



PhotoDisc

Chicken from Farm to Table

What's for dinner tonight? There's a good chance it's chicken — now the number one species consumed by Americans. Interest in the safe handling and cooking of chicken is reflected in the thousands of calls to the USDA Meat and Poultry Hotline. The following information answers many of the questions these callers have asked about chicken.

History & Definitions

The chicken is a descendant of the Southeast Asian red jungle fowl first domesticated in India around 2000 B.C. Most of the birds raised for meat in America today are from the Cornish (a British breed) and the White Rock (a breed developed in New England). Broiler-fryers, roasters, stewing/baking hens, capons and Rock Cornish hens are all chickens. The following are definitions for these:

- *Broiler-fryer* - a young, tender chicken about 7 weeks old; weighs 2 1/2 to 4 1/2 pounds when eviscerated. Cook by any method.
- *Rock Cornish Game Hen* - a small broiler-fryer; weighs between 1 and 2 pounds. Usually stuffed and roasted whole.
- *Roaster* - a young chicken between 8 and 12 weeks of age with a ready-to-cook carcass weight of 5 pounds or more. It yields more meat per pound than a broiler-fryer. Usually roasted whole.
- *Capon* - male chickens about 16 weeks to 8 months old; surgically unsexed. They weigh about 4 to 7 pounds and have generous quantities of tender, light meat. Usually roasted.
- *Stewing/Baking Hen* - a mature laying hen 10 months to 1 1/2 years old. Since the meat is less tender than young chickens, it's best when used in moist cooking such as stewing.
- *Cock or rooster* - a mature male chicken with coarse skin and tough, dark meat. Requires long, moist cooking.

Chicken Inspection



All chickens found in retail stores are either inspected by USDA or by State systems which have standards equivalent to the Federal government. Each chicken and its internal organs are inspected for signs of disease. The "Inspected for wholesomeness by the U.S. Department of Agriculture" seal ensures the chicken is free from visible signs of disease.

Chicken Grading



Inspection is mandatory but grading is voluntary. Chickens are graded according to the USDA Agricultural Marketing Service's regulations and standards for meatiness, appearance and freedom from defects. Grade A chickens have plump, meaty bodies and clean skin, free of bruises, broken bones, feathers, cuts and discoloration.

Fresh or Frozen

The term *fresh* on a poultry label refers to any raw poultry product that has never been held below 26 °F (-3.3). Raw poultry held at 0 °F (-17.8 °C) or below must be labeled *frozen* or *previously frozen*. No specific labeling is required on raw poultry stored at temperatures between 0 and -25 °F (-17.8 °C and -3.9 °C).

Dating of Chicken Products

Product dating is not required by Federal regulations, but many stores and processors voluntarily date packages of chicken or chicken products. If a calendar date is shown, there must be a phrase immediately adjacent to the date that explains the meaning of that date, such as *sell by* or *use before*.

The use-by date is for quality assurance; after the date, peak quality begins to lessen, but the product may still be used. It's always best to buy a product before the date expires. If a use-by date expires while the chicken is frozen, the food can still be used because foods kept frozen continuously are safe indefinitely.

Hormones & Antibiotics

No hormones are used in the raising of chickens.

Antibiotics may be used to prevent disease and increase feed efficiency. Before the bird can be slaughtered, a "withdrawal" period is required from the time antibiotics are administered. This ensures that no residues are present in the bird's system. FSIS randomly samples poultry at slaughter and tests for residues. Data from this monitoring program have shown a very low percentage of residue violations.

Additives

Additives are not allowed on fresh chicken. However, if chicken is processed, additives such as MSG, salt, or sodium erythorbate may be added but must be listed on the label.

Foodborne Organisms Associated with Chicken

As on any perishable meat, fish or poultry, bacteria can be found on raw or undercooked chicken. They multiply rapidly at temperatures between 40 °F and 140 °F (4.4 °C and 60 °C) -- out of refrigeration and before thorough cooking occurs. Freezing doesn't kill bacteria but they are destroyed by thorough cooking.

USDA's Food Safety and Inspection Service (FSIS) has a zero tolerance for certain pathogens, including *Salmonella* and *Listeria monocytogenes*, in cooked and ready-to-eat products, such as chicken franks or lunch meat, that can be eaten without further cooking.

Most foodborne illness outbreaks are a result of improper handling or contamination when meals are prepared. Sanitary food handling and proper cooking and refrigeration should prevent foodborne illnesses.

Bacteria must be consumed on food to cause foodborne illness. They cannot enter the body through a skin cut. However, raw poultry must be handled carefully to prevent cross-contamination. This can occur if raw poultry or its juices come in contact with cooked food or foods that will be eaten raw, such as salad. An example of this is using a cutting board to chop raw chicken and then using the same board to chop tomatoes without washing the board first.

The following are some bacteria associated with raw chicken:

- *Salmonella* Enteritidis may be found in the intestinal tracts of livestock, poultry, dogs, cats, and other warm-blooded animals. This strain is only 1 of about 2,000 kinds of *Salmonella* bacteria; it is often associated with poultry and shell eggs. FSIS requires poultry establishments to meet *Salmonella* performance standards as a means of verifying that production systems are effective in controlling contamination by this pathogenic organism. Agency inspection personnel conduct *Salmonella* testing in poultry establishments to verify compliance with the *Salmonella* standard.

- *Staphylococcus aureus* can be carried on human hands, in nasal passages, or in throats. The bacteria are found in foods made by hand and then improperly refrigerated, such as chicken salad.
- *Campylobacter jejuni* is one of the most common causes of diarrheal illness in humans. Preventing cross-contamination and using proper cooking methods reduces infection by this bacterium. As with *Salmonella*, FSIS requires poultry establishments to meet *Campylobacter* performance standards and conduct in-plant testing to verify compliance.
- *Listeria monocytogenes* was recognized as causing human foodborne illness in 1981. It is destroyed by cooking, but a cooked product can be contaminated by improper handling or poor sanitary practices in food preparation and storage areas. The risk from *L. monocytogenes* can increase when it has the opportunity to grow on a food product in storage, so take care to observe “keep refrigerated” and “use-by” dates on labels. FSIS requires establishments producing ready-to-eat (RTE) poultry products, such as deli meats and hot dogs, to maintain a system of controls that destroy or suppress the growth of the organism. FSIS verifies that controls are in place and effective at controlling the organism.
- *Escherichia coli* (*E. coli*) is a type of bacteria that normally live in the intestines of animals and humans. There are hundreds of different kinds, or strains, of *E. coli* some of which can be harmful, but most are not. Animal meats may become contaminated with this bacterium during the slaughter process.
- The presence of *E.coli*, although an indicator organism for fecal matter, does not mean the product is, in fact, contaminated by feces. *E.coli* that is present in feathers, or environmental contaminants, like dust, can also contaminate a poultry carcass. As part of poultry inspection procedures, FSIS enforces a “zero tolerance” standard for visible fecal material on poultry carcasses. It also requires slaughter establishments to perform microbiological testing for generic *E.coli* on carcasses to verify that slaughter processes are under control for the prevention and removal of fecal contamination.

Safe food handling and proper cooking will help keep you and your family safe from foodborne bacteria. Follow the four food safety steps of USDA’s Food Safe Families campaign.

Clean: Wash hands and surfaces often.

Separate: Separate raw meats and poultry from other foods.

Cook: Cook all poultry to an internal temperature of 165 °F (73.9 °C).

Chill: Refrigerate promptly.

Rinsing or Soaking Chicken

Washing raw poultry before cooking it is not recommended. Bacteria in raw meat and poultry juices can be spread to other foods, utensils, and surfaces. This is called cross-contamination. Rinsing or soaking chicken does not destroy bacteria. Only cooking will destroy any bacteria that might be present on fresh chicken.

Liquid in Package

Many people think the pink liquid in packaged fresh chicken is blood; however, it is mostly water which was absorbed by the chicken during the chilling process. Blood is removed from poultry during slaughter and only a small amount remains in the muscle tissue. An improperly bled chicken has cherry red skin and is condemned at the plant.

How to Handle Chicken Safely

Fresh Chicken: Chicken is kept cold during distribution to retail stores to prevent the growth of bacteria and to increase its shelf life. Chicken should feel cold to the touch when purchased. Select fresh chicken just before checking out at the register. Put packages of chicken in disposable plastic bags (if available) to contain any leakage which could cross-contaminate cooked foods or produce. Make the grocery store your last stop before going home.

At home, immediately place chicken in a refrigerator that maintains a temperature of 40 °F (4.4 °C) or below. Use it within 1 or 2 days, or freeze it at 0 °F. (-17.8 °C) If kept frozen continuously, it will be safe indefinitely.

Chicken may be frozen in its original packaging or repackaged. If freezing chicken longer than 2 months, overwrap the porous store plastic packages with airtight heavy-duty foil, plastic wrap or freezer paper, or place the package inside a freezer bag. Use these materials or airtight freezer containers to freeze the chicken from opened packages or repackage family packs of chicken into smaller amounts.

Proper wrapping prevents “freezer burn,” which appears as grayish-brown leathery spots and is caused by air reaching the surface of food. Cut freezer-burned portions away either before or after cooking the chicken. Heavily freezer-burned products may have to be discarded because they might be too dry or tasteless.

Ready-Prepared Chicken: When purchasing fully cooked rotisserie or fast food chicken, be sure it is hot at the time of purchase. Use it within 2 hours or cut it into several pieces and refrigerate in shallow, covered containers. Eat within 3 to 4 days, either cold or reheated to 165 °F (73.9 °C). It is safe to freeze ready-prepared chicken. For best quality, flavor, and texture, use it within 4 months.

Safe Thawing

FSIS recommends three ways to thaw chicken: in the refrigerator, in cold water and in the microwave. Never thaw chicken on the counter or in other locations. It's best to plan ahead for slow, safe thawing in the refrigerator. Boneless chicken breasts, bone-in parts, and whole chickens may take 1 to 2 days or longer to thaw. Once the raw chicken thaws, it can be kept in the refrigerator an additional day or two before cooking. During this time, if chicken thawed in the refrigerator is not used, it can safely be refrozen without cooking it first.

Chicken may be thawed in cold water in its airtight packaging or in a leak-proof bag. Submerge the bird or cut-up parts in cold water, changing the water every 30 minutes to be sure it stays cold. A whole (3- to 4-pound) broiler fryer or package of parts should thaw in 2 to 3 hours. A 1-pound package of boneless breasts will thaw in an hour or less. Cook immediately after thawing.

Chicken that was thawed in the microwave should be cooked immediately after thawing because some areas of the food may become warm and begin to cook during microwaving. Holding partially cooked food is not recommended because any bacteria present wouldn't have been destroyed. Foods defrosted in the microwave or by the cold water method should be cooked before refreezing.

Do not cook frozen chicken in a slow cooker or in the microwave; thaw it before cooking). However, chicken can be cooked from the frozen state in the oven or on the stove. The cooking time may be about 50 percent longer.

APPROXIMATE CHICKEN COOKING TIMES

Safe Cooking: FSIS recommends cooking whole chicken to a safe minimum internal temperature of 165 °F (73.9 °C) as measured with a food thermometer. Check the internal temperature in the innermost part of the thigh and wing and the thickest part of the breast. For reasons of personal preference, consumers may choose to cook poultry to higher temperatures.

For approximate cooking times to use in meal planning, see the following chart compiled from various resources.

| TYPE OF CHICKEN | WEIGHT | ROASTING 350 °F (176.7 °C) | SIMMERING | GRILLING |
|-------------------------|--------------|-------------------------------|-----------------|--------------------|
| Whole broiler-fryer* | 3 to 4 lbs. | 1 1/4 - 1 1/2 hrs. | 60 to 75 min. | 60 to 75 min.** |
| Whole roasting hen* | 5 to 7 lbs. | 2 to 2 1/4 hrs. | 1 3/4 to 2 hrs. | 18 to 25 min./lb** |
| Whole capon* | 4 to 8 lbs. | 2 to 3 hrs | Not suitable | 15 to 20 min./lb** |
| Whole Cornish hens* | 18 to 24 oz. | 50 to 60 min. | 35 to 40 min. | 45 to 55 min.** |
| Breast halves, bone-in | 6 to 8 oz. | 30 to 40 min. | 35 to 45 min. | 10 to 15 min./side |
| Breast halves, boneless | 4 oz. | 20 to 30 min. | 25 to 30 min. | 6 to 8 min./side |
| Legs or thighs | 4 to 8 oz. | 40 to 50 min. | 40 to 50 min. | 10 to 15 min./side |
| Drumsticks | 4 oz. | 35 to 45 min. | 40 to 50 min. | 8 to 12 min./side |
| Wings or wingettes | 2 to 3 oz. | 30 to 40 min. | 35 to 45 min. | 8 to 12 min./side |

* Unstuffed. If stuffed, add an additional 15 to 30 minutes.

** Indirect method using drip pan.

Microwave Directions:

- Microwave on medium-high (70 percent power): whole chicken, 9 to 10 minutes per pound; bone-in parts and Cornish hens, 8 to 9 minutes per pound; boneless breasts halves, 6 to 8 minutes per pound.
- Place whole chicken in an oven cooking bag or in a covered microwavable pot.
- Do not microwave a stuffed chicken. Food cooks so quickly in a microwave oven, that the stuffing might not have enough time to reach the safe minimum internal temperature needed to destroy harmful bacteria.
- When microwaving parts, arrange in a dish or on a rack so thick parts are toward the outside of dish and thin or bony parts are in the center.
- For boneless breast halves, place in a dish with 1/4 cup water; cover with plastic wrap.
- Allow 10 minutes standing time for bone-in chicken; 5 minutes for a boneless breast.
- The USDA recommends cooking whole poultry to a safe minimum internal temperature of 165 °F (73.9 °C) as measured using a food thermometer. Check the internal temperature in the innermost part of the thigh and wing and the thickest part of the breast. When cooking pieces, the breasts, drumsticks, thighs, and wings should be cooked until they reach a safe minimum internal temperature of 165 °F (73.9 °C). For reasons of personal preference, consumers may choose to cook poultry to higher temperatures.

Stuffed Chicken

The Hotline does not recommend buying a whole, uncooked chicken stuffed at the grocery store because of the highly perishable nature of a previously stuffed item. Consumers should not pre-stuff whole chicken to cook at a later time. Chicken can be stuffed immediately before cooking. Some USDA-inspected frozen stuffed whole poultry **MUST** be cooked from the frozen state to ensure a safely cooked product. Follow preparation directions on the label.

To stuff a whole chicken at home, cook any raw meat, poultry, or shellfish ingredients for the stuffing to reduce the risk of foodborne illness from bacteria that may be found in raw ingredients. The wet ingredients for stuffing can be prepared ahead of time and refrigerated. However, do not mix wet and dry ingredients until just before spooning the stuffing mixture into the chicken cavity. Immediately cook the stuffed, raw chicken in an oven set no lower than 325 °F (162.8 °C).

Do not microwave a stuffed chicken. Food cooks so quickly in a microwave oven, the stuffing might not have enough time to reach the safe minimum internal temperature needed to destroy harmful bacteria.

Marinating

Chicken may be marinated in the refrigerator for up to 2 days. Boil used marinade before brushing it on cooked chicken. Discard any uncooked leftover marinade.

Partial Cooking

Never brown or partially cook chicken to refrigerate and finish cooking later because any bacteria present wouldn't have been destroyed. It is safe to partially pre-cook or microwave chicken immediately before transferring it to the hot grill to finish cooking.

Color of Skin

Chicken skin color varies from cream-colored to yellow. Skin color is a result of the type of feed eaten by the chicken, not a measure of nutritional value, flavor, tenderness or fat content. Color preferences vary in different sections of the country, so growers use the type of feed which produces the desired color.

Dark Bones

Darkening around bones occurs primarily in young broiler-fryers. Since their bones have not calcified completely, pigment from the bone marrow can seep through the porous bones. Freezing can also contribute to this seepage. When the chicken is cooked, the pigment turns dark. It's perfectly safe to eat chicken meat that turns dark during cooking.

Pink Meat

The color of cooked chicken is not a sign of its safety. Only by using a food thermometer can one accurately determine that chicken has reached a safe minimum internal temperature of 165 °F (73.9 °C) throughout. The pink color in safely cooked chicken may be due to the hemoglobin in tissues which can form a heat-stable color. Smoking or grilling may also cause this reaction, which occurs more in young birds.

Storage Times

Product dates aren't a guide for the safe use of a product or how long the consumer can store the food and still use it at top quality. Instead, follow these tips:

- Purchase the product before the date expires.
- Follow handling recommendations on product.
- Keep chicken in its package until using.
- Freeze chicken in its original packaging, overwrap or re-wrap it according to directions in the above section, "How to Handle Chicken Safely."

HOME STORAGE OF CHICKEN PRODUCTS

| PRODUCT | REFRIGERATOR 40 °F (4.4 °C) or below | FREEZER 0 °F (-17.8 °C) or below |
|----------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------|
| Fresh Chicken, whole | 1 to 2 days | 1 year |
| Fresh Chicken, parts | 1 to 2 days | 9 months |
| Giblets or Ground Chicken | 1 to 2 days | 3 to 4 months |
| Cooked Chicken, Leftover | 3 to 4 days | 4 months |
| Chicken Broth or Gravy | 3 to 4 days | 2 to 3 months |
| Cooked Chicken Casseroles, Dishes or Soup | 3 to 4 days | 4 to 6 months |
| Cooked Chicken Pieces, covered with broth or gravy | 3 to 4 days | 6 months |
| Cooked Chicken Nuggets, Patties | 3 to 4 days | 1 to 3 months |
| Fried Chicken | 3 to 4 days | 4 months |
| Take-Out Convenience Chicken (Rotisserie, Fried, etc.) | 3 to 4 days | 4 months |
| Restaurant Chicken Leftovers, brought immediately home in a "Doggy Bag" | 3 to 4 days | 4 months |
| Store-cooked Chicken Dinner, including gravy | 3 to 4 days | 2 to 3 months |
| Chicken Salad | 3 to 5 days | Do not freeze if it con- tains mayonnaise |
| Deli-sliced Chicken Luncheon Meat | 3 to 5 days | 1 to 2 months |
| Chicken Luncheon Meat, sealed in package | 2 weeks (but no longer than 1 week after a "sell-by" date) | 1 to 2 months |
| Chicken Luncheon Meat, after opening | 3 to 5 days | 1 to 2 months |
| Vacuum-packed Dinners, Commercial brand with USDA seal | Unopened 2 weeks Opened 3 to 4 days | 4 months |
| Chicken Hotdogs, unopened | 2 weeks (but no longer than 1 week after a "sell-by" date) | 1 to 2 months |
| Chicken Hotdogs, after opening | 1 week | 1 to 2 months |
| Canned Chicken Products | 2 to 5 years in pantry | Do not freeze in can. |

Color of Giblets

Giblet color can vary, especially in the liver, from mahogany to yellow. The type of feed, the chicken's metabolism and its breed can account for the variation in color. If the liver is green, do not eat it. This is due to bile retention. However, the chicken meat should be safe to eat.

Fatty Deposits

Chickens may seem to have more fatty deposits or contain a larger "fat pad" than in the past. This is because broiler-fryer chickens have been bred to grow very rapidly to supply the demand for more chicken. Feed that is not converted into muscle tissue (meat) is metabolized into fat. However, the fat is not "marbled" into the meat as with beef or other red meat, and can be easily removed. Geneticists are researching ways to eliminate the excess fat.

Trisodium Phosphate

Food-grade trisodium phosphate (TSP) is among several antimicrobial agents that have been approved by FDA. It is "generally recognized as safe" (GRAS) and has been safely used for years, particularly in processed cheese. TSP is used in poultry slaughter as an antimicrobial agent for raw poultry carcasses. When immersed in and/or sprayed in a dilute solution on chickens, it can significantly reduce bacteria levels.

To read about other antimicrobials, see that section in the document "Safe and Suitable Ingredients Used in the Production of Meat, Poultry, And Egg Products" at www.fsis.usda.gov/OPPDE/rdad/FSISDirectives/7120.1.pdf

Irradiation of Poultry

In 1992, the USDA approved a rule to permit the irradiation of raw, fresh, or frozen packaged poultry to control certain common bacteria on raw poultry that can cause illness when poultry is undercooked or otherwise mishandled. Irradiation at 1.5 to 3.0 kilo Gray, the smallest, most practical "dose," would eliminate more than 99 percent of Salmonellae organisms on the treated poultry.

Packages of irradiated chicken are easily recognizable at the store because they must carry the international radura symbol along with the statement, "treated with irradiation" or "treated by irradiation."



Food Safety Questions?

Call the USDA Meat & Poultry Hotline

If you have a question about meat, poultry, or egg products, call the USDA Meat and Poultry Hotline toll free at **1-888-MPHotline (1-888-674-6854)**. The hotline is open year-round



Monday through Friday from 10 a.m. to 4 p.m. ET (English or Spanish). Recorded food safety messages are available 24 hours a day. Check out the FSIS Web site at

www.fsis.usda.gov.

Email questions to MPHotline.fsis@usda.gov.

AskKaren.gov

FSIS' automated response system can provide food safety information 24/7 and a live chat during Hotline hours.



Mobile phone users can access m.askkaren.gov.

PregunteleaKaren.gov