available as a substitute. This maintains constant flow of the demonstration and is not regarded as a presentation weakness.
- Show the audience the product before and after completion. Make observers feel as if they were participating in the demonstration.
- The conclusion of your demonstration is as important as your introduction. Practice displaying and garnishing of your finished dish for full impact on the judges and audience.

### **Information**

- Be thoroughly informed on the attributes of eggs so judges' questions can be answered correctly.
- If an answer is not known, admit it without making erroneous or exaggerated statements.
- If questions are anticipated for which the contestant does not have an answer, contact the Extension Poultry Specialist prior to the contest for a complete explanation to the question.

### **Supportive Materials**

Many publications are available by associations and agencies that promote or educate consumers regarding the attributes of eggs and egg products. It is recommended that the local Extension office or Mississippi Extension Poultry Department be contacted as the initial source. Additional sources of information include:

Mississippi Egg Marketing Board  
 P.O. Box 1609  
 Jackson, MS 39205  
 Mississippi Poultry Association  
 P.O. Box 13309

**Jackson, MS 39236-3309  
American Egg Board  
1460 Renaissance Drive  
Park Ridge, IL 60068  
Egg Nutrition Center  
2501 M St N.W. #410  
Washington, D.C. 20037**

**Dr. Tom W. Smith, Emeritus Professor of Poultry Science, Mississippi State University. (2-97)**

---