



No. 1 -- CARE and COOKERY

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- [Care of Game](#)
 - [Aging Game](#)
 - [Cookery Preparation](#)
 - Recipes
 - [Large Game](#)
 - [Small Game](#)
 - [Game Birds](#)
 - [Fish](#)
 - [Preserving Game and Fish](#)
-

The most succulent wild game can be destroyed by improper handling in the field or improper cooking at home. The handling of the meat between harvesting, storing and eating can make the greatest difference in flavor and taste. The purpose of this bulletin is to provide information on proper care and cookery of wild game in order that you can fully enjoy the fruits of the field.

Undesirable strong flavors in the meat can be due to inadequate bleeding, delay or carelessness in dressing, or failure to cool the carcass promptly.

Generally, game animals are cleaned and butchered in the same manner as domestic animals. However, one must remove mutilated and bloodshot areas as well as bullets and shotgun pellets. Remember, the flavor of wild game meat, when handled properly, is delicious and characteristically unique to the species. Venison and antelope taste as different from one another as beef and pork.

Care of Game

Generally, the animal you shoot will not have to be bled out because enough blood vessels will be severed by the bullet. However, if it has been shot in the head, neck or spinal cord, it should be bled. If in doubt, bleed it anyway. One quick method is simply to slash the throat, severing the major blood vessels at the base of the neck where it joins the chest cavity (Figure 1). Elevate the hind quarters of the carcass to aid in bleeding. If the head is to be mounted, do not cut the throat because this will damage the cape for mounting purposes.



Figure 1. The dotted line shows where to sever the blood vessels to bleed out the carcass.

The animal should be dressed out (entrails removed) as soon as possible after it is killed to insure rapid loss of body heat. Wipe the gutted cavity with a dry or damp cloth. Keep the animal as clean as

possible

Cool promptly and thoroughly by propping the chest cavity open with a stick to allow air to circulate freely. Hanging the carcass up aids cooling, too. Heat remains in the body longer when it's left on the ground and heat hastens spoilage. The animal can be quartered and wrapped in muslin or cheesecloth.

Avoid using tarps or canvas bags, which tend to hold in the heat. If the weather is warm, it's even more urgent to clean the animal as quickly as possible. A simple way to cool an animal on a hot day is to buy bags of ice cubes to put into the body cavity. Be sure to leave the ice in the bags. For more information see circular [HE-125, "No. 2 Field to Freezer"](#).

Game birds offer much variety in flavor and should be cared for just as carefully as big game animals. Remove the entrails and crop as soon as possible after shooting. This allows air to circulate in the body cavity and aids in cooling the carcass quickly and thoroughly. If the weather is hot the birds should be placed individually in plastic bags and put on ice. In any case, avoid piling warm birds in a mass.

Plucking or picking is a matter of personal preference. Some hunters like to pick feathers while the bird is warm. Others say a thoroughly chilled bird is easier to pluck. The trick in plucking birds, warm or cold, is to pick only a few feathers at a time rather than a handful. To pluck, remove coarse feathers first, then the smaller feathers as you proceed. Pinfeathers can be removed with tweezers or the tip of a small knife and the forefinger. A mixture of melted paraffin and boiling water (3/4 pound paraffin to 7 quarts water) brushed over the bird and allowed to harden will remove down. It is important to have water hot before adding paraffin. Paraffin added to cold water could produce a film on the surface which could lead to an explosion. The bird also may be dipped in the paraffin mix. Remove the paraffin coating and the down comes off. Repeat if needed. Some people prefer to singe birds. However, the bird has a nicer appearance if paraffin is used. Pinfeathers also come out easily with paraffin. So if you plan to roast some birds, use the paraffin method.

Birds can also be scalded by dipping in hot water (145 degrees Fahrenheit). This relaxes the muscle tissue around each feather so that they can be removed easily. However, if the birds are held for several hours or frozen before plucking, then scalding may break down the fatty tissue in the skin, resulting in difficult plucking and skin tears.

Some birds pick easier than others. Immature birds will generally have pinfeathers (especially early in the season) and a more tender skin. If you wish to serve birds whole, you probably will prefer to pick them. One general rule may be to pluck the larger, more perfect birds and skin those that are smaller or badly shot up.

The large tendons that run up into the shank can be removed easily at this time if you haven't removed the feet. Cut through the skin of the leg one and one-half inches above the hock joint (Figure 2). Don't cut the tendons. Lay the bird at the edge of a table with the cut just above the table edge. The leg should project over the table edge. Press the leg down sharply with the side of the hand. The bone should snap at the joint. Tendons should come away with the foot. If they tear away from the feet, remove one by one with a skewer or tweezers.



Figure 2. Removing the tendons from game birds.

Fishy-tasting ducks or those that feed on aquatic vegetation and animals probably should be skinned.

What about the fish you catch? It's best to keep the fish you catch alive as long as possible. A metal link basket or a live box is much better than a stringer. Don't throw fish in the bottom of the boat. An ice chest with ice is a good way to keep them fresh. The sooner fish are cleaned and cooled, the better they will be. A quick method is to cut the throat as you would any game animal, remove gills and entrails, wipe surface, put in plastic bag, and put on ice. You can finish the job later.

The digestive juices of fish are strong. If fish are not cleaned promptly they will begin to digest the entrails, causing off-flavors to seep into the meat. The flesh on the inside of fish gets soft and off-flavored in the rib area. Bleeding is important, too, because the blood quickly breaks down and seeps into the meat. Simply cut the throat and remove the gills.

When fishing in the winter, be sure to keep fish covered, as the wind will dry them out. Fish can be frozen whole, just as they come out of the water. Choose this method if fish freeze before they are cleaned. Simply wrap in freezer paper. Keep frozen. Then when you are ready to prepare the fish to eat, thaw in cold water and clean as you would freshly caught fish.

Aging Game

The question of whether or not one should age game meats has always been a point of discussion among hunters. Many practical considerations such as the temperature at the time of harvest, the chilling rate, the age of the animal, the proper storage place for aging, and the intended use of the meat need to be determined if you plan to age your game.

Aging of meat is defined as the practice of holding carcasses or cuts at temperatures of 34 to 37 F for 10 to 14 days (Figure 3). This allows the enzymes present in the meat to break down some of the complex proteins contained in the carcass. Aging of meat usually improves tenderness and flavor.

Relationship between
meat tenderness

Figure 3. Immediately after death all meat decreases in tenderness (indicated by the downward slope of the line)

from zero to one days postmortem). From one to approximately 14 days, tenderness increases at a constant rate. After 14 days aging, tenderness continues to increase but at a much slower rate.

Because birds and mammals forage for food, their muscles may develop more connective tissue than muscles of domestic animals. Exercise can thus be given as a reason for less tender meat. Tenderness is generally inversely related to age of the animal at harvesting. The most tender meat comes from young, healthy, alert animals. The condition of the animal prior to harvest has an overall effect on the quality of the meat. If an animal has run a long distance before being killed it will have depleted its reserve glycogen stores, which may result in meat which is darker in color (a brownish-red to a purplish-black) and may be sticky or gummy in texture. Consequently, this meat does not decrease to a normal pH of 5.6-5.8, but stays at a higher pH of 6.5. This decreases the keeping quality of meat and increases the potential of bacterial growth.

However, not all meat should be aged. Young game animals are tender by nature. Aging game that has been skinned often results in excessive weight loss, dehydration and surface discoloration of the lean tissue because there is little or no fat cover on the carcass. The meat is also exposed and susceptible to deterioration by bacteria and mold growth. Processing game meats into sausage or ground meats should be done as soon after harvest as possible to minimize weight loss from drying and deterioration due to microbial growth. Grinding or chopping tenderizes game so aging is not necessary. If you prefer to age your game, leave the hide on the carcass and maintain proper temperature.

Whether or not to age birds is also a matter of personal preference. Young game birds have lighter legs, soft breastbones and flexible beaks. Older birds have darker, hard-skinned legs, hard and brittle breastbones, and inflexible beaks. They need to be aged longer than young birds. If you do not have a cooler to put the birds in, the weather can affect the aging process. Hot and muggy conditions accelerate aging. Sometimes birds are not dressed before aging. (The author does not recommend this.) Hang the birds by the feet in a cool, dry, airy place. Feathers should be dusted with charcoal and covered with cheesecloth to protect from insects.

Cookery Preparation

Game meats are apt to be drier and less tender than meats of domestic animals, but richer in flavor. It is generally agreed that strong flavors are more pronounced in the fat of game species, so trimming fat from a carcass or individual cut can be important. The fat from large game animals such as deer, moose, or elk is highly saturated so it should always be served piping hot or very cold to avoid the clinging of fat to the mouth and the greasy taste. Since game meats have little fat covering, you may need to add cream, lard, butter or other cooking oils to maintain the juiciness of the meat. By all means, don't dry it out or overcook it.

Plucked game birds can be roasted without fear of drying them out because the fat beneath the skin will soak into the meat. However, if they are skinned, then it is advisable to wrap with bacon or dredge with flour to prevent the bird from drying out while cooking. Dip a slice of bread in egg and milk and place on surface of the bird while roasting.

If the bird is to be cut into small pieces, test the joints and bones to determine method of cookery. If the

joints are stiff and the bones brittle, this indicates the bird is old and should be braised (simmered in a covered pot with a small amount of liquid) or stewed to make it more tender and enjoyable. If joints are flexible and bones soft, the bird can be fried.

Recipes -- Large Game

Venison Steak Italian -- Italian Style

- 4 venison steaks
- ½ medium onion, sliced
- 1 green pepper
- 1 lb can tomatoes
- Dash of garlic powder (optional)
- Dash of oregano (optional)
- Salt and pepper to taste

Dredge steaks in flour. Fry in skillet with sliced onion until brown. Add strips of green pepper and tomatoes. Season with salt and pepper. Add garlic powder and/or oregano if desired. Simmer ½ to 1 hour. Serve on rice.

Venison Stroganoff

- 2 lb steak cut ½" thick
- 2 C mushrooms, chopped (you may use canned bits and pieces or chopped fresh mushrooms)
- 1 C finely chopped onion
- 3 T butter or margarine
- 3 beef bouillon cubes
- 4 C cooked rice
- 1 C boiling water
- 2 T tomato paste
- 1 t dry mustard
- ½ t salt
- 2 T flour
- ½ C water
- 1 C dairy sour cream

Cut steak into strips about 2¼ inches long. In large skillet, saute fresh mushrooms and onion in butter or margarine till golden brown. Remove and set aside. Brown meat on all sides (15 minutes). Dissolve bouillon cubes in boiling water; pour over meat. Add tomato paste, mustard and salt. Heat. Simmer 45 minutes or until tender. Combine flour and water. Slowly stir into meat mixture. Cook, stirring constantly, till mixture comes to a boil. Reduce heat. Add mushrooms, onions and sour cream. Heat but do not boil. Serve over hot

rice or chow mein noodles. Serves 4 to 6.

Venison Fondue

Venison steaks, chops or other tender cut
Peanut oil
Fondue sauce
Steak sauce or garlic butter sauce

Heat 2 to 3 inches of peanut oil in fondue pot to a temperature of 380°F (or when a 1 inch cube of bread toasts in 40 seconds). Cut venison into 1 inch cubes. Using fondue forks (table forks get too hot), dunk cubes of venison into oil for about 1 minute, depending on the degree of doneness preferred sauce.

Note: Peanut oil is preferred for fonduing. Melted shortening or other vegetable oils may be substituted. (The smoking point on lard is too low to be used in fondue cookery.)

Fondue Sauces

Horseradish Sauce

½ C sour cream
1 T horseradish
½ t Worcestershire sauce

Mix all together and serve.

Garlic Butter Sauce
¼ C butter or margarine
1 T garlic powder

Melt butter, add garlic powder. Serve warm.

Yuletide Mincemeat

4 lb venison meat with bones
2 lb seedless raisins
1 15 oz. box light raisins
1 T salt
1 T cinnamon
1 T ground ginger
1 T cloves

- 1 T nutmeg
- 1 12 oz. box currants
- ¾ lb beef suet
- 3 lb apples, peeled and quartered
- 1 t allspice
- 1 t mace (optional)
- 2 qt cider, grape juice, or other fruit juice
- 1 lb brown sugar

Trim fat from venison. Cover with water. Simmer until meat is tender. Refrigerate venison in cooking liquid and allow to cool overnight. Remove all fat from top of liquid. Separate meat from bones and put meat through grinder, using a coarse blade. (There should be enough ground venison to make at least 2 qt of ground meat.) Grind suet and apples. Combine all ingredients in a large kettle. Simmer for 2 hours to plump fruit and blend flavors. Stir often to prevent sticking.

Use "as is" for cookie recipes. Add 1 C apple for every 2 C of mincemeat for pie.

Preserving Mincemeat

Mincemeat can be frozen or canned. Process pints or quarts of mincemeat for canning for 90 minutes at 10 pounds pressure (240° F) in a weighted gauge canner or 11 pounds pressure in a dial gauge canner. Adjustments in pressure need to be made at altitudes above 1,000 feet.

Quick Oven Steak

- 2 lb steak or roast
- 1 pkg commercial dry beef-flavored mushroom mix

Sprinkle both sides of meat with mushroom mix. Lay on heavy-duty foil. Wrap loosely, but make airtight seal using double fold in foil. Place in 375°F oven for 1 hour or until fork tender.

Venison Chops in Sour Cream

- 6 venison chops about
- ½ inch thick
- ½ t powdered sage
- ½ t salt
- 2 T shortening
- Dash of pepper
- 2 medium onions, sliced
- 1 beef bouillon cube
- ¼ C boiling water
- ½ C sour cream

- 1 T flour
- 1 T dried parsley flakes, crushed

Rub chops with mixture of sage, salt and pepper. Brown chops on both sides in shortening. Drain off extra grease. Add onions. Dissolve bouillon in boiling water and pour over chops. Cover and simmer about 25 to 30 minutes or till meat is done. Put meat on serving platter. Combine sour cream and flour in a bowl and slowly stir in drippings. Return all to skillet. Cook, stirring constantly until mixture begins to boil. Add water to thin gravy. Pour over chops and serve. Makes 6 servings.

Recipes -- Small Game

Brunswick Stew

- 3 squirrels (cut up)
- 3 qt water
- ¼ C diced bacon
- ¼ t cayenne
- ¼ t black pepper
- Kitchen Bouquet to taste
- Rosemary
- 1 C chopped onion
- 2 - 1 lb 3 oz cans tomatoes (drained)
- 2 C diced potatoes
- 2 C lima beans, fresh or frozen
- 2 C corn

Place squirrels in large kettle. Add water. Bring to boil slowly, reduce heat and simmer 1½ to 2 hours, or until tender. Skim surface occasionally. Remove meat from bones and return to liquid. Add bacon, cayenne, salt, pepper, onion, tomatoes, potatoes and lima beans. Cook 1 hour. Add corn and Kitchen Bouquet, continue to cook 10 minutes. Spoon into soup plates and serve with cornbread and coleslaw. Makes 6 to 8 servings. I like to use a pinch of rosemary. Be careful! A pinch goes a long way!

Rabbit Supreme

- 1 or 2 rabbits, cut up
- Flour, salt and pepper to taste
- Shortening
- ¼ C water
- ¼ C wine
- 2 cans cream of mushroom soup
- Worchestershire Sauce

- Tabasco sauce
- 1 clove garlic
- 1 bay leaf
- 2 or 3 strips bacon
- 2 onions, sliced

Boil rabbit pieces 1 hour. Dry thoroughly; shake in bag with flour, salt and pepper. Braise rabbit pieces in pressure saucepan in small amount of shortening. Add water, wine, soup, onion, Worcestershire sauce and tabasco sauce, garlic and bay leaves. Place strips of bacon over rabbit. Close cooker, process 20 to 25 minutes at 10 Ib pressure. Makes 4 to 6 servings.

Hasenpfeffer (Rabbit Stew)

- 1 large or 2 small rabbits, cut in serving pieces
- 1 C vinegar
- 1 C beer
- 1 large onion, sliced
- 2 T mixed pickling spices
- 1 t salt
- 6 peppercorns, crushed
- Flour
- 3 slices bacon
- 1 T sugar
- 3 T flour
- 3 gingersnaps
- ½ C sour cream

Combine vinegar, beer, sliced onion, spices, salt and pepper in a large glass, earthenware or enamel container. Add rabbit, cover and refrigerate for 1 or 2 days, turning several times. Remove from marinade and reserve 2 cups of marinade for gravy. Pat rabbit dry. Dredge in flour.

Dice bacon and cook over moderate heat until crisp. Remove from fat and set aside. Add rabbit pieces and brown well on all sides, adding a little butter, if necessary. Sprinkle with sugar, cover and cook over moderate heat until tender, about 1 hour, adding a few tablespoons of the marinade to form steam, if necessary. Remove from the pan and keep warm.

Add the 3 tablespoons of flour to the drippings, add 2 cups of the marinade and crumbled gingersnaps. Adjust seasoning. Cook and stir until smooth and thickened. Add sour cream and blend. Add rabbit and bacon bits and heat only to serving temperature.

Serve with potato dumplings or plain boiled potatoes, buttered green beans and cold ale.

Recipes -- Game Birds

Barbecued Duck or Grouse

2 large birds
½ bottle (12-oz) chili sauce
½ bottle (14-oz) hot catsup
¼ lb margarine or butter
2 t salt
¼ t pepper
2 T vinegar
½ C water

Place quartered birds on rack, skin side up, in shallow pan in 325°F oven. Melt margarine in small pan; add remaining ingredients and bring to a slow boil. Keep warm. Baste meat; continuing to baste every 15 minutes for about 45 minutes. You may want to turn birds when top is browned. Skinned birds barbecue nicely too. Baste often.

Roast Duck

1 young duck
2 C apples (quartered)
1 slice onion
2 t salt
1/3 t pepper
1 C orange juice

Fill cavity with peeled, quartered apples. Close with skewers. Tie legs and wings close to body. Rub with onion slice, salt and pepper. Roast, back side up, uncovered, at 325°F 1 to 1½ hours. Baste every 10 minutes with orange juice. Large ducks such as mallards will serve two. Small ducks such as teal serve one adult.

Pheasant in Sour Cream

1 pheasant, cut in serving pieces
Flour, salt and pepper, fat
1 C sour cream
3 T dry onion soup mix
½ C milk

Coat pheasant with flour, salt and pepper. Brown in hot fat. Combine cream, soup mix and milk; pour over browned meat. Cover. Bake at 350° F 1 hour or until tender. Makes 4 servings.

Pheasant in Milk

1 pheasant (cut up)
Milk or cream
Seasoned flour
Carbonated lemon-lime drink (optional)
2 T fat

Dredge pheasant in seasoned flour. Brown in fat on both sides. Add approximately 2 inches of milk or cream. Simmer on top or bake in oven until done (1 to 1½ hours). If desired, add ½ to ¾ C carbonated lemon-lime drink when you add the milk.

Recipes -- Fish

Lemon Broiled Fish Fillets

3 lb fish fillets
6 T butter or margarine
1 t salt
½ t pepper
1 T Worcestershire sauce
2 T lemon Juice
Paprika
½ C white wine

Place fish in greased broiler pan. Melt butter, mix with salt, pepper, Worcestershire sauce, and lemon juice. Brush fillets with this mixture. Sprinkle with paprika. Broil 3 inches from source of heat for about 5 minutes or until golden brown. Turn, brush again with sauce and sprinkle with paprika. Broil 7 minutes longer until fish flakes easily when tested with fork. Makes 6 to 8 servings.

Cocktail Sauce

Combine: 2 parts chutney
1 part mayonnaise

Vary according to taste.

Crispy Lemon Fish

Clean, wash and dry fish thoroughly with towel. Dip in beaten eggs. Salt and pepper fish and roll in commercial potato flakes.

Fry in butter and sprinkle both sides with a few drops of lemon juice. Be careful not to add too much lemon. The fish will flake when done.

Small trout are especially good with this recipe, but any fish or fish fillet will do.

Boiled Fish

Use a two-gallon pot. Fill $\frac{3}{4}$ full of water. Add two large potatoes, old or new, and a handful of salt (about $\frac{1}{2}$ C). Bring water to boil. Add a fat fish such as trout. Cook till done (fork easily penetrates flesh). Season and serve. Larger fish are best prepared by this method. Allow 2 lb for every 2 potatoes.

Preserving Game and Fish

Canning, Drying, Pickling

For information on canning game and fish, contact your county office of the NDSU Extension Service for HE-155 Wild Side of the Menu No. 3 Preservation of Game Meats (revised 1996) or [HE-188 Canning Meat -- Poultry, Red Meats, Game and Seafoods \(Revised May 1996\)](#).

Cutability and Nutrient Content of Selected Game Species

Since the beginning of civilization, foods from the muscles of animals have served mankind well. The livelihood of the Native American and the early settlers depend on non-domesticated animals and fish as a source of food. Hunting and fishing were not only popular pastimes, but were necessities in many cases. However, the role of game meats as a source of food has been largely ignored in modern times, yet it may provide the principal meat source for many individuals in North America as well as in some of the developing countries.

Through research we are beginning to understand the delicate balance of nature needed for the preservation of these species. Game species provide many forms of enjoyment to the naturalist, hunter and sportsperson. They can also be a source of nutritious food.

Table 1 shows the nutrient content of lean domestic and game meat. The mineral content of various game

animals is shown on Table 2. Table 3 shows the relative percentage of saturated, monosaturated and polyunsaturated fatty acid found in some mammalian species.

Table 4 gives the average weight in pounds of some game animals by stages of processing. Average yield of lean edible tissue of game animals by various stages of processing are given in percentages in Table 5.

Table 1. Nutrient content of lean* domestic and game meats.

Species	Nutrient				
	Moisture	Protein	Fat	Cholesterol	Energy**
	(g/100g)			(mg/100g)	(Kcal/100g)
Beef					
(USDA Choice)	70.2	22.0	6.5	72	180
Beef (USDA STD)	73.2	22.7	2.0	69	152
Pork	71.9	22.3	4.9	71	165
Lamb***	73.2	20.8	5.7	66	167
Buffalo	74.5	21.7	1.9	62	138
Whitetail Deer	73.5	23.6	1.4	116	149
Mule Deer	73.4	23.7	1.3	107	145
Elk	74.8	22.8	0.9	67	137
Moose	75.8	22.1	0.5	71	130
Antelope	73.9	22.5	0.9	112	144
Squirrel	3.8	21.4	3.2	83	149
Cottontail	74.5	21.8	2.4	77	144
Jackrabbit	73.8	21.9	2.4	131	153
Chicken	75.7	23.6	0.7	62	135
Turkey (domestic)	73.8	23.5	1.5	60	146
Wild Turkey	71.7	25.7	1.1	55	163
Pheasant	74.0	23.9	0.8	71	144
(domestic)					
Wild Pheasant	72.4	25.7	0.6	52	148
Grey Partridge	72.1	25.6	0.7	85	151
Sharptail	74.2	23.8	0.7	105	142
Grouse					
Sage Grouse	74.3	23.7	1.1	101	140
Dove	73.6	22.9	1.8	94	145
Sandhill Crane	73.2	21.7	2.4		