RECOMMENDED PROCEDURE FOR CUTTING BEEF

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Many more directions are available on methods of carcass measurement than on cutting procedures. We are restricting this topic to methods of cutting. In beef carcass evaluation, this means considering uniform or standard cutting procedures.

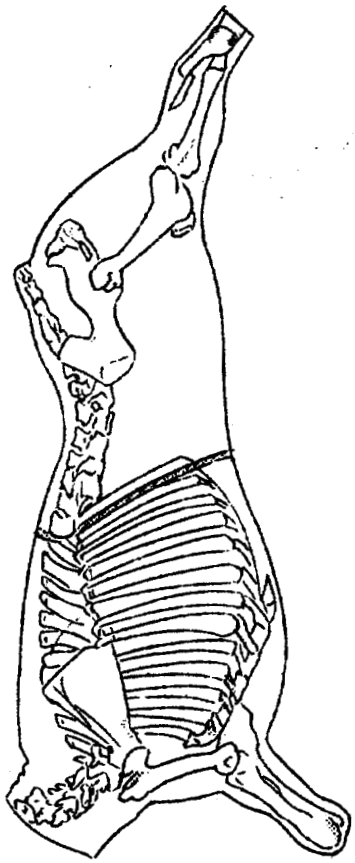
Before the war the Cooperative Meat Investigations Committee recommended a cutting method. The U.S.D.A. Tech. Bul. 926, Estimation of the Composition of Beef Carcasses and Cuts, 1946, outlines the Federal adaptation of the Cooperative Meat Investigations Committee method. To my knowledge this is the only standard cutting method for beef which is in print and readily available.

Beef cutting as outlined in Bul. 926 has been followed by numerous research workers. Many data have been collected using this method. Very careful consideration should be taken before we make changes in any established research method such as this. On the other hand, if the present method has not met the needs of all workers, then we might very justifiably weigh the advantages of changes. A standard method should meet the need of those workers making the most use of the beef cutting data. If workers have different objectives, we may not be able to reach a standard method that is suitable to all.

We plan to give you our interpretation of the procedure, as we have understood it, from Bul. 926. In presenting it, we are adding a little more detail in places, but we are still following the intent of the present method, I believe. We are changing the sequence of the steps slightly. If our interpretations of the method differ from yours, perhaps we can accomplish much by "standardizing our understanding" of the method. Compromises are an essential part of a reciprocal meat conference.

Photographic slides at best are only representations of the cuts, and may not always give a true picture of the operation. The basic steps in the method are similar to "Chicago Style" cutting. Since this material is brief, I expect to go slowly. You may wish to record the numbers on the slides with your questions.

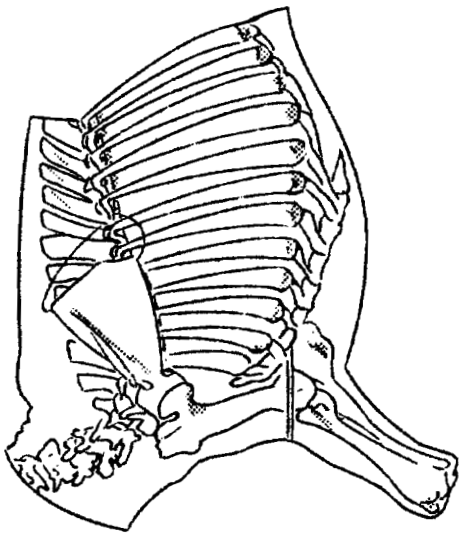
Break at 7½ vertebrae "
or
Through the 12th Thoracic vertebra



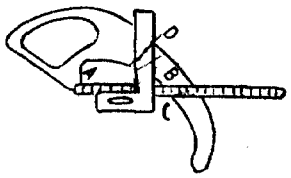
Fore quarter removed between 12th and 13th ribs by a line that crowds the 12th rib its full length. This cut severs the flank at a point level with the union at the 6th and 7th vertebrae (13th thoracic - 1st lumbar) counting down from the pelvic arch.

Slide 1

Slide 2

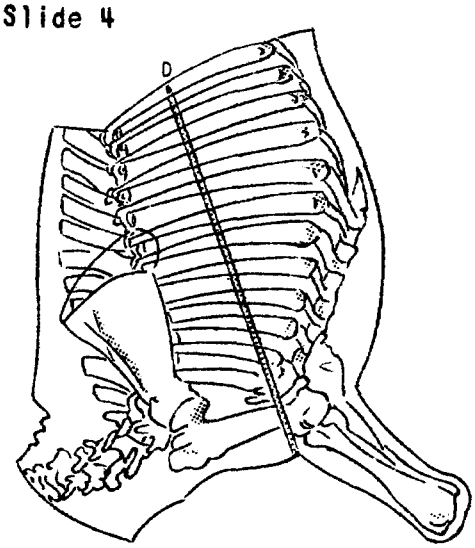


The shank is removed just above the bony rise (lateral condyle of the humerus) on a line parallel to the brisket.



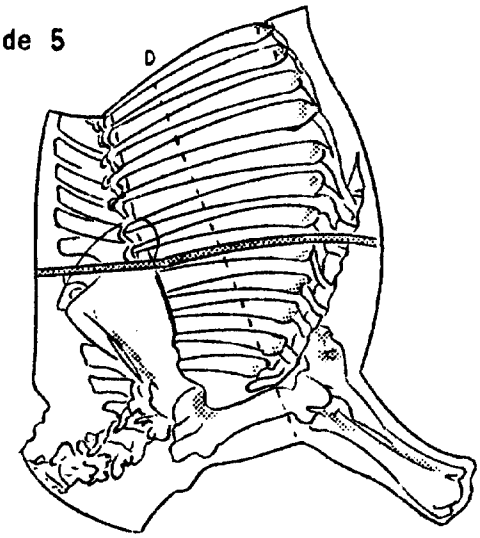
Method of locating point D at which plate is separated from rib; A, Point of body split vertebra; B, 13th costal cartilage; C, point of erecting perpendicular to locate D.
AC = 61.5 percent of AB --
Slide 3

Slide 4



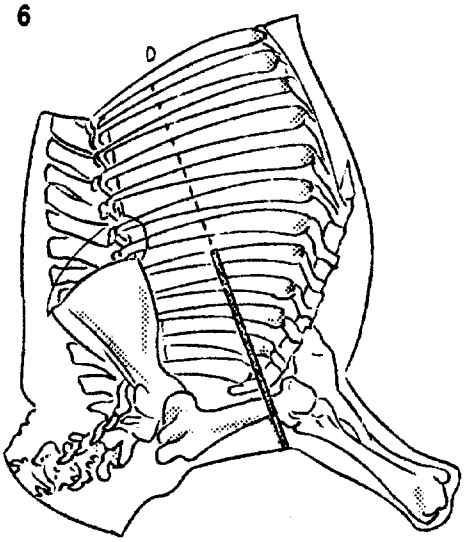
The plate and brisket are scored on a line joining the shank cut with a point on the 12th rib that is removed from the backbone a distance equal to 2/3 the length of the rib. The following is a uniform method of separating the plate from the rib. It is based on skeletal measurements and therefore is more or less fixed. Two instruments are necessary, a yardstick and a carpenter's try square. Point A is the point of the body of the split vertebra. Point B is the cartilage or "button" of the 13th rib. The distance AB is measured and the distance from point A to point C is 61.5% of AB, measured to the nearest eighth of an inch. At point C a perpendicular is erected by means of the square. Where this line intersects the external circumference (point D) the separation is later made. The cut will be perpendicular to the external surface.

Slide 5



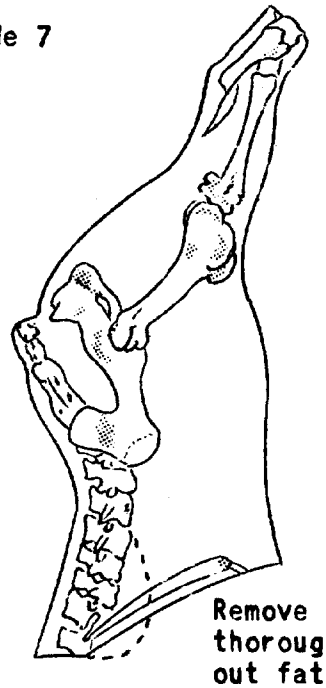
The rib and plate are removed by cutting between the 5th and 6th ribs crowding the 5th rib. These two cuts are separated by cutting along the scored line.

Slide 6



The brisket is removed along the scored line.

Slide 7

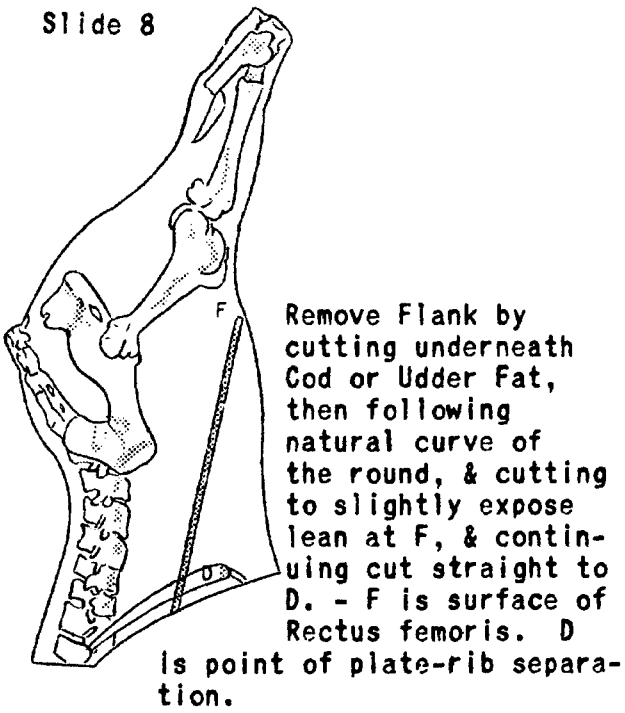


Remove Kidney & thoroughly trim out fat.

The kidney is removed and the fat thoroughly trimmed out of the inside of the loin.

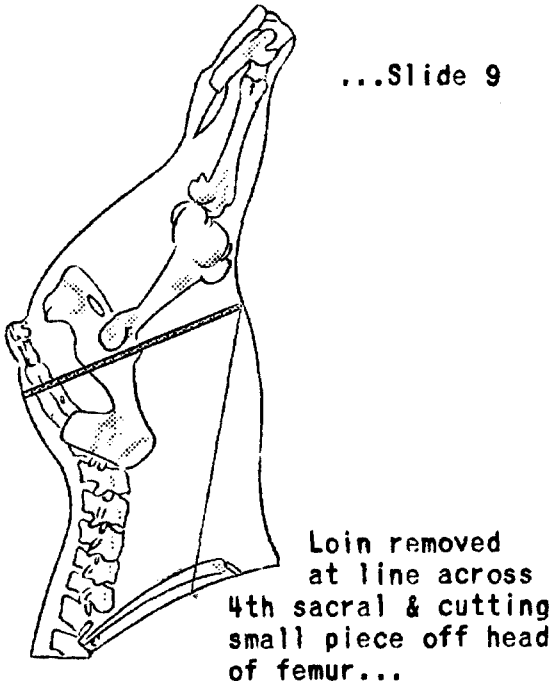
The tenderloin is exposed.....

Slide 8

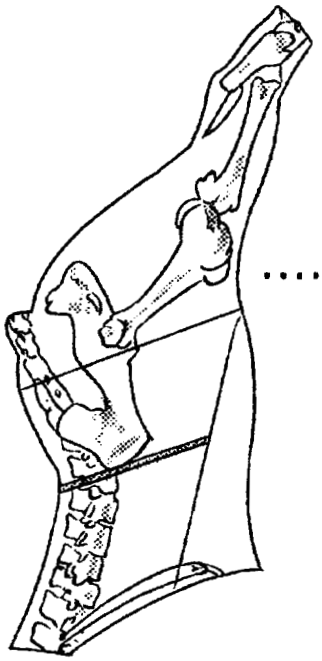


The flank is removed as indicated in slide 8.

...Slide 9



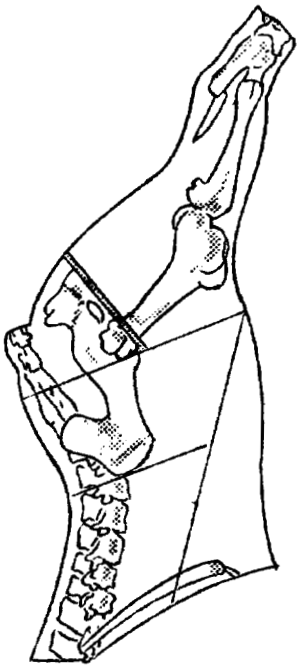
The loin is cut Chicago Style, which is on a line about one-half inch forward of the pelvic bone and just forward of the trochantar major of the femur. This line crosses the 4th sacral vertebrae and cuts a small piece off the head of the femur in the coxofemoral joint. The underside of this cut should flare a little toward the round and be parallel with the line of the 13th rib.



....Slide 10

Remove short loin in front of hip bone (tuber coxae of the ilium)

The loin is divided into two parts, the loin end, which is cut off just in front of the hip bone (tuber coxae of the ilium), and the short loin, which is the piece remaining.



Slide 11

Remove Rump at a cut parallel to pelvic bone & as close to it as knife will cut.

The rump is removed from the round parallel to the pelvic bone and as close to it as the knife will cut.

We have not intended to recommend major changes in the present method. We have added some detail to the directions in reviewing our interpretation of the procedure. Having reviewed the steps briefly, you may wish to suggest changes during the discussion which is to follow.

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MR. NAUMANN: Thank you, George, I will now turn the discussion period over to Charley Adams.

MR. ADAMS: Who has the first question?

MR. BUTLER: How many of you have applied this method on a large scale? We have been using it for three years on more than a hundred head of cattle, ranging from low commercial to low prime, and we have been disappointed. We have been unable to get any statistical difference between these cuts, with a pretty wide variation.

MR. JOHNSON: What differences have you found?

MR. BUTLER: We have been trying to test the progeny from crossing Brahmas and Herefords, to determine whether there is a significant difference in the percentage of loin.

MR. ADAMS: I don't believe, just because we have a cutting spread, we have a significant difference between our breed or cross breeds of cattle.

MR. BUTLER: The way we judge we attach a good deal of importance in these respects.

MR. BRATZLER: Do I gather that you will make the cut back to the bony part of the top of the shank?

MR. WELLINGTON: The way U.S.D.A. Technical Bulletin 926 now reads you first remove the shank at a point that is not too accurately described, but it is just above the bony rise or at the lateral condyle of the humerus, parallel to the brisket.

We are going to get away from the chuck that we are getting now and get into a little more typical commercial chuck.

CHAIRMAN COLE: Why don't you go through that point B, I believe it is, again on the twelfth rib?

MR. WELLINGTON: Let's show slide 5 again. (Slide) Brisket and plate in the bulletin reads: Cut off -- and we say score on a line joining the shank -- cut with a point on the twelfth rib that is removed from the backbone at a distance equal to two-thirds the length of the rib. The following is a uniform method of separating the plate from the rib as based on skeletal measurements and, therefore, is more or less fixed. Two instruments are necessary, a yardstick and a carpenter's square. Point A is the point of the body of the split vertebra. Point B is the cartilage button up here to the thirteenth rib.

Distance A-B is measured and the distance from A to C is 61.5 from A-B measured to the nearest eighth of an inch, and point C, erected by means of the square, is perpendicular to point D where the line intersects the external circumference. The separation is later made. The point will then be perpendicular to the external surface.

Now we go back to No. 2. (Slide)

MR. KEMP: On that, point B is the button. What is the rest of that rib extending over there?

MR. WELLINGTON: This is plate down here. This drawing may confuse you slightly. It is taken pretty much out of the bulletin but, you see, this is rib supposedly to this point, which is a little out of proportion but still not much, and then this is all plate. If you cut with the thirteenth rib in the hind, according to the method that we described earlier, you will go through the calculus cartilage of the thirteenth rib. The authors called that the button and they measured from A to the button and took 61.5 per cent of that distance and projected it and called it point D.

MR. KEMP: That other isn't rib.

CHAIRMAN COLE: If A and B are not on a level like that how does it affect point B?

MR. WELLINGTON: I think Charley Adams had a good point on that. Do you want to explain it, Charley?

MR. ADAMS: Determining the line A-B? We do it before the forequarter is completely removed from the hind. In other words, just as we rib it for carcass judging. That leaves the forequarter hanging down at an angle. You can place the yardstick at point A, at the point of the chine, run it right up across and put it right on the button of the cartilage at the thirteenth rib. You have a straight line now. You take your measurement between A and B. Do I make that clear, Bill?

CHAIRMAN COLE: Yes.

MR. ADAMS: Do you have any other questions about this method?

MR. BUTLER: I have a question on the first slide. This line that goes out to the flank we have found drops down quite a lot.

MR. ADAMS: Yes, it will.

MR. BUTLER: One more question. What do you do with cattle with fourteen ribs?

MR. ADAMS: The question came up in our committee meeting yesterday afternoon. Correct me if my interpretation is incorrect. We cut them as though they are thirteen rib cattle. In other words, leave the two on the hindquarter. If this is a fourteen rib cattle we leave the thirteenth and fourteenth on the hindquarter just as they are now.

MR. CAHILL: If you refer to that thirteenth rib as being included in the standard in locating the reference point how do you find it?

MR. ADAMS: The few cattle that I have cut have always had cartilage connection down to the sternum.

MR. CAHILL: I agree that the cartilage is there, but it is a standard reference point in each carcass you have. Isn't the location variable?

MR. WELLINGTON: I think that would be a rather minor point.

MR. CAHILL: That rib would also influence the location there.

MR. WELLINGTON: It would and that goes back to the first paragraph that I read. I expected Professor Bratzler to raise a question about that one. The forequarter removed between the twelfth and thirteenth rib by a line that crowds the twelfth rib its full length. This cut severs the flank at a point level with the union of the sixth and seventh vertebrae counting down from the pelvic arch. Actually that is the thirteenth thoracic in the first lumbar union. It does now show it very well on the slide. In fact, I went down to the cooler and checked it myself a couple of times because I did not think the end of that flank would be level with that union, but when you get around to the back side it goes out that way. I know that in commercial practice some of them are cut down like this.

MR. ZIEGLER: I have a question. Again you are removing the old-fashioned plate; that is, brisket, shank and shortplate all together. It seems to me that instead of having your mechanical gadgets and getting so complicated about this, you could remove your cross-cut chuck and then your shortplate. Say you want to cut a 7-inch rib. You decide that is the standard rib you want to cut, or make it 8 or 10. Then take that measurement from the protruding end of the chine bone and follow that parallel with the chine bone and you will come out the same distance on the plate end. In removing brisket he says you cut parallel to the lower part of the brisket. No, I say you should cut parallel with the top line.

MR. ADAMS: Let's have slide 2.

MR. ZIEGLER: Lay your yardstick up and count. That is the way to do it.

MR. ADAMS: That is the way I have been cutting our experimental beef. Evidently I have not made myself clear yet. But here's the thing, Ziegler, on this angle across here, as far as separating the rib from the plate is concerned, in following our correlation figures that are in this bulletin, in comparing the ninth, tenth, and eleventh rib separations, we should continue on that basis. That is the reason we suggest making your score mark from that point C up there down across this section at least. So that you still have the same cut you ordinarily have. Then after you have made that cut -- scored it, rather, because it is not a cut -- separate between your chuck, rib, plate and brisket all the way across. In that way you can take it directly with the power saw. Come down here and make this cut right across here parallel with the back. That is what I had in mind. This parallel business to the brisket I don't think you are going to get very far with.

MR. WELLINGTON: I think where you and I are not quite together, Charley, is that we decided to stick with the wording of the bulletin except for just some very minor changes. I think if we had time it would be wonderful if we could get action on changing these different points. I think it would be a good thing to change them, but if we can't maybe we will have to do it in a committee meeting.

MR. DEANS: That is partially what I was going to say. But there has been a lot of work in the past using this BAI method. Are we justified in saying here that the thing for us to do is to invoke a new method by which we will get somewhat different results? What is that going to do with the previous data? It will be at a stopping point if we convert now to a new method of cutting meat. I admit personally I think that cutting that chuck as you recommended parallel with the top line of the chuck seems to be the most practical method not only from the cutting standpoint but it is the way it is done in industry, and if you are going to have this cutting plan you may have trouble in convincing them they should cut that English corner of the chuck. I don't think this is anything the committee can decide. Maybe we had better check with the people in the BAI and with the folks here.

MR. HANKINS: I had hoped to listen and not say anything on this matter. It seems to me that the point of real importance is to keep this rib sample standard for the reason that we have a lot of correlation background to support it. If we should change the cutting of that rib, move that rib a little, it probably would not change the correlation, but it might change it some. How much we don't know; therefore, my main interest is to see that we do stay with that method of removing the rib and the rib samples, going on down incidentally to the ninth, tenth, and eleventh rib, which, as you all know, we have come down to in the carcass sample.

There is another point I should like to make clear. This is not a Bureau of Animal Industry method that has been used. This old method of cutting was drawn up by a committee of the old Conference on Cooperative Meat Investigation. We came along with the publication of this bulletin that is being referred to here and of necessity we had to describe the method so we simply quoted. So far as I can remember at the moment, it is the only place it has been quoted. That is the reason the BAI happens to be tacked on this old method of cutting.

From my own standpoint I don't see any reason we must stay bullheadedly with a method we have had for twenty-five years if there is some good reason for changing it. I think that would be foolish, but let's have a good reason before we do change. I would strongly urge that we not change the cutting of the rib and the removal of the rib sample because there is an excellent reason for keeping it the way it is.

MR. ADAMS: That was our reason for making our score mark down across, so that separation would still be the same as it has been in the past.

MR. BRATZLER: You are changing your lower point there.

MR. ADAMS: How are we changing the lower point? We are still using our reference here.

MR. BRATZLER: Maybe I read the bulletin wrong but I thought when we took the shank off, if you will move your finger up there -- right there -- that is about the point we have been using. Have we been wrong?

MR. ADAMS: For this junction down across here?

MR. BRATZLER: That is right.

MR. ADAMS: This bulletin says the shank is removed just above the bony rise, lateral condyle of the humerus.

MR. WELLINGTON: Plate and brisket are scored at a line joining the shank cut.

MR. BRATZLER: Shank cut. That is the point.

MR. WELLINGTON: Where it says shank cut the bulletin reads like this: The plate and brisket are cut off on a line joining the shank cut with the point on the twelfth rib.

MR. BRATZLER: What do they mean by the shank cut?

MR. ADAMS: Mr. Hankins, maybe you can clear us up on that. Are you referring to this cut? This is the way I was shown to cut carcasses out there by Bill Ethel.

MR. HANKINS: I can say that Bill knows more about this than I do because Bill had a hand in developing this method.

MR. ADAMS: In this 61½ per cent. I know that. And he started right here just above this point and made his entire cut right straight through. Shank and brisket came off together, and then he separated the shank from the brisket. I am sure that is the method originally set up by the Research Review Committee.

Are we clear on everything here now? I think that is a good argument on your part, O.D., and that is how much difference are we actually getting in these percentages of cuts? The thing that we are most interest in is keeping our ninth, tenth and eleventh ribs the same as they have always been.

MR. BUTLER: When you make these standard cuts are you trying to compare weights of cuts, percentage of cuts, or anything between animals?

MR. ADAMS: Just percentages.

MR. BUTLER: Are you comparing percentages among a group of animals?

MR. ADAMS: No.

MR. NAUMANN: Charley, I think we had better cut this off. Thank you.

The Chair will now entertain a motion either to accept the method as it was read or to modify it as some of the discussion has indicated.

MR. BUTLER: Mr. Chairman, I move that it be accepted as read in the 926 with these minor changes.

(The motion was seconded and carried unanimously)

MR. NAUMANN: John Stull, of Kansas State College, has prepared a paper that Professor MacIntosh is going to read concerning photographic methods of measuring the longissimus dorsi.

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