BUY BEEF WISELY

USE IT WELL



James D. Kemp

CIRCULAR 523

Cooperative Extension Work in Agriculture and Home Economics

College of Agriculture and Home Economics, University of Kentucky and the U.S. Department of Agriculture, cooperating

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Buy Beef Wisely-Use It Well

By James D. Kemp

The meat of all bovine animals suitable for food eventually reaches the consumer in the form of beef or meat products. These animals are of all sizes, breeds, and degrees of fatness, and result in products of different grades and quality. The beef carcass itself is composed of many cuts of varying amounts of fat, lean, and bone. Differing in degree of tenderness and flavor, they require special cooking methods to retain or bring out their best qualities.

A housewife should have a knowledge of the different cuts of meat, their degrees of quality, and methods of cooking in order to choose the grade and cut best suited to her needs and pocket-book.

On the Hoof

Beef animals are divided into five classes because their age and sex have a very definite effect upon the quality of the carcass The classes are:

Steers-Males that were castrated as calves.

Heifers-Young females which never have borne a calf.

Cows-Mature females which have borne one or more calves.

Bulls-Sexually mature uncastrated males.

Stags-Males castrated after reaching sexual maturity.

Steers and heifers produce beef of the highest quality. Although buyers sometimes discriminate against heifers on foot, heifer beef is as palatable and tender as steer beef of similar finish and quality. That is not true of cows, many of which are of dairy breeding. They usually are kept as long as they are good producers, and at butchering are advanced in age. The meat is then lacking in finish, quality and palatability.

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Feed-lot steers, the source of much of our high-quality beef

A limited number of stags and bulls are slaughtered; their carcasses are not used extensively in the retail trade as they are in demand for hamburger, sausages, and so on. Fatter bulls and stags are sometimes sold as retail cuts, but such beef is usually coarse, and not as tender as steer or heifer beef.

Judging the Carcass

Most beef is sold to the retailer in the form of carcasses or sides, quarters, or wholesale cuts. The grade of the carcass usually determines the price received for it. Carcass grades are based primarily upon three things: conformation, finish, and quality.

Conformation refers to shape. A carcass that is short and thick, with short neck and shanks, full thick rounds, loins, ribs, and chucks is most desirable. This type will usually have less bone and more meat, and may have a higher percentage of high-priced cuts. Beef of this type usually sells at a higher price than less blocky beef with similar finish. The meat, however, may be no more tender, and certainly will have no advantage in nutritive value when compared with more angular beef.

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Finish refers to the amount and distribution of fat exhibited by the carcass. A certain amount, particularly a smooth outside covering of ½ to ½ inch, and a moderate to abundant amount of fat within the lean (marbling) is desirable from the standpoint of increasing tenderness and palatability. Too much fat, such as excessive kidney and crotch fat and patchy overabundance of external fat, is undesirable as it adds very little to quality or palatability and decreases the amount of salable meat. A consumer who is interested solely in flavor and tenderness, and wishes to use mostly dry-heat methods of cooking, should buy the fatter grades of beef. However, leaner beef, if properly cooked, is practically as palatable, much less wasty, and has a higher percentage of protein than the fatter beef. Beef naturally fattens with age. Older beef requires more external fat and marbling to obtain the same carcass grade as young beef.

QUALITY, as the term is used in beef grading, refers to texture of grain, firmness and color of lean, firmness and color of fat, and character of bone.

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may nuThe lean of beef varies in texture from very coarse, with strands of rough connective tissue throughout, to very fine with no visible fat. The ideal lean should be firm, with an even distribution of marbling and a smooth velvet-like feel when the fingers are rubbed across it. Lean of mature beef should be a bright cherry-red when its maximum brightness is reached about one hour after cutting. Baby beef usually is a light red in color and shows less marbling. Lean that is dark in color may be just as palatable if it comes from young animals, as sometimes happens, but dark beef usually comes from older animals, or has been cut for a considerable length of time.

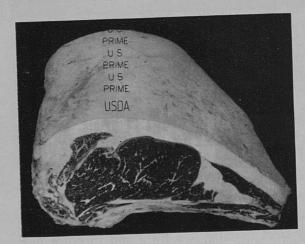
Beef fat should be firm and white, or creamy white, but no grade discrimination is made because of yellow fat. However, yellow fat often indicates advanced age, or beef from inferior breeding.

The bones of young beef are red, porous, and show "buttons" or unossified cartilage at the tips of the chine bones (spinous processes). Bones that are hard and white with no "buttons" indicate advanced age. No hard-bone carcass may carry a government grade higher than Commercial.

Government Grades of Beef

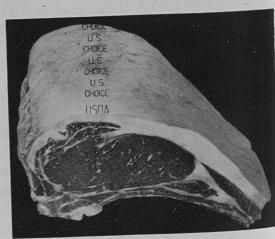
Beef is graded as Prime, Choice, Good, Commercial, Utility, Cutter, and Canner.

PRIME beef is of the highest quality. The carcasses and whole-sale cuts are thick, blocky and compact. The fat covering is firm, somewhat brittle and waxy. The cut surface of the lean shows extensive intermingling (marbling) of fat with the lean. The color of the lean may vary from pale red to a deep red, but is uniform and bright. The chine bones are usually red and porous, and end in white cartilage or "buttons." Although this meat is of the highest quality, it is somewhat wasty due to excess fat.



U. S. Prime





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Ch wit Choice grade carcasses and wholesale cuts are moderately thick-fleshed, blocky, and compact. There is a complete covering of fat over the carcass, but it may vary considerably due to the core in age as young animals need less fat to grade Choice. There is available the year around; whereas Prime beef is more available during seasons when finished long-fed cattle are marketed. Cuts from this grade are less wasty than Prime, yet are tender and juicy. Marbling in the ribeye varies from moderate to moderately abundant, depending upon the age. Young cattle have less marbling. The color of the lean varies from light red to slightly dark red, and may be slightly two-toned in color. Chine bones may vary from soft and red in color, to being tinged with white.

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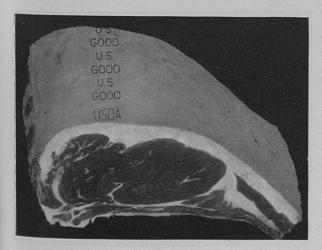
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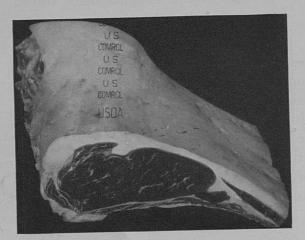
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Good grade carcasses and wholesale cuts are slightly thickfleshed and slightly compact and blocky in appearance. The fat covering varies considerably, thin in young animals to slightly thick in mature animals. The marbling in the rib eye ranges from slight to moderate. The chine bones vary from soft and red to being tinged with white, depending upon the maturity of the animal. This grade pleases consumers who seek beef with a high proportion of lean to fat, but with acceptable quality.



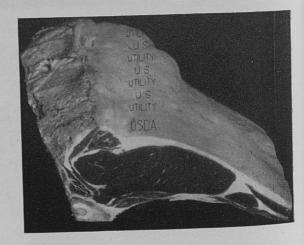
U. S. Good

Commercial grade carcasses vary in conformation, finish, and quality more than the higher grades. Carcasses from underfinished young animals lack covering. The lean is soft and watery with little marbling. Carcasses from mature animals may have a moderately thick covering of fat, but it is often patchy. Marbling may be abundant, but it is usually coarse and prominent. The color of the meat varies from slightly dark red to dark red. The bones are white and hard. Cuts of this grade can be made into satisfactory and economical dishes if they are cooked properly with long, slow, moist heat.



U. S. Commercial

U. S. Utility



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UTILITY grade carcasses usually are produced from older animals, although some are produced from very thin, young ones. There is little covering. The cut surface of the lean is fairly firm, but coarse in mature animals, and usually soft and watery in young ones. There is little marbling. Color of lean varies from light to very dark red and may be two-toned. The bones are hard and white except for that produced by young animals and they may be red and porous. Very little Utility grade beef is found in retail markets. It lacks natural juiciness and tenderness, but may provide an economical source of lean meat for stewing, pot roasting, or for ground-meat dishes.

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Cutter and Canner grades of beef are from very thin mature animals and are used mostly in processed meat products. They are seldom, if ever, sold as cuts in the retail trade.

Extent of Government Grading

At the present time, government grading is voluntary. Some retailers demand grading, whereas others do not want it. Although the system is not perfect, it is a good guide for the average consumer in selecting meat. Graded meat can be identified by the grade stamp which appears on most retail cuts. Using the Good grade as an example, the stamp appears as shown.



Other Types of Grading

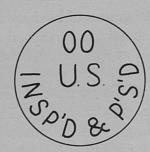
Since government grading isn't compulsory, many packers have packer grades or brand names. A knowledge of those from packers that serve a locality will help consumers. The top packer grade usually is equivalent to Prime and Choice. His second grade is usually equivalent to Good or possibly a portion of Commercial. Although grades vary among packers, cooking methods for government grades can generally be applied by estimating the equivalent government grade from the packer grades.

During World War II, letter designations AA, A, B, and C, were used by the Office of Price Administration. Since these

designations are no longer used, little attention should be paid to advertisements which feature Grade A meat. Some chain stores have their own brand names. Most of them will tell you the approximate government grade equivalent of the meat sold. Some beef is sold without government or packer grading. Knowing how to recognize quality is necessary in choosing this type of beef.

The Sign of Purity

Beef that is slaughtered under the supervision of the U. S. government inspection service bears a purple circular stamp on



wholesale cuts. This purple stamp bears the label, U. S. INSP'D & P'S'D, with the number of the establishment. Meat bearing this stamp was produced from healthy animals and was slaughtered under sanitary conditions.

Cuts of Beef

There are several ways of cutting beef, each producing different cuts. The most popular style in Kentucky is commonly called the Chicago method with several slight modifications. The side is quartered between the 12th and 13th ribs, leaving about 48 percent on the hindquarters and 52 percent on the forequarter. Fig. 1 shows the wholesale cuts and the percentages of the carcass.

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The hindquarter

The hindquarter is separated into round, including rump; loin, including sirloin and short loin, and flank.

Round steak is one of the largest and most economical steaks. There are four large muscles in a full-cut round steak as illustrated. The rump is removed from the round and sold either as

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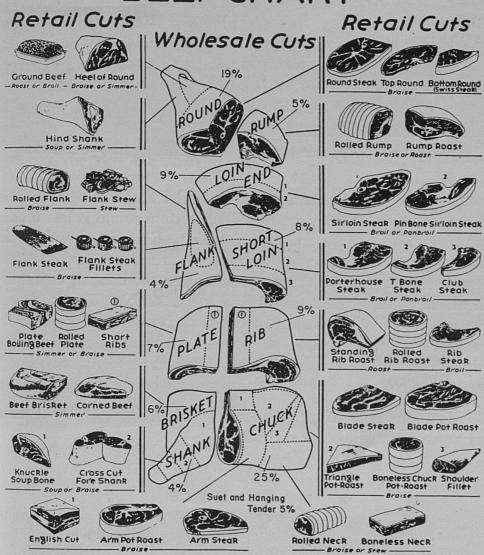
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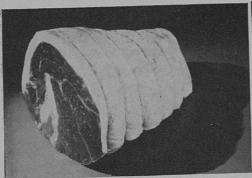
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standing rump or rolled rump. It may be roasted if from Prime or Choice carcasses, but should be pot-roasted if from lower grades. The rolled rump is more desirable because it is easier to carve.

A modified method of cutting the round is often used so that the tip is removed as a sirloin tip roast, leaving only the top, eye, and bottom for steaks. This may be separated into two parts, the top being sold as top round, and the eye and bottom as bot-



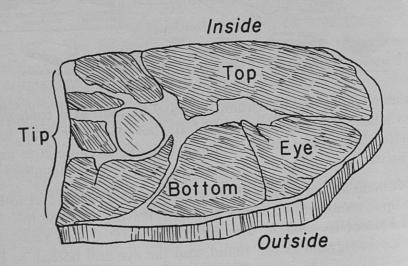
Rolled Rump-braise, roast



Standing Rump-braise, roast

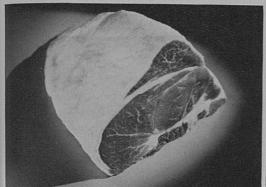
tom round. The top round is more tender and can be broiled if from Prime or Choice carcasses. The bottom round is less tender and should be cooked with moist heat. First-cut round steaks are the most desirable as the muscles are larger and the percentage of connective tissue is smaller. As the cuts approach the heel, they become less tender and less desirable. The lower-cut rounds are usually cut thick for Swiss steaks. The heel is cut into a boneless heel of round pot roast, usually an economical cut, though not so tender. The shank may be made into soup bones or stew meat, or may be used for ground beef.

The loin, consisting of the short loin and sirloin, is the most expensive wholesale cut of beef.



Top Roun

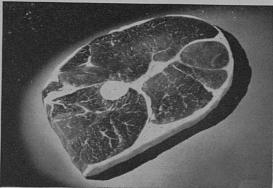
Heel



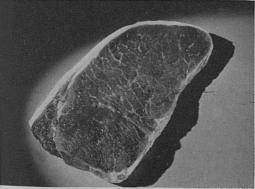
Sirloin Tip-roast

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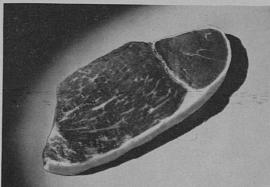
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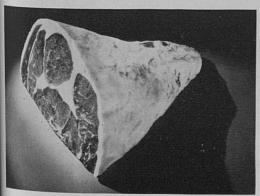
Round Steak (full cut)—braise



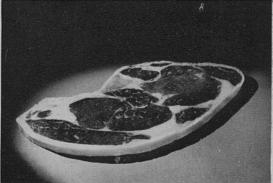
Top Round Steak—broil, panbroil, panfry, braise



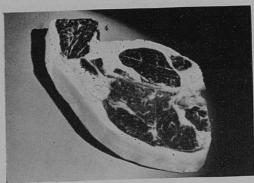
Bottom Round Steak-braise

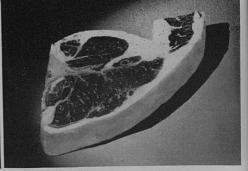


Heel of Round-braise, cook in liquid



Sirloin Steak—Sroii, anbroil, panfry





Pinbone Sirloin Steak-broil, panbroil, panfry

Porterhouse Steak-broil, panbroil, panfry

The sirloin is usually cut into steaks, including wedge bone and round bone sirloin, double bone sirloin, and pinbone sirloin. Round bone and wedge bone steaks contain less bone, but include a portion of the backbone and a small round-or-wedge-shaped portion of the pelvic bone. The double bone sirloin contains a long piece of the pelvic bone as well as a piece of backbone. If the backbone portion is removed before the piece is weighed, the cut is as economical as the round or wedge bone. The pinbone is wasty, as it contains a tail portion, a piece of bone adjacent to the outside fat, and often excessive fat.

The short loin contains the porterhouse, T-bone and club steaks. The porterhouse and T-bone are often sold as T-bone, the only difference being a larger tenderloin muscle in the porterhouse.

The backstrip portion of the porterhouse or T-bone is reasonably tender and full of flavor. The tenderloin portion is very tender but lacks flavor. The tail or strip end is less tender and is stringy. It should be ground or used for stew. Porterhouse steaks often have a large amount of waste fat.

Club steaks are cut from the rib end of the loin and usually contain a small portion of rib, no tenderloin, and little tail meat. They usually sell for a few cents less per pound, and are more economical than porterhouse or T-bone.

All steaks from Prime or Choice loins are suitable for broiling or pan-broiling. Lower grade steaks should not be broiled.

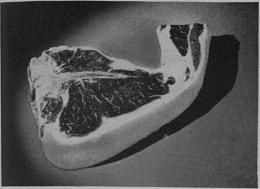
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T-bone Steak-broil, panbroil, panfry

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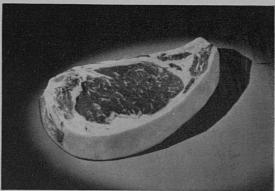
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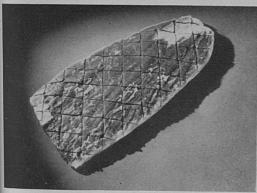
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Club Steak-broil, panbroil, panfry



Flank Steak-braise



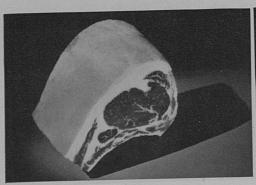
Rolled Rib-roast

The flank, the other hindquarter wholesale cut, contains the flank steak, a fanshape, all-lean steak. It is economical, but tough, as it is stringy. It is usually tenderized or scored before it is sold. It should be braised in cooking. The remainder of the flank may go into ground beef or stew.

The forequarter

The forequarter is separated into rib, chuck, short or navel plate, brisket, and shank.

The rib is the most expensive of the forequarter cuts. If properly prepared, it is an excellent roast although it is rather wasty, as it contains less lean and more fat than many roasts. It may be sold as standing rib, rolled rib, folded rib, or rib steak. If it is sold as a standing rib, the rib ends should be removed as this portion is thinner and will need a different method of cooking. A rolled rib may be excellent if the butcher doesn't put too much



Standing Rib-roast



Rib Steak-broil, panbroil, panfry

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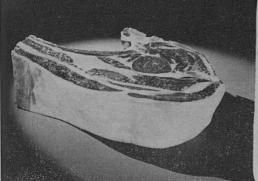
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cheap rib-end meat into the roll. However, in order to make a neat roll, some of this cheap meat will be used. The folded rib has long rib ends. A piece of bone is removed from the mid-portion of the rib, and rib ends are folded over the thick portion and tied. Unless the price is enough lower to justify the difference, this is not a good buy. Rib steaks contain more rib bone than club steaks, otherwise are similar in appearance; they may be cooked the same.

The blade-end roast has more muscles and a portion of blade bone, but may sell at a lower price. It has a higher percentage of lean than the loin end and is more economical. Prime, Choice and Good-grade ribs may be roasted. Others should be pot roasted.

The chuck is the largest wholesale cut in the forequarter and carcass, and from it several cuts are made. The chuck includes the shoulder arm, neck, and blade bone, and extends backward to include five ribs. An English cut is sometimes made from the ends of the 4th and 5th ribs. In over-finished carcasses, this cut is very fat and has little value. In carcasses of medium finish, it is excellent for braising or cooking in liquid. It may be cut into smaller portions and sold as short ribs.

The thick portion of the 4th and 5th ribs are cut and sold as blade chucks. They are quite similar to blade-end rib roasts. They contain less lean meat and more fat than the 1st, 2nd, and 3rd rib cuts, and are less desirable. The 1st, 2nd, and 3rd rib cuts are sometimes called 7-bone chucks and are among the most eco-



Blade-end Rib Roast-roast

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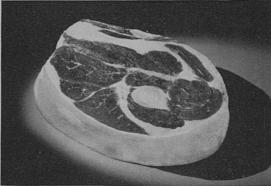
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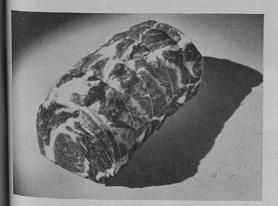
English Cut (Chuck)—braise



Blade Pot Roast (Chuck)-braise



Arm Pot Roast (Chuck)-braise



Boneless Chuck-braise

nomical roasts in the carcass. The arm roast contains a portion of the arm bone and may or may not have ends of two or three ribs. They should not be confused with round steak.

Sometimes a chuck is boned and rolled. Rolled chuck roasts are easier to carve and make excellent pot roasts. All chuck roasts,

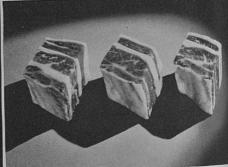
regardless of grade, should be pot roasted or cooked with some form of moist heat.

The short or navel plate is one of the least expensive cuts per pound. It contains considerable fat and some bone, but it is economical if obtained from a lean carcass. It is used for braising, stewing or ground beef, or the portion cut from the end adjoining the rib may be sold as short ribs. Short ribs sometimes are cut from the rib end of the rib cut. When the plate is boned and rolled, it may resemble a rolled rib in appearance, although it is quite different.

The brisket is another cheap cut per pound, but is usually too fat. If some of the excess fat is removed, it may be used satisfactorily for braising or stewing. It is often boned and corned and sold as corned beef.



Plate Beef-braise, cook in liquid



Short Ribs-braise, cook in liquid



Brisket (bone in)-braise, cook in liquid



Corned Beef-(Brisket)-cook in liquid

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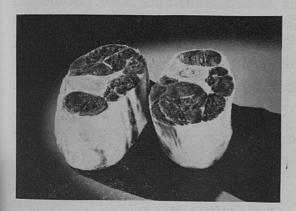
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The shank is a minor wholesale cut. It is either cut into shank cross-cuts, which may be used for soup or stew, or it may be boned for ground beef. It has a high proportion of bone to edible meat.

Cubed steak is lean beef that has been thoroughly tenderized by mechanical means. It may come from almost any lean cut.



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Shank Cross Cuts—cook in liquid

Why Cuts Vary in Price

Cuts from the same carcass vary in flavor and tender ess. The higher grades of beef have a richer flavor and are more tender. When money is plentiful, people tend to demand them, thus keeping up the price. The season also affects price, some cuts being more popular in hot than in cold weather.

Regardless of the cut or grade of meat there is little difference in food value. Roasts may have a higher percentage of lean meat, but as a general rule, steaks are more in demand and, consequently, sell at a higher price per pound. A difference of 1 cent a pound in the wholesale price of different grades may mean a difference of 3 to 4 cents a pound in the retail price of steaks, 1 to 3 cents in the moderately priced cuts, and 1 cent or less in the cheaper cuts. In fact, an increase in grade often decreases the salability of cheaper cuts, such as short ribs or brisket, as the higher grades may contain too much fat.

Choosing Beef Cuts

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When choosing beef cuts, have in mind the use to be made of the meat. If price is no objective, select the more tender cuts from the higher grades. If the meat is to be used for a special occasion, a cut, such as a standing rib roast, although more expensive, is more attractive and can be carved more easily than a chuck roast, for example. If high food value for the money spent is the objective, choose the leaner, less-tender cuts. Look also at the relative amounts of fat, lean, and bone. Some fat, especially marbling, is desirable and adds to the flavor, but too much fat may be a waste. Some cuts have a high percentage of bone and may be a poor buy, even though they are priced cheaply. The relative price per pound of the cuts may shift frequently. Observe these shifts and buy accordingly.

No cut of meat is economical, however, unless it is properly prepared and serves the need for which it is purchased.

Methods of Cooking Beef

There are two general ways of cooking beef, dry and moist heat, determined by the quality of beef and tenderness of the cuts.

Dry heat methods include roasting, broiling, pan broiling, and frying. They may be successfully used for the higher-grade, tender cuts, such as steaks from the loin and top round, and roasts from the rib, sirloin tip, and rump.

A meat thermometer takes the guesswork out of roasting. Rare beef should be cooked to an internal temperature of 140 F; medium, 160 F, and well-done, 170 F.

Other steaks and roasts than those named above may be more successfully cooked by using moist heat such as in cooking Swiss steak or pot roast. Moist heat methods also include simmering, braising, and pressure cooking. Meat should never be boiled, as it is only through long, slow cooking with moist heat that tissues are softened and made tender.

Correct Beef Cookery

(Use approximately 1 teaspoon of salt per pound of lean meat)

1. Cuts to roast

Standing ribs, rolled ribs, rump (high quality) and sirloin tips.

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- 1. Season with salt and pepper.
- 2. Place meat fat side up on rack in open roasting pan.
- 3. Insert meat thermometer.
- 4. Do not add water. Do not cover. Do not baste.
- 5. Roast in slow oven-300°F. to 350°F.
- 6. Roast to desired degree of doneness. (Allow 18 to 20 minutes per pound for a rare roast; 22 to 25 minutes for medium; 27 to 30 minutes for well-done.)

2. Cuts to broil

Rib, club, tenderloin (filet mignon), T-bone, porterhouse, tip, sirloin, top round steak (high quality) and patties.

Method

- 1. Have steaks cut 1 to 2 inches thick.
- 2. Set oven regulator for broiling. Preheat for 10 minutes.
- 3. Place meat 2 to 3 inches from heat, the thicker the meat, the farther from heat.
- 4. Broil until top of meat is brown.
- 5. Season with salt and pepper.
- 6. Turn meat and cook until done. (For a medium well-done, 1-inch rib or club steak, allow 20 to 25 minutes total cooking time at 350 degrees F; for a 2-lb porterhouse or 3-lb sirloin 1-inch thick, allow 25 minutes.)

3. Cuts to panbroil

Rib, club, tenderloin (filet mignon), T-bone, porterhouse, tip, sirloin, top round steaks (high quality) and patties.

Method

- 1. Place meat in heavy frying-pan.
- 2. Do not add fat or water. Do not cover.
- 3. Cook slowly, turning occasionally.
- 4. Pour fat from pan as it accumulates.
- 5. Brown meat on both sides.
- 6. Season. Serve at once.

4. Cuts to panfry

Thin rib, club, tenderloin (filet mignon), T-bone, porterhouse, sirloin, and top round steaks (good quality) and patties.

Method

- 1. Brown meat on both sides in small amount of fat.
- 2. Season with salt and pepper.
- 3. Do not cover.
- 4. Cook at moderate temperature until done, turning occasionally.

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5. Remove from pan and serve at once.

5. Cuts to braise (small amount of liquid)

Arm, blade, round and flank steaks; short ribs; plate; brisket; cross cut shanks.

Method

- 1. Brown meat on all sides in fat in heavy utensil.
- 2. Season with salt and pepper.
- 3. Add 1/2 to 1c hot water, replacing as needed.
- 4. Cover tightly.
- 5. Cook at low temperature until tender.

6. Cuts to cook in liquid (large cuts and stews)

Neck, shank, flank, heel of round, plate, brisket, short ribs, corned beef, stew meat.

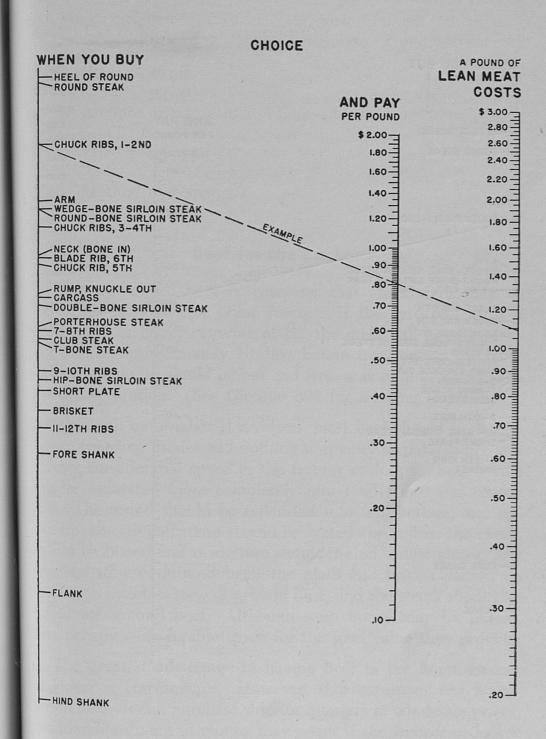
Method

- 1. Brown meat on all sides in own fat or other fat if desirable.
- 2. Season with salt and pepper.
- 3. Cover with hot liquid, cover kettle, cook below boiling point until tender. (Approximately 40 to 50 minutes per lb.)
- 4. Add vegetables just long enough before serving for them to be done.

How to Determine the Cost

The economy of the different cuts, based upon the cost of the lean, may be determined approximately for Choice and Good grades from the following charts:1

¹ Courtesy, University of Illinois. Lay a straight edge at the desired cut ⁰¹ the left scale, cross the price per lb on the center scale, and read the price per lb of lean from the right scale.



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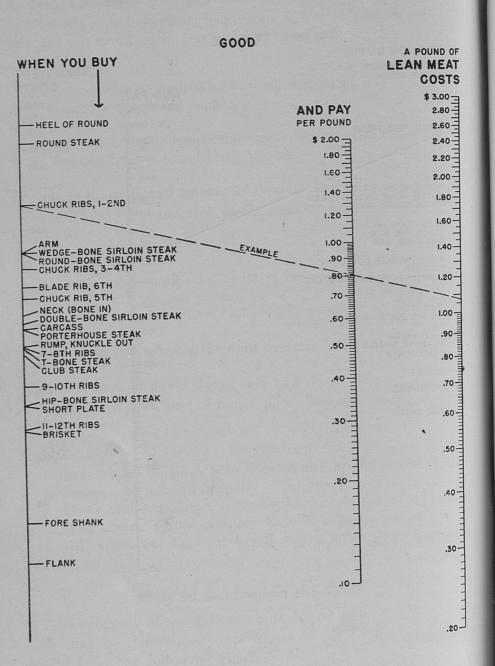
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Economy of cuts, therefore, is dependent upon:

- 1. Use to be made of meat
- 2. Place in carcass
- 3. Amount of fat, lean, and bone
- 4. Price per pound

5. Method of cooking

Beef for the Locker

Home-produced beef or carcasses that are bought may be frozen in the locker or home freezer. If the carcasses show a fairly thick or heavy covering of fat, the meat will be more tender if aged approximately 10 days before freezing. If the meat lacks covering, it should be cut and frozen as soon as possible to avoid dehydration. (See Circular 398 for freezing directions.)

Although more labor is involved, most beef should be boned before freezing. Bones add nothing to quality or palatability and occupy considerable space in the freezer or locker. Boned cuts can be separated more completely into tender and less tender cuts. The round should be separated into top, bottom, and sirloin tip; the rib and rump should be boned and rolled; the chuck should be boned and made into shoulder clod, rolled chuck, and boneless stew or ground beef; the plate and brisket should be made into boneless stew or ground beef, and the shank should be boned for ground beef. Although soup bones may be frozen, they occupy considerable space for the food value they provide.

The greatest advantage in having beef in the home freezer or locker is convenience. However, if a consumer has homegrown beef, or can purchase sides or quarters at wholesale prices, considerable saving in money may result if the freezer or locker is used to its full capacity.

There are seasonal variations in prices of different cuts. In hot weather, the price spread between forequarters and hind-quarters is often greater than in cool weather, resulting in relatively cheap forequarters. At that time, wholesale and retail markets often offer specials on particular cuts. This is a good time to fill the locker. For the greatest saving in freezing:

- 1. Plan the meat requirements for a period of time.
- 2. Watch the market for price spreads and specials.
- 3. Use the freezer as much as possible.