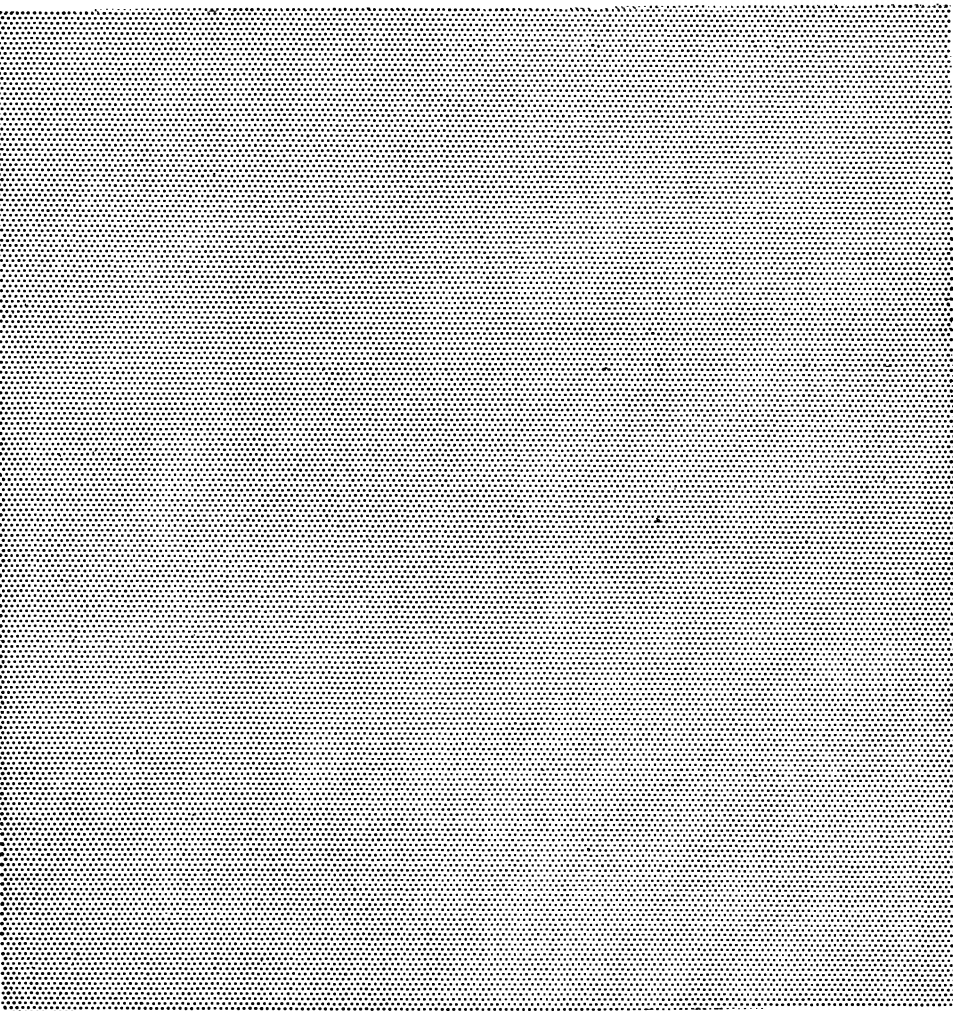


1
Ag 84 A
wy. 5

BEEF

U.S. DEPARTMENT OF AGRICULTURE
OCT 2 1984

facts for consumer education



AIB 84

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Human Nutrition and Home Economics



Contents

	Page
Origin as an American food	1
Quantities used	1
Nutritive value	1
Market information	2
Kinds, supplies, and sources	2
Federal inspection	3
Prepackaged beef	4
Aged beef	5
Processed beef	5
Retail prices of beef	5
Selection	6
Factors that influence selection	6
Quality characteristics	6
U. S. Government grades	7
Division of the beef carcass	8
Carcass yields	8
Retail cuts	8
Quantity to purchase	8
Getting the most for your beef dollar	11
Use in family meals	13
Home canning and freezing	14
Retail beef cuts: Characteristics and methods of cooking	15
Questions from homemakers	18
References cited	19
A partial list of materials for use with consumer groups	20
U. S. Government sources of marketing information	21

This is the third of a series of bulletins to provide source material for workers in extension, consumer education, and marketing services, teachers, dietitians, nutritionists, food editors, and others who give consumers information on food. Each publication gives facts on a single commodity. The first two—Agriculture Information Bulletins No. 32 and No. 54—deal with tomatoes and peaches, respectively.

This publication was prepared by Irene H. Wolgamot, Bureau of Human Nutrition and Home Economics, with the assistance of staff members of that Bureau and the Bureau of Animal Industry, the Production and Marketing Administration, and the Bureau of Agricultural Economics, United States Department of Agriculture.

Washington, D. C.

Issued September 1952

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. - Price 15 cents

Beef . . . facts for consumer education

Origin as an American food

The beef animal has been considered a source of choice meat from earliest times. The Bible tells of the fatted calf prepared to welcome the prodigal son . . . legends of Merrie Olde England mention the beef joint on the tables of the aristocracy.

In March 1624, three heifers and a bull were brought from England to start cattle raising in this country. Other importations of cattle followed.

By 1860, stock raising was becoming an important industry . . . Texas was producing the most cattle . . . Chicago was an important packing center.

Within the next two decades, cattle slaughtering became well-organized; mechanical refrigeration entered the scene; the ranch replaced to a large extent the open range on the Great Plains; and the fattening of cattle became a separate enterprise in the Corn Belt. Transcontinental railroads and trans-Atlantic steamships were carrying meat products to the leading markets of the United States and Europe (1).¹

Quantities used

During the 5-year period, 1947-51, people in the United States used about 63 pounds of beef per person per year, carcass weight. Converted into retail weight this was about 50 pounds per person (2).

A survey of food consumption for 1 week in the spring of 1948 (3) showed that city families purchased an average of 3.2 pounds of beef cuts per household at an average cost of \$2.27. About one-third of the beef was in the form of steak; one-third was in the form of roasts; and the remaining one-third was ground, or in the form of boiling or stewing beef. Ground beef was used by the largest number of families . . . almost half of them bought it one or more times during the week studied.

¹ Italic numbers in parentheses refer to References Cited, p. 19.

Beef consumption was much greater in the higher income groups. Families with yearly incomes of \$4,000 or over used more than twice as much of the expensive cuts—steaks and roasts—as did families with incomes under \$1,000. The amount of ground beef eaten increased sharply up to the \$3,000-\$4,000 income level and then decreased.

A survey in the winter of 1948 showed regional differences in beef consumption. Average consumption of beef per person was about 40 percent higher in San Francisco and 15 percent higher in Buffalo and Minneapolis-St. Paul than in Birmingham (3).

Nutritive value

Meats are an important source of protein. Proteins are essential body components, used for building and repairing tissues. They are composed of various combinations of amino acids, some of which can be made by the body; many others must be supplied as such in foods.

Meat proteins are called complete because they contain significant amounts of the kinds of amino acids that must be furnished in foods. Meat and such other foods as poultry, fish, milk, and eggs can enhance the protein value of foods containing incomplete proteins. Thus, when meat is eaten in the same meal with protein-rich vegetables or grain products, these foods become more valuable as sources of protein. The lean of beef, which provides protein, is also a valuable source of B vitamins, and of the minerals, phosphorus and iron. Beef fat contains a small quantity of vitamin A.

Cooking, other processing, and home and commercial storage, bring about nutritive losses in meat. Both temperature and length of treatment influence the extent and kind of changes.

Meat shrinks when cooked; it loses water through evaporation, and some of the fat, mineral matter, B vitamins, and protein in the drippings. Heat causes some destruction of vitamins, mainly thiamine. More thiamine is destroyed by long cooking, such as braising, than by shorter cooking methods. When cooked beef is kept warm

COMPOSITION OF COOKED BEEF CHUCK

Weight	Food energy	Protein	Fat	Total carbohydrate	Calcium	Phosphorus	Iron	Vitamin A value	Thiamine	Riboflavin	Niacin	Ascorbic acid
	Cal.	Gm.	Gm.	Gm.	Mg.	Mg.	Mg.	I. U.	Mg.	Mg.	Mg.	Mg.
1 pound (bone in)	1,140	96	81	0	40	431	11.4	120	0.18	0.75	15.2	0
1 pound (bone out)	1,406	118	100	0	50	531	14.1	150	.22	.93	18.7	0
3 ounces (bone out)	265	22	19	0	9	100	2.6	30	.04	.17	3.5	0

Source: Composition of Foods—Raw, Processed, Prepared (5) and unpublished data from the Bureau of Human Nutrition and Home Economics.

for serving, there is further loss of this vitamin (4). Under usual conditions, losses of nutritive value are not great enough to be a cause for concern, although it is advisable to keep them to a minimum.

Freezing does not alter nutritive values, but losses result if drip from thawed meat is not used.

The table above shows nutrients in cooked beef chuck. The chuck represents about one-fourth of the beef carcass. Different cuts of beef vary somewhat in composition.

A 3-ounce serving of cooked beef chuck (bone out) provides a little less than one-third of the protein and almost one-fourth of the iron and niacin recommended by the National Research Council as the daily allowance for a physically active man.

Liver, kidney, and heart contain as much protein as the muscle meats and are rich in the B vitamins and iron. Liver is an excellent source of vitamin A and a good source of ascorbic acid. It is important as a blood builder because of its iron and copper content.

Market information

Kinds, supplies, and sources

Market classes of beef animals are: Steer (male unsexed while young), heifer (young female which has not borne calf), cow (female which has borne calf), bull (fully developed male), and stag (male unsexed after developing the secondary physical characteristics of a bull).

Young bovines provide veal and calf. Vealers are usually under 3 months of age; calves between 3 and 9 months.

The highest grades of beef are produced by steers and heifers that are bred and fed for meat production, and slaughtered as yearlings (12- to 24-months-old) or 2-year-olds (24 to 36 months). Many cattle are raised on the Western ranges and shipped to the Corn Belt where they are grain-fed for 90 days to a year to increase weight and improve the quality of the meat. Beef from animals "finished" in this way is in greatest supply on the market from late winter to late summer.

Current trends are toward production of more cattle in the South and in the Corn Belt and more "finishing" of feeder cattle from Western ranges in Pacific Coast and Rocky Mountain States.

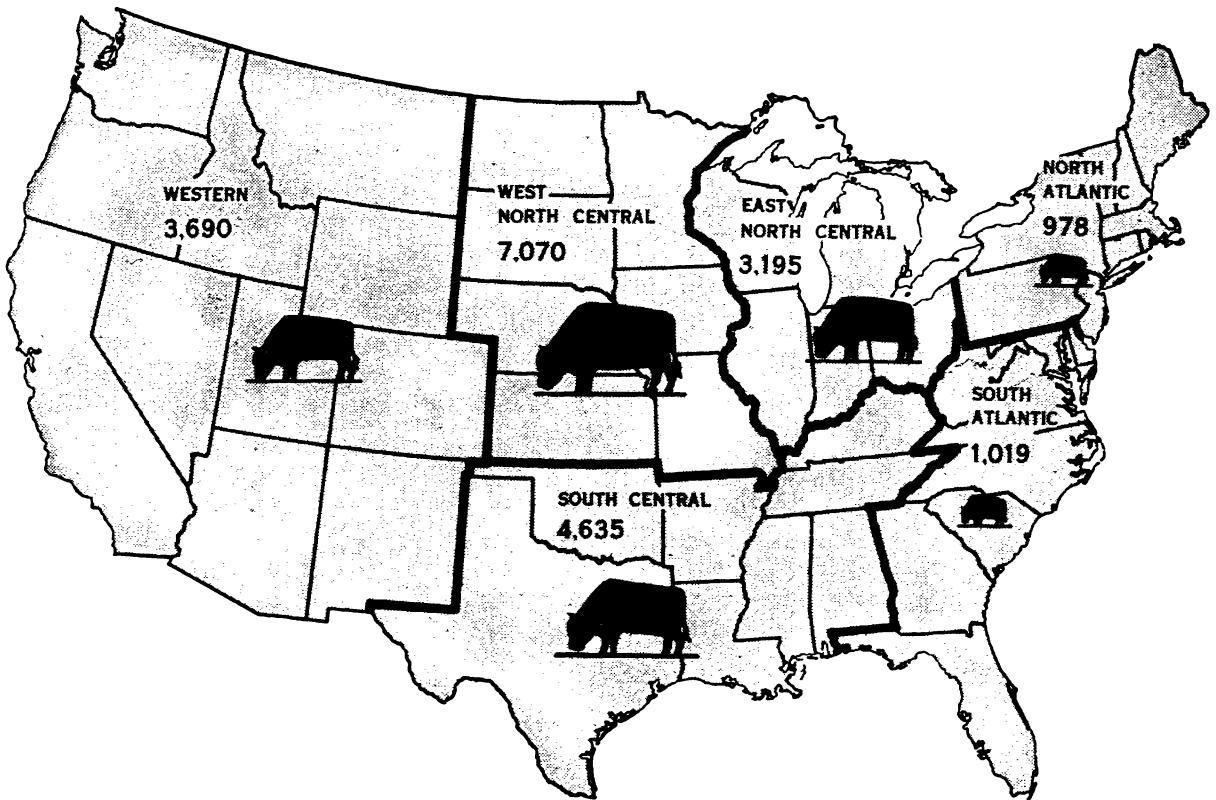
Grass-fed cattle are raised on pasture and range in the West, South, and Midwest and marketed in largest numbers in the fall.

Chart 1 shows production of cattle and calves during 1950 in different regions of the United States. In each region, some States are more important than others for cattle production.

The quantity of beef on the market, as well as its quality and price, depends on various factors, among which are season, weather, and size and quality of the corn crop.

Changes in supplies of grain-fed cattle are related to conditions of previous years because it takes up to 3 years to produce the typical high-quality beef steer. Both present and future supplies of beef on the market are influenced by beef and feed prices. When prices for beef are high and feed prices low, more cattle are "finished" during fall and winter for marketing in spring and summer. Expansion of breeding herds may cause a temporary beef shortage but increases the supply later.

Chart I
PRODUCTION OF CATTLE AND CALVES
Millions of Pounds, Live Weight, 1950



Source: Meat Animals—Farm Production and Income (6).

Low beef prices and failures of crops and pastures bring about reduction of herds, with the result that there is a temporary larger supply of beef on the market but a long-time decrease. When fall weather is favorable, grass-fed cattle are kept on the range longer and marketed at heavier weights, thus increasing market supplies of grass-fed beef.

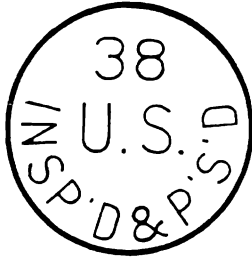
Federal inspection

Federal inspection for wholesomeness is required under the Meat Inspection Act for all meat shipped in interstate or in foreign commerce. Federal inspection by trained government workers includes an inspection of the animal just be-

fore slaughter and an examination of glands, viscera, and carcass after slaughter. Unhealthy animals and unfit carcasses are condemned. Inspection is also made of the sanitary conditions of the processing plant.

When passed as wholesome food, all wholesale carcass cuts are marked with a round purple stamp indicating that the meat has been U. S. inspected and passed. The code number on the stamp identifies the packing house. The vegetable dye used for stamping is harmless. This stamp assures the consumer that the meat was wholesome at the time of inspection (7).

In 1950, 76 percent of the beef produced for commercial use was Federally inspected (8). Much of the commercial beef which is not Federally inspected is slaughtered under State and local Board of Health regulations.



The U. S. inspection stamp.

In today's streamlined packing house operations, cattle are killed, skinned, eviscerated, given thorough U. S. Government inspection, washed, and moved to coolers in rapid succession.

Processed meat products moving in interstate or in foreign commerce also are produced under supervision of the Meat Inspection Division of the Bureau of Animal Industry. Requirements include approval of the formulas for sausages and canned meats; the ingredients must be wholesome and the product may not be adulterated. All labels used on canned, processed, or packaged meats must be approved. Labels are required to give a name that adequately describes the product, a list of ingredients in decreasing order of predominance, net weight, and name and address of manufacturer or distributor.

In 1950, over 80 million pounds of canned beef products were prepared and processed under Federal inspection (8).

Prepackaged beef

In most localities today, retail meats are offered in prepackaged form on a self-service basis. This type of meat retailing has developed rapidly. In January 1949, about 400 U. S. stores were retailing meats on a 100-percent self-service basis . . . 1,200 were reported June 1949, with 5,000 stores on a semi-self-service basis (9). In April 1951, about 4,000 complete self-service meat stores were reported, double the number of the year before; in addition, over 10,000 stores were handling fresh meats on a partial self-service basis (10).

Self-service meats include a variety of fresh beef cuts, cold cuts, variety meats, frozen meats,

and smoked and cooked sausage products. The meats are wrapped and sealed in transparent film, and displayed in self-service refrigerated cases.

The labels on fresh meat packaged in plants under U. S. inspection, like those on processed meats, must meet requirements described in the section on Federal Inspection. Consumers have indicated that they like the label to show the name of the cut, price per pound, total weight, and cost of the package of meat (11). This information is commonly given on the labels of prepackaged meats.

Retailers reported in a survey that customers like prepackaged meats because there is no waiting, they have a better selection, they can more easily buy to suit their budget, they know what they're getting, can take their time, and can buy cheaper cuts without embarrassment (9). In another survey, consumers reported convenience and independent selection among reasons for liking prepackaged meats (12).

Among improvements suggested by consumers were greater variety in type, size, and thickness of cuts; better wrapping of packages with materials that give more protection to the meat; and larger and more varied displays. To be satisfactory to the consumer, prepackaged meats either must be trimmed to remove much of the surplus fat and bone or most of the fat and bone should be clearly visible. The quality throughout the package should be as high as that of the meat that can be seen (11, 12).

A survey of 97 stores retailing meat on a 100-percent self-service basis showed that more than half the stores trimmed meat cuts more closely than the service stores. Nearly all provided special services; 12 included recipes or cooking suggestions with the prepackaged cuts (9).

This survey showed discoloration to be a major retailer's problem with prepackaged fresh beef. The maximum shelf life for prepackaged fresh beef was indicated as 48 hours by 41 percent of the retailers and as 72 hours by 43 percent; others reported 24 hours or over 72 hours. Average temperatures, ranging from 27° to 38° F., were maintained in the self-service display cases at rack level in 95 of the 97 stores. Rewrapping packages, especially roasts and steaks, was sometimes necessary because of handling by customers.

Aged beef

Beef ordinarily reaches the retail market 1 to 2 weeks after slaughter.

Aged or ripened beef is held under controlled temperature and humidity for a longer time. During aging, the exterior lean turns darker in color. Also, changes occur that make the meat become more tender and juicy and develop a characteristic aged flavor which many people like. The extent of the change in flavor depends on the length of the ripening period.

Aged beef costs more than unaged beef because it is held longer and there is added cost for refrigeration and for loss from shrinkage and additional trimming.

One method of aging beef employs selected and controlled ultraviolet radiation to retard growth of airborne and surface mold and bacteria. This method is reported to shorten the aging period by permitting higher temperatures and higher humidity without appreciable deterioration of the meat. The shorter aging period lessens shrinkage and trimming loss (13).

Processed beef

- *Frozen beef* is available in many markets, usually prepackaged in the form of small steaks and ground beef. It may be stored in the freezing compartment of the refrigerator until cooked or defrosted for cooking. To retain quality, the meat should be held at a temperature not higher than 10° F.

- *Dried or chipped beef* is sold in thin slices in small jars, in transparent film packages, and in bulk. It is made usually from beef round, cured in a pickling solution containing salt and sugar or molasses, then lightly smoked and slowly dried.

- *Corned beef* is made by brine-curing the brisket, and in some instances, the plate or rump. It is sold in bulk and in cans.

- *Canned beef products* include roast beef, hamburgers, corned beef, beef with gravy, and

beef combined with other foods as in hash, stew, goulash, and chili con carne.

- *Sausages* containing beef include frankfurters and bologna, the most popular types of sausage in the United States. Frankfurters or wieners, Vienna-style sausages, and bologna are similar in composition. They are made of beef and pork that are cured, ground, spiced, encased, sometimes divided into links, then smoked and cooked. In this type of sausage the proportion of beef usually exceeds that of pork. The product may or may not contain a binder, usually cereal. Bologna is stuffed in larger casings than frankfurters and is usually eaten sliced as a cold cut. Vienna sausages are usually canned. Frankfurters are available in cans, also. Kosher frankfurters are made of beef.

Many of the dry and semidry sausages, prepared for serving without further cooking, contain both pork and beef. They are dried and some varieties are smoked. The consumer can be sure that these sausages are safe to eat as cold cuts if they bear the U. S. inspection stamp.

Federal inspection requires that all pork used in sausages customarily eaten without cooking must be cured by methods that destroy any trichinae that may be present. Sausages may contain no more than 3.5 percent binder, such as cereal, vegetable starch, vegetable flour, soya flour, and dry milk solids. The names of ingredients used as binders must be shown on the product or package label. Other regulations govern the percent of added water, kinds of casings, kinds of materials used for curing, and for certain curing materials, the amounts used.

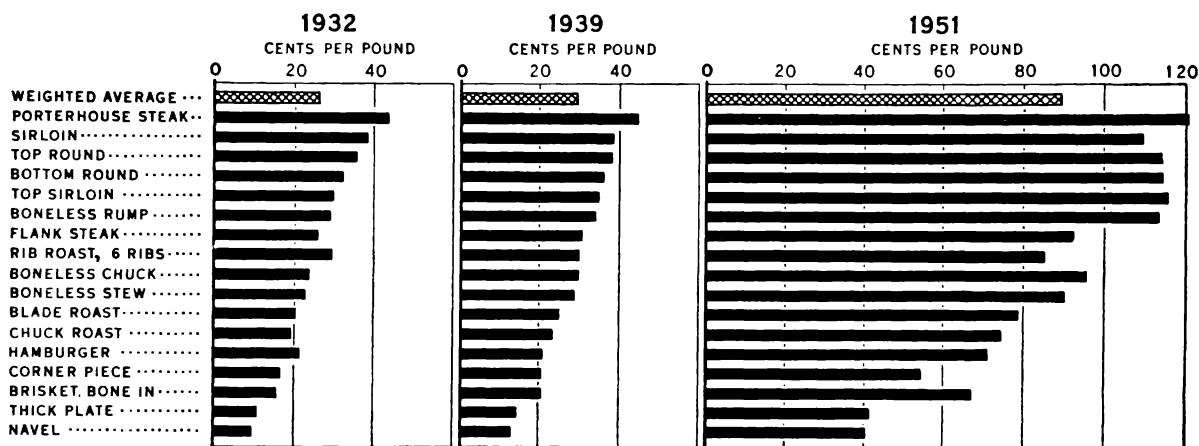
Retail prices of beef

Chart 2 shows average retail prices of beef cuts in New York City for 1932, 1939, and 1951.

Normally, there is some seasonal variation in retail beef prices, related to supplies on the market and to demand. Prices of the higher grades tend to be lowest in March and highest in September. There is usually a definite price decline in October and November, and a gradual downward trend through February.

Chart 2

AVERAGE RETAIL PRICES OF CUTS OF BEEF IN NEW YORK CITY



Source: Farm-to-Retail Margins for Livestock and Meat, and unpublished data from Market News Service,

Livestock Branch, Production and Marketing Administration (14).

Selection

Factors that influence selection

In selecting meat, the consumer ordinarily thinks of the way it is to be cooked—whether roasted, braised, stewed, pan-fried, or broiled. The quality and quantity of meat will be influenced by family tastes and customs, number to be served, amount of money to be spent, time available for preparation, and the skill of the cook. Facilities may determine the cut selected. If there is no oven, a cut may be chosen for its suitability to cooking on top of the stove. Weather is a factor, too. For example, in warm weather, cuts that require little or no cooking are in demand.

Cost is often a major consideration. The higher grades and more tender cuts are generally more expensive than the lower grades and less tender cuts.

If preparation time is limited, cuts that can be broiled or pan-fried may be preferred (though they are usually more expensive) to roasts or stew meat which require longer cooking.

For one or two persons, small steaks or ground beef may be a better choice than a roast. However, a small family may find it advantageous to choose a large piece of meat in order to have some meat already prepared for another meal or for packed lunches.

Quality characteristics

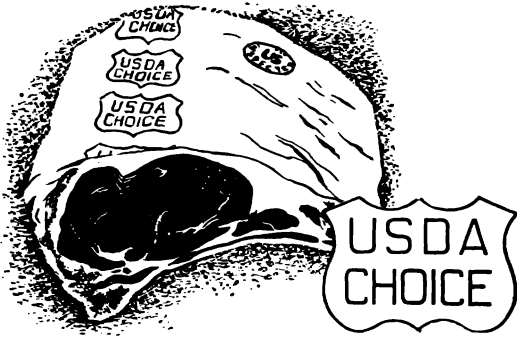
Quality in meat, in the broad sense might include such characteristics as wholesomeness, appearance, composition, tenderness, flavor, juiciness, and nutritive value (15). These characteristics are affected by various conditions, including breed and age of the animal, its feeding and care, handling of the carcass after slaughter, and the cooking of the meat.

Although many of the conditions that affect the quality of the meat are unknown to the consumer, she can look for certain characteristics when selecting meat, and can rely on U. S. Government grade and inspection stamps.

The consumer can also become acquainted with quality designations of the brand names used by some of the packers, wholesalers, and retailers.

Beef of the higher grades has a high proportion of meat to bone. The lean is firm, fine-textured, and bright red in color. It is well marbled with fat. The bones are red and porous.

Fine texture and velvety appearance are associated with tenderness. Beef that is well marbled tastes juicy and rich. Meat from younger animals is likely to be tender; red, porous bones indicate that the meat is from a young animal and are therefore associated with tender cuts.



The U. S. grade stamp

U. S. Government grades

● *The U. S. Government grade stamped on beef gives an indication of probable tenderness and cooking quality. The grades are based on a composite evaluation of three general grade factors described as follows: **Conformation**, which refers to the general body proportions and ratio*

of meat to bone; *finish*, or the amount, character, and distribution of the fat; and *quality*, which is concerned with texture and color of lean, amount and distribution of fat, and color and character of bones.

The Federal grades are uniformly applied in all parts of the country; therefore, meats of a given grade are generally comparable in quality. The grading is done by persons who have no financial interest in the product. Federal grading is on a voluntary basis except in times of national emergency when it may be made compulsory.

When grading is voluntary, it is done by a Federal grader at the request of some financially interested party (usually the packer, wholesaler, retailer, or frozen-food locker operator), who bears the expense. The U. S. grade is stamped by roller with a harmless purple ink the entire length of the carcass so that the retail cuts show the designated grade. New specifications for U. S. beef grades were issued December 29, 1950 (16). At some future date, it is planned to have the grade name enclosed in a shield, as illustrated.

U. S. GRADES OF BEEF IN RETAIL MARKETS

U. S. GRADE ¹	CHARACTERISTICS
Prime	Comes from young, well-fed, beef-type cattle. Lean is bright red, firm, fine-textured, and liberally marbled with fat. These characteristics are associated with juiciness, tenderness, and fine flavor.
Choice	Cuts contain less fat than Prime. High in eating quality. More of this grade beef is offered on the market than any other grade.
Good	Has higher ratio of lean to fat than does Prime and Choice. Not as juicy as the higher grades but relatively tender.
Commercial	Mostly from older animals and lacks the tenderness of the higher grades. The cuts from younger animals have very thin covering of fat and practically no marbling. They are moderately tender.
Utility	Usually from older animals. Cuts lack tenderness and juiciness.

¹ The two lowest grades, Cutter and Canner, are used chiefly for canning, sausage, and dried beef.

Division of the beef carcass

Ordinarily, methods of dividing the sides and making wholesale and retail cuts vary in different market areas. Both Chicago and New York styles of cutting leave one rib on the hindquarter, Boston style leaves three ribs on the hindquarter, and Philadelphia style divides the carcass with all ribs on the forequarter.

There is more uniformity in division of the carcass during times of national emergency because of Federal regulations concerning cutting and trimming.

CARCASS YIELDS

Yields of wholesale cuts (Chicago style) and subdivisions are shown below:

	<i>Percentage of carcass weight</i>
HINDQUARTER.....	48.0
Round and rump.....	24.0
Hind shank.....	4.0
Buttock (round).....	15.5
Rump.....	4.5
Full loin including kidney.....	20.5
Loin end.....	9.0
Short loin.....	8.5
Kidney knob (kidney and suet).....	3.0
Flank.....	3.5
FOREQUARTER.....	52.0
Rib.....	9.5
Chuck.....	24.5
Plate.....	8.0
Brisket.....	6.0
Foreshank.....	4.0

Source: U. S. Production and Marketing Administration.

● *Retail cut yields*, Chicago style, from a 1,000-pound slaughter steer are approximately: 87 pounds of loin, 78 pounds of round steak, 163 pounds of roasts, 88 pounds of boiling or stew beef, 22 pounds of ground meat, and 50 pounds of boneless stew, a total of 488 pounds. There are, in addition, about 40 pounds of fat trimmings (14).

In addition to the 22 pounds of ground beef, which may be considered a basic yield, additional quantities of beef are ground to supply consumer demands.

The ribs and loin, which yield the tender cuts preferred for steaks and roasts, make up less than 30 percent of the carcass.

Retail cuts

The kinds of retail cuts offered tend to be similar in stores in the same locality because of competition, custom, and consumer demand. However, there is considerable variation both in cuts and in names of cuts in different parts of the country. The amount and kind of trimming varies also by store and locality.

Standard retail cuts as required by the OPS, ESA, (17) are shown in chart 3. A bone chart for standard retail cuts is shown in chart 4.

Hamburger is made usually from the neck, foreshank, flank, brisket, plate, and trimmings from other cuts.

Cubed steaks are made by mechanically tenderizing or "scoring" thin cuts of round and sirloin.

● *The variety meats* include liver, kidney, heart, sweetbreads (from young beef), tongue, brains, tripe, and oxtails.

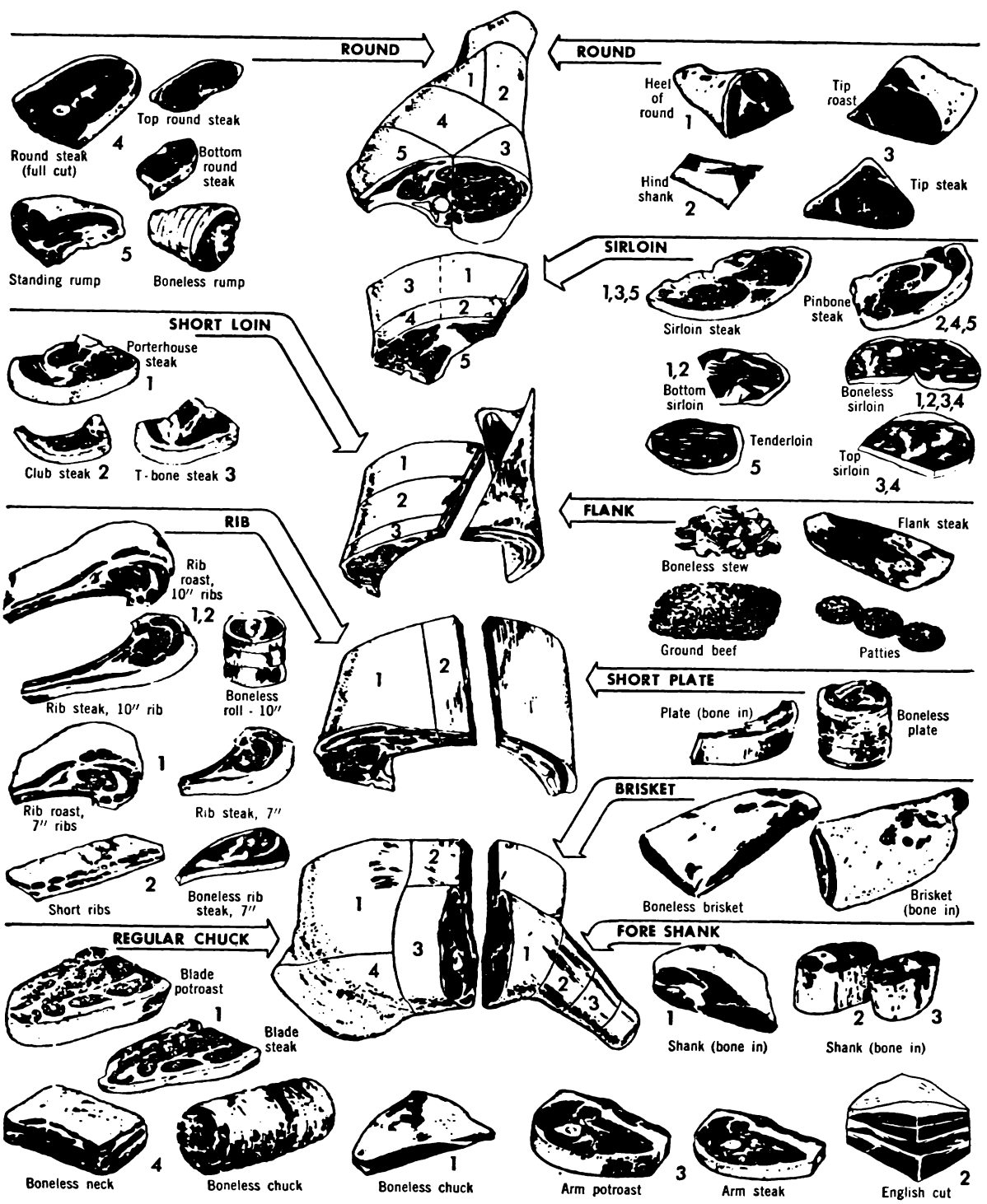
● *Kosher beef* is prepared according to ancient Mosaic law for the Jewish trade. The animal is killed, bled, and inspected by a schachter, trained for this work by a rabbi. The meat ordinarily is sold within three days after slaughter, although with prescribed washings, it may be held as long as twelve days. Kosher trade is restricted to cuts from the forequarter and the standard rib cut is not normally used.

Quantity to purchase

The number of servings per pound provide a basis for determining quantity of meat to purchase. Below is a general guide for beef (18):

	<i>Amount needed per serving</i>
Much bone and gristle.....	1/2 to 1 pound.
Medium amounts of bone.....	1/3 to 1/2 pound.
Little bone.....	1/4 to 1/3 pound.
No bone.....	1/5 to 1/4 pound.

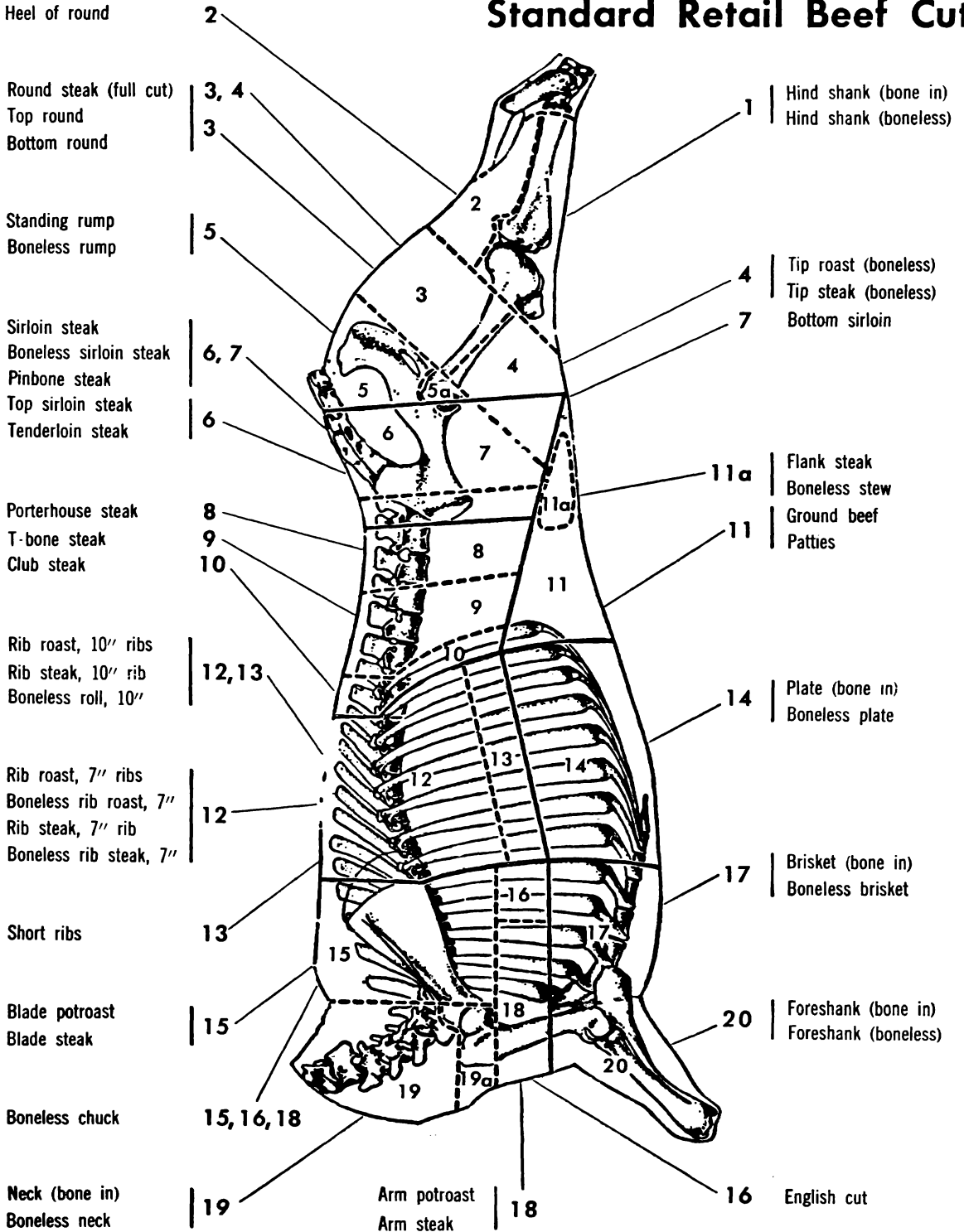
Chart 3 STANDARD RETAIL BEEF CUTS



Source: Revised Ceiling Prices of Beef Items Sold at Retail (17).

Chart 4 - BONE CHART

Standard Retail Beef Cuts



Source: Revised Ceiling Prices of Beef Items Sold at Retail (17).

Getting the most for your beef dollar

In order to get the most for the money spent, the consumer needs to recognize and select both the cut and the quality which suits the intended use.

The most economical cuts are those which provide the most nutritive value for the money spent. Lean cuts are highest in protein while cuts with considerable fat are highest in food energy, provided the fat is eaten. The thrifty homemaker buys the beef that yields the greatest number of servings per dollar. Both nutritive content and yields in servings are influenced by the proportions of lean, fat, and bone, which vary with grade and cut.

● *Percent of bone* tends to increase as grade of beef decreases (19, 20). Amount of trimming and boning at the retail store before weighing is worth consideration in relation to cost. Boned cuts are sometimes a good buy at a higher price per pound than bone-in cuts. Average percentages of bone obtained in a recent series of cutting tests (20) are given below for some choice grade beef cuts sold both with and without bone:

	<i>Percent of bone</i>
Round steak.....	4.0
Sirloin steaks:	
Wedge and round-bone.....	7.7
Double-bone.....	18.5
Hip-bone (pin-bone).....	15.1
Rump, knuckle cut.....	14.2
Rib, 10 inch cut:	
7-8th ribs.....	18.5
9-10th ribs.....	16.9
10-12th ribs.....	19.0
Brisket.....	13.6
Neck.....	18.6
Foreshank.....	42.4
Hindshank.....	56.3

● *Percent of edible portion* (fat and lean) varies for different grades and cuts of beef. The higher grades have a higher percent of edible portion but much of it is fat which may be

trimmed off before cooking or serving, or not eaten when served. When fatty cuts are roasted, there is less loss from evaporation of water but greater loss in drippings than with the leaner cuts. Well-fatted cuts are usually tender and of good flavor, but costly.

● *Percent of lean* tends to increase as the grade descends the scale (19, 20). Price paid per pound of lean in different beef cuts at given prices can be easily seen in Chart 5.

Percent of lean varies in retail cuts from different parts of the same wholesale cut. For example, roasts with the 7th-8th ribs have the highest percent of lean, those with 9th-10th ribs have less lean, and 11th-12th ribs have the lowest percent of lean. The 1st-2nd chuck ribs have the highest percent of lean, 3rd-4th chuck ribs have less lean, and 5th chuck ribs have the lowest percent of lean.

The percent of lean in sirloin steaks decreases in this order: Wedge and round-bone, double-bone, and hip-bone. Porterhouse, T-bone, and club steaks contain about the same percents of lean, but club steaks usually cost less per pound and so are more economical than porterhouse or T-bone.

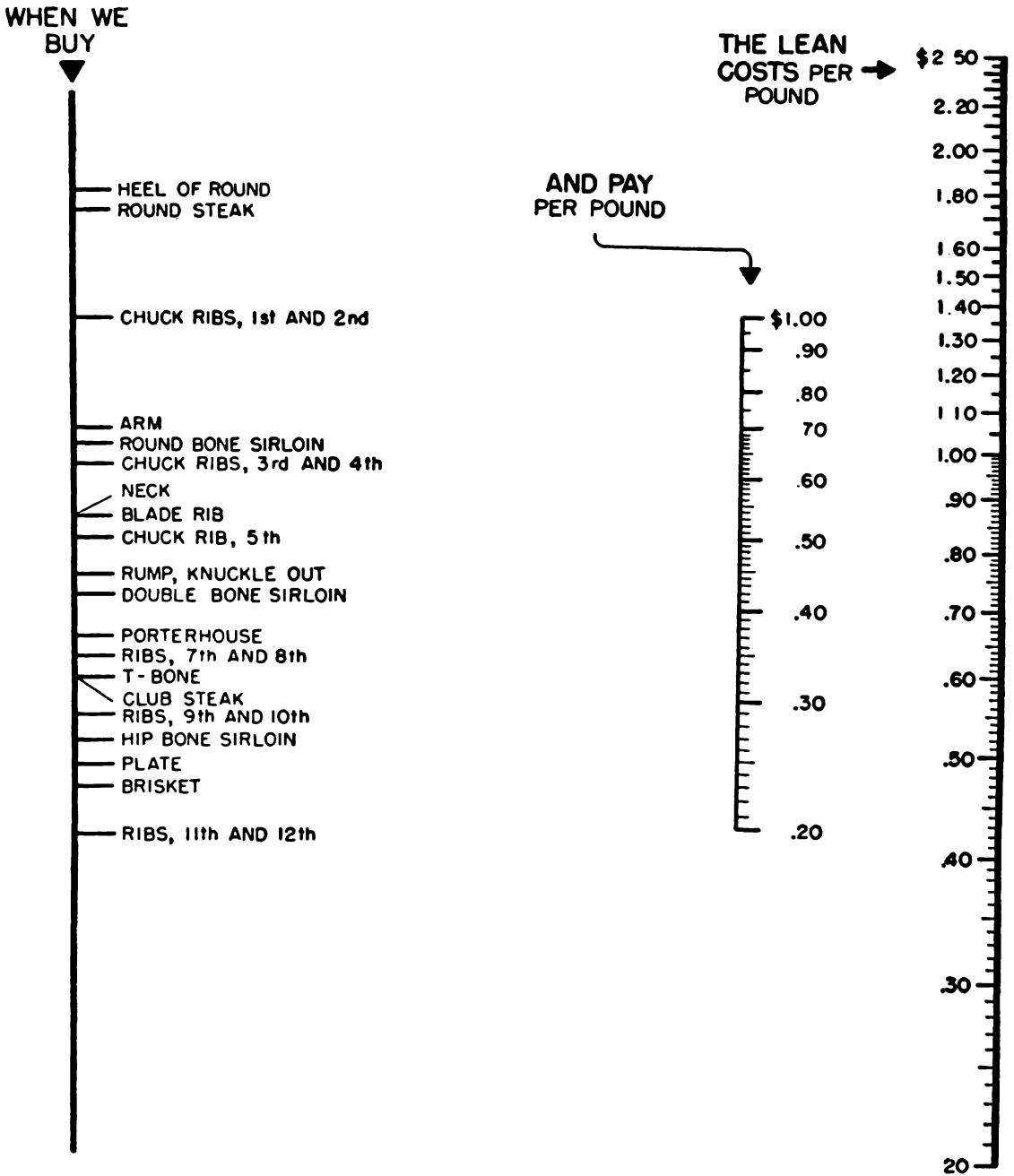
● *Economical practices* can stretch the beef dollar. It is often an economy to buy a large cut at a lower price per pound and divide it for cooking by different methods. For example, a chuck arm roast can be utilized three ways: The rounded, boneless end for beef stew, the center chunk with round bone for pot roast, and the remaining piece sliced lengthwise into two Swiss steaks.

To make the best use of meat, it should be properly cooked, and all of it used, including trimmings. Beef trimmings with bits of lean can go into stews, casserole dishes, and ground meat patties. Fat trimmings can be melted at low heat, strained, and used for cooking fat. Shank and knuckle bones can be sawed through by the butcher so that the marrow can contribute richness and flavor to soups and stews.

Number of servings per pound can be increased by combining beef with other foods. See suggestions in the following section for extending beef and for using left-over beef.

Chart 5

COST OF LEAN IN RETAIL BEEF CUTS



Source: Meat for the Table (20).

Cost per pound of lean, Choice beef. Lay a straightedge at the name of the cut on left-hand scale and at its price per pound on center scale. Where straightedge crosses the right-hand scale is found the cost of a pound of lean. Example: Arm (chuck), @ 80¢ per lb. . . cost of lean (by scale at right) = \$1.18 per lb.

To find cost of lean for cuts higher than \$1 per pound, use half the price per pound on the center scale and multiply the figure obtained on the right-hand scale by 2. Example: Porterhouse at \$1.20 per lb., 60¢ on center scale (½ of \$1.20) . . . cost of lean = \$2.16 per lb. (2 x reading on right-hand scale).

Use in family meals

The method of preparation should suit the cut and quality of the beef. Meat will be tender, juicy, and of good flavor only if properly cooked. In order to get the maximum number of servings per pound of meat purchased, shrinkage must be kept as low as possible. The drippings, which contain some nutrients, should always be used.

It is recommended that beef be cooked with low heat and just long enough to suit family tastes. Low heat tends to cook meat evenly and minimize shrinkage. The more thoroughly beef is cooked, the greater will be the shrinkage and loss of nutrients (21).

● *Tender cuts* may be broiled, pan-fried, or roasted.

For broiling, a constant, moderate temperature is used. In broiling under direct heat, the temperature can be adjusted by heat of oven and distance between meat and heat. For pan broiling, a heavy skillet is used, and the fat poured off as it accumulates. Salt should be added after browning because it draws out juices, and there is much meat surface exposed. Thick cuts should be oven- or pan-broiled; thin cuts, pan-fried in a small amount of fat. Ground beef patties may be either broiled or pan-fried.

For oven roasting, the meat is cooked uncovered without added water at about 325° F., with fat side up so it will be self-basting. Coating with flour is not necessary. It does not matter whether the roast is seasoned before or after cooking because the exposed meat surface is small and seasonings do not penetrate far into the roast.

A reliable table should be consulted for temperature and cooking time. Properly used, a meat thermometer is a useful indicator of doneness. It should be inserted so that the bulb is at the center of the thickest part of the meat and does not touch bone or fat. For pot-roasting, see braising.

● *Less tender cuts* require longer cooking with added moisture and a cover, as in braising and stewing or under pressure. For tenderness as well as good texture and flavor, the quantity of added liquid should be kept to a minimum. Also, with less liquid, more of the nutrients remain in the meat instead of dissolving into the drip. In one study (22) chuck ribs braised with

no water added required a little less cooking time per pound and shrank slightly less than similar cuts braised with water added.

Braising consists of browning the meat in fat, then cooking it in a covered pan, with or without added liquid, on top of the stove, or in the oven. The meat is cooked slowly to the well-done stage. Large, thick pieces of meat, preferably 3 to 4 pounds in weight, from the chuck, round, rump, or ribs prepared by this method are called pot roasts.

Swiss steak is made by braising a cut about an inch thick, usually from the round, rump, or chuck. Sometimes, the flank and lower grade sirloin are used. The meat is seasoned, and flour pounded into both sides. It is then browned to develop the flavor and cooked in a small amount of liquid over low heat or in a slow oven.

For stews and soups, the meat is cooked slowly in a small quantity of water. It is usually browned before the liquid is added for stews and brown stock, and cooked without browning for light soup stock. Long, slow cooking is needed.

The less tender cuts may also be satisfactorily cooked under pressure. The meat cooks in a much shorter time and retains about the same quantity of nutrients as when braised or stewed.

● *Extending beef* by combining it with other foods is one way of stretching beef to make more servings. Some suggestions are offered below.

Ground beef—in meat loaf or meat balls combined with rice, bread, cracker crumbs, or oatmeal . . . in casserole dishes with rice, noodles, spaghetti, or macaroni, and white sauce, tomato sauce, or cheese sauce . . . in Spanish rice, chili con carne, spaghetti dishes, or soups.

Stewing beef—in stews with vegetables, noodles, or dumplings . . . in meat pies with topping of biscuit, pastry, or mashed potato.

Flank steak—spread with stuffing and rolled.

Left-over beef—in soup, hot or cold sandwiches, patties, croquettes, hash, plain or molded salads, stuffed peppers, or meat pies . . . in casserole dishes with potatoes, rice, noodles, spaghetti, or macaroni . . . with gravy and dumplings or biscuits. Cubed or ground left-over beef may be served creamed or with gravy over toast, biscuits, or corn bread.

● *Frozen beef* may be thawed, or not, before cooking. It should be used promptly after thaw-

ing. Meat is preferably thawed slowly on the refrigerator shelf. For thawed meat, usual cooking methods and time are used. If the meat is not thawed, adjustments should be made. Unthawed steaks may require 2 to 15 minutes longer cooking, depending upon thickness; unthawed roasts may need an extra 25 minutes per pound.

If meat is thawed before cooking, the drip should be used. It can be used in gravies, soups, or stews. In a recent study, the drip, obtained from thawing frozen beef, was found to contain appreciable amounts of protein and the B vitamins (23).

● *Storing* beef properly is important for safety and palatability. Fresh beef should be stored, loosely covered, in the coldest part of the refrigerator. It should be used within a few days. Recommended temperature for storing is 30° to 34° F. The variety meats are especially perishable and should not be held longer than 2 days. Ground beef should be held only 1 day.

Frankfurters and bologna keep better than fresh beef but will deteriorate and change flavor if held a long time. Broth and gravies should be stored covered in the refrigerator and used promptly. They should not be held longer than a day or two.

It is usually recommended that frozen beef, properly wrapped, be held in the freezer at 0° F.

not longer than 1 year. The longer it is stored, the less probability there is that it will have the best eating quality.

Home canning and freezing

● *For home canning*, beef may be packed in glass jars or tin cans and processed in a steam pressure canner. It may be packed, precooked or raw, with bone removed. Tender cuts are usually packed in as large pieces as jars will accommodate, less tender cuts in smaller pieces for use as stew meat.

With the bone in, and the meat untrimmed, it takes about 3 to 3½ pounds of round or 5 to 5½ pounds of rump for each quart jar or No. 3 can (24).

● *For home freezing*, beef may be cut and packaged in pieces of the size needed for one meal. The meat should be carefully wrapped in moisture-vapor-resistant material and frozen quickly at 0° F. or lower. It should be stored at 0° F. or lower (25, 26, 27). Recent tests showed that boning beef before freezing conserved much freezer space and had little effect on cooking time, cooking losses, palatability, and nitrogen and phosphorus content (28).

Retail Beef Cuts: Characteristics and Methods of Cooking

Retail cut	Characteristics of retail cut	Usual cooking methods
STEAKS		
Round (full cut).....	Oval shape with small, round bone. One large section, three smaller ones. Best steak is the one next to the loin end, called the "first cut." The poorest round steaks are at the lower end of the round.	} Broil or pan-fry U. S. Prime grade. Braise Choice, Good, Commercial, and Utility grades.
Bottom round.....	Part of the round toward the outside.	
Top round.....	Part of the round toward the inside.	
Round tip (knuckle).....	Tip end of round steak. Triangular in shape.	} Broil or pan-fry U.S. Prime, Choice, and Good grades. Braise Commercial and Utility grades.
Sirloin (full cut).....	Large steak. Size and shape of bone varies according to location. Starting at round end, sirloins are identified as wedge-bone, round-bone, double-bone, and pin-bone sirloins.	
Bottom sirloin.....	Less tender than top sirloin. Boneless.	
Top sirloin.....	More tender than bottom. Boneless.	
Tenderloin (filet mignon).....	Tender. Boneless.	
Porterhouse.....	Largest steak in short loin. Contains largest tenderloin muscle.	} Broil or pan-fry.
T-bone.....	Smaller steak and smaller tenderloin than porterhouse.	
Club (Delmonico).....	Smallest steak in short loin. Little or no tenderloin. Triangular shape.	
Rib.....	Contains rib eye and may contain rib bone. Best steaks are from loin end of ribs.	} Pan-fry or braise U. S. Prime grade. Braise Choice, Good, Commercial, and Utility grades.
Arm.....	Has a round bone and cross sections of 3 to 5 ribs.	
Blade.....	Steaks may contain portions of blade and rib bones.	
Flank.....	Thin and oval in shape. Boneless. Muscles run lengthwise. Made more tender by scoring.	

Retail Beef Cuts: Characteristics and Methods of Cooking — Continued

Retail cut	Characteristics of retail cut	Usual cooking methods
ROASTS, POT ROASTS		
Rib	High proportion of fat and bone. Standing roasts may be 10-inch or 7-inch. The latter is called short-cut rib roast. Rolled rib roast is boned, rolled and tied.	Roast U. S. Prime, Choice, Good, and Commercial Grades. Braise or roast Utility grade.
Tenderloin	Tender. Boneless. May be rolled and tied.	Roast.
Rump	Standing rump roast contains portions of rump bone and tail bone. Rolled rump roast has bones removed.	Roast or braise U. S. Prime and Choice grades. Braise Good, Commercial, and Utility grades.
Blade (chuck rib)	Contains portions of rib and blade bones.	
Arm (round bone or shoulder arm)	Has round bone. Usually includes cross section of 3 to 5 ribs.	
English (Boston) cut or corner piece	A rectangular piece cut across 2 or 3 chuck ribs.	Braise.
Boneless chuck	Any part, except neck, with bones removed.	
Bottom round	Outside section of the round.	Roast U. S. Prime grade. Braise Choice, Good, Commercial, and Utility grades.
Top round	Inside section of the round.	
Round or sirloin tip	Triangular shape. Boneless.	
Heel of round	Boneless, triangular cut from lower part of round. Mostly lean.	Braise U. S. Prime and Choice grades. Stew Good, Commercial, and Utility grades.

Retail Beef Cuts: Characteristics and Methods of Cooking — Continued

Retail cut	Characteristics of retail cut	Usual cooking methods
CUTS FOR BRAISING AND FOR STEWS AND SOUPS		
Short ribs.....	Cut from ends of ribs. Layers of lean and fat.	} Braise or stew.
Plate.....	Pieces are cut across plate parallel with ribs. Each piece contains part of rib bone and connecting cartilage. Layers of lean and fat. Boneless plate is rolled and tied.	
Flank.....	Long, coarse fibers. May be cut into chunks for stew.	} Stew.
Heel of round.....	Boneless, triangular cut from lower part of round. Mostly lean.	
Brisket.....	Contains all or part of breastbone and short sections of ribs.	
Shank knuckle.....	Upper end of foreshank.	
Shank cross cuts.....	Small pieces cut across shank bone.	
Hind shank.....	Bony. Less meat than on foreshank.	
Neck.....	Coarse fibers with much connective tissue.	
VARIETY MEATS		
Heart.....	Weighs 3 to 4 pounds.	} Braise or stew.
Kidney.....	Weighs about 1 pound.	
Oxtails.....	Weigh about 1½ to 2 pounds. Considerable bone.	
Liver.....	Whole liver weighs about 10 pounds. Usually sliced.	Braise or fry.
Tongue.....	Weighs 2 to 5 pounds.	} Parboil, then cream, bake, or fry. Honeycomb tripe may be broiled after it is parboiled.
Tripe.....	Weighs 7 to 8 pounds including smooth (first stomach) and honeycomb (second stomach). The latter is the preferred type.	
Brains.....	Weigh about 13 to 14 ounces. Very tender. Soft consistency. Delicate flavor.	Parboil, then fry or scramble.
Sweetbreads(young beef).	Thymus gland. A delicacy. Tender.	Parboil, then cream, braise, fry or broil.

Questions from homemakers

Question: Are the higher grades of beef more nutritious than the lower grades?

Answer: There is no relation between nutritive value and grade.

Question: How can I tell if a piece of beef will probably be tender?

Answer: The grade and cut give an indication of probable tenderness. Rib and loin cuts of U. S. Prime and Choice grades are ordinarily tender. Meat that has fine-textured lean, red, porous bones, and is well marbled with fat will usually be tender. Tender meat comes from well-fed beef cattle that are slaughtered when young.

Question: What cuts, less expensive than round, are suitable for grinding?

Answer: Cuts from the chuck, brisket, flank, plate, shank, and neck.

Question: How can I cook beef to keep shrinkage within reasonable bounds so there is more meat to serve?

Answer: Cook at low or moderate temperature all or most of the cooking time. Don't overcook.

Question: How long can I safely keep beef that has been roasted?

Answer: A few days in the refrigerator, covered and separated from broth or gravy.

Question: Is it safe to eat frankfurters without cooking?

Answer: Frankfurters are safe to eat without further cooking if they have been prepared under U. S. Government inspection or other inspection requiring 137° F. temperature in processing. This temperature kills any trichinae which might be in the pork.

Question: How can the consumer tell whether frankfurters or other link sausages sold in bulk have been prepared under U. S. Government inspection?

Answer: A stamp or band label bearing the U. S. inspection stamp is required for each 1½ pounds.

Question: How long can frankfurters and bologna be safely held in the home refrigerator?

Answer: These products can usually be held safely for about a week if unsliced. Sliminess and off-odors are signs of spoilage.

Question: How does U. S. Government inspection protect the consumer from contracting tuberculosis from beef?

Answer: Animals with tuberculosis can be detected by post-mortem examination which is part of the U. S. Government inspection procedure. Diseased carcasses are condemned and sanitary procedures are used in handling to prevent contamination of healthy animals and carcasses. Tuberculosis from eating infected meat has been almost eliminated due to the effective eradication program carried on by the United States Department of Agriculture.

Question: Can one contract brucellosis from eating infected beef?

Answer: Yes. However, the danger is slight because *Brucella*, the infecting organisms, are rarely found in muscle. Adequate cooking is the most effective means of destruction. Heating to 145° F. for 15 minutes kills *Brucella*. Brucellosis is not often found today in United States cattle due to the successful eradication program.

References cited

Origin

- (1) A History of Livestock Raising in the United States, 1607-1860. Thompson, J. W. U. S. Dept. Agr. Hist. Ser. 5, 182 pp. 1942.

Quantities used

- (2) Consumption of Food in the United States, 1909-48. U. S. Dept. Agr. Misc. Pub. 691, 196 pp., illus., 1949. With Supplement for 1949, and unpublished data.
- (3) Meat Selections of City Families. U. S. Bur. Human Nutr. and Home Econ. Comm. Sum. 1, 9 pp., illus., Aug., 1949. [Processed.]

Nutritive value

- (4) The Retention of Thiamin and Riboflavin in Beef Cuts During Braising, Frying, and Broiling. Tucker, R. E., Hinman, W. F., and Halliday, E. G. Amer. Dietet. Assoc. Jour. 22: 877-881. 1946.
- (5) Composition of Foods—Raw, Processed, Prepared. U. S. Dept. Agr. Handb. 8, 147 pp. 1950.

Market information

- (6) Meat Animals—Farm Production and Income, 1949-50. U. S. Bur. Agr. Econ. 8 pp., illus. April 1951. [Processed.]
- (7) The Inspection Stamp as a Guide to Wholesome Meat. U. S. Dept. Agr. Misc. Cir. 63, 23 pp., illus. Rev. April 1949.
- (8) Agricultural Statistics, 1951. U. S. Dept. Agr. 742 pp.
- (9) Retailing Prepackaged Meats. Edinger, A. T., Mewis, B. H., Mumford, H. D., and others. U. S. Prod. and Market. Admin. 28 pp., illus. December 1949. [Processed.]
- (10) Self-Service Meats Today. Armour and Company. Res. Rpt., 31 pp., illus. Chicago. 1951.
- (11) Consumer Acceptance of Self-Service Packaged Meat in the Cleveland Area. Fenn Col. Res. Bul. 1, 15 pp., illus. Cleveland, Ohio. 1950. [Processed.]
- (12) Pros and Cons of Prepackaged Meats. E. I. Dupont de Nemours and Company, (Inc.) 15 pp., illus. Wilmington, Del. 1950.
- (13) Measurement of Beef Tenderness and Tenderization of Beef by Tenderay Process. Deatherage, F. E., and Reiman, W. Food Res. 11: 525-534. 1946.
- (14) Farm-to-Retail Margins for Livestock and Meat. Parr, K. U. S. Bur. Agr. Econ. 33 pp., illus. June 1949. [Processed.]
- (15) Quality in Meat and Meat Products. Hankins, O. G. Indus. and Engin. Chem. 37: 220-223, illus. 1945.

Selection

- (16) Official United States Standards for Grades of Carcass Beef. U. S. Dept. Agr. (Prod. and Market. Adm.) Serv. and Regulat. Announc. 99, 8 pp. 1926. Reprinted with amendments, Dec. 1950.
- (17) Revised Ceiling Prices of Beef Items Sold at Retail. U. S. Off. of Price Stabilization. Economic Stabilization Agency. Price Regulat. 25, 24 pp., illus. Rev. Sept. 1951.
- (18) Family Fare. Food Management and Recipes. U. S. Dept. Agr. Home and Gard. Bul. 1, 96 pp. 1950.
- (19) Approximate Physical Composition of the Primary Cuts from Steer Carcasses of Different Market Grades. Hankins, O. G., and Foster, M. T. U. S. Bur. Anim. Indus. and Agr. Market Serv. 3 pp. April 1940. [Processed.]
- (20)—Meat for the Table. Bull. S. Ed. 1, 227 pp. 1951.

Use in family meals

- (21) Shrinkage and Cooking Time of Rib Roasts of Beef of Different Grades as Influenced by Style of Cutting and Method of Roasting. Alexander, L. M., and Clark, N. G. U. S. Dept. Agr. Tech. Bul. 676, 36 pp., illus. 1939. (Out of print.)
- (22) Yield of Edible Portion of Chicken and Various Meats Cooked by Different Home Methods. Alexander, L. M., and Schopmeyer, G. E. Food Technol. 3: 263-268, illus. 1949.
- (23) Vitamin Losses in Drip from Frozen Meat. Pearson, A. M., Burnside, J. E., Edwards, H. M., and others. Food Res. 16: 85-87. 1951.

Home canning and freezing

- (24) Home Canning of Meat. U. S. Dept. Agr. Home and Gard. Bul. 6, 16 pp., illus. Rev. 1951.
- (25) Freezing Meat and Poultry Products for Home Use. Home and Gard. Bul. 15, illus. U. S. Dept. Agr. 1951.
- (26) Instructions on Processing for Community Frozen-Food Locker Plants. Matlack, M. B. U. S. Dept. Agr. Misc. Pub. 588, 23 pp., illus. Rev. 1948.
- (27) Freezing to Preserve Home-Grown Foods. Diehl, H. C., and Warner, K. F. U. S. Dept. Agr. Cir. 709, 62 pp., illus. 1945.
- (28) Effect of Boning on Cooking Losses and Palatability of Beef. Paul, P., Morr, M. L., Bratzler, L., and Ohlson, M. A. Food Technol. 4: 348-349. 1950.

A partial list of materials for use with consumer groups

Leaflets and bulletins

Food Values in Common Portions. U. S. Dept. Agr. AIB-36, 8 pp. April 1951. Food composition tables covering a variety of foods including beef. [Processed.]

Beef on the Farm—Slaughtering, Cutting, Curing. U. S. Dept. Agr. Farmers' Bul. 1415, 33 pp. 1924. (Reprinted 1950.) Illustrated step-by-step directions for killing, cutting, and curing beef on the farm with simple equipment and methods.

U. S. Grades for Beef. U. S. Dept. Agr. Leaflet 310, 5 pp. 1951. Explanation of the use of Federal grades as an aid to more efficient purchasing of beef.

The Inspection Stamp as a Guide to Wholesome Meat. U. S. Dept. Agr. Misc. Cir. 63, 23 pp. Rev. 1949. Illustrated story of meat inspection written in popular style.

Beef for the Table. Bull. S., Webb., R. J., and Ashby, R. C. Ill. Univ. Col. Agr. Cir. 585, Ext. Serv. 44 pp., illus. 1944. Information on selection and use of beef.

Meat for Thrifty Meals. Alexander, L. M., and Yeatman, F. W. U. S. Dept. Agr. Farmers' Bul. 1908, 46 pp., illus. 1942. Recipes for meat, including beef, and tips on buying and storing.

Family Fare. Food Management and Recipes. U. S. Dept. Agr. Home and Gard. Bul. 1, 96 pp. 1950. Includes suggestions for buying, storing, and preparing beef, with 13 beef recipes.

Home Canning of Meat. U. S. Dept. Agr. Home and Gard. Bul. 6, 15 pp., illus. Rev. 1951. Complete directions for canning beef and other meats.

Freezing Meat and Poultry Products. U. S. Dept. Agr. Home and Gard. Bul. 15, illus. November 1951. Methods of preparing and storing frozen meats, including beef, and poultry products for home use.

Books

Meat for the Table. Bull. S., Ed. 1, 227 pp., illus. 1951. In addition to chapters on beef and other meats, one chapter deals solely with beef. Chapter VII, Beef (pp. 55-93) discusses the selection and preparation of beef cuts.

The Meat We Eat. Ziegler, T. P. Ed. 3, 511 pp., illus. 1952. Two chapters are devoted to beef, in addition to other chapters dealing with beef and other meats. Chapter 5 is on Cattle Slaughter. Chapter 17, The Beef Carcass and Its Cuts, describes wholesale and retail cuts of beef with suggestions for their selection and use.

Charts

Beef Chart, Wholesale and Retail Cuts. 16 by 24 inches. In color. 1948. Single copy free. Same chart in black and white 8 by 10½ inches. Up to 50 copies free. Office of Information Services, U. S. Dept. Agr., Prod. and Market. Admin., Washington 25, D. C. Sets of the large

size colored charts for beef, veal, and lamb available from Superintendent of Documents, U. S. Government Printing Office, at 50 cents a set.

Group No. 6 Meat Identification (Beef) Charts. Set of 7 charts, 12 by 15 inches. 1940. Shows side of beef and photographs in black and white of all wholesale and retail cuts. Available from Superintendent of Documents, U. S. Government Printing Office at 15 cents a set.

Films

Meats with Approval. U. S. Dept. of Agr. 16-mm. and 35-mm. sound, black and white. 20 min. Rev. 1949. Shows purposes and steps of Federal meat inspection from live animal through slaughter house and cannery. Tells how meat inspection law came into being, how it is administered, and what it means to the health and safety of the consumer. Available through State film libraries, Extension Services, or State Colleges. May be purchased from United World Films, Inc., 1445 Park Ave., New York 29, N. Y. for \$21.40. Available also for television.

Federal Beef Grade Standards. Film strip C-17-37 frames in color. Developed by Livestock Branch, Prod. and Market Adm., U. S. Dept. Agr., as an aid in the interpretation of the official U. S. Standards for Grades of Carcass Beef as set forth in Service and Regulatory Announcement No. 99. Available with lecture notes through State Extension Service. *This film is too technical for many consumer groups, but may interest the consumer educator.*

Cutting and Freezing Meat, Poultry, and Fish. 16 mm. color, sound movie film. 1,221 ft., running time 37 minutes. 1948. Shows correct way to cut up carcass of beef, lamb, pork, fish, and poultry. Also illustrates how to wrap cuts for the freezer. Dept. of Extension Teaching and Information, Cornell Univ., Ithaca, N. Y. Rental charge: \$2.50.

The following films may be borrowed, without charge, from State Extension Services, or purchased at the prices indicated from Photo Lab., Inc., 3825 Georgia Ave., N. W., Washington 11, D. C.

Federal Meat Inspection. United States Dept. of Agr. 35 mm. slide film No. 466. 42 frames. Reissued 1945. Shows various steps in Federal inspection of meats. Prepared cooperatively by the Bureau of Animal Industry, which conducts the Federal meat inspection service, and the Extension Service. Available with lecture notes. 60 cents.

When It's Your Turn at the Meat Counter. Film strip No. C-16. 27 frames in color. 1951. Explains Federal beef grading and shows beef cuts of the five different grades sold at retail. Shows grade and inspection stamps. Includes 12 pictures of retail beef cuts. Lecture notes, which accompany film, include an explanation of the different Federal beef grades and discussion of selection and cooking of different beef cuts in the various grades. \$4.00.

Cooking Meat According to the Cut. 35-mm. slide film No. 314. 54 frames. Rev. 1947. Illustrates method of cooking recommended by the Bureau of Human Nutrition and Home Economics for various cuts of meat so as to conserve food value and bring out full flavor. Available with lecture notes. 60 cents.

Canning Meat. 35-mm. slide film No. 659. 40 frames, single. 1945. Shows how to can meat according to methods recommended by the Bureau of Human Nutrition and Home Economics. Available with lecture notes. 40 single frames, 55 cents; double frames, \$1.

U. S. Government sources of marketing information

DEPARTMENT OF AGRICULTURE

Bureau of Agricultural Economics

The Agricultural Situation, issued monthly.

The Marketing and Transportation Situation, issued monthly.

The National Food Situation, issued quarterly.

The Livestock and Meat Situation, issued bimonthly.

For others, see list and description of publications in "Agricultural Economics and Statistical Publications." Write Information Branch, Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington 25, D. C.

Production and Marketing Administration

The Weekly Livestock Market News, issued by the Livestock Branch.

Marketing Activities, issued from Washington monthly.

Plentiful Foods report, issued from the regional offices.

For others, see list and description of reports issued both from Washington and from the field offices in "Periodic Market Reports." Write Information Branch, Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C.

DEPARTMENT OF LABOR

Bureau of Labor Statistics

Retail Prices and Consumer Price Index, issued monthly.

Retail Food Prices, issued monthly.

Write Information Branch, U. S. Department of Labor, Washington 25, D. C.

DEPARTMENT OF COMMERCE

Facts for Industry Publications on Foods.

Industry and State Pamphlets on Foods.

Lists of pamphlets available from Information Branch, U. S. Department of Commerce, Washington 25, D. C.