



Chicken Eggs



Written by:

Julia Darnton and Kendra Wills,
Michigan State University Extension
Community Food Systems Educators

Julia Darnton



Egg Carton Labels

Years ago, the information on chicken egg carton labels differed only in respect to the size of the egg (small, medium, large and jumbo) and the quantity in the package (a standard dozen or 18). Now, labels appearing on egg cartons in grocery stores, farmers markets and farm stands make a variety of claims about the eggs inside.

When you buy eggs directly from the farmer or farm, you have the opportunity to ask questions about the care, feeding and living conditions of the birds that produced the eggs. However, some egg carton labels can help answer some of those questions. One label associated with eggs addresses the hen's living conditions (for example, cage-free, free-range or pasture-raised). Unless noted on the packaging, you can assume that most eggs sold at large grocery stores come from large farms with caged hens. One of these large farms in Michigan is Herbruck's Poultry Ranch in Ionia County, which reports that the U.S. Department of Agriculture (USDA) closely monitors their operation for food safety.

Cage-free

Most large-scale commercially laid eggs are produced from chickens in cages. According to the University of Florida Extension, producers use cages to keep birds separated from their feces, to create safer working conditions, and to aid with production cost and efficiency. Cage-free birds usually roam within a building but not outside. The costs of management are higher for cage-free birds than for caged birds. This may translate to a higher cost for the eggs (Jacob & Miles, 2000, Nov.). The label "cage-free" does not tell the consumer about other inputs of feed or pharmaceuticals.^{1,2}

Free-range/Free-roaming

Experts in the poultry industry define free-range or free-roaming hens as hens that have access to roam outdoors for a part of the day (Jacob & Miles, 2000, Nov.). These hens

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¹ The USDA Agricultural Marketing Service (AMS) must verify the cage-free claim on packaging when it is made by large-scale USDA-inspected egg producers.

² The USDA verifies the pharmaceutical-free claim for organic eggs only.

Chicken Eggs

produce eggs that can be labeled as free-range eggs. Producers may still confine them to keep them safe from predators. The labels “free-range” or “free-roaming” do not tell the consumer about other inputs of feed or pharmaceuticals.

Pasture-raised

Experts define pasture-raised hens as hens kept in movable chicken coops that are rotated around a field (Jacob & Miles, 2000, Nov.). The coop keeps the birds safe from other animals and the elements but allows the birds access to different areas of the field. Pasture-raised birds may consume small insects as well as vegetation growing where the coop is located. The label “pasture-raised” does not tell the consumer about other inputs of feed or pharmaceuticals.

In addition to the three claims above, egg labels may also make claims about what the hens are fed or treated with. Chickens may or may not be fed from commercial feed, which is usually corn or soy based. Chicken feeds can also be made of organic ingredients, fortified with nutrients and vitamins, or mixed with other ingredients that change the composition of the egg. Eggs that make claims about cholesterol content or omega-3 fatty acids may come from chickens that have been fed chicken feed designed to produce these specific qualities in the egg. USDA-inspected producers must be able to verify these claims.

To prevent infection, particularly in large flocks, antibiotics can be included in the chicken feed or water and in some cases, through injection. For a full list of factors affecting the health of chickens, refer to the publication from the University of Florida Extension *Factors Affecting Egg Production in Backyard Chicken Flocks* (PS-35) at <http://edis.ifas.ufl.edu/ps029>.

Egg Safety Tips

You must handle fresh eggs carefully to avoid the possibility of foodborne illness. Even eggs with clean shells that aren't cracked may occasionally contain bacteria called salmonella that can cause an intestinal infection. Bacteria can multiply in temperatures from 40 °F to 140 °F, so be sure to store and serve eggs safely. Follow these tips for safe eggs:

- Purchase eggs from a refrigerated case or cooler.
- Open the carton and make sure the eggs are clean and the shells are not cracked.

- Refrigerate promptly after purchase. You may want to bring a cooler with you to the farmers market.
- For the best quality, use eggs within 3 weeks of purchase.
- Wash hands, equipment and work surfaces after they come in contact with eggs and egg-containing food.
- Cook eggs until both the yolk and white are firm. Scrambled eggs should not be runny.
- Casseroles and other dishes containing eggs should be cooked and served at 160 °F or warmer. Use a food thermometer to be sure. (USDA, 2012, Nov.)

Frequently Asked Questions About Eggs

Some common questions and answers about eggs follow:

Q. What is the difference between brown, white and other colored eggs?

- A. The hen's genetics and breeding determines the shell color of eggs. The shell color does not control the content of the egg. Eggs may be different on the outside but there is no difference in flavor or nutrition, or how one might consume them. According to research by Kansas State University into the link between cholesterol content of the egg and the eggshell color, “An egg is an egg no matter what color the shell” (Oklahoma State University Extension, n.d.).

Q. Are darker egg yolks an indication of a better egg?

- A. Certain chicken feeds have properties that result in changes in the yolk color. According to the University of Illinois Extension, “Birds that have access to green plants or have yellow corn or alfalfa in their feed tend to produce dark yolks” (University of Illinois Extension, n.d.).

Q. What is that white stringy thing in the egg? Is it okay to eat?

- A. That is the chalazae. They are actually two twisted cords that connect the yolk to the egg white. Feel free to eat the chalazae as part of the egg. Colorado State University Extension explains, “The more pronounced the chalazae, the fresher the egg!” (Colorado State University Extension, 2009)

Q. Are egg yolks healthy to eat?

- A. According to the Harvard School of Public Health, unless you are on a restricted diet because of a health condition like heart disease or challenges controlling cholesterol, the whole egg is a good source of protein and, in moderation,

Chicken Eggs

can be part of a healthy diet (Harvard School of Public Health, n.d.). While it is true that egg yolks are higher in calories, fat, saturated fat and cholesterol when compared to the egg white, the yolks also have more nutrients as well including calcium, vitamins A, B-6 and D.

Q. How long will eggs stay fresh?

A. According to the USDA, eggs will stay fresh in the refrigerator for a month but can stay fresh as long as 45 days from the day they were laid (USDA, 2013, Aug.). To keep eggs fresh, keep them in their carton in a refrigerator at a constant 40 °F. Cloudy whites signify very fresh eggs.

Q. Can I pickle eggs?

A. Yes. Check out the article from Michigan State University (MSU) Extension, which includes a recipe for refrigerated pickled eggs: http://msue.anr.msu.edu/news/extra_eggs_pickle_them

How to Hard-Boil an Egg

In a saucepan, place eggs in a single layer. Add enough water to cover at least one inch above the eggs. Quickly bring to a boil and turn off heat.

Cover pan and remove from burner. Let eggs stand in hot water (15 minutes for large eggs, 12 minutes for medium eggs and 18 minutes for extra-large eggs).

When the appropriate time is up, immediately run cold water over the eggs, or place them in ice water until completely cooled (about 15 minutes).

To remove the shell, crack it gently by tapping it all over. Roll the egg between your hands to loosen the shell.

Start peeling at the large end. To help ease off the shell, hold egg under running cold water or dip in a bowl of water.

If you don't want to use the eggs right away, store them in the refrigerator with the shells on for up to a week.

Locally grown food contributes to a healthier local economy. For more information about local and community-based food systems, contact a member of the Community Food Systems team from MSU Extension. For more information about how to keep eggs safe, consult information from the MSU Extension Food Safety Team. Call MSU Extension at 1-888-678-3464.

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Deviled Eggs

Serving Size: 1 egg (two filled halves)

Yield: 6 servings

6 large eggs, hard-boiled and peeled
1/4 cup mayonnaise
1/8 teaspoon salt
1/8 teaspoon pepper

Slice eggs into halves lengthwise. Remove yellow yolks and save whites.

Place yolks in a one-quart zip-lock-style bag. Add mayonnaise, salt and pepper. Press out air.

Close bag and knead (squeeze, massage and press) until ingredients are well blended. (Note: You can mix in a bowl instead.)

Push contents toward one corner of the bag. Cut about 1/2 inch off the corner of the bag. Squeezing the bag gently, fill reserved egg white hollows with the yolk mixture. (Note: If you use a bowl, use a spoon or small cookie scoop to fill the egg whites with the yolk mixture.)

Chill to blend flavors.

Nutrition information per serving: 140 calories; 110 calories from fat; 12 g total fat; 2.5 g saturated fat; 0 g trans fat; 215 mg cholesterol; 170 mg sodium; 0 g total carbohydrate; 0 g dietary fiber; 0 g sugars; 6 g protein.

Note: If making less than 6 eggs, use about 2 teaspoons of mayonnaise per egg.

To keep deviled eggs from tipping over, use a paring knife to trim a very thin slice off the bottom of the rounded side of the egg whites before filling them.

(Adapted from "Easy Egg Dishes: Deviled Eggs" by Alice Henneman of the University of Nebraska-Lincoln (UNL) at <http://food.unl.edu/fnh/deviled-eggs>. UNL adapted it from Kids a Cookin', Kansas Family Nutrition Program, available at Food Stamp Connection Recipe Finder: <http://recipefinder.nal.usda.gov/>.)



Broccoli-Cheddar Egg Frittata

Yield: 4 to 8 servings

1 package frozen chopped broccoli
1 small carrot, diced
1/4 cup water
8 eggs
1/4 cup milk
2 teaspoons prepared mustard
1 teaspoon seasoned salt
1/8 teaspoon pepper
3/4 cup shredded cheddar cheese
1 tablespoon chopped green onion
cooking spray

In a 10-inch nonstick skillet, combine broccoli, carrot and water. Cook over medium heat until tender about 10 minutes, stirring occasionally to break up broccoli. Drain well.

In a large bowl, beat eggs, milk, mustard, salt and pepper until blended. Add broccoli mixture, cheese and green onion; mix well.

Coat the same skillet with cooking spray. Heat over medium heat until hot. Pour in egg mixture. Cook over low to medium heat 8 to 10 minutes until eggs are almost set.

Remove from heat. Cover and let stand 8 to 10 minutes until eggs are completely set and no visible liquid egg remains. Cut into wedges and serve.

Nutrition information per serving: 257 calories; 17 g total fat; 8 g saturated fat; 2 g polyunsaturated fat; 6 g monounsaturated fat; 395 mg cholesterol; 677 mg sodium; 5 g carbohydrates; 2 g dietary fiber; 20 g protein; 1531.7 IU vitamin A; 94.6 IU vitamin D; 100.2 mcg folate; 270.1 mg calcium; 2.6 mg iron; 268.3 mg choline; 40.4 mg vitamin C; 3 IU vitamin E; 0 g trans fat; 2 g sugars; 339 mg potassium; 34.2 mg magnesium; 37 mcg selenium; 359.3 mg phosphorus; 1.2 mcg vitamin B-12; 61.8 mcg vitamin K; 0.3 mg vitamin B-6; 0.1 mg copper; 0.1 mg vitamin B-1 - thiamin; 0.3 mg manganese; 2.4 mg zinc; 0.6 mg vitamin B-2 - riboflavin; 4.7 mg vitamin B-3 - niacin; 0.3 g omega-3; 1.7 g omega-6.

(Adapted from "Broccoli-Cheddar Frittata" by the American Egg Board at www.incredibleegg.org/recipes/recipe/broccoli-cheddar-frittata.)



Find out more about Michigan Fresh at
msue.anr.msu.edu/program/info/mi_fresh.