



Maine Organic Farmers and Gardeners Association

PO Box 170, Unity, Maine 04988-0179 • Phone: (207) 568-4142

Fax: (207) 568-4141 • Email: mofga@mofga.org • Web: www.mofga.org

**MOFGA
Fact Sheets**
Download Fact
Sheets at
www.mofga.org

MOFGA FACT SHEET # 12

Cleaning, Grading and Hatching Eggs

By Diane Schivera, MAT

Revised June 2017

Introduction

Many natural barriers help prevent bacteria from entering eggs. The “bloom” or “cuticle,” a gelatinous covering that dries after the egg emerges from the hen, helps seal the pores in the shell, reducing moisture loss and bacterial penetration. The many egg membranes also help prevent the passage of bacteria. The shell membranes contain lysozyme, a substance that helps prevent bacterial infection. The egg white discourages bacterial growth because it is alkaline and binds nutrients in a form that bacteria can't use, and the thick white discourages the movement of bacteria. As the egg ages, the white thins and the yolk membrane weakens, enabling bacteria to reach the nutrient-dense yolk, where they can grow over time if the egg is kept warm. In a clean, fresh shell egg, internal contamination rarely occurs.

Cleaning Eggs

Care in the hen house helps to produce healthy eggs. Have one nest box for every four to five hens. Keep the bedding clean and deep. Collect eggs often and at least twice a day in the winter to prevent freezing. Don't stack eggs more than five layers deep when carrying them.

Some customers want unwashed eggs that are protected by the natural factors mentioned above. The quality of un-refrigerated eggs will decrease faster than refrigerated eggs, as the white gets thinner faster, but if refrigeration is not possible, these naturally protected eggs will keep well for many weeks or months. If you want to produce unwashed eggs, use sandpaper to remove small bits of dirt.

If you prefer to wash eggs, use water that is 20 degrees warmer than the egg and is at least 90°F, this will make the egg contents swell and push dirt away from the pores of the egg. If you have extremely dirty eggs, a mild detergent or sanitizer approved for washing eggs can be used. Sanitizers that are approved for use in organic production include bleach (6-7 drops to 1 gal. of water), vinegar (1/2 gal. to 1/2 gal. of water), or one of the following products mixed according to label instructions: sodium hypochlorite, potassium hydroxide, sodium

hydroxide, hydrogen peroxide, sodium bicarbonate, peracetic acid, or AFCCO 5242 Egg Wash.Org. Never let eggs sit in water, and don't submerge them; just have them in a colander and slosh them in the cleaner. Otherwise, once the temperature equalizes, the egg can absorb contaminants from the water. Cool and dry eggs quickly after washing, then store them, large end up, at 45°F, and at 75% relative humidity. Eggs sitting at room temperature can drop as much as one grade per day.

If eggs are stored properly in their own carton or other stable environment, they should hold a quality of Grade A for at least four weeks. Store eggs small end down in an egg carton to keep the aircell (the pocket of air inside the egg) stable, which should decrease breakdown of the egg white and decrease the possibility of contamination.

You can have your birds tested for salmonella by contacting the State Veterinarian, Michelle Walsh, at michele.walsh@maine.gov or 287-7615.

Packaging & Grading Eggs

The Maine Department of Agriculture requires that eggs offered for retail sale be labeled with:

- (a) Name and address of the person or persons responsible for packing
- (b) Grade (Eggs for sale must meet a minimum grade of B if they are sold any place other than the farm door.)
- (c) Size
- (d) Weight and count
- (e) Safe handling instruction (Keep refrigerated at 45° F or less.)

If you pack in used cartons, Maine requires that you obliterate any USDA shield; obliterate grade declarations and replace with “B,” then affix your label.



Egg candling

Certified organic eggs must have the same (a) Name and address (a1) must say Certified By MOFGA (or whoever your certifier is) directly below (a). The other requirements are the same for (b) through (e).

Grades are determined by candling (holding an egg in front of a light to be able to see inside, i.e., 60 watt bulb) to measure the air cell and determine the quality of the white and yoke, besides the cleanliness and shell quality. A Grade A egg is clean, unbroken, practically normal with an air cell less than 3/16 inch, has unlimited movement of the yoke within the white and is "free or bubbly," i.e., the white is not bound to the egg shell and can look bubbly when the egg is candled. The white must be clear and reasonably firm, the yolk free from defects. The Maine Department of Agriculture recommends that folks who cannot candle their eggs should label their eggs grade B, which includes all but the worst eggs. If you can candle your eggs, explicit rules dictate what is allowed for each grade. This information is available from the following sources:

- 1) USDA; www.usda.gov/
- 2) Maine Dept. of Agriculture; 287-3871;
<http://www.maine.gov/search:egg+regulations>
- 3) Diane Schivera – MOFGA; (207) 568-4142

Weight classes:

- Small – 1.4 oz./egg and 18.2 oz./dozen
- Medium – 1.7 oz./egg and 21.3 oz./dozen
- Large – 1.9 oz./egg and 24.3 oz./dozen
- Extra-large – 2.2 oz./egg and 27.3 oz./dozen
- Jumbo – 2.5 oz./egg and 30.4 oz./dozen

Another way to grade eggs according to USDA regulations is called "U.S. Nest Run % AA Quality," which:

"shall consist of eggs of current production of which at least 20 percent are AA quality; and the actual percentage of AA quality eggs shall be stated in the grade name. Within the maximum of 15 percent which may be below A quality, not more than 10 percent may be B quality for shell shape, pronounced ridges or thin spots, interior quality (including meat or blood spots), or due to rusty or blackish-appearing cage marks or blood stains, not more than 5 percent may have adhering dirt or foreign material on the shell 1/2 inch or larger in diameter, not more than 6 percent may be Checks [cracks], and not more than 3 percent may be Loss [losses from checks, dirt, etc.]. Marks which are slightly gray in appearance and adhering dirt or foreign material on the shell less than 1/2 inch in diameter are not considered quality factors. The eggs shall be officially graded for all other quality-factors. No case may contain less than 75 percent A quality and AA quality eggs in any combination."

The weight classes for Nest Run % AA Quality are:

- XL – 1.7lb./doz., 2.2 oz. each;
- 1 – 1.6 lbs. and 2.1 oz.;
- 2 – 1.5 lbs. and 2 oz.;
- 3 – 1.4 lbs. and 1.9 oz.;
- 4 – 1.3 lbs. and 1.8 ounces.

[From: [http://amsdev.ams.usda.gov/poultry/pdfs/Egg Grading manual.pdf&text](http://amsdev.ams.usda.gov/poultry/pdfs/Egg%20Grading%20manual.pdf&text)]

Restricted eggs and cracked, dirty, leakers, or incubator rejects can be sold only directly to the consumer. They must be labeled as Restricted.

Fresh eggs must be fewer than 30 days old; older eggs must be labeled as "Storage Eggs." Eggs that have been treated to inhibit natural deterioration must be labeled "Processed." The terms "fresh eggs," "strictly fresh eggs," "hennery eggs," "newlaid eggs," "farm fresh eggs," "selected eggs," "quality certified eggs," "nearby eggs," "native eggs" or words or descriptions of similar import shall not be used on any eggs that do not meet the minimum requirements for Maine consumer Grade A.

Blood or meat spots are found occasionally on an egg yolk and merely reflect either the genetics or age of the hen. They occur when a blood vessel ruptures on the yolk surface when it's being formed or by a similar accident in the wall of the oviduct.

Care of Eggs for Hatching

DO NOT wash eggs unless necessary. Store the clean, fertile eggs in an area that is kept at 55° to 60° F and at 70 to 75% humidity, never at temperatures above 75° F or at lower than 40% humidity. Store the eggs small end down and slanted at 30 to 45 degrees, and turn them daily. Putting a piece of 2" x 4" lumber under one end of the carton or storage container and moving it to the other end daily works well.

Do not store eggs for more than 10 to 14 days, since hatchability begins to decline significantly after 14 days. Just before setting eggs under a hen or in the incubator, let the eggs warm to room temperature (70° to 80° F) and remove any cracked eggs.

Some Natural Egg Dyes

If you want to use some natural pigments to color eggs, at Easter, for example, you can use the following dyes on hard-boiled eggs or on raw eggs that are not going to be eaten (since submerging raw eggs in dye may force pathogens into the egg). These pigments work best on white or light eggs. Yellow: To a cup of hot water, add 1 to 1-1/2 teaspoons of turmeric and 1/2 teaspoon vinegar.

Golden Tan: Save the skins from yellow onions. Add them to the water when you hard-boil your eggs.

Brown: To a cup of hot water, add 1 Tablespoon of instant coffee and 1/2 teaspoon vinegar.

Green: Soak your eggs in liquid chlorophyll (available from pet stores or drug stores).

Pretty Pastels: Rub blueberries and cranberries on the shells for soft blues and pink. Blend them for another pretty result.

For More Detailed Information:

Care of Hatching Eggs, Small Flock (Fact Sheet Number 8) by Phillip J. Clauer, Poultry Extension

Incredible Egg web site, www.aeb.org

Poultry Fact Sheets by Dr. Michael Opitz, University of Maine Cooperative Extension, mopitz@umext.maine.edu

Rosie's Easter Basket by Rosemary (Rosie) Winters, www.night.net/easter/eggcolor.html-ssi (information on dyeing eggs)

Specialist, Animal & Poultry Sciences Department, Virginia Tech Univ., www.ext.vt.edu/index.html

www.attra.org/attra-pub/egghandling.html

About the author: Diane Schivera is Organic Livestock Specialist for MOFGA as well as our resident eggspert! Call (207) 568-4142 or email dianes@mofga.org.