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SAFE HOME PROCESSING OF POULTRY

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Introduction

4-H youths raise poultry every year as projects for county or state fair exhibits. After the fair, some birds may be processed either for immediate consumption or for future use. Future Farmers of America (FFA) youth in some states annually raise around a hundred broilers per person through their local schools as a school project. In some states they may also participate every year in state broiler contests. After the contest, the remaining birds are processed at small processing plants or at home. Some of these birds may also be sold in the community.

Small flock poultry owners raise broiler chickens either for home consumption or for local sale in their communities. Dr. Varghese assists these groups with educational programs in poultry nutrition and management, but food safety issues were not given much priority in the past.

Some people prefer to cook and eat freshly processed poultry rather than frozen, if it is readily available, because freshly processed poultry normally tastes better if it is handled right. Commercially processed poultry from supermarkets is readily available at a reasonable price. These commercial birds are processed and transported under very stringent sanitary conditions applying best quality management practices and giving food safety issues top consideration at every step of the way. Commercial poultry operations and processing plants in the United States have implemented HACCP (Hazard Analysis of Critical Control Points) in recent years. Home processing of poultry is permissible for consumption and for sale on a small scale in most states, provided that it is done with utmost care and vigilance.

Regulations

When you may raise poultry in the backyard depends on local township ordinances. Under federal regulations (Federal Register, May 16, 1972), you may home process (kill and dress) up to 1,000 chickens, ducks or geese, or 250 turkeys for sale and be exempt from federal inspection. This rule has been modified and, as it appears now, as many as 1,000 birds (irrespective of the species) can be processed under this regulation (Code of Federal Regulations, Title 9, Part 381.1;2001). If distribution is through channels such as grocery stores, labeling should list the producer's name and address and the word "exempted". Such processed poultry would, of course, be subject to seizure and removal from sale if it were found to be contaminated or otherwise unfit for human consumption. Uninspected poultry is not allowed to move in interstate commerce. The food division of some state departments of agriculture inspects small processing plants for their sanitary conditions. Such operations need to obtain a license from the state and meet any additional state labeling requirements. Contact your local authorities for further information.

Few small processing plants specializing in poultry are doing business in the United States. It may not be practical or economical for the small poultry producer to take a handful of chickens or other poultry to a processing plant. Transportation to the processing plant could cause stress on the individual birds, and harmful pathogens may contaminate the carcasses. Precautionary measures would have to be taken during the transportation of birds to the processing plant and also during transportation of the carcasses back home. Thus, home processing of poultry can be justified, provided proper procedures are followed.

Public Health Problem

Food-borne illness is a significant public health problem in the United States. The Centers for Disease Control estimates that food-borne microbial pathogens may cause up to 80 million cases of illness. Of these, some 325,000 result in people being hospitalized, and 5,000 deaths occur each year (CDC, 1999 report). Several food safety-related recalls of hamburger meat and turkey products have occurred in the United States since 1998. Food safety factors in poultry need to be taken very seriously by everyone at every step from live bird to cooked food.

Harmful bacteria that cause food-borne illnesses:

Campylobacter jejuni

Clostridium botulinum

Clostridium perfringens

Escherichia coli 0157:H7 (and other E.coli types)

Listeria monocytogenes

Salmonella (more than 300 types)

Shigella

Staphylococcus aureus

Of the above, *Campylobacter jejuni, Clostridium, Listeria monocytogenes* and *Salmonella* are common bacteria that affect poultry and poultry products. They are often found in dirt, dust and manure. Eggs are affected mostly by *Salmonella enteritidis*, which may be transmitted into the eggs through the hen.

Bacteria are microorganisms that are too small to be detected by the naked eye. They are everywhere, especially in the poultry house and on the birds, and frequently in the manure. They are also present in the digestive tract (the gut) of poultry.

Regardless of where *Campylobacter* comes from, it is present in most flocks at the end of grow-out. There is an apparent seasonal effect — more *Campylobacter* is isolated in poultry and poultry products in warmer months than in colder months (Jacob-Restima et al., 1994; Stern, 1995; Willis and Murray, 1997). Feed withdrawal, transport and holding prior to slaughter cause an increase in the incidence of *Campylobacter* (Byrd et al., 1998) on the carcass. Cross-contamination is the process by which bacteria are transferred from a contaminated source to a non-contaminated source. It can occur during processing, storage and after cooking. Care needs to be taken during these steps to prevent such problems.

The Presidential Commission on Food Safety developed an educational tool called **Fight BAC.** The message of this campaign is to fight bacteria every possible way. **Fight BAC** materials are available from the **Partnership for Food Safety Education Web site: < www.fightbac.org > .**

Poultry meat can be cooked in many ways and is very nutritious, but it needs to be wholesome to be consumed safely. Senior citizens, young children and people with weakened immune systems are most susceptible to problems from food-borne bacteria.

Cooking food to the proper temperature kills harmful bacteria. Cook thoroughly. Ground chicken and turkey should be cooked until the internal temperature reaches 165 degrees F. Whole chickens, ducks and turkeys (unstuffed) should be cooked until the internal temperature reaches 180 degrees F. Breast and dark meat should be cooked to 170 degrees F and 180 degrees F, respectively. Stuffing should always be cooked separately to 165 degrees F. (A cooking chart is given in the "Fight BAC" material.)

Slaughtering

Several steps are involved in slaughtering poultry, each of which is covered in detail in the following sections. The materials needed for slaughtering poultry are listed in Appendixes I and III. The process should not be interrupted for breaks or meals from the time of stunning through chilling.

1. Preparing Poultry

To prepare the birds for slaughter, withdraw feed at least 12 hours prior to killing, but make sure drinking water is available to the birds at all times. Feed is removed to make sure that the digestive tract is almost empty to reduce fecal material (manure) in the gut. Fecal material may contain harmful bacteria that could contaminate the carcass during processing.

The birds should be caught carefully without causing any damage to the body. Try to catch them by the shank to avoid bruises to the body. Bruises could easily show on carcasses and make the meat unfit to eat. Stressed birds are more susceptible to harmful bacteria, so you want to prevent stress prior to slaughter. Collect the birds individually. Place the birds in a ventilated commercial crate to transport them to the slaughtering site.

Prepare the site for processing the birds in advance. Processing may be done in a barn, in a garage (if the birds are small in number and in size) or just in a corner of the backyard, away from public view. The facility should be enclosed and well ventilated and have a supply of hot and cold water. A countertop or table should be available. The site for processing the birds should be cleaned and sanitized (using a 10 percent bleach solution) before you start the processing. Wear clean clothes or a clean apron, and clean shoes or boots with water to remove dirt and fecal material from the poultry house. Step into a pan of disinfectant before you enter the slaughtering room **(Fig. 1)** — this will reduce the pathogen level that you carry into the room. Make sure to wash your hands with soap and hot water thoroughly before carrying out the various steps.


Fig. 1

2. Humane Stunning

To be humane, perform cervical dislocation of the bird before cutting the jugular vein. The bird then feels no pain because the nervous system is cut off. Cervical dislocation is not accomplished until neck bones are separated and the head swings freely. The jugular vein should be cut immediately after dislocation. Cervical dislocation is easy to do in small birds such as quail, pigeon, pheasant and smaller chickens by the method described below. It is more difficult to do on turkeys and other large fowl. In such cases, decapitation may be performed. Pressing the neck joint adjacent to the head against a sharp edge of the cage can also cause cervical dislocation in smaller birds such as quail, pigeon, Cornish hen, etc.

WARNING: Attempt cervical dislocation only after learning the procedure properly from a trained and experienced person. Otherwise your procedure may be inhumane.

Cervical dislocation

Hold the legs of the bird firmly in your left hand and lift up the bird to your chest area. The bird's head is now in a downward position and the tail is upward. Use your right hand to grasp the head of the bird firmly and slightly tilt the head upward and then pull it down with a jerk **(Fig. 2)**. This will dislocate the neck at the joint to the head. The pressure you should apply depends on the size of the bird. The head is still attached to the neck outwardly, but internally the neck and head are separated.


Fig. 2

Decapitation

In the case of larger fowl such as turkey, geese, etc., cervical dislocation may be difficult to accomplish. For these birds, decapitation using a funnel may be suitable **(Fig. 3)**. The head of the bird is passed through the small hole of the funnel and the head together with the funnel is placed on a cutting board on the table. Use a sharp ax or a hatchet to cut off the head at the joint of the neck by a single blow. This method reduces the struggle of the bird because it does not have much space to move its wings. The size of the funnel depends on the size of the birds. A large funnel is needed for larger fowl such as roasters and turkeys.

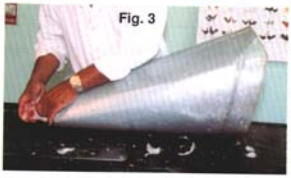


Fig. 3

3. Bleeding

Profuse blood flow will occur after cervical dislocation, and blood will accumulate in the area where the neck bones have been separated. Place the bird on the table or on the cutting board and cut open the broken area of the neck, including the jugular vein. Pick up the bird by your left hand and collect the blood in a cup or in a small bucket with water **(Fig. 4)**. The bird should be upside down at this point. If you delay cutting open the jugular vein, the blood will accumulate in the neck area and clot like thick jelly. If this happens, you need to clean this area by washing down to remove the blood from the neck during evisceration. Always make sure the blood is completely drained. This is important for carcass appearance. If blood is not properly drained, the carcass will be somewhat reddish.


Fig. 4

4. Scalding

As soon as the bird is dead (no visible movement; this occurs within a couple of minutes), it should be immersed immediately in a bucket or tank of hot water (approximately 130 degrees F) to loosen the feathers. This will make it easy to remove feathers **(Fig. 5)**. A string tied to one of the legs will make it easy to pull the bird up and down in the hot water several times so that all the feathers get properly loosened by the hot water. How many times one should push the bird down and up in the hot water depends on the size of the bird as well as the temperature of the water. The recommended time in hot water for defeathering waterfowl is 30 to 60 seconds; for broilers, roasters and turkeys, it is 30 to 75 seconds. Cornish hens, quail, pigeons, etc., are smaller birds and so need to be dipped and moved around for only 4 to 8 seconds. If the birds are immersed too long, the skin of the carcass may get cooked and tear off. If the temperature is too low, the feathers will be difficult to remove. Make sure you add more hot water at intervals for proper defeathering. These are only guidelines — you may want to try one bird first to find out what will work best in your situation.


Fig. 5

5. Defeathering (plucking)

Defeathering or plucking the feathers is the next important step. This can be done either by hand or by machine. (Feather-plucking machines are available commercially.) Plucking should be done while the carcass is still hot or warm rather than cold because it will be easier to pluck when it is still hot. Place a plastic sheet on the table and place the bird on it. Pluck the wing feathers first and then the tail feathers **(Fig. 6)**. Remove all


Fig. 6

feathers from the carcass, including the pinfeathers and hairlike filoplumes. At this stage the carcass is called "New York dressed". If no hot water is available for defeathering, you could skip this step and go to step 8.

6. Pinning

Pinning is necessary to remove small pinfeathers present on the bird after the machine or hand plucking. A small knife, pliers or tweezers, or a spatula helps to remove them. Hold the pinfeathers between the edge of the spatula or blade and your thumb and pull outward **(Fig. 7)**. Avoid scraping the pinning area of the skin with the knife to eliminate abrasions. Make sure the instruments used for pinning are cleaned and sanitized.


Fig. 7

7. Singeing

Singeing removes hair such as filoplumes remaining on the bird after the pinfeathers are removed. They burn readily as you pass the bird through a flame. It can be fueled by natural gas, which burns with little smoke, a plumber's propane torch or a rolled paper. Be sure to use brown or white paper rather than newspaper — newspaper ink may cause smoke and smudge problems on the carcass, as does a candle. When singeing **(Fig. 8)**, move and rotate the birds rapidly over the end of the flame so the skin does not become dehydrated or partially cooked.


Fig. 8

8. Skinning

Sometimes it is much easier to skin poultry such as quail, squab, etc., than defeather them. If you would like to do this, you need to place the bird on the table on its back (head away from you) and make a cut on the skin at the joint of the thigh adjacent to the body. You may want to cut off the head, both wings close to the body and the legs. If you do not cut the wings off, it will be difficult to skin the bird properly. Then cut the skin at the tip of the breast (keel) bone. Just pull the skin up, holding with your thumb and fingers, and pull it backwards. Now turn the bird around and pull the skin, which may be still attached to the back area of the bird. Make sure you remove all the feathers on the carcass and wash the carcass thoroughly. Also wash your hands with soap and hot water before proceeding to the next step.

9. Venting

After defeathering or skinning the bird, venting is used to remove fecal material from the gut. (If feed was taken away 12 hours before processing, this step may not be necessary.) To do this, simply squeeze the abdominal region with slight pressure while you hold the bird with head high. Make sure the fecal material that comes out of the cloaca is discarded away from the carcass into the waste bucket. You may wash the vent area thoroughly with cold water to remove any adhering fecal material. Wash your hands again with soap and hot water.

10. Eviscerating

Immediately after plucking (and venting, if necessary), the poultry should be eviscerated. Set aside the New York dressed birds on a clean tray or pan on another table or shelf. Make sure you discard the feathers along with the plastic sheet into the garbage can, then wash your hands with soap and hot water. Place a new plastic sheet on the table. Rinse the carcass with cold water **(Fig. 9)**. Remove any feathers remaining on the carcass — feathers carry pathogens. Place the New York dressed carcass on the table


Fig. 9

over the plastic sheet. Use a cutting board, if possible, on the table.

Steps for eviscerating poultry:

- With soap and hot water, wash thoroughly the cutting board you were using.
- Set the bird on the cutting board on the table with its feet toward you.
- Cut at the joint connecting the drumstick to the shank. Just bend the leg and then cut at the joint. If you do this right, it will be easy to remove the shank and foot **(Fig. 10)**.

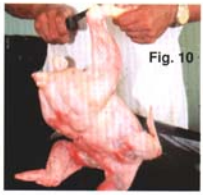


Fig. 10

- The next step is to cut off the head of the bird (unless the bird is skinned).
- Cut at the base of the tail and discard the tail (This removes the oil glands.) **(Fig. 11)**.


Fig. 11

- With the your left hand, hold the skin of the vent firmly and with a sharp knife, cut around the vent outwardly **(Fig. 12)**. The knife should go directly in or at an angle toward the outside of the carcass. Avoid cutting the intestine at any place during this process. Exposure to manure can allow all kinds of harmful bacteria to get on the surface of the carcass, so take much care to avoid accidental cuts to the gut area.

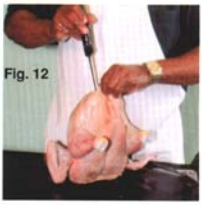


Fig. 12

If by accident you cut the intestine and fecal material is exposed on the knife or any part of the carcass during the process, immediately wash the knife with soap and hot water. Rinse the skin with cold water thoroughly where the fecal material is exposed on the skin. If it is not removed completely, then cut off that portion of skin. Otherwise, the entire carcass can become contaminated! Bacteria can multiply several-fold in a short period of time — especially in hot weather — so all precautions need to be taken to prevent bacterial contamination of the carcass.

- Make an incision 2 to 3 inches long on the abdominal area **(Fig. 13)** so that you can push your hand into the body cavity to remove the entire gut **(Fig. 14)** of the bird. Grasp the entire gut all the way from the bottom of the neck area to the vent and pull it out. It will easily come out together **(Fig. 15)**. It will consist of the stomach (proventriculus), gizzard (ventriculus), small intestine, liver, spleen, bile duct, caeca (a pair) and large intestine. Pull the entire mass out as one unit. Carefully remove it without exposing the carcass to any fecal material.


Fig. 13


Fig. 14


Fig. 15

- A pair of lungs is attached to the rib cage and to the bird's back on both sides of the spinal cord close to the heart area. Use your fingers to remove them completely **(Fig. 16)**.


Fig. 16

- Remove all the kidneys (there are three pairs) from the back area, where they are attached to the backbone on each side of the spinal cord, close to the vent area. Use your fingers to dig them all out carefully. The kidneys are dark red and soft and are embedded deep within the back.

- Remove the esophagus and trachea from the neck area from the top of the neck to the base of the neck.

- Remove the empty crop, a transparent pouch attached to the base of the neck near the wishbone. (If the bird had feed prior to slaughter, the crop will be filled with the feed.) An empty crop can sometimes carry pathogens such as *Campylobacter jejuni*. Make sure you remove the crop completely.

- **Giblets**: These are the heart, liver, neck and gizzard **(Fig. 17)**. The gizzard is a source of bacteria, so it is recommended to throw it away along with other inedible material. If you want to keep the giblets, be sure to process them after processing the carcass. These can be taken out and packed and frozen separately from the carcass.


Fig. 17

- Cut off the neck at the base **(Fig. 18)**. It can be saved as part of the giblets.


Fig. 18

- Wash the carcass thoroughly with cold water inside and outside.

- Put the carcass in a bucket with water and ice to cool it to a temperature of around 40 degrees F. Use a thermometer to measure the temperature **(Fig. 19)**. This is very important. Chilling the carcass does not necessarily kill all the harmful bacteria, but it will stop them from multiplying. Make sure to add more ice to this bucket at intervals to keep the temperature 40 degrees F or lower.


Fig. 19

- Split the gizzard lengthwise, through the thick muscle. Carefully peel the lining **(Fig. 20)** and its contents out without cutting the lining, which contains food and grit. Remove it unbroken to avoid contaminating the gizzard with its contents. If the lining breaks, continue to peel it out and wash the gizzard thoroughly. Removing the lining with its contents intact is easier after the gizzard has cooled slightly. Make sure you dip the gizzard in cold water to remove the lining easily. The contents of the gizzard may carry pathogens, and so be sure to wash your hands and knife with soap and hot water.


Fig. 20

- Cut the green gall bladder **(Fig. 21)** away from the liver by holding the liver with the gall bladder down and cutting between the liver and the gall bladder. It is better to sacrifice a small part of the liver than to cut too close to the gall bladder. If the green fluid from the gall bladder should contaminate the liver, discard the liver — it will be bitter from the bile.


Fig. 21

- Remove the heart and trim the top part to expose the chambers. Squeeze the heart gently to remove any blood left in the cavity. Then wash it thoroughly.

- Remember during the evisceration process that the carcass was exposed to very high temperature. The high temperature provides an excellent environment for bacteria present in the gut of the bird to multiply. Therefore the evisceration process should be done as quickly as possible and the carcass should then be placed in the bucket for chilling. What you have now is known as ready-to-cook (RTC) poultry. Do not attempt to process the poultry further at this time, but chill the carcass.

11. Chilling Tank/Bucket

The chilling tank/bucket should be large enough to accommodate the total number of carcasses that you plan on processing. Make sure the ice in the chilling tank is adequate at all times to chill all the carcasses to the desired temperature of 40 degrees F or lower. Check the temperature of the chiller periodically with the thermometer and add more ice, if necessary. If you want to keep the giblets (neck, heart, liver and gizzard), they need to be chilled separately from the carcass.

12. Washing

After properly chilling the carcasses, you may want to wash each carcass thoroughly in cold water **(Fig. 22)**. Because all the processed carcasses are put together in the chilling tank, there is a good possibility that they are contaminated with pathogens such as *Salmonella, Campylobacter,* etc. Thoroughly washing individual birds inside and outside is very appropriate to eliminate foreign materials such as feathers, parts of organs, etc. Even though this step is important, it will not totally eliminate bacteria.


Fig. 22

13. Packing

Individual carcasses can be packed separately at this time in plastic bags. For this step, place the carcass on the table **(Fig. 23)**, squeeze the water out of it and place the carcass in a plastic bag. Squeeze out as much air from the bag as possible and tie the bag with a twist tie. Make sure that no contaminants — feathers, fecal material, etc. — are on these bags.


Fig. 23

Further Processing

How to cut up a chicken

This process is not difficult and skill improves quickly with practice. To cut up a whole chicken, you need a plastic cutting board, a sharp knife and a poultry shear, all of which must be very clean **(Fig. 24)**. A wooden cutting board is difficult to clean and sanitize and so is not recommended because of food safety concerns. Make sure to wash the cutting board thoroughly after use with hot water and soap, and scrub it well. You may use a 1 percent household chlorine bleach solution to clean and sanitize the cutting board, knife and shear. Never use a cutting board used to cut up raw meat for cutting fruits or vegetables or other foods that will not be cooked afterward.


Fig. 24

For cutting the chicken, start with a dressed, drawn (eviscerated) chicken. Make sure to use a pair of latex gloves to handle the ready-to-cook chicken **(Fig. 25)**. Place the chicken on the cutting board facing you. Grasp one of the wing tips and lift it away from the body. Cut halfway up the wing shank **(Fig. 26)**, then down into the joint, keeping the knife close to the bone. As the knife severs the tendons, rotate the wing backward so the knife passes through the joint, leaving as much meat on the breast as possible. Repeat the same procedure with the other wing. Wings are about 12 percent of the weight of the chicken.


Fig. 25


Fig. 26

Cut the chicken between the thigh and the body of the bird. Be sure to follow the natural separation and avoid cutting into the flesh. Leave as much skin on the breast as possible. Grasp the leg and apply pressure to the hip joint by bending it away from the body as shown **(Fig. 27)**. Apply enough pressure to separate the hip joint. To remove the leg and the thigh from the body, cut from the tail toward the neck until the blade reaches the hip joint **(Fig. 28)**. Rock the knife in the hip socket to sever the connecting tendons.


Fig. 27


Fig. 28

Pull the leg away from the body. If the tendons in the hip area are severed, the "oyster" meat from the back will remain with the thigh. Cut the connecting skin. Locate the knee joint by squeezing

the thigh and leg together. Cut through the joint to separate the thigh from the drumstick **(Fig. 29)**. The drumsticks are about 16 percent of the weight of the chicken; the thighs are about 17 percent.


Fig. 29


Fig. 30

Place the breast down on the cutting board so that the backbone faces you. Grasp the tail and with the neck on the cutting board, cut close along the backbone to separate the ribs where they join the back. Be careful to stay inside the shoulder blade (the flat bone at the side of back) and close to the backbone. Do the same on the other side **(Figs. 30 and 31)**. Cut through the connecting skin and lift the back and neck strip. You can also remove the backbone with shears **(Fig. 32)**.

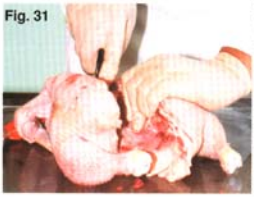


Fig. 31


Fig. 32


Fig. 33

The back **(Fig. 33)** from the tail to the neck is about 18 percent of the weight of the chicken.

The breast is the remaining part of the chicken and accounts for about 28 percent of the weight of the chicken. To split the breast, place it skin side down and cut the cartilage at the V of the neck. Grasp the breast firmly with both hands, placing your thumbs in the rib cage. Bend each side of the breast back as if you were opening a book. Push up with your fingers to snap out the breastbone. Cut the breast in half lengthwise **(Fig. 34)**.

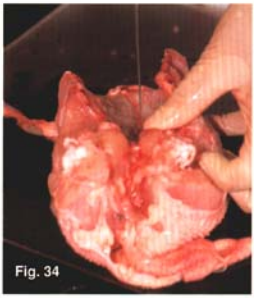


Fig. 34

The following are some of the cut-up chicken parts seen in the grocery stores:

Halved chicken for the barbecue

To make half-chicken pieces for the barbecue, first turn the back of the chicken toward you on the cutting board and then cut the tail portion off at its base. Now cut from the base of the neck all the way to the base of the tail on one side **(Figs. 30 and 31)**. Do the same on the other side. You may use a pair of shears to cut off the backbone **(Fig. 32)**. Now remove the backbone, which you just cut **(Fig. 33)**.

Turn the chicken so that the breast area is facing you. Make a sharp cut with the knife from the base of the wishbone (V-shaped) near the neck area toward the tip of the breast

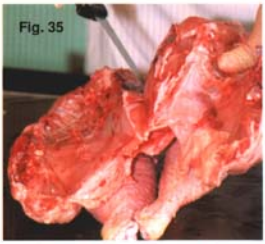


Fig. 35

(Fig. 35). Remove the wishbone. Now you should have two equal chicken halves **(Fig. 36)**.

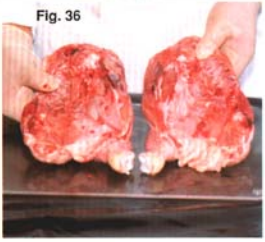


Fig. 36

Quarter chicken for the barbecue

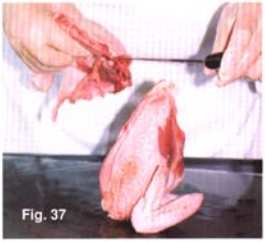


Fig. 37

If you are interested in making smaller portions for the barbecue, you may want to cut the half portion of the chicken in half to make two quarters. Simply cut the half into two pieces horizontally **(Fig. 37)**.

The carcass as a whole or as cut-up parts should be packed in plastic bags of appropriate sizes. Remove as much air from the individual bags as you can when packing, and then seal the bags.

The parts of a cut-up chicken

Wing

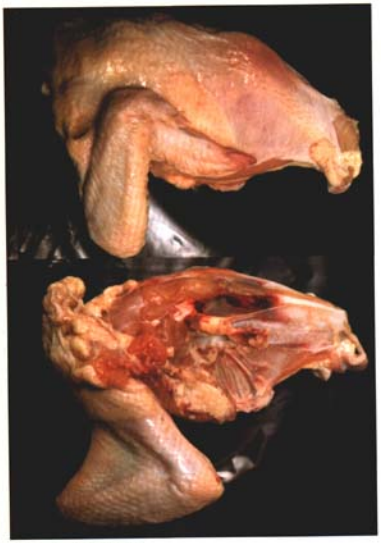
Thigh

Back

Drumstick

Leg quarter

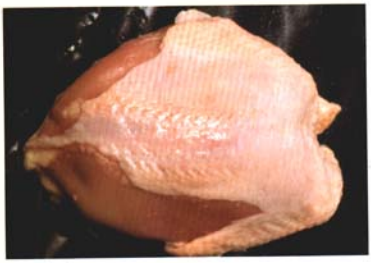
The parts of a cut-up chicken (continued)



Breast quarters

Boneless and skinless breast

Breast tenderloin



Whole breast

Split breast with rib

Storing

1. Refrigerating

The packed bags with poultry need to be refrigerated as soon as possible. This is more crucial in warm weather. Bacteria can multiply rapidly at room temperature during summer. Bacteria can double in numbers in as little as 15 minutes. As the temperature increases, doubling time for bacteria decreases. Place the meat bags on the bottom deck rather than on the upper or middle shelves of the refrigerator. Take care to avoid any juices from the bags falling onto other food items that you will eat without further cooking. Cross-contamination is one of the ways that bacteria travel from one food to another. So take precautions! Check the temperature setting in the refrigerator. It should be 40 degrees F or lower. Make sure that, after packing the poultry into bags, you wash your hands thoroughly to prevent cross-contamination. Do not refrigerate poultry more than two days.

2. Freezing

The packed poultry products may be frozen immediately after processing. Freezing or refrigerating does not eliminate bacteria in the product, but it does stop them from multiplying. To allow air circulation and uniform cooling, make sure the freezer is not packed full. As a rule of thumb, allow freezer space of at least 1 cubic foot per pound of meat to be stored. The temperature for freezing should be 0 degrees F or below.

Cleaning and Disinfecting the Work Area

As soon as you are finished slaughtering and storing poultry, you need to come back to the work area to clean and disinfect it thoroughly. This is of paramount importance. Otherwise, harmful bacteria will multiply rapidly and contaminate this area. Use hot water and soap to clean the workplace and scrub it thoroughly with a brush. Rinse thoroughly and then disinfect the area using a 10 percent bleach solution.

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Appendix I

MATERIALS NEEDED FOR SLAUGHTER

1. Two small tables
2. Holding funnel
3. Blood cup
4. Sharp knives
5. Pinning knife
6. Blowtorch
7. Shear
8. Axe/hatchet
9. Two plastic sheets for the tables
10. Plastic bags (small and large)
11. A bucket or tank for hot water for defeathering
12. A bucket for cold water
13. A bucket or a tank for chilling the carcasses
14. A large bucket or garbage can
15. A large thermometer
16. A large bag of ice
17. A plastic cutting board
18. A large pan or a tray
19. Hot water for washing hands
20. Hand soap
21. Household bleach
22. A scrubbing brush

Appendix II

MATERIALS NEEDED FOR STORING

1. Small plastic bags
2. Refrigerator
3. Refrigerator thermometer
4. Freezer

Appendix III

MATERIALS NEEDED FOR CLEANING AND DISINFECTING WORK AREA

1. Hot water
2. Soap
3. Household bleach
4. A scrubbing brush
5. A bucket to put utensils
6. Wash cloth/ sponge/ paper towels

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