



## Focus On: Chicken

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 thousands of calls to the USDA Meat and Poultry Hotline, second only to turkey in number of specific inquiries. 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 which weighs 2 1/2 to 4 1/2 pounds when eviscerated. Cook by any method.
- *Rock Cornish Game Hen* - a small broiler-fryer weighing between 1 and 2 pounds. Usually stuffed and roasted whole.
- *Roaster* - an older chicken about 3 to 5 months old which weighs 5 to 7 pounds. It yields more meat per pound than a broiler-fryer. Usually roasted whole.
- *Capon* - Male chickens about 16 weeks to 8 months old which are 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 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 insures the chicken is free from visible signs of disease.

### Chicken Grading

Inspection is mandatory but grading is voluntary. Chickens are graded according to USDA Agricultural Marketing Service 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 below 26 °F. Raw poultry held at 0 °F or below must be labeled *frozen* or *previously frozen*. No specific labeling is required on raw poultry stored at temperatures between 0-25 °F.

### **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, immediately adjacent to the date there must be a phrase explaining 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.

### **Hormones & Antibiotics**

No hormones are used in the raising of chickens.

Antibiotics may be given to prevent disease and increase feed efficiency. A "withdrawal" period is required from the time antibiotics are administered before the bird can be slaughtered. 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. If chicken is processed, however, 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 (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 has a zero tolerance for bacteria 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 contamination from food handlers. Sanitary food handling and proper cooking and refrigeration should prevent foodborne illnesses.

Bacteria must be consumed on food to cause 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 contact cooked food or foods that will be eaten raw such as salad. An example of this is chopping tomatoes on an unwashed cutting board just after cutting raw chicken on it.

### **Following are some bacteria associated with chicken:**

- *Salmonella* Enteritidis may be found in the intestinal tracts of livestock, poultry, dogs, cats and other warm-blooded animals. This strain is only one of about 2,000 kinds of *Salmonella* bacteria; it is often associated with poultry and shell eggs.

- *Staphylococcus aureus* can be carried on human hands, in nasal passages, or in throats. The bacteria are found in foods made by hand and 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.
- *Listeria monocytogenes* was recognized as causing human foodborne illness in 1981. It is destroyed by cooking, but a cooked product can be contaminated by poor personal hygiene. Observe "keep refrigerated" and "use-by" dates on labels.

### **Rinsing or Soaking Chicken**

It is not necessary to wash raw chicken. Any bacteria which might be present are destroyed by cooking.

### **Liquid in Package**

Many people think the pink liquid in packaged fresh chicken is blood, but 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 would have 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 your last stop before going home.

At home, immediately place chicken in a refrigerator that maintains 40 °F, and use within 1 or 2 days, or freeze at 0 °F. If kept frozen continuously, it will be safe indefinitely.

Chicken may be frozen in its original packaging or repackaged. If freezing longer than two months, over wrap 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 repackage family packs into smaller amounts or freeze the chicken from opened packages.

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 time of purchase. Use it within two 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 (hot and steaming). It is safe to freeze ready-prepared chicken. For best quality, flavor and texture, use within 4 months.

### **Safe Defrosting**

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

Chicken may be defrosted 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 defrost in 2 to 3 hours. A 1-pound package of boneless breasts will defrost in an hour or less.

Chicken defrosted 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 the microwave or in a slow cooker. However, chicken can be cooked from the frozen state in the oven or on the stove. The cooking time may be about 50% longer.

### **Stuffed Chicken**

The Hotline does not recommend buying retail-stuffed fresh whole chicken 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.

### **Marinating**

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

### **Safe Cooking**

FSIS recommends cooking whole chicken to a safe minimum internal temperature of 165 °F 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. 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.

Approximate Chicken Cooking Times				
Type of Chicken	Weight	Roasting 350 °F	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.	18-25 min/lb*
Whole capon+	4 to 8 lbs.	2 to 3 hrs	Not suitable	15-20 min/lb*
Whole Cornish hens+	18-24 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 - 15 min/side
Breast half, boneless	4 ounces	20 to 30 min.	25 to 30 min.	6 to 8 min/side
Legs or thighs	8 or 4 oz.	40 to 50 min.	40 to 50 min.	10 - 15 min/side
Drumsticks	4 ounces	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 15 to 30 minutes additional time.

\* 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.
- When microwaving parts, arrange in dish or on rack so thick parts are toward the outside of dish and thin or bony parts are in the center.
- Place whole chicken in an oven cooking bag or in a covered pot.
- 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 boneless breast.
- The USDA recommends cooking whole poultry to a safe minimum internal temperature of 165 °F 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 breast, drumsticks, thighs, and wings should be cooked until they reach a safe minimum internal temperature of 165 °F. For reasons of personal preference, consumers may choose to cook poultry to higher temperatures.

### 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 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.

### **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 is 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) has been approved by FSIS for use in poultry slaughter as an antimicrobial agent. When immersed in and/or sprayed in a dilute solution on chickens, it can significantly reduce bacteria levels. TSP is "generally recognized as safe" (GRAS) by the FDA, and has been safely used for years, particularly in processed cheese.

### **Irradiation of Poultry**

In 1992, the USDA approved a rule to permit 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."

### **Storage Times**

Since product dates aren't a guide for safe use of a product, how long can the consumer store the food and still use it at top quality? 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".

<b>Refrigerator Home Storage (at 40° F or below) of Chicken Products</b>	
<b>Product</b>	<b>Refrigerator Storage Times</b>
Fresh Chicken, Giblets or Ground Chicken	1 to 2 days
Cooked Chicken, Leftover	3 to 4 days
Chicken Broth or Gravy	1 to 2 days
Cooked Chicken Casseroles, Dishes or Soup	3 to 4 days
Cooked Chicken Pieces, covered with broth or gravy	1 to 2 days
Cooked Chicken Nuggets, Patties	1 to 2 days
Fried Chicken	3 to 4 days
Take-Out Convenience Chicken (Rotisserie, Fried, etc.)	3 to 4 days
Restaurant Chicken Leftovers, brought immediately home in a "Doggy Bag"	3 to 4 days
Store-cooked Chicken Dinner including gravy	1 to 2 days
Chicken Salad	3 to 5 days
Deli-sliced Chicken Luncheon Meat	3 to 5 days
Chicken Luncheon Meat, sealed in package	2 weeks (but no longer than 1 week after a "sell-by" date)
Chicken Luncheon Meat, after opening	3 to 5 days
Vacuum-packed Dinners, Commercial brand with USDA seal	Unopened 2 weeks Opened 3 to 4 days
Chicken Hotdogs, unopened	2 weeks (but no longer than 1 week after a "sell-by" date)
Chicken Hotdogs, after opening	7 days
Canned Chicken Products	2 to 5 years in pantry

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