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# BEEF . . .

## Consumer Use and Preferences



Scientists asked 513 Denver housewives about buying and using beef



Modern merchandising methods play important part in meat purchasing



A choice slice of beefsteak is a favorite American dish

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### Colorado Agricultural and Mechanical College

Fort Collins, Colorado

Colorado Agricultural Experiment Station in Cooperation with Agricultural Experiment Stations of the Western States and with the U. S.

Department of Agriculture

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Bulletin 495 S

## **About this Problem of Meat . . .**

Returns from cattle sales represent the largest single item of agricultural income in Colorado and Wyoming. Likewise, meat purchases make up the largest single item of a family's food budget.

Recent studies have shown that **consumers don't choose the highest grades of beef, even when all grades are priced the same.** That indicates that consumers prefer something less than the top U. S. grades, but many of our producers are trying to produce the top grades. They receive encouragement by the price advantages of cattle that grade high.

Such inconsistency suggests that U. S. grades aren't necessarily based on what consumers want.

If consumers' wishes aren't reflected back to the producer, it's time to study the reasons why. The following pages report a survey made of 500 families in the Denver area.

Research workers set up these objectives for study:

1. What do consumers want in the way of beef products?
2. How much fat do they want?
3. Is color of fat important?
4. How much marbling do they want, if any?
5. Is the color of lean important?
6. What other factors do they consider?
7. What relation is there between consumer wants and graders' standards?

Surveys have been going on in several western states—Arizona, Colorado, Oregon, Washington, Texas, and Wyoming. Scientists have used three methods at least—consumer preference tests in stores with home-interview follow-ups; a “pilot-methodology” study with taste tests of certain cuts; and use of colored photographs of meat to measure consumer reactions to fat distribution, color, amount of outside covering of fat, and USDA grade. It is the third method which this material reports.

## Who Likes Beef?

**N**EARLY EVERYBODY likes beef. Of 513 homes contacted, only six families say they don't eat beef. Three of these say they don't eat it because of health reasons; one family says its religion does not permit eating beef; one says it cannot afford it; and the other gives no reason.

Most folks like beef better than any other meat. Chicken stands second in preference, pork third. All other types of meat combined — lamb, mutton, veal, turkey, fish, and luncheon meats — account for the other meats that people eat. Only about 6 percent say they prefer them over other types.

Families with incomes of \$6,000 a year and higher say 85 percent of the time, "Beef is our favorite meat." When the family income drops to less than \$3,000 annually, only 62 percent say beef is their favorite.

Of people who complete grammar school, 70 percent choose beef as their favorite. The folks with high school training are 75 percent in favor of beef. Folks with college training choose beef 85 percent of the time.

Families with three or four members choose beef as their favorite meat more often than either smaller or larger families.

## What Are the Favorite Cuts?

Chances are that if someone asked you which cut or dish your family likes best, you'd answer simply, "roast or steak."

Sometimes we found it necessary to probe for the kind of roast or steak. Most folks mention T-bone and sirloin steaks; among roasts, rump, or, in general, pot roasts. Steaks seem to be a little more popular than roasts. Hamburger and ground beef are in first choice only 5 percent of the time. When it comes to second choice, people still indicate T-bone and sirloin most often, but rump roast, rib roast, and stew meat gain in popularity. Hamburger and ground beef come up a little.

About a third of the time, folks mention hamburger and ground beef as their third choice. Stew meat is mentioned frequently, and roasts and steaks again are similar in mention.

Families where the mother is under 40 prefer steaks over roast. There's not much difference in preference for steaks over roasts by middle-aged groups, but the older folks prefer roasts. There seems to be no relationship to preference according to numbers in a family.

But family income does seem to make a difference in selection of cuts. Folks with a low income prefer roasts . . . particularly a pot roast as a chuck roast, and standing rib. Of steaks,

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they like round and sirloin. Hamburger also is more popular.

Medium-income groups like steaks a little better than roasts . . . and they mention rump roasts, T-bone steaks, and sirloin steaks.

High-income groups have a definite preference for steaks over roasts. In

each of those categories, they like T-bone steak and prime rib roasts better.

You'd think maybe that preference for meat cuts would be influenced by whether or not the wife in a family worked. But it seems to make no difference.

## Who Buys the Meat?

As you might expect, the wife buys the meat most of the time. Once in a while, the husband does the shopping, and sometimes the wife and husband buy meat together.

If both the husband and wife work, they frequently shop together. In such a case, it's more likely that others in the family will buy the meat.

Women with home economics training buy the meat more frequently than if they have no such training.

The more training a wife has in home economics, the more often she buys the meat, too. Someone other than the wife or husband buys the meat twice as often, if the wife has had no home economics training.

Younger folks seem to go to the store together more often. Among folks over 60, chances are that someone other than the husband or wife will do the shopping . . . probably because these folks frequently live alone.

## Where Do People Buy?

About two-thirds of the people say the supermarkets are their main source of meat. Small groceries sell meat to about a fifth of the people, and the rest—about 10 percent—buy mostly from specialized meat markets. Some folks—a small number—buy from meat packers or wholesale meat distributors.

Age is an important factor in the homemakers' preference for butcher service over self-service. Those under 30 split half and half in their preference. As homemakers grow older, they show more and more preference for butcher service until they reach 60. From there on the degree of preference is not so important.

Size of family seems to make a difference too. Families with one or two

members like butcher service by a wide margin. They still prefer butcher service when there are three or more members in the family, but preference isn't so high. Still larger families like butcher service but to a lesser extent than smaller families.

Folks say they can get what they want in the way of size, type, and so on more easily when they use butcher services. Self-service advocates make the same claims. Folks also believe they can see what they're getting more easily by using butcher service, that cuts are fresher, that better meat is available there, or that they can get the kind and quality they need more easily.

Those people who like self-service better say they like it because it's faster, handier, or more convenient—

they don't have to wait. Others say they like self-service better because they can take longer to make up their minds. A few who dislike self-service don't like the wrapping of prepackaged meats; sometimes the meat tastes

like the package. But those people who like self-service say, "It's easier to pick what we can afford; we have the advantages of self-service and also have the service of a butcher if we need it."

## Where People Decide to Buy

It's a little more than half the people who decide what they will buy before they go to the store . . . the rest say they wait until they get to the store before deciding.

Younger folks, especially, wait until they see the meat on display. Older folks, as a rule, make up their minds before they go to the store.

Supermarkets are liked by folks

who wait until they arrive at the store to decide what to buy. Small grocers and specialized meat markets cater mostly to shoppers who have made up their minds before going to the store.

Income levels, educational levels, size of family, and the fact that a wife works—all seem to have no influence on **where** folks decide **what** to buy.

## Why They Change Their Minds

Buyers who have decided on what to buy often change their minds when they arrive at the store. This is especially true for reasons of price—sales or specials. Other folks say they can't find the cut they want, that they don't like the cut they'd planned on, or they saw something displayed that they hadn't thought of before.

Younger shoppers seem to have a greater interest in price, sales, or spe-

cial and change their minds because of these factors more frequently than older groups. Size of family often influences people to change their minds because of price, too. College trained people use prices, sales, or specials as reasons for changing their minds. They don't seem to mention **quality** factors as often even as folks with only grammar school education.

## How Often Do They Buy Fresh Beef?

Most families buy beef once a week. Others buy twice a week—a small number three times a week, and a very few six times a week. Most folks who buy less frequently have home freezers or lockers. They buy beef only once or twice a month or less often.

You'd think there might be some

relationship between frequency of buying and such things as age, size of family, and income. There isn't. But when you study only the larger families, you'll find that when income is high they buy beef more than once a week. Demand for beef in such a family is rather elastic.

## What About Specific Cuts?

Generally income determines frequency of use of ground beef, hamburger, round steak, sirloin steak, chuck roast, stew meat, and liver. Sirloin steak users are higher-income families, as might be expected. And, as you'd expect, stew meat is used most frequently by lower-income families. Middle-income groups use hamburger, chuck roast, wieners, and liver more often than either the low or the high-income families.

Size of family helps to determine cuts used, too—all except liver and sirloin steak. The larger the family,

the more frequently it buys the various cuts of beef. The same relationship applies to age, too, although not the same way in every case.

For instance, middle-aged folks say their families use ground beef and hamburger most frequently. Families of older homemakers say they use them least frequently. Families with the youngest homemakers use wieners most often—or round steak, sirloin steak, and chuck roast. Least frequent use is among the middle-aged. Stew meat is much more popular with families of younger folks.

## Size of Roasts People Like

Most popular size of roast—whether rib, chuck, or boneless rolled—weighs 4 pounds. Next—in order—are 3-pound and 2-pound roasts. You'd think folks would like lighter rolled roasts better than chuck or rib roasts since the rolled roasts have no bone. But they don't—they want rolled boneless roasts at least as heavy as chuck roasts.

Number in a family also influences size of roast bought. Families with

one or two members like chuck roasts from 2 to 3 pounds; if three or four are in a family, they like chuck roasts of 3 to 4 pounds. Larger families prefer 4-pound roasts, but often like them as heavy as 5 or 6 pounds.

Income level shows a similar relationship—the lower the income, the lighter the roast. Of course low income is often associated with older people who live alone or only with husband and wife living together.

## Size of Ground Beef or Hamburger Packages

Most people like hamburger or ground beef in 1-pound packages. The rest like it in 2-pound packages—some in packages weighing a pound and a half.

There is some difference in its availability in stores where different families shop. Almost everyone says hamburger is available in 1-pound packages—about three-fourths of the public says it is always available in

2-pound and 3-pound packages. Then some folks say they can buy it part of the time in those sizes . . . others say they can't get it in 1½ pound weights, and still others say they can't get it in half-pound packages.

Again, size of families determines size of package they use. Smaller families prefer smaller packages. But about two-thirds of all families of one or two members prefer 1-pound packages. A little more than half of the

families with three or four members also prefer a 1-pound package. In families with five or more members,

they prefer the 2-pound package, although a large number still like the 1-pound package.

## What About Beef for Frozen Storage?

Few folks have frozen storage available other than the freezing compartments in their refrigerators. Fewer folks have a home freezer or a rented locker than those people who say they have nothing at all.

Income level and size of family make the difference. In the low-income group, only about 6 percent have home freezers or lockers. The percentage is 11 percent in medium-

income groups . . . 19 percent in the higher groups. As it would seem, more—about one-fourth—of the low-income group have no frozen storage; about 12 percent of the medium-income group and about 6 percent of the high-income group have no frozen storage.

Folks with larger families are more likely to have storage space, especially if income is high.

## How Do They Buy?

Most folks buy beef in retail cuts for frozen storage, because the majority have only the small freezing compartment in their refrigerator. Often they buy a week's supply at one time and freeze a portion of it.

But families who have freezers or lockers most commonly buy by the quarter. The amount that they buy is related to family income—those of higher income buy more often in wholesale or larger cuts.

## How People Select Beef

More folks place importance on quality of beef than on economy. They consider color the most important quality factor—both of lean and fat. They like bright, red lean with white fat instead of yellow. Some look for marbling or streaks of fat in the lean portion of the meat.

A large number of folks mention freshness of a cut as a quality factor. Sometimes they mention tenderness or amount of gristle and grain or texture. Depending upon how people interpret the term quality, some mention moistness, age, firmness, cleanliness, and appearance and color of bone marrow.

Buyers who consider economy think mostly of amount of fat and leanness. Most folks are on guard for too much fat, believing it contributes to wastiness. Some people say simply that they watch for amount of fat on cuts. In some cases they mean that they want a certain amount of fat, but more often they mean that if there is too much fat they won't buy the cut. Some people also look for the amount of bone, because they dislike too much of that. Still others—a small number—say it is important to them to have some bone in the cuts they buy.

A few folks mention price as an

important item to consider as far as quality is concerned. Some indicate that they believe the advice of the butcher along with confidence in the butcher or store will help them obtain quality cuts.

You can relate some of the opinions about quality to income standards. For instance, the medium-income

group mentions a preference for a smaller amount of fat than either the high or low-income families. Low-income groups seem to be less affected by color of fat, marbling, grade, or quality, and amount of bone. They mention freshness more frequently. High-income groups suggest marbling and grade more often.

## Choice of Cuts from Colored Photographs

Figures 1, 2, and 3 are reproductions of photographs we used in this study. With each of the first two sets of pictures we attempted to hold constant all except one factor. We then attempted to measure the importance that consumers attached to this one factor.

In each instance the respondent was shown the set of three pictures and asked to indicate the cut she would buy if all were priced the same. Which would be her second choice? third choice? why?

In the matter of fat distribution, as you can see in the photographs printed as Figure 1, the "Choice" cut definitely has superior marbling. Folks who place it at the top recognize that it is better marbled. People like "Commercial" least because of color and general appearance. Some folks also think it has too much fat.

There doesn't seem to be any relationship between preference for fat distribution with age, education, or size of family. Income may have an influence. Higher-income families seem to prefer more fat distributed through the meat than do medium or low-income families.

It is evident from the way consumers choose the different cuts shown in these photographs that most of

them do not use marbling factors as standards of selection. Many homemakers apparently do not realize the effect that marbling has on tenderness of a beef cut.

Folks have a definite preference for white fat—two-thirds place the picture shown with white fat in first place (see Figure 2). They prefer light yellow fat second and the yellow fat third. (Other studies show no discrimination against light yellow fat.)

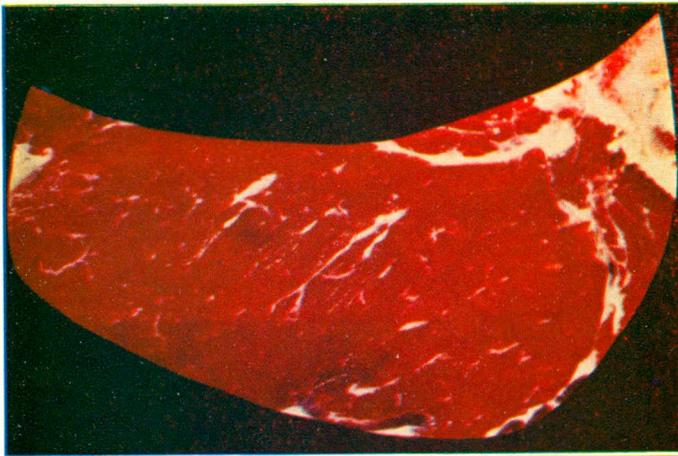
General appearance of the cuts also helps people decide on placing—in addition to color of fat. But choice of fat color isn't related to ages, education, or home economics training; family income does show some relationship.

Folks of all income levels prefer white fat, but that is especially true of families in the low-income groups. (Again, other studies show different results.)

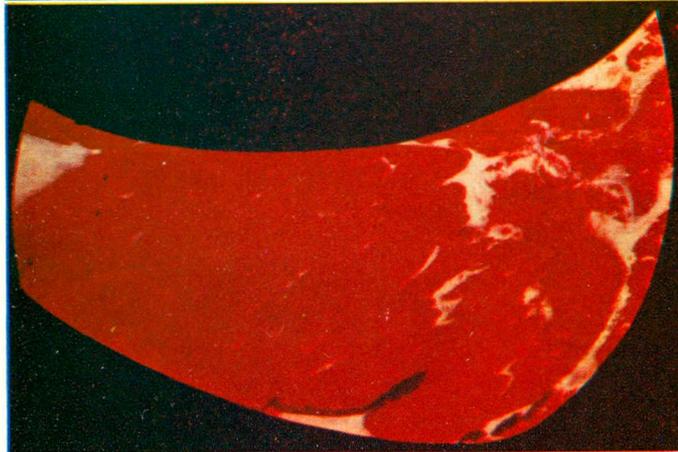
Several homemakers say the picture with the yellow fat looks unnatural—some say it even looks like it has been cooked! But results of this phase are inconclusive and need further testing.

According to grade, people like U. S. Good by quite a wide margin over the other grades. They choose U. S. Commercial second and U. S.

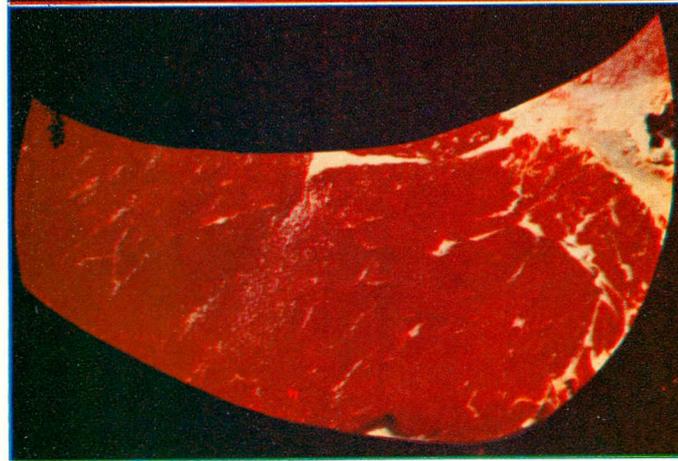
Choice



Good



Commercial

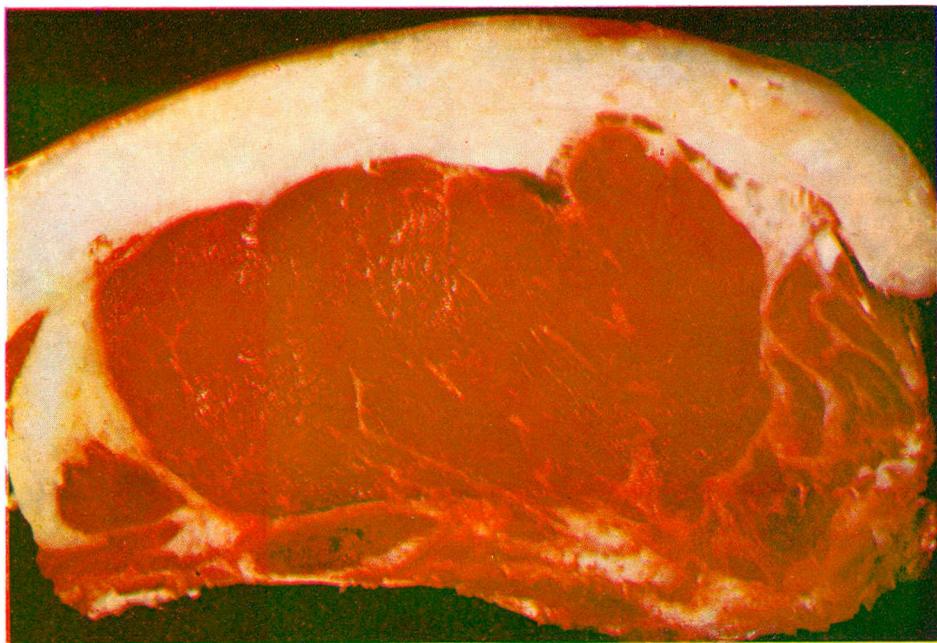


**FAT DISTRIBUTION OR MARBLING (Fig. 1)**

Consumers chose these cuts in the order of "Good," "Choice," and "Commercial."<sup>\*</sup>

Folks who place "Good" at the top do so because they think it has less fat or is leaner, and it has better color. Amount of marbling and even distribution of fat are also mentioned.

<sup>\*</sup>The terms "Choice," "Good," and "Commercial" are used in this report for the purpose of discussion only. It is recognized that this is not an accurate designation, since the entire cut has to be considered for grade; part of it has been masked here.



COLOR OF FAT (Fig. 2)

Folks have a definite preference for white fat—two-thirds place the picture shown with white fat in first place (above). They prefer light yellow fat second (bottom, page 11) and the yellow fat third (top, page 11). (Other studies show no discrimination against light yellow fat.)

Choice third. The amount of fat is the major reason for choosing those cuts in that order. U. S. Choice has too much outside covering of fat; U. S. Commercial too little; U. S. Good just right.

Four of every five people who place U. S. Choice in third position do so because they think it has too much fat.

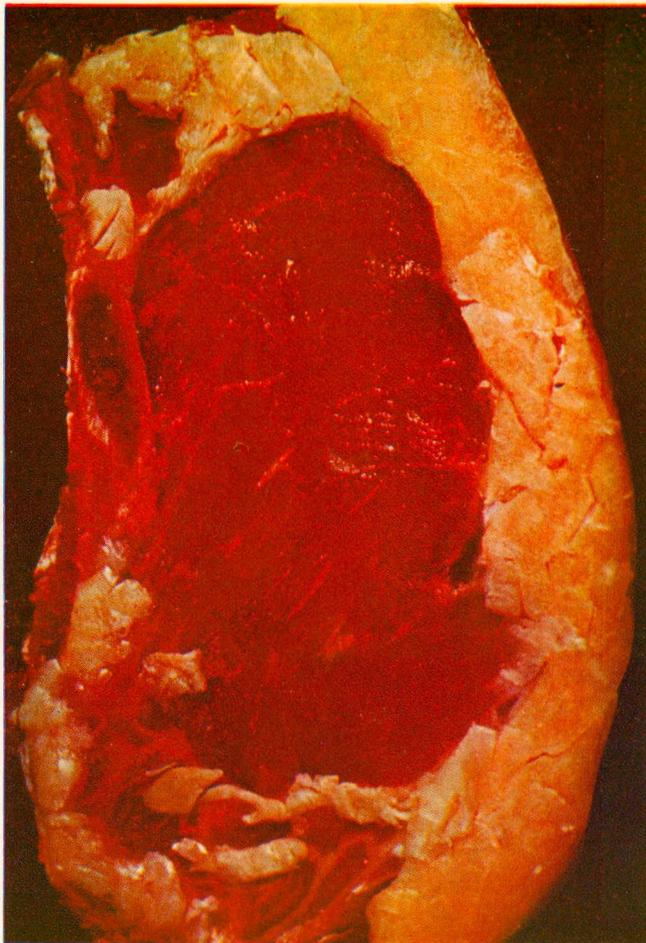
Tastes differ, however, as you might expect. Folks who place U. S. Choice at the top do so for the most part because of quality factors—marbling primarily. Those who like U. S. Commercial are aware of economy factors—small amount of fat, leaner, less trimming necessary. Consumers who discriminate against this cut do so because it has too little fat. They feel

that a certain amount of finish is necessary to make good-quality beef.

We expected to find that choice of beef by grade would be related to income—that folks with higher incomes would be more apt to choose U. S. Choice, while those with lower incomes would choose U. S. Commercial. This did not work out to be the case except in small families. Where families have only one or two members, those with higher incomes pick U. S. Choice over the other two grades.

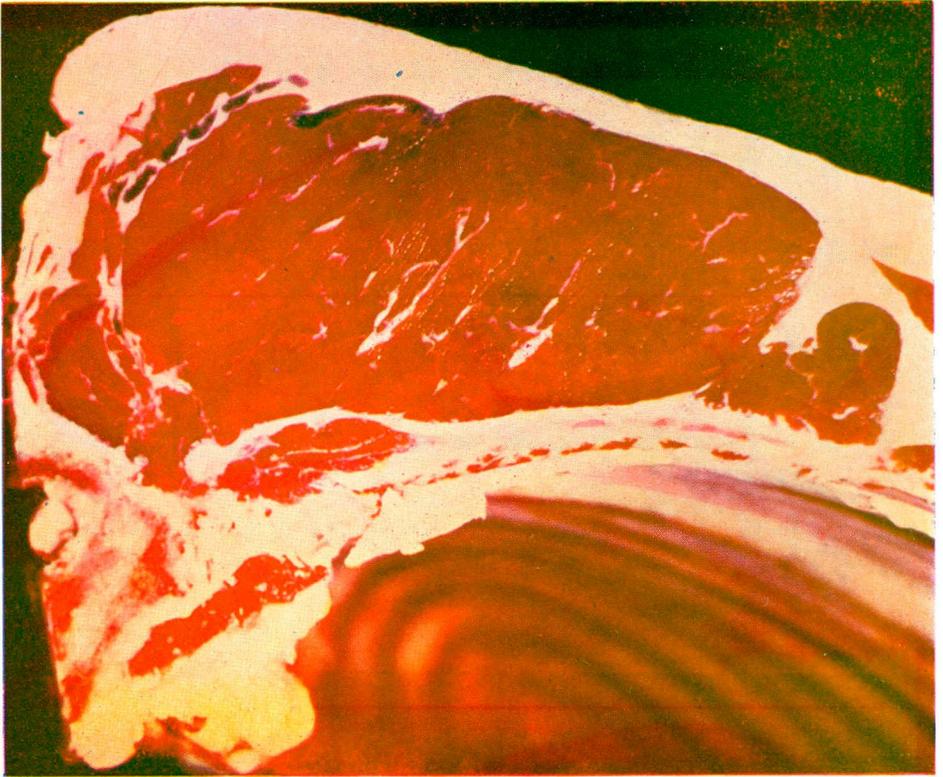
When consumers base their ideas about cuts on outside covering of fat alone, they still choose U. S. Good first. U. S. Commercial is second and U. S. Choice third—showing again

Light Yellow Fat



Yellow Fat





GRADE (Fig. 3)

People like U. S. Good (bottom, page 13) by quite a margin over the other grades. U. S. Choice is shown above; U. S. Commercial on top, page 13.

that people definitely have a preference for little outside covering of fat. Almost as many like the smallest amount of fat as the medium, but they definitely discriminate against the heavy fat covering.

Income has a relationship to such preferences—those in the highest bracket are more likely to choose the cut with the greatest fat covering than are the other groups. The medium group tends to choose the cut with least covering; those of low incomes concentrate on medium covering.

The amount of fat outside—not marbling—seems to influence beef purchasers more than any other factor.

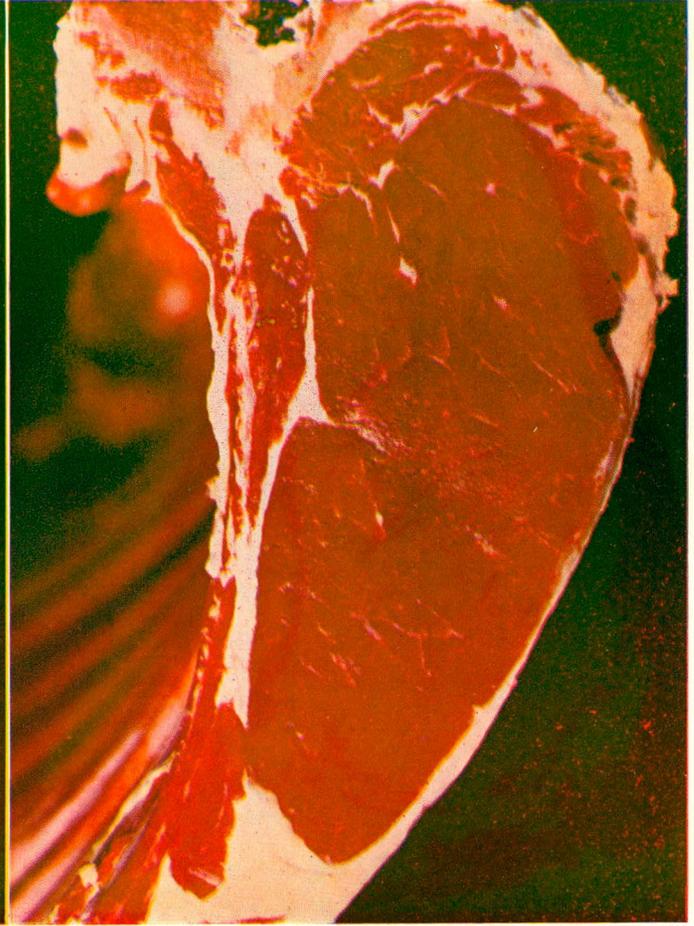
Color is next in importance. Lots of folks find it difficult to describe what they have in mind, perhaps because they don't know what the trade terms are for quality. They know what they want but find it hard to put it into words.

Not all consumers use the same criteria as standards of quality. Many homemakers are not sure in their own minds of all the factors which go to make up desirable meat cuts. Apparently they believe it is much easier to pick out a desirable cut from a display of meat than to communicate to someone else, say the butcher, as to what they want.

Good



Commercial



## How Well Do People Understand USDA Grades?

Few people even have a working understanding of grades. Less than 10 percent can name three or more of the five U. S. grades: "Prime," "Choice," "Good," "Commercial," and "Utility." Most folks have no understanding of grades at all.

Many people still think of grades in terms of old OPA grades—"Grade A and Grade B" or "Grade A and AA."

Folks who are younger have a better understanding of USDA grades. There's also better understanding

among people in the higher-income groups and among those with a higher education, especially if it is in home economics. Many confuse the meat inspection stamp with grade and think of it as a grade stamp.

Since so few people understand grades, it is unlikely that many actually look for USDA grades in the stores where they shop. Many folks say that they shop where they know USDA grades are sold and therefore don't bother to look for the grades when they buy beef.

## Whom People Ask for Quality Information

About half the folks who buy beef depend upon their butcher's advice for getting the quality they want. There is much more of this dependence as the family income goes higher. Smaller families rely on butchers more than medium-sized families, but when

families reach five or more, reliance goes up again.

Age influences folks, too. For instance, the middle-age group depends more on the butcher than either the younger and older groups. Probably younger people prefer self-service.

## How People Cook Beef

Nearly all homemakers have an oven and say they use it. Of 92 percent of homemakers who have broilers, more than a fifth say they don't use them to broil beef. About a third of the homemakers say they have deep-well cookers—only 30 percent of them say they use them for beef cookery. All but 28 percent have pressure cookers, and nearly two-thirds of them use pressure cookers for cooking beef.

Most homemakers who use a pressure cooker for beef cookery use it for preparing stew. Almost as many people use them to cook pot roasts. Age, number in family, whether the wife works, and home economics training seem to have no relationship to

the use or ownership of pressure cookers. Income did make a difference in use, though. About 75 percent of homemakers in the low-income group use them, while only 57 percent of those in the high-income bracket use their cookers for beef.

A much larger percentage of the homes in the low-income group own pressure cookers than of homes where the income is high. And, there's a relation between years of education and ownership of pressure cookers. Folks with less education are more likely to own a pressure cooker.

Folks with medium income tend to use their cooker more for preparing roasts; those in low-income groups and in high-income groups use their

cooker for stew two or three times as often as medium-income groups; and middle-aged homemakers use their cookers for stew more than other age groups.

Some groups make greater use of their oven than others, especially according to age. Older homemakers use ovens less often. Small families and families with low incomes likewise don't use their ovens very often compared with corresponding groups.

Younger and middle-aged home-

makers generally have a broiler and, of course, use them much more than older women . . . even when considering only those who have a broiler. The middle-sized families are more likely to have broilers, but family size seems to make no difference in whether or not the broiler is used.

Folks with higher education and income are more likely to have broilers and are more likely to use them in cooking beef. Such a case is particularly true if the homemaker has had home economics training.

## What Techniques Do Folks Use?

You can safely say that the more education a homemaker has, the more likely she will cook her roasts at lower temperatures. Generally, most homemakers use oven temperatures of 350° Fahrenheit. And most of them leave the oven at that setting. Some folks do set the oven high at first and turn it down later. (Experts recommend roasting at temperatures of 300° to 325° Fahrenheit.)

In small families, income also has an influence on how the women cook their roasts. In low-income families, homemakers turn ovens up high at first and down later; in medium and high-income families homemakers more often leave ovens unchanged.

Not quite half the homemakers use a powder or liquid preparation made especially for tenderizing meats. It is used more commonly on steaks. Folks having the most education use tenderizers more frequently.

More than half the consumers prefer their roasts well done; they like steaks less well done than roasts—most prefer medium-well-done steaks.

You can relate preference to income level—more people in the higher income groups prefer rare roasts and steaks. Families in which the wife has had more schooling also prefer rare roasts and steaks. It seems that the more home economics training the homemaker has, the more apt the family is to prefer rare steaks.

## How People Eat Beef

Most homemakers say they can get one or two additional meals from the roast they cook for their family. Two extra meals are most common. Of course, there is a direct relationship between number of meals and size of family. A family of one or two usually can get two or three meals easily.

Most folks serve roast at the second and third meals as sandwiches, hash, or reheated roast. Sometimes they have cold sliced roast and stew.

Age helps determine leftover use. For instance, younger homemakers are more likely to make leftovers into sandwiches and less likely to serve

cold roast or stew. Older folks serve hash or cold sliced roast beef more often and make stew more frequently.

A homemaker with some home economics training shows a preference for reheating the roast—if she had one year in home economics training; she'll make sandwiches more often if she's had two or more years' training. Without home economics training, a homemaker is more likely to serve

leftover roast in cold slices.

Nearly everyone makes gravy from the leftover juices and fat . . . still, some folks throw away the fat. Younger and middle-aged women are more likely to make gravy, whereas the older homemakers are likely to use both juice and fat for cooking with vegetables or in flavoring soups.

Some women—over 60 years of age—use the fat for making soap.

### **Ever Hear of . . . ?**

State and national cattle growers associations have used at least five slogans to promote buying of beef. Strange to say, not many folks have heard of them. Here they are:

1. Enjoy Beef for Health
2. Eat Beef, Keep Slim
3. Watch Your Curves, Eat Beef
4. Eat Beef, Eat Better, Feel Better
5. Eat More Beef

Most popular slogan is "Eat More Beef," but ask 78 percent of the people about "Watch Your Curves, Eat Beef" and they should say they never heard of it at all; 10 percent more are not sure. In testing this question we threw in a statement never before used: "Beef Builds Health." Folks claimed they had heard it as often as the others.

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**For more complete information see:**

Mimeo Circular 60  
"Consumer Preference for Beef"  
Agricultural Experiment Station  
Laramie, Wyoming

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