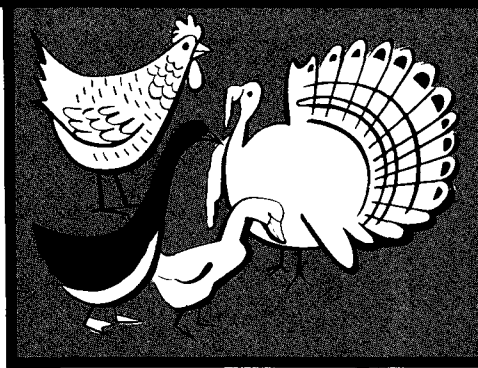
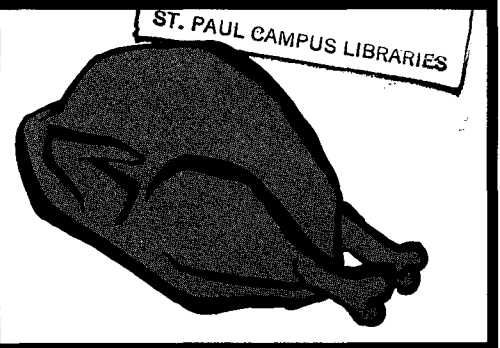


Melvin L. Hamre
University of Minnesota
Agricultural Extension Service



HOME PROCESSING OF POULTRY



Poultry can be processed at home with little or no special equipment. If you are processing only a few birds you can improvise facilities for the job quite easily. However, if you are processing many birds you might want to consider more adequate facilities and equipment to make the job easier or even have the birds custom processed if there is a custom poultry processing facility nearby.

Federal and state laws regulate inspection of meat and poultry products. Producers may process birds they raise for their own household consumption and up to 1,000 chickens, turkeys, ducks, or geese for sale to other consumers within the state without inspection. Uninspected poultry is not allowed in interstate commerce. Refer any questions concerning the exemption of small sales under the provisions of the Poultry Products Inspection Act to your poultry extension specialist, or state meat and poultry regulatory agency, or office of the Meat and Poultry Inspection Program, U.S. Department of Agriculture.

This publication should help you understand the importance of cleanliness and the procedures for properly processing poultry. In processing you must follow a number of steps to convert the live bird to meat for human use. You must develop your processing techniques to prevent contamination of the meat with intestinal or crop contents. Poultry meat can also become contaminated from dirty equipment and facilities or from people who have a transmissible disease. Any form of contamination of the poultry carcass lowers its quality and

shortens the storage time as a wholesome product. The following suggested procedures provide an orderly manner for converting your live poultry into a clean, attractive, dressed carcass. Study the procedures, develop your techniques and proceed in an orderly manner to process each bird.

The job is not unpleasant if properly done in clean surroundings even with a minimal amount of equipment.

Selecting Birds for Slaughter

Top quality poultry carcasses can only be obtained from live birds in good health, well-finished, and well-fleshed by slaughter time. So good care and management during the growing phase is an important part of producing poultry meat successfully. The many strains of poultry, as well as the different breeds, vary in the growing time required to reach the best size and condition for slaughter.

You will normally process all the healthy birds from a farm flock. Some birds may show symptoms that raise questions concerning their health at time of slaughter. If the bird appeared reasonably healthy before slaughter and shows none of the following conditions when processed, it should be suitable for human use. Do not use birds that have any of the following:

- (1) lumps or spots of any size on the surface of the liver.
- (2) any measurable quantity of fluid in the body cavity.
- (3) fat in a poorly fleshed bird which is orange rather than yellow or white.

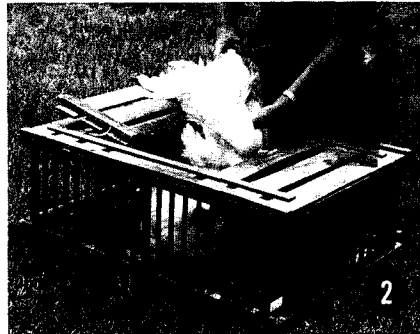
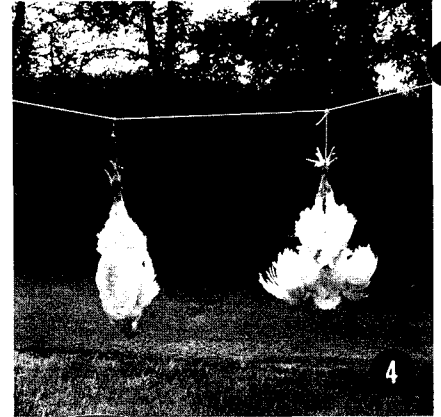
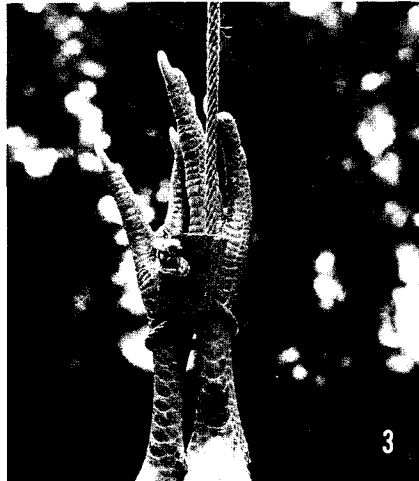
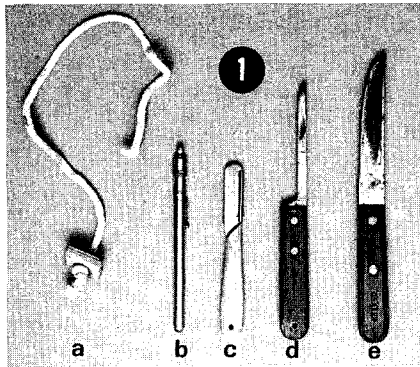
- (4) any individual internal organ two or more times the normal size (compare with similar sized bird). Ignore gall bladder size in this observation.
- (5) breast meat with the same coloration as meat of the thighs and legs.
- (6) meat showing white streaks or an area of abnormal enlargement when compared to the same area on the opposite side of the bird.

These observations form a basis for those slaughtering poultry to make some reasonable judgments on suitability of birds for meat purposes.

Select your best birds for marketing. Youth project members will likewise want to select only healthy, well-fleshed, well-finished birds free from defects for exhibition. Breast blisters, bruises, skin tears, and similar defects must be avoided when selecting birds for competition. These birds can be processed, the damaged tissue trimmed, and yet a wholesome carcass remains for meat purposes. Do not attempt to dress pinfeathery birds. Wait a week or two until these feathers have grown out and are more easily seen and removed during processing.

Poultry Fact Sheet 33: Judging and Grading Live Market and Ready-to-Cook Poultry outlines factors to consider. Study this information on quality considerations before readying birds for market or competition.

Poultry to be processed should not be fed for 6-8 hours before slaughter but should have access to water. Fasting reduces the feed and ingested material in



the digestive tract and helps prevent contamination during processing. It is best to have a wire-bottom holding cage or crate for the birds during the fasting period to help keep them clean. Dirty birds contaminate the scald water. Keeping the scald water clean will reduce contamination of the poultry meat being processed.

Processing Facilities and Equipment

The processing area should be a place that is clean, has an adequate water supply, and is free from flies. The processing procedure should be done in three steps: 1) Killing, scalding, picking, singeing; 2) eviscerating (removal of internal organs) and washing; and 3) chilling and packaging. To reduce possibilities of contamination, the operations in the first step should be completed before starting the evisceration procedures or done in a separate room or outside. The area should be arranged and equipped for ease and cleanliness of work.

Knives should be sharpened before starting work. Boning and cutting knives (fig. 1e) are adequate for home dressing of poultry. Special knives with thin, sharp blades and points (fig. 1d) make some phases of eviscerating easier. If birds have pinfeathers a pinning knife (fig. 1c) may help scrape off the pinfeathers after the larger feathers are removed. Kitchen shears are used by some processors for harvesting and cleaning giblets.

Clean plastic or galvanized garbage-type cans make good containers for scalding and chilling water. Similar containers or boxes lined with plastic bags can be used for feather and offal containers. A sturdy table will be necessary for a worktable. Most tables will not have a good clean working surface so a disposable plastic covering should be used. Giblets should be placed in a clean kitchen pan large enough to hold giblets from the number of birds being processed. Scald water temperature can be better adjusted with a thermometer that registers in the 120° to 212° F. range. A pocket model with a protective case (fig. 1b) is less subject to breakage when not in use. Have an adequate supply of packaging materials so that birds can be packaged for handling and storage after they have been processed and cooled.

Killing and Dressing

Killing. Remove birds from coops and crates carefully to reduce bruising (fig. 2). Place the bird in a killing cone or hang it from a shackle. If neither of these devices is available, poultry can be suspended from a clothesline or other support by the feet with a short piece of rope with a small square of plywood held fast to the end by a knot (figs. 1a, 3, 4). Hold the head in one hand and pull down for a slight tension to steady the bird (fig. 5). Using a sharp knife, cut the bird's throat from the outside just behind the lower jaw. The cut should sever both the large vein and the cross vein at this point to bleed freely. To reduce carcass contamination, do not cut the esophagus or windpipe.

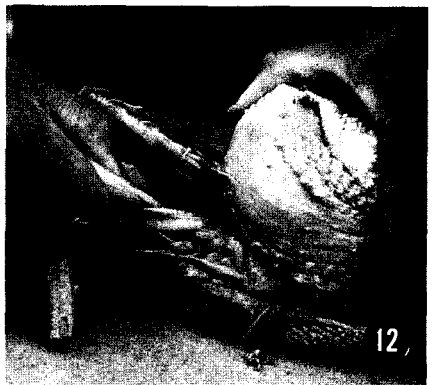
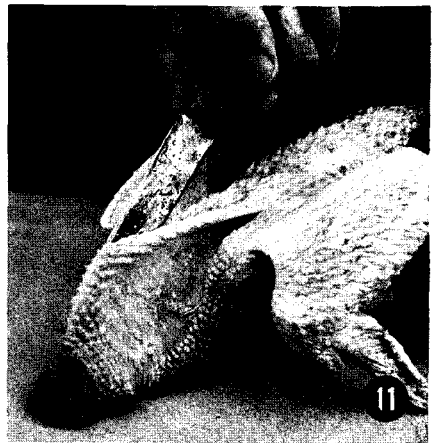
Hold the front part of the head securely to avoid cutting your hand. To prevent excessive splattering of blood, hold the head of the bird for a few moments until the bleeding and flopping stops (fig. 6). Catch the blood in a container to aid with your cleanup operation.

Other farm slaughter methods include wringing the bird's neck or chopping off the head with an axe. Not as much blood may be pumped out of the carcass by those methods as with a good throat cut.

Scalding. Dry picking today is usually limited to some waterfowl processing. Pick these birds immediately after they have been bled.

The appearance of the dressed carcass as well as the ease of feather removal will be determined by the time and temperature of the scalding procedure. Lower temperatures are used with longer periods of immersion in the scald water. The hotter the water the shorter the scald time and more chance of over-scalding. The use of higher temperatures results in the loss of the yellow cuticle layer of the skin and may result in more skin tears during feather removal. Boiling water should be kept nearby to keep the scald water hot enough during the entire processing period. For best results check water temperature with a thermometer.

Young birds with easier to remove feathers can be scalded at 125° -130° F. for 30 to 75 seconds. The proper length of time for adequate feather removal leaves the epidermal layer of the birds' skin intact. Temperatures of near 140° F.



for 30 to 75 seconds can be used with older birds for easier feather removal. The cuticle covering of the skin will generally be removed at this temperature. Because of the difficulty in removing feathers from waterfowl, ducks and geese are processed at higher temperatures — 1 to 2 minutes in water at 160-170° F. Adding detergent to the scald water helps water penetrate through the feathers, especially on waterfowl.

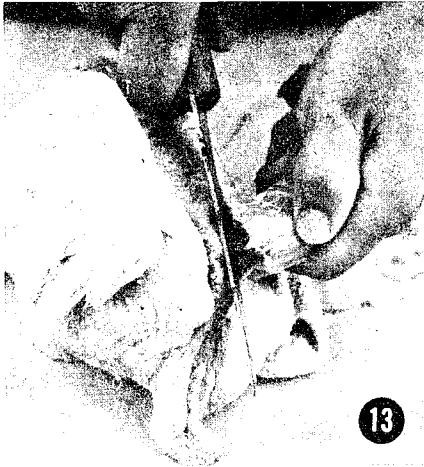
Immerse the bird, head first in the scald water while holding the bird by the shanks (fig. 7). The bird should be moved up and down and from side to side in the scalding container to aid in more even and thorough scalding. If a proper scald has been achieved, the tail and wing feathers can quite readily be removed. Repeat dips of short duration may be necessary for difficult-to-remove feathers.

Picking. Hang the bird back on the rope or shackle for ease in picking. Use a slight pressure with gentle rubbing action for more rapid and easier removal of feathers (fig. 8). Do not delay picking after the scalding. Develop a picking procedure, pulling the large tail and wing feathers first and then setting a sequence of removing the rest of the body feathers. Rinse the bird with water after most of the feathers have been removed. Use a slight pressure and rubbing motion to remove any remaining small feathers and pinfeathers. A pinning knife or a dull knife helps remove the small pinfeathers.

Waxing waterfowl. Waterfowl are often immersed in a container of paraffin wax to remove small feathers and down after most feathers have been removed. Follow directions supplied by the wax manufacturer. Usually at least two dips of a fairly dry carcass in a wax bath at 135°-160° F. and then dipping in cold water to set the wax will build up a wax coating to remove the feathers. Some directions recommend a hotter temperature for the

first dip, with a dip in water or a short air cooling period between wax dips. The wax should be removed when it is at the flexible stage, not cold enough to be brittle. A little experimentation with times and temperature should lead to satisfactory results. The wax can be reclaimed by heating and straining out the feathers. Dirt, blood, and water will separate from the melted wax.

Singeing. It is usually not necessary on young birds. The more mature chickens and turkeys may have a few hairs which remain after feathers are removed. Use a bottle gas torch or an open flame on a



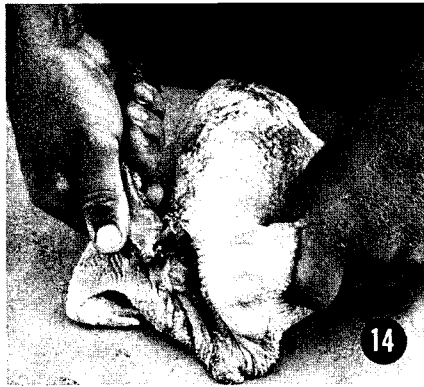
13



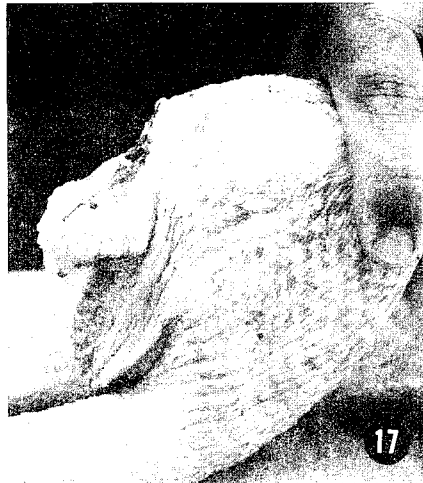
16



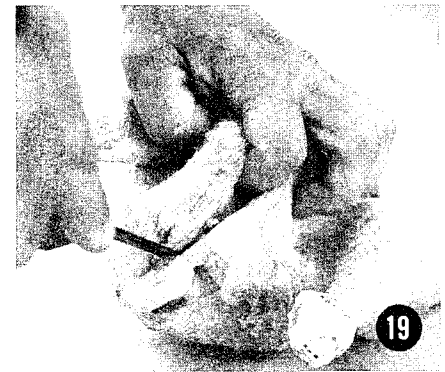
18



14



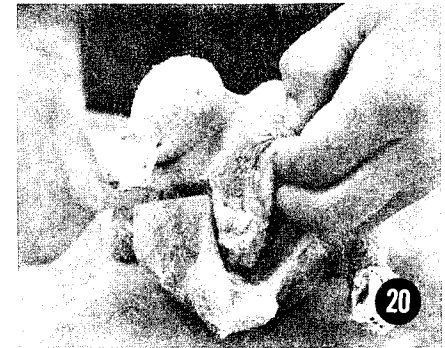
17



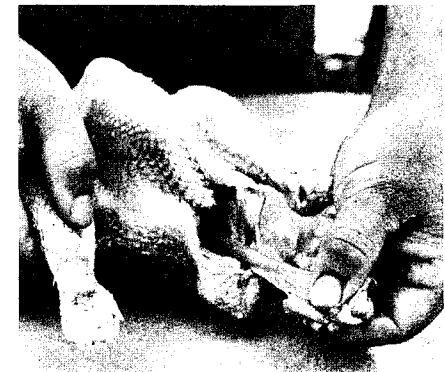
19



15



20



21

gas range to singe these hairs, being careful not to burn yourself or the skin on the bird's carcass (fig. 9).

Evisceration

Remove head and neck. Cut off the head between the head and the first neck vertebra using a twisting motion to cut through the joint (fig. 10). Do not try to cut through the bone.

If the bird is going to be cut up for frying or split for barbecuing, the neck with skin intact can be removed with shears or a knife, cutting close to the carcass. For birds to be roasted, split the neck

skin, inserting the knife through the skin at the point of the shoulders, cutting forward guiding the knife up the back of the neck (fig. 11). Pull the skin loose from the neck. Pull the crop, trachea (windpipe), gullet (esophagus) loose from the neck skin (fig. 12) and cut off where they enter the body cavity. Next cut off the neck, or you may prefer to do this after chilling the carcass. Cut the neck muscle into the bone around the neck at the shoulder (fig. 13) and then twist off (fig. 14). Wash the neck and then place it in the giblet chilling container.

Remove shanks. With the bird breast up on a table, hold shank with one hand, applying upward pressure on the hock joint. With a sharp knife, cut through the hock joint starting on the inside joint surface (fig. 15). Pull the joint into the knife with a slight movement of the bird's feet to aid in cutting through the joint.

Remove oil gland. With the bird breast down on the table start the cut 1 inch forward from the oil gland nipple (fig. 16). Cut deep to the tail vertebra, then follow the vertebra to the end of the tail in a scooping motion to remove the oil gland (fig. 17).

Abdominal openings. Two types of cuts can be used to make an opening into the

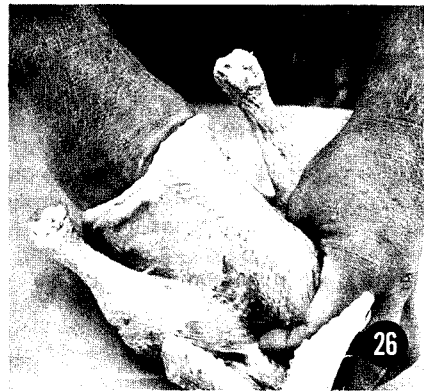
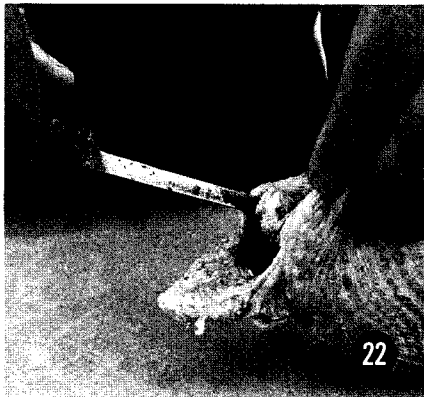
body cavity. The midline, vertical, or "J" cut is often used for broilers and other small poultry not to be trussed when cooked. For turkeys, capons, or other large fowl where trussing for roasting is desired, the transverse or bar cut can be used.

To make the vertical cut, pull the abdominal skin forward and up away from the tail of the bird, then cut through the skin and body wall starting the knife point just to the right of the point of the keel and extending the cut to the tail alongside the vent (figs. 18 and 19). Make the cut slowly and do not cut into the intestine. Use a shallow cut with just the point of the knife penetrating the skin and

body wall. Then complete the cut around the vent, keeping the knife next to the back and tail as far as possible from the vent (fig. 20). Cut entirely around the vent and pull the vent and end of the large intestine out away from the opening of the body cavity to prevent contamination of the interior of the carcass (fig. 21).

To make the bar cut, make a half circle cut around the vent next to the tail (fig.

22). Use short, slow strokes and avoid cutting the intestine. Insert the index finger into the opening that has been cut, up over the intestine. Using your finger as a guide, extend the cut with the knife or shears to a complete circle on around to free the vent (fig. 23). Pull the vent and short section of the intestine out to prevent contamination of the body cavity. Now make a cut from side to side of the bird about 3 inches long, 1½ to 2 inches below the point of the keel (fig. 24). This will leave a bar of skin about 1½ to 2 inches wide between this cut and the opening where the vent was cut free (fig. 25). Now thread the end of the intestine up over the skin bar and leave extended from the body cavity.

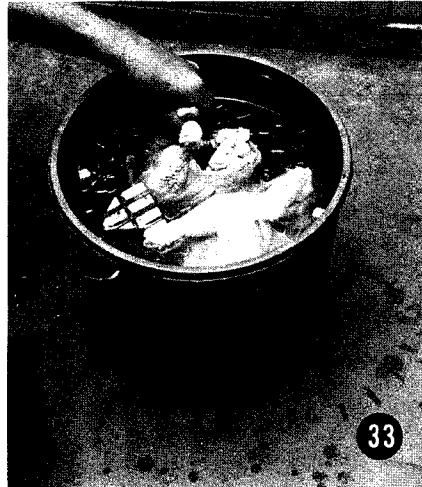




Removal of internal organs (viscera or entrails). Stretch the abdominal opening, insert the hand as far forward as possible in the body cavity, breaking the attachment of organs to the wall as you go (fig. 26). Pick up the heart between index and second finger, cup hand and gently pull all viscera out, using a slight twisting motion as the viscera is brought out of the body cavity (fig. 27).

Harvesting giblets. The gizzard, liver, and heart should be removed from the viscera. Cut the gizzard from the stomach and intestine and peel excess fat from the outside (fig. 28). Remove the heart, trim off the heart sac and the heavy vessels around the top part (fig. 29). Avoid cutting the gallbladder when trimming off the liver (fig. 30). The gallbladder may either be cut or pinched off the liver. Split the gizzard and open under a stream of water to remove the gizzard contents (fig. 31). Peel the lining from the gizzard by inserting the thumbnail under the lining at the edge of the cut surface and pulling away from the muscle (fig. 32). The lining is easier to remove after the gizzard has cooled slightly. You may want to split the gizzard lengthwise just to its lining and try to remove the unbroken lining and its contents to avoid contaminating the muscle with the gizzard contents. Rinse the giblets well and place in a pan of cool water.

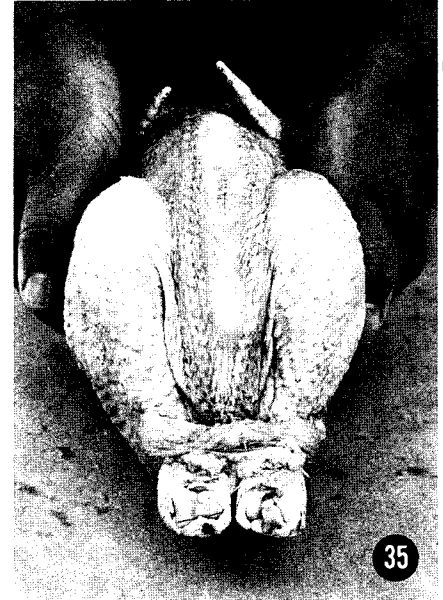
To remove the lungs, insert the hand in the body cavity to reach the lungs, starting next to the ribs roll the index finger



towards the backbone on each side of the bird to pick out the lungs from their position along the backbone of the bird. Pull the gonads (ovaries or testes), if present, from their attachment to the backbone. Check the body cavity to be sure that all desired parts have been removed, and thoroughly wash inside of carcass with a hose or under a faucet. Wash the outside of the bird and rub off all adhering dirt, pinfeathers, loose cuticle, and blood. Then place the carcass in the chill water container (fig. 33).

Chilling and Packing

Carcasses can be prechilled by placing them in a container of cold tap water that is overflowing continuously at a slow rate or periodically changed. This will cool the carcass to water temperature and further clean the carcass. Poultry carcasses should be chilled in ice and water to lower the temperature of the carcasses to 40° F. before packing. Smaller birds can be chilled in a couple of hours. Turkeys and large capons or roasters will require several hours before they reach this temperature. Remove the chilled carcasses from the ice

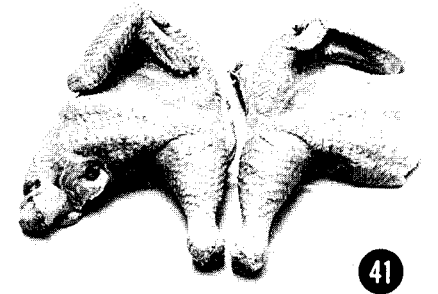
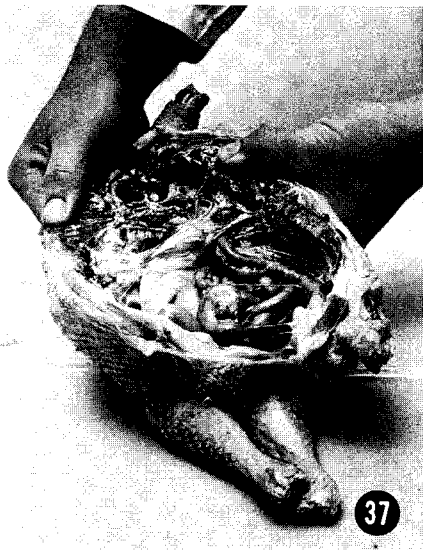
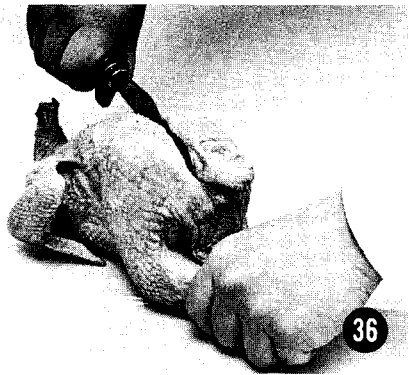


water mixture and hang by a wing to let drain for about 10 minutes before placing in bags for transport or storage. Make certain that all water is drained from the bird before packaging. After the giblets have been chilled, wrap the heart, liver, and gizzard in a small square of plastic food wrap or place in a small plastic bag. The giblet pack and the neck can be placed in the body cavity of the properly cooled carcass before packaging.

On carcasses processed with a bar cut, cut the tail from the top of the bird down through the vertebrae, being careful not to cut the tail completely off (fig. 34). Turn the tail down and tuck under the bar strap. Next, flex the legs tightly against the body of the carcass and work the legs under the skin bar to truss the bird (fig. 35).

If birds are to be bagged, place the carcasses on a table, smooth the neck skin down over the back of the bird, and insert the bird, head first, into a plastic bag of proper size. To get a better package, put the end of a flexible plastic or rubber hose in the bag. Keep the bag snug around the hose, then suck air from the bag. Remove the hose, twist the bag several times and secure with a wire tie. Birds can also be frozen in locker wrap paper or aluminum foil.

Refrigerate birds or freeze promptly. Do not freeze birds until they have been chilled to 40° F. or below. Only small numbers of unfrozen birds should be placed in home-type freezers at any one time. Placing large volumes of unfrozen material in the freezer places too much load on it and causes slow freezing of the unfrozen birds and partial thawing of the previously frozen products.



Birds to be transported should be chilled thoroughly or frozen. The packaged birds should be wrapped in several layers of newspaper or other material with insulating value to keep them cold during transport until they can be properly refrigerated or frozen at destination.

Splitting Broilers or Fryers

If broilers or fryers are to be halved for barbecuing or cut up for frying, they can be eviscerated more simply than described earlier. The back splitting method can be the fastest way. Follow the same procedure in killing the birds and removing the feathers. Then remove the head, shanks, and the oil gland. There are variations possible in the splitting procedure. Try this method and determine which is the best cut to satisfy your processing needs.

Use a short-bladed knife such as a linoleum knife or shears to cut through the back. Avoid cutting into the intestines or the crop. In young birds with backbones that are easier to cut through you may want to leave part of the backbone with

each half of the bird. To do this, start the cut at one side of the tailhead and cut down the back from tail to neck, crossing through the backbone at the midpoint and ending at the neck on the other side of the bird (fig. 36). Spread the carcass open (fig. 37) and make a cut around the vent to free the intestines. Pull the windpipe, crop, and esophagus free from the neckskin (if neck has not already been removed) and then remove the internal organs.

When working with older birds having bones more difficult to cut, you may want to make a single cut along one side of the backbone starting either at the side of the neck or tailhead (fig. 38). If you want to discard the backbone and neck completely, cut down both sides of the backbone. The backbone strip with neck attached can then be removed by extending these cuts through the skin and tissue below the neck and down around the vent. Now the entire backbone with internal organs attached can be removed (fig. 39). Process the giblets as described earlier. If the neck is not discarded, it can be cut from the backbone strip or it can be removed either before or after making the cut along the backbone. Next, remove lungs and any remaining bits and pieces of organs and rinse the carcass thoroughly.

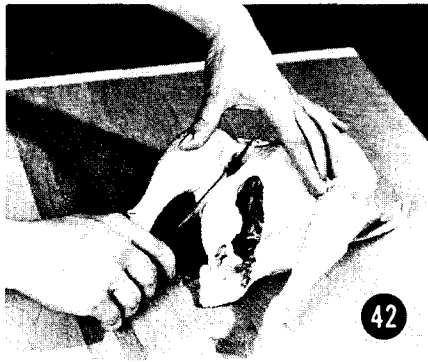
To split the bird at the breast, first cut through the cartilage at the "V" of the wishbone (fig. 40) and slit the neck skin. The two halves can then be pulled apart from front to back. The breastbone can then be pulled away from the half to which it remains attached. Some prefer to pop the keelbone loose, firmly holding the lower end of the keel in one hand with the other hand on the shoulder bones and then bending downward. Pull the keel bone out along with the strip of cartilage attached to the lower end of the keelbone. Then the bird can be cut in half where the keel was removed (fig. 41).

The halves can be cut up as desired for cooking. If the birds are to be barbecued, they can be left as halves and easily separated into quarters after they are removed from the grill by simply tearing the half in two.

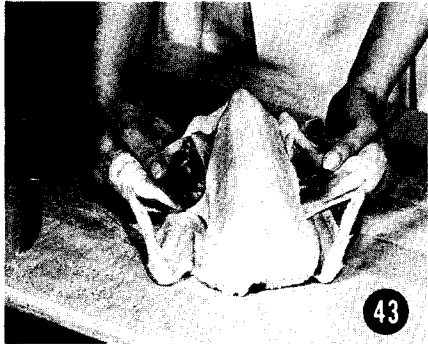
Cutting Up Whole Carcasses

Unless you are going to roast the bird whole, you will need to cut the carcass in pieces for most uses. Much of the poultry sold at retail is already cut up and sold in family packs or as parts. By following these easy steps you can cut the whole carcass you have home processed or purchased at the store in parts for cooking.

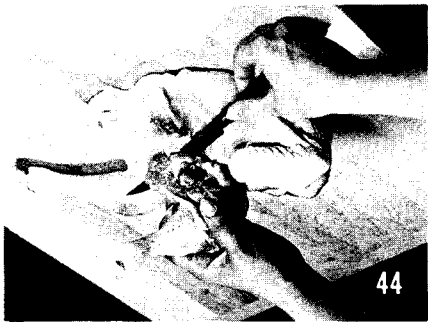
Lay the carcass on its back on a cutting board. Cut the skin between the thighs



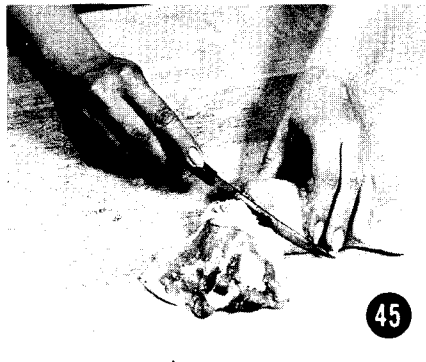
42



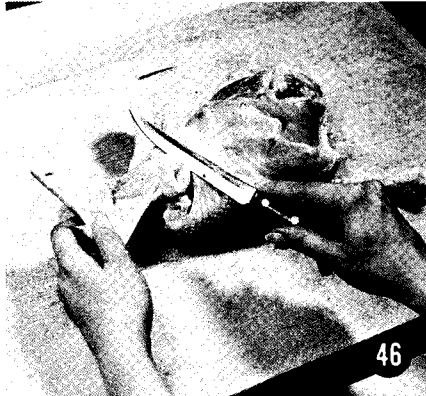
43



44



45



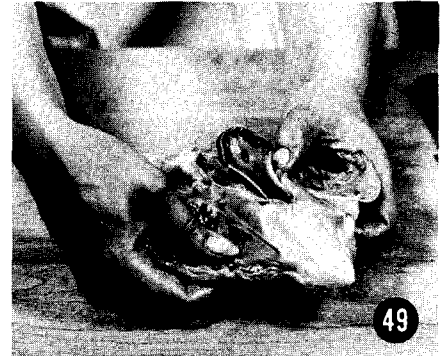
46



47



48



49

and body of the bird with a sharp knife (fig. 42). Then holding a leg in each hand, lift the carcass from the board (fig. 43). Bend the legs back until the hip joints snap free. Cut each leg from the body, cutting from the back to the front, as close as possible to the backbone (fig. 44). Cut through the knee joint to sepa-

rate the thigh from the drumstick (fig. 45). Squeeze the thigh and drumstick together to help find the knee joint.

To remove wings start cutting on the inside of the wing just over the joint (fig. 46). Cut down and around the joint to completely remove each wing. Some prefer to cut off the wing tip; others fold it back under the wing to lie flat while cooking.

Place the carcass on the neck end while separating the breast from the back. Cut from the tail along each side of the backbone through the rib joints to the neck (fig. 47). Cut the back in two pieces by bending it to find the joint, and then cutting through the meat and skin.

To split the breast lengthwise, place it skin side down on the cutting board. Cut through the white cartilage at the V of the neck (fig. 48). Then holding the breast firmly in both hands, bend each side back and push up on the breast from the underside to snap the breastbone free (fig. 49). Remove the breastbone and cut the breast in half lengthwise.

Bacteria capable of causing food-borne illness are found on raw poultry carcasses. Before you handle or prepare other foods, thoroughly wash your hands, equipment, and working surfaces that have contacted the raw carcass.

Melvin L. Hamre is a professor and extension animal scientist, poultry.

Issued in furtherance of cooperative extension work in agriculture and home economics acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Patrick J. Borich, Dean and Director of Agricultural Extension Service, University of Minnesota, St. Paul, Minnesota 55108. The University of Minnesota, including the Agricultural Extension Service, is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, or veteran status.