

12th European Meeting of Meat Research Workers
in Sandefjord 14th to 19th August 1966.

COMPOSITION AND NUTRITIVE VALUE OF CARCASS CUTS

by

Elsa Blegen and Alf Damm

Summary.

Three bulls, one heifer, three calves, one sheep, two lambs and nine pigs were cut in accordance with the official Norwegian Standard, and each cut was analysed separately. Common analyses for composition, and determination of iron, calcium, thiamine, riboflavin and niacin were done. Some of the cuts were trimmed for all visible fat. This was done out of regard to people living on a low fat diet.

The results show that the fat and protein content vary in different cuts within the same beef specimen. A marked difference was found in the cuts from the bulls and the heifer. Bull beef contains less fat and more protein than heifer beef. The thiamine content of the heifer is higher than in the bulls. The iron content is also somewhat higher in the heifer.

The thiamine content of the baby calf is appreciably higher than that in the two other calves. The riboflavin and niacin contents are also somewhat higher. The weight of the baby calf was 21,0 kilos, whereas the weight of the two other calves were 58,3 and 67,7 kilos respectively.

The thiamine content of the lamb analysed is higher than values reported in the literature.

The thiamine content of the lamb chops was 0,33 milligrams per 100 grams. If all visible fat removed the content was 0,41 milligrams per 100 grams.

Values for thiamine were much lower in garbage-fed and partly garbage-fed pigs than in concentrate-fed animals. The values for chops with all visible fat removed varied from 0,33 to 0,53 milligrams per 100 grams.

The lowest value was found in the pig fed on garbage and old bread.

In the same cut from concentrate fed pigs the thiamine content varied from 0,94 to 1,29 milligrams per 100 grams.

There was hardly any difference between the two groups with respect to riboflavin and niacin.

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Zusammensetzung und Nährwert einzelner
Standardstücke von Schlachtvieh.

von

Elsa Blegen und Alf Damm

Zusammenfassung.

Drei Bullen, eine Färse, drei Kälber, ein Schaf, zwei Lämmer und neun Schweine wurden nach der offiziellen, norwegischen Standardmethode zerlegt, und jedes Stück auf folgende Weise analysiert: Bestimmung des essbaren Anteils und der Zusammensetzung des Fleisches bezüglich Wasser, Eiweiss und Fett. Ausserdem wurden Eisen, Calcium, Thiamin, Riboflavin und Niacin bestimmt.

Bestimmte Teilstücke wurden analysiert sowohl vor als auch nach der Abtrennung allen sichtbaren Fettes. Dies wurde mit Rücksicht auf jene Leute durchgeführt, die nach magerer Diät leben müssen.

Die Ergebnisse zeigen, dass die Bestandteile von Fett und Eiweiss verschiedener Stücke desselben Schlachtieres schwanken. Ein deutlicher Unterschied zwischen den Teilstücken von Bullen und denen der Färse wurde gefunden. Das Bullenfleisch enthält weniger Fett und mehr Eiweiss als das entsprechende Färsenfleisch.

Der Thiamingehalt der Färse ist höher als der der Bullen. Der Eisengehalt liegt bei der Färse etwas höher als bei den Bullen.

Der Thiamingehalt des nüchternen Kalbes ist viel höher als der der zwei anderen Kälber, während Riboflavin und Niacin nur eine leichte Erhöhung aufweisen. Das Gewicht des ersteren betrug 21,0 kg, während das der zwei übrigen Kälber 58,3 bzw. 67,7 kg war.

Der Thiamingehalt des untersuchten Lammes liegt über den in der Literatur angegebenen Werten.

Der Thiamininhalt der Lammkotelette, Figur 3, Stück 2a, war 0,33 mg/100 g.

Wenn alles sichtbare Fett abgetrennt wurde, so erhöhte sich die Werte auf 0,41 mg/100 g.

Die Thiaminwerte waren viel niedriger bei solchen Schweinen, welche ausschliesslich oder teilweise mit Küchenabfällen gefüttert worden waren als bei jenen, die auf der Basis von Kraftfutter gemästet wurden. Die Werte für Kotelette, an denen alles sichtbare Fett weggeschnitten war, schwanken von 0,33 bis 0,53 mg/100 g bei den Küchenabfallschweinen. Die niedrigsten Thiaminwerte hatte jenes Schwein, das mit Küchenabfällen und altem Brot gefüttert worden war. In den entsprechenden Teilstücken von Schweinen, welche während der Mast Kraftfutter bekommen hatten, schwankte der Inhalt von 0,94 bis 1,29 mg/100 mg.

Einen Unterschied zwischen den zwei Gruppen bezüglich Riboflavin und Niacin war kaum festzustellen.

НОРВЕЖСКАЯ МЯСНАЯ
НАУЧНО-ИССЛЕДОВАТЕЛЬСКАЯ
ЛАБОРАТОРИЯ
НОРВЕЖСКИЙ ГОСУДАРСТВЕННЫЙ
ИССЛЕДОВАТЕЛЬСКИЙ ИНСТИТУТ
ПО ДОМАШНЕЙ ЭКОНОМИКЕ

12^й европейский съезд учёных мясной промышленности
в Сандефьёрд 14. по 19. августа 1966 г.

Состав и питательная содержимость в отрубях

Эльза Влеген и Альф Дамм

Выводы

Три быка, одна телка, три телёнка, одна овца, два ягнёнка и девять свиней были разрублены по официальному норвежскому стандарту и каждый отруб был анализирован по отдельности. Был проведён обыкновенный анализ для определения состава железа, кальция, тиамина, рибофлавина и ниасина. Некоторые части были очищены от всего видимого жира. Это было сделано с расчётам для людей живущих на питании содержащем мало жира.

Результаты показывают, что жир и протеин содержатся в различных размерах в разных частях говяжьей туши. Заметная разница была найдена в отрубях быков и телок. Говяжье мясо содержит меньше жиров, но больше протеина, чем мясо телки. Содержание тиамина в мясе от телки было больше, чем в говяжьем мясе. Содержание железа было немного больше в мясе от телки.

Содержание тиамина в телёнке второй категории (новорожденного) было значительно выше, чем в других двух телётах. Содержание рибофлавина и ниасина было также частично выше. Вес телёнка 2^й категории был 21,0 кг, а вес других телят был 58,3 кг и 67,7 кг.

Содержание тиамина в ягнёнке, который был анализирован было выше, чем указано в литературе.

Содержание тиамина в спинном отрубе ягнёнка было 0,33 миллиграмма на 100 грамм, - но если весь видимый жир был убран, то количество было 0,41 миллиграмм на 100 грамм.

Содержание тиамина было много меньше у свиней кормленных отбросами и частично отбросами, чем у свиней кормленных концентратами. Содержание тиамина в карбонаде, очищенной от всего видимого жира, колебалось от 0,33 до 0,53 миллиграмм на 100 грамм. Самое низкое количество было определено в свиньях откормленных отбросами и старым хлебом. В подобных частях свиней откормленных концентратами содержание тиамина колебалось от 0,94 до 1,29 миллиграмм на 100 грамм.

Разницы в количестве рибофлавина и ниасина не было найдено в этих двух группах.

Introduction.

In connection with the issue of a new edition of the Food Composition Tables of Norwegian Food Items, analyses have been carried out in order to get more exact data for meat cuts and meat products.

The mentioned tables are published by the National Society for Nutrition and Health. The analytical work has been carried out by the Norwegian Government Home Economics Research Institute in cooperation with the Norwegian Meat Research Laboratory. The first mentioned having fulfilled the determinations of B-vitamins, iron and calcium, and the latter having provided the raw material and sampling and carried out the common analyses for composition.

This report deals with the composition of meat cuts from our most common domestic animals.

Selection of material.

The carcasses chosen for analyses have normally been first grade quality in accordance with the consumers demands for retail meat. Only for lean beef has a lower grade been chosen in accordance with the retail demand.

In order to get the most representative samples from each type of animal, the carcasses were selected by skilled graders.

The pork carcasses were mostly star grade quality with a back fat layer of 23-25 mm thickness. Pork no.1 and 2 were cut in accordance with the official Norwegian standard, and each cut analysed separately. As for pork carcass no.3-9 only the kam, the mörbrad, see figure 4, and the longissimus dorsi were analysed.

What feeding stuff concerns, this is known in detail for pigs no.3-6, as these came from an official breed center. For the others we do not know the exact composition of the feed.

Table 1. Carcasses analysed.

Table	Kind of animal	Grade	Weight kg	(Weight range) kg
2	Bull, medium fat	1	225,2	(140-350)
3	" " "	1	232,6	(" ")
5	" lean	2+	175,4	(120-500)
6	Heifer, medium fat	1	185,6	(120-300)
7	Baby calf	1	21,0	(17-25)
8	Suckling calf, medium fat	2	58,3	(30-90)
9	Medium calf, medium fat	1+	67,7	(40-100)
10	Mutton, medium fat	1	25,9	(22-40)
11	Lamb, medium fat	1	16,8	(13-25)
12	Spellamb, medium fat	1	12,3	(13-20)
13	Pork no. 1 21 mm back fat	star	73,1	(55-80)
14	" " 2 23 " " "	"	69,0	(" ")
15	" " 3 19 " " "	"	68,0	(" ")
"	" " 4 28 " " "	1	62,0	(55-100)
"	" " 5 25 " " "	1	66,0	(" ")
"	" " 6 24 " " "	star	66,0	(55-80)
"	" " 7 24 " " "	"	70,0	(" ")
"	" " 8 24 " " "	"	70,0	(" ")
"	" " 9 24 " " "	"	71,0	(" ")
16	Broilers			(0,8-1,2)

Cutting, trimming and deboning.

The selected carcasses were stored for three days at + 2° C and 85% relative humidity on order to provide meat of about the same age as what is normal for the retail market. The weight loss were 1-2% during the first 24 hours. At the end of the storage period the average weight loss for beef and mutton carcasses were 2,8%, and for pork carcasses 2,4%.

The cutting, trimming and deboning were carried out by skilled butchers. The carcasses were first split into two halves, of which one was cut and trimmed as for retail sale. The cuts of the other half were trimmed for all visible fat. This was in the first place done out of regard to people living on a low fat diet, but the investigation has also general interest in connection with the suggestion from the National Society for Nutrition and Health to lower the daily fat consumption.

Analytical methods.

Water.

The water content was determined by the direct method as outlined in "The chemical analyses of foods and food products" by Morris B. Jacobs, third edition.

The material was evenly spread on aluminium dishes and dried in a temperature controlled oven at 102-104°C for 16 hours.

Protein.

By this analyses we used the Winkler modification of the Kjeldahl-Gunning-Arnold method as detailed by Jacobs in the reference mentioned above.

Fat.

The fat content was determined by extraction with benzene. 5 grams of the meat samples were weighed out within two decimals accuracy and thoroughly rubbed with 25 grams of anhydrous sodium sulphate in a mortar. Then the mixture was transferred to a 250 ml glass-stoppered flask and 50 ml of benzene added. The flask was vigorously shaken for 30 minutes. When the mixture had settled, 12-15 ml of the benzene extract were filtered into a test tube. 10 ml of the clear solution were transferred to a glass dish and the solvent evaporated on a boiling water bath. Finally, the dish was heated in a temperature controlled oven at 80°C for 30 minutes. After cooling to room temperature, the fat was weighed. Calculation of the fat content was done according to the following formula:

$$\text{Percentage fat} = \frac{900 \times}{9 + x}$$

x = the weight of fat in grams.

The specific gravity of the fat is valued at 0,9.

Starch.

Starch was determined by a polarimetric method described by Nordisk Metodikk-komit  for Næringsmidler (The Scandinavian Committee on Food Analyses), method no. 23.

The sample was treated with alcoholic potassium hydroxide on a boiling water bath for 45 minutes. The undissolved substance was first washed with warm, diluted alcoholic potassium hydroxide solution and finally, with alcohol. Then the starch was dissolved in 7,7 N. hydrochloric acid and readings made in a polarimeter.

Ash.

Dry ashing was performed in accordance with the standard method for the determination of ash, method no. 7, recommended by Nordisk Metodikk-komit  for Næringsmidler.

The temperature was about 600°C, and the ashing was continued till constant weight was obtained, at about 20 hours.

Salt.

Salt has been determined by Mohr's method in the way described in Laboratoriumsbuch für den Lebensmittelchemiker, by Beythien/Diemair, 8. Auflage.

Exactly 10 grams of the meat samples were weighed into a 400 ml beaker and suspended in 240 ml of distilled water. The beakers were covered and set aside over night. After filtering, an aliquot part of the extract was titrated with 0,1 N silver nitrate using potassium chromate as indicator.

Phosphorus.

For determination of phosphorus we used a modification of Truog and Meyers colorimetric method, detailed by Jacobs in the reference given above.

Calcium.

Two different methods were used for determining the calcium content. One of them is method no. 21 recommended by Nordisk Metodikk-komit  for Næringsmidler. After dry ashing, the ash is dissolved in hydrochloric acid. Any calcium ions present are precipitated as calciumoxalate. The precipitated calcium oxalate is dissolved, and the calcium complex with ethylenediamine tetraacetate is titrated with a zinc chloride solution using eriochrome black T as an indicator. The other method used is described by Reiner Bamm¹. After dry ashing, the ash is dissolved in hydrochloric acid. This solution is passed through a cation exchange column. 5 N hydrochloric acid is used as elutriant. The amount of calcium present is determined by titration with ethylenediamine tetraacetate using murexide as an indicator.

Iron.

Iron was determined in accordance with the standard method, method no. 22, recommended by Nordisk Metodikk-komit  for Næringsmidler.

After dry ashing the ash is dissolved in hydrochloric acid, and the iron content determined **colorimetrically** by measuring the colour intensity of the red orthopenantroline-ferrocomplex.

Methods for the determination of the B-vitamines.

Microbiological methods have been used for the determination of riboflavin, niacin and thiamine. These methods are based on the observation that certain microorganisms require specific vitamins for growth. Using a basal medium complete in all respects except for the vitamin under test, growth responses of the organism are compared, quantitatively in standard and unknown solutions. Either the acid or the turbidity produced by the organism is measured to determine the extent of growth and thereby the amount of vitamins in the test solution.

The methods used for the determination of the riboflavin and the niacin contents are described in Pharmacopea Scandinavica 1958.

The riboflavin content is determined by using *Lactobacillus casei* as the test organism, and the amount of acid produced is determined. The extraction is carried out by using an enzyme digestion, the enzymes being papain and takadiastase.

In the niacin determination *Lactobacillus arabinosus* is used as the test organism, and the amount of acid produced is determined.

The extraction is carried out by using 0,1 N sulphuric acid and autoclaving 30 minutes at a pressure of 15 pounds per square inch.

The thiamine content is determined by using a method described by Barton Wright²⁾, the test organism being *Lactobacillus viridescens*.

The turbidity produced is measured at wavelenth of 660 $m\mu$.

The extraction is carried out using an enzyme digestion, the enzymes being papain and takadiastase.

Results and discussion.

Beef.

The values for the nutrient content of the various specimen of beef are given in Tables 2, 3, 5 and 6.

Tables 2 and 3 give the values for two medium fat bulls, weighing 232 and 225 kilos respectively.

The results show that the fat and protein content varies in different cuts within the same beef specimen. The heaviest bull is somewhat fatter.

And since there is a connection between the fat and protein content, this bull will have a slightly lower protein content than the other one.

The lean bull of weight 175 kilos has a much lower fat content. Taking the "kams", see figure 1, as an example, the two medium fat bulls have

fat contents of 14,3 and 16,3 grams per 100 grams respectively, whereas the same cut from the lean bull has a fat content of only 7,7 grams per 100 grams.

It would be natural to compare these values with the values obtained by Homb and Offergaard³⁾ since their findings were used in the second edition of the Food Composition Tables published by Board of Nutrition and Health. They found the mean, fat content of the "kam" to be 13,2 grams per 100 grams, ranging from 10,1 to 16,6 grams per 100 grams. Taking the "bibringe" as a second example, the two medium fat bulls have a fat content of 20,3 and 28,0 grams per 100 grams respectively. The fat content of the same cut from the lean bull is 10,3 grams per 100 grams, giving a mean value for the "bibringe" of 19, 5 grams of fat per 100 grams. The mean value found by Homb and Offergaard was 17,3 grams of fat per 100 grams, with the values varying from 11,0 to 22,2 grams per 100 grams. Homb and Offergaard found that there was a marked difference in fat content between the cuts from bulls and heifers and cows. Bull beef contains less fat and more protein than cow beef. This was verified by our work.

The iron content varies somewhat from cut to cut within the same animal. It is slightly higher in the lean bull than in the medium fat bulls, whereas again, the heifer has a somewhat higher iron content than the lean bull. The B-vitamin content is in general agreement with figures reported in the literature.

The thiamin content of the heifer analysed was higher than that of the lean and medium fat bulls.

The values for the nutrient content of veal are given i Tables 7, 8, and 9.

Three different calves were analysed: Baby calf, suckling calf and medium calf.

The thiamin, riboflavin and niacin content of the different cuts of suckling and medium calves are very close. The values are in general agreement with figures reported in the literature.

The content of the three B-vitamins in the baby-calf is appreciably higher than that in the two other calves, and higher than the figures reported in the literature.

Pork.

The nutritive values and food energy of pork are given in Tables 13, 14, and 15. Tables 13 and 14 give the value for two pigs, both of star grade. The tables show that there is little variation in protein and fat content comparing the same cuts from both pigs. Taking the ham, (skinke) as an example, this cut from the pig having a backfat layer of 24 mm,

Table 14, has a protein content of 17,7 grams per 100 grams, and a fat content of 18,8 grams per 100 grams, whereas the leg from the pig having a backfat layer of 21 mm has the same protein content, and a fat content of 20,2 grams per 100 grams.

Homb and Offergaard found the protein content of the leg to vary from 12,3 to 15,9 grams per 100 grams. The fat content varied from 28,7 to 34,8 grams per 100 grams. The analyses of the pork mentioned were commenced in 1953.

The calcium content varies somewhat from cut to cut within the same carcass.

The iron content in pig no. 2 is higher than in no. 1, see table 14. This carcass has also a higher B-vitamin content. Comparing the same cuts from each of the two pigs show that pig no. 1 has a thiamine content which is twice as high or higher than for pig no. 1.

Questioning of the farmers who delivered the two pigs revealed that the pig which was high in thiamine content and also somewhat higher in niacin and riboflavin was mainly fed concentrates with some raw potatoes in addition, whereas the other pig was fed garbage and bread.

Our findings are in good agreement with those found by other workers, Eva Hartzler, Winifred Ross and E.L. Willett⁴⁾ found in 1949 the thiamine content of the loin of garbage fed pigs to be 0,31 milligrams per 100 grams, whereas the thiamine content of grain-fed pigs was 0,75 milligrams per 100 grams.

That the thiamine content of pork is influenced by the amount of thiamine in the rations was also shown by Miller, Pence, Dutcher, Ziegler and McCarthy⁵⁾ in 1943. If the thiamine content in the ration is increased 1,5 times, the thiamine content of the pork increases 15-20%.

Our results show the thiamine content of "koteletter", the cut is nearly the same as the loin, see figure 4, to be 0,90 milligrams per 100 grams for the concentrate fed pig, and 0,31 milligrams per 100 grams for the garbage fed pig.

These findings led to our next project which was the analyses of seven pigs. Only three cuts from each pig were analysed, "koteletter" "mörbrad", see figure 4, and longissimus dorsi.

Pigs no. 3, 4, 5, and 6 had controlled feeding, which means that the pigs came from a breeding station where the feed composition is under controll from 20 to 190 kilos life weight.

Pigs no. 7, 8, and 9 had uncontrolled feeding. This means that the feed composition is known only to some extent. -

The different farmers were visited and questioned about their way of feeding.

Pig no. 7 was fed concentrate, some whole milk, very little raw potatoes, and some dried grass.

Every morning this farmer prepared a broth made from rind, and 2-3 liters of this was given to the pigs.

Unfortunately, we have not analysed rind for the B-vitamin content but its high protein content, close to 50 grams per 100 grams, possibly indicate that this broth is an excellent feed stuff.

Pig no. 8 was fed garbage and some concentrate.

Pig no. 9 was fed 50% potatoes, the rest garbage and concentrate.

Our first findings, were confirmed, the pigs fed partly garbage were low in thiamine content. The longissimus dorsi of pigs no. 8 and 9 contained 0,32 and 0,53 milligrams per 100 grams, respectively.

The values of this muscle from the pigs reared on the breeding station ranged from 0,91 to 1,20 milligrams thiamine per 100 grams.

Exceptionally high in thiamine content was the pig which was served freshly made broth every morning. The thiamine content of the longissimus dorsi was 1,29 milligrams per 100 grams.

L.C. Baker found the following variation in the thiamine content of the three longissimus dorsi muscles analysed 0,80, 1,33, and 1,4 milligrams per 100 grams. Our results for the thiamine content of this muscle varied from 0,32 to 1,29 milligrams per 100 grams.

Lamb and Mutton.

One each of mutton, lamb and "Spellam" were analysed. - "Spellam" is an old Norwegian mutton breed. - The values for the nutrient content of these are given in Tables 10, 11, and 12.

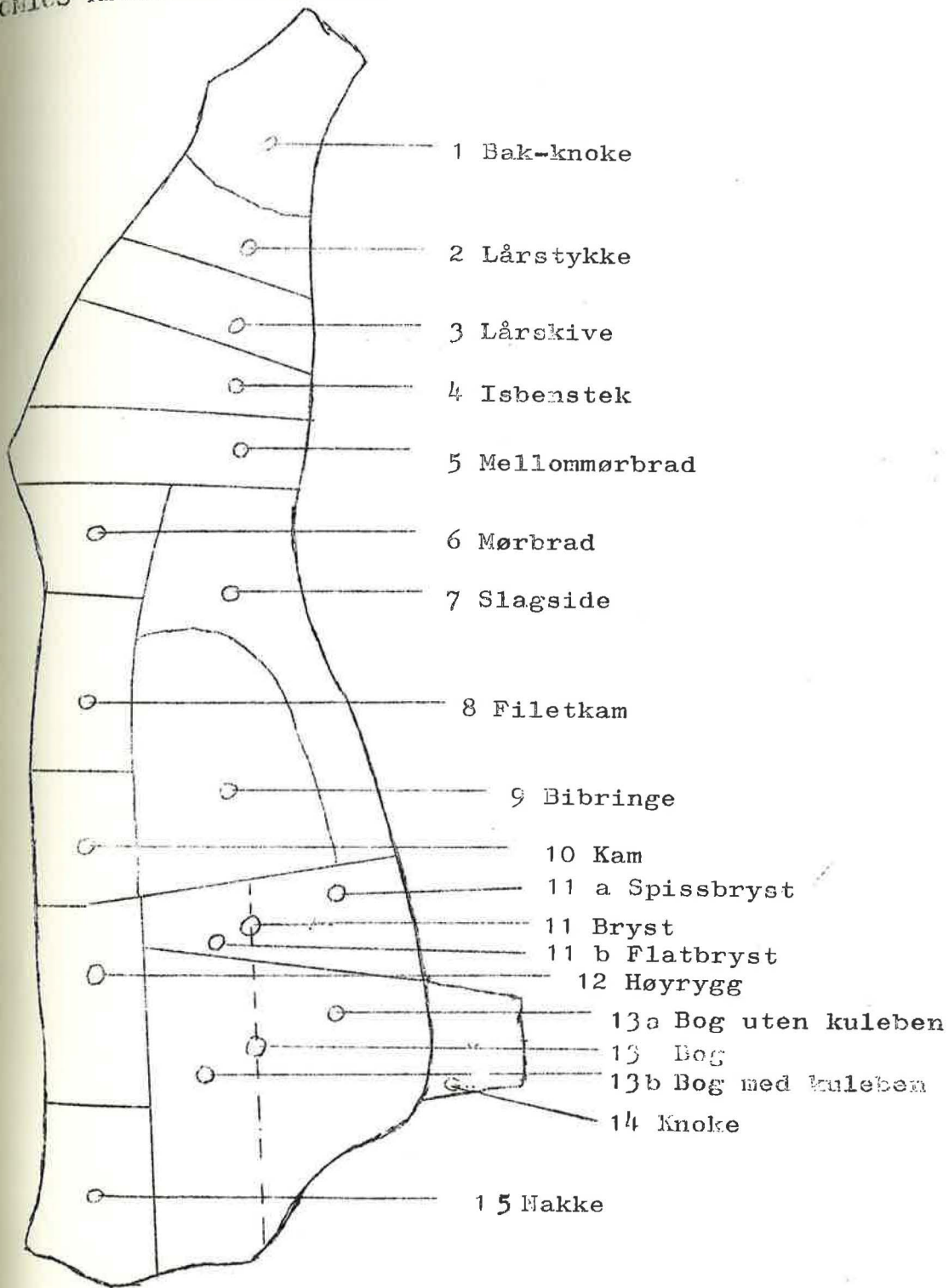
Comparing the protein and fat content found for lamb with those found by Homb and Offergaard show that there is good agreement. - Taking the "brog", see figure 3, as an example; our findings for protein and fat are 17,1 and 17,5 grams per 100 grams respectively. Homb and Offergaard found the mean of the three cuts analysed to be 18,3 grams per 100 grams for protein and 17,4 grams per 100 grams for fat.

The riboflavin and niacin content of the lamb analysed are as reported in the literature. The thiamine content, however, is higher than reported. Willox and Galloway found the thiamine content of chops to vary from 0,134 to 0,217 milligrams per 100 grams. Our thiamine value for chops is 0,33 milligrams per 100 grams. If all visible fat is removed from the chops the value is 0,41 milligrams per 100 grams.

The B-vitamin content of the mutton analysed is in agreement with the values found for lamb in the literature..

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= F I G U R E = 1 =

B E E F

Norwegian standard method of cutting.

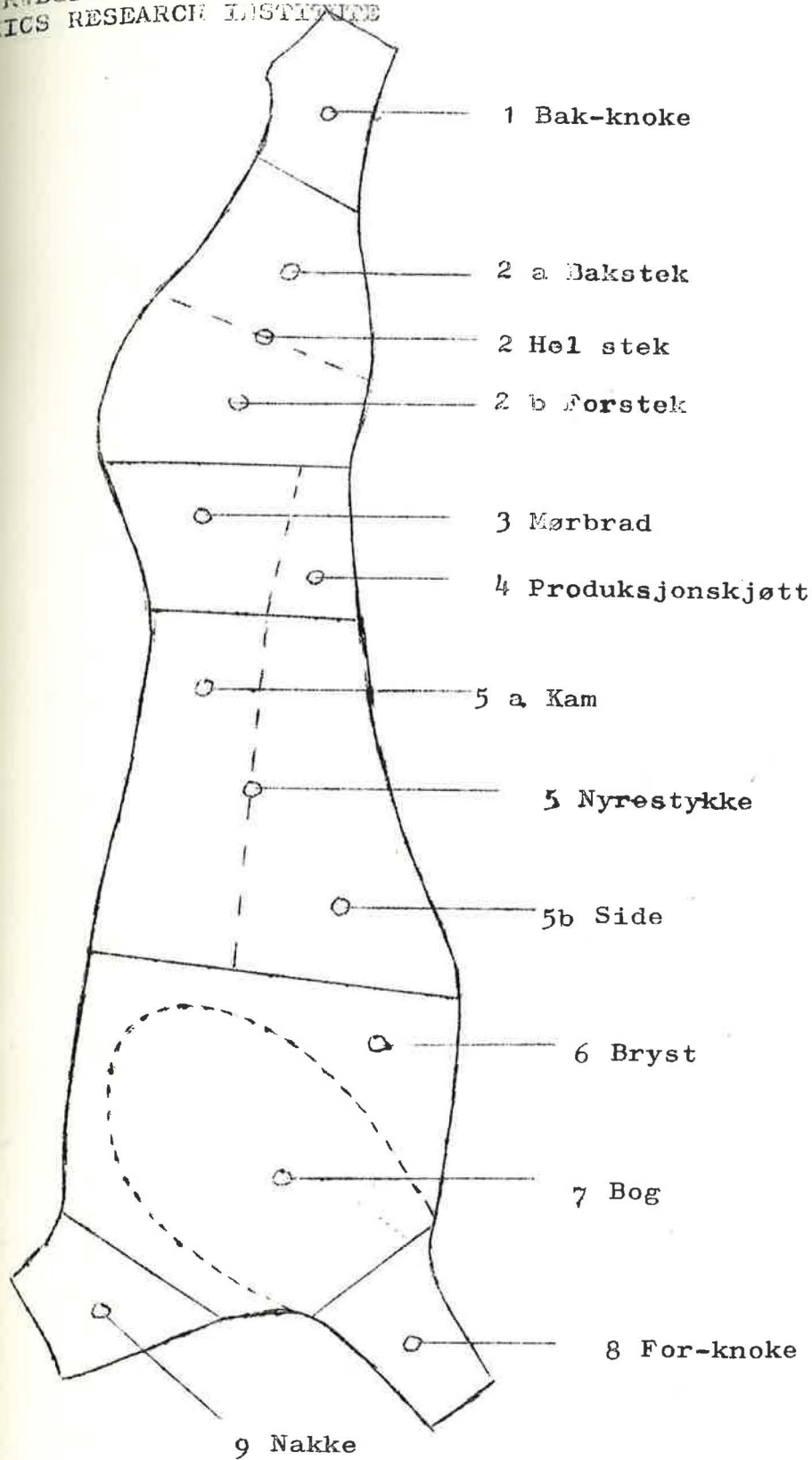


FIGURE 2

V E A L

Norwegian standard method of cutting.

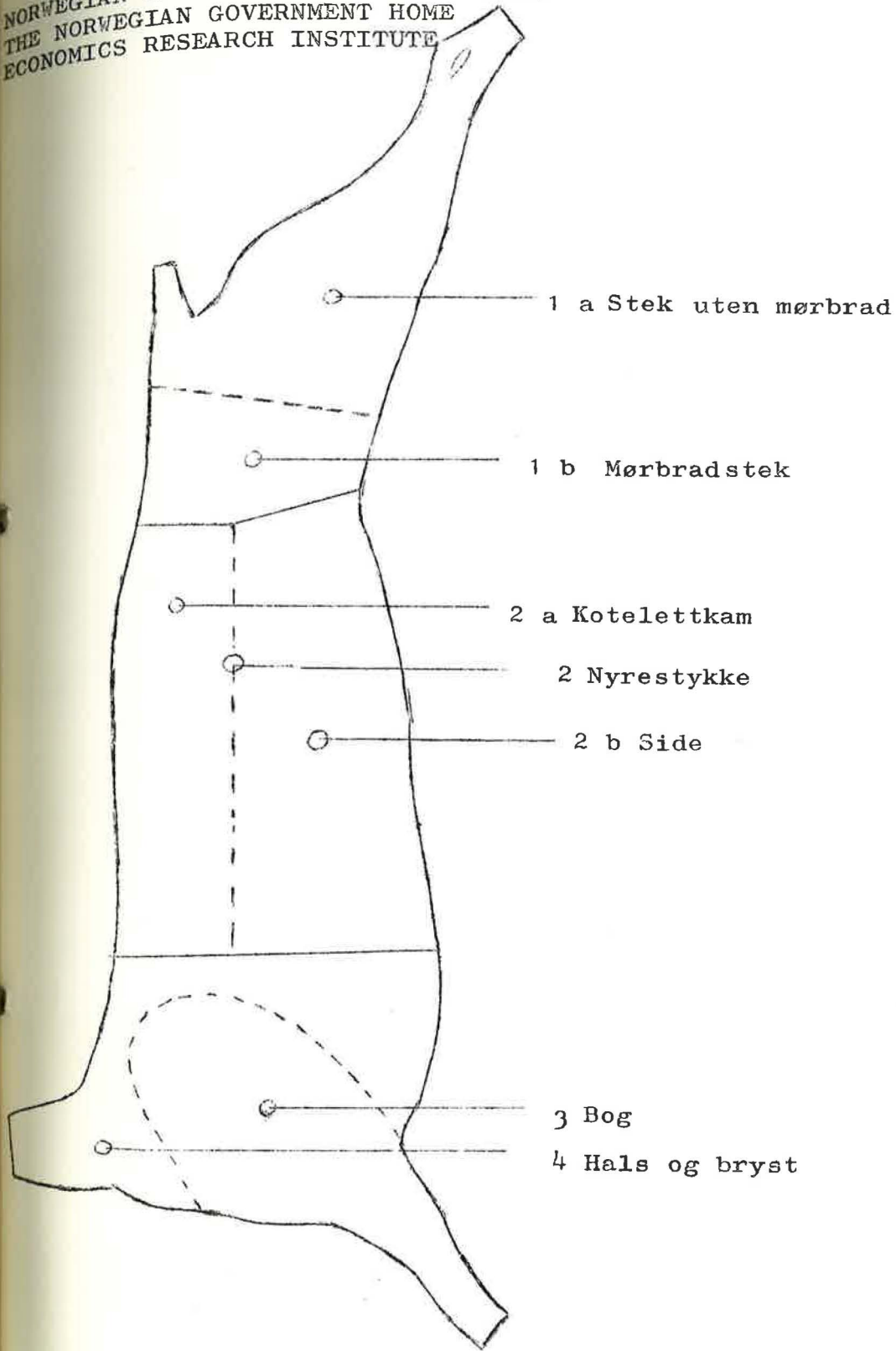


FIGURE 3

MUTTON

Norwegian standard method of cutting.

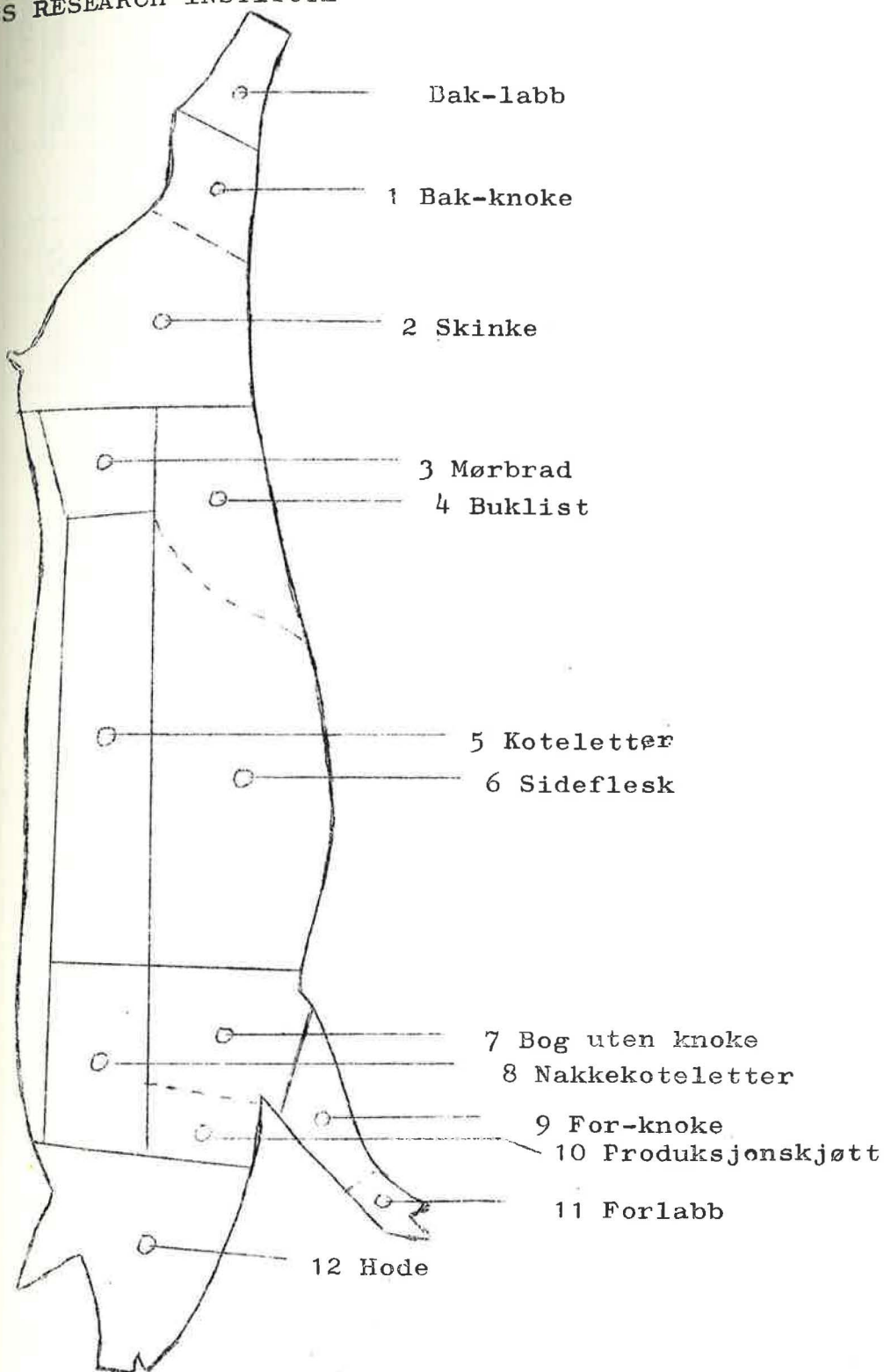


FIGURE 4

P O R K

Norwegian standard method of cutting.

Table 2. Medium fat bull, I, 225,2 kg.

Nutrients and Food Energy in the Edible Portion of 100 grams of Meat.

C u t	1) Cut No.	Weight of trimmed cut kg	Edible % <i>synlig</i>	Water g	Pro- tein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phos- phorus mg	Cal- cium mg	Iron mg	B --Vitamins:		
													Thia- mine mg	Ribo- flavin mg	Nia- cin mg
<u>Hind quarter.</u>															
Kam	10	6,33	76	65,2	19,5	14,3	207	0,9	220		9	1,8	0,10	0,17	4,3
Filékam	8	4,44	80	67,6	20,8	9,8	171	1,0	180		11	2,4	0,08	0,17	5,4
Indrefilé	8a	1,06	100	73,1	21,2	4,0	121	1,2	180		13	2,7	0,10	0,17	5,1
Ytrefilé	8b	2,40	100	73,9	22,5	2,5	113	1,0	160		11	2,3	0,10	0,12	5,7
Mörbradstek	6	4,37	71	67,3	19,7	12,4	190	1,0	130		12	2,1	0,08	0,12	3,0
Mellommörbradstek	5	4,47	87	68,9	20,1	10,3	173	1,0	150		8	1,9	0,09	0,13	3,5
Isbenstek	4	11,24	79	71,2	21,2	7,2	150	1,0	370		9	2,2	0,10	0,15	3,7
Lårskive	3	9,34	92	71,1	20,7	7,3	149	1,0	240		14	1,4	0,09	0,15	3,1
Lårstykke	2	5,33	59	70,4	21,1	7,2	149	1,0	250		9	1,6	0,09	0,16	3,9
Bakknoke	1	4,08	48	70,2	22,2	6,8	150	0,9	250		11	1,8	0,09	0,17	3,2
Slagside	7	5,54	71	65,2	22,2	12,3	200	1,0	220		12	2,1	0,07	0,16	4,5
Bibringe	9	7,01	80	58,7	19,2	20,3	260	0,9	230		12	1,7	0,07	0,12	3,3
Nyre		0,44	98	76,0	16,5	5,4	115	1,2	530		7	5,1	0,57	0,19	6,8
<u>Fore quarter.</u>															
Höyrygg	12	15,64	82	70,2	20,3	9,1	163	1,0	220		12	3,7	0,09	0,17	3,6
Nakke	15	7,43	81	70,5	21,2	7,6	153	1,0	230		13	2,0	0,08	0,16	3,4
Bog	13	9,26	80	69,5	20,8	9,3	167	1,0	230		11	1,7	0,07	0,14	3,1
Forknoke	14	4,70	52	70,0	22,5	6,4	148	0,8	320		11	1,8	0,07	0,14	2,9
Bryst	11	8,56	76	59,6	17,9	22,1	271	0,8	260		11	1,5	0,06	0,16	3,3
Half carcass		108,2	77 ²⁾												

1) See figure 1.

2) The value is calculated from the sum of the trimmed cuts.

TABLE 3. BULL, MEDIUM FAT. GRADE 1. WEIGHT 232.6 KG.

NUTRIENTS AND FOOD ENERGY IN THE EDIBLE PORTION OF 100 GRAMS OF MEAT.

	Cut 1) No.	Weight of trimmed cut Kg	Edible %	Water g	Protein g	Fat g	Food energy K.cal	Ash g	NaCl mg	Phos- phorus mg	Calcium mg	Iron mg	B - Vitamins			
													Thiamine mg	Ribo- flavin mg	Niacin mg	
<u>Hind quarter</u>																
Kam	10	7.83	77	63.6	18.9	16.3	222									
Kam ÷ synlig fett 2)	10		60	71.2	20.6	6.5	141									
Filékam	8	4.41	81	64.6	19.2	15.4	216									
Filékam ÷ synlig fett 2)	8		68	72.0	20.4	5.1	128									
Indrefilé (fillet)	8 a	0.57	100	73.1	21.2	4.0	121									
Ytrefilé (strip loin)	8 b	1.36	100	73.9	22.5	2.5	113									
Mørbradstek	6	4.91	74	66.8	19.3	12.2	187									
Mørbradstek ÷ synlig fett 2)	6		62	71.8	20.1	6.8	142									
Mellommørbradstek	5	4.17	92	67.0	19.4	12.4	189									
Mellommørbradstek ÷ synlig fett 2)	5		77	73.3	20.6	4.0	118									
Isbenstek	4	10.51	90	69.1	19.9	9.3	163									
Lårskive	3	8.22	93	71.8	20.4	5.6	132									
Lårstykke	2	5.31	65	70.0	20.6	8.0	154									
Bakknoke	1	5.04	47	71.7	21.5	6.7	146									
Slagside	7	5.23	81	62.5	19.4	17.2	232									
Bibringe	9	7.48	80	53.7	16.8	28.0	319									
Nyre		0.50	100	76.2	14.7	7.2	124									
Nyre ÷ synlig fett 2)			92	79.6	15.7	3.0	90									

TABLE 3 CONTINUED NEXT PAGE.

TABLE 3 CONTINUED.

NUTRIENTS AND FOOD ENERGY IN THE EDIBLE PORTION OF 100 GRAMS OF MEAT.

CUT	1) Cut No.	Weight of trimmed cut Kg	Edible %	Water g	Protein g	Fat g	Food energy K.cal	Ash g	NaCl mg	Phos- phorus mg	Calcium mg	Iron mg	B - Vitamins			
													Thiamine mg	Riboflavin mg	Niacin mg	
<u>Fore Quarter:</u>																
Høyrugg	12	13.50	78	67.8	19.1	12.7	191									
Nakke	15	7.26	77	70.7	20.5	7.7	151									
Bog med kuleben	13 a	5.11	74	68.3	19.4	10.7	174									
Bog med kuleben ÷ synlig fett 2)	13 a		62	73.7	21.1	3.5	116									
Bog uten kuleben	13 b	4.51	86	69.8	20.3	9.2	164									
Bog uten kuleben ÷ synlig fett 2)	13 b		73	74.4	21.0	2.9	110									
Bog	13	9.62	79	69.1	19.9	10.0	170									
Bog ÷ synlig fett 2)	13		67	74.0	21.0	3.2	113									
Førknoke	14	4.68	49	71.0	22.1	5.9	142									
Spissbryst	11 a	7.15	76	54.0	15.9	29.2	326									
Flatbryst	11 b	2.59	80	62.0	17.9	19.7	249									
Bryst	11	9.74	77	55.4	16.5	26.6	306									
Half carcass		108.4	77 ³⁾	66.4	19.4	13.1	196									
Flatbiff (inside round)		4.74	100	74.6	21.6	1.7	102	1.1		130	11	2.6	0.09	0.21	4.4	
Rundbiff (sirloin tip)		3.61	100	74.6	20.5	2.8	107	1.1		130	13	2.5	0.11	0.20	3.4	
Bankekjøtt (outside round)		5.06	100	75.1	20.3	2.0	99	1.1		130	10	2.5	0.09	0.21	4.0	
Bogplomme (cloud)		1.95	100	75.1	20.0	2.2	100	1.1		130	9	3.4	0.11	0.26	4.0	
Kv. gallever (heifer liver)		3.69	100	72.4	19.7	5.3	127	1.4				6.0	0.38	3.1	13.0	
Oksallever (ox liver)		5.53	100	71.0	19.1	3.0	63	1.4			10	5.4	0.33	2.90	18.0	

1) See figure 1.

2) ÷ synlig fett = All visible fat removed before and after deboning.

3) The value is calculated from the trimmed cuts.

TABLE 5. LEAN BULL, GRADE II, WEIGHT 175,4 kg.

NUTRIENTS AND FOOD ENERGY IN THE EDIBLE PORTION OF 100 GRAMS OF MEAT.

Cut	Cut No.	1) Weight of trimmed cut Kg	Edible %	Water g	Protein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phos-phorus mg	Calcium mg	Iron mg	B - Vitamins		
													Thiamine mg	Ribo-flavin mg	Niacin mg
<u>Hind quarter</u>															
Kam	10	5.86	78	71.0	20.3	7.7	151	1.0	310		11	2.5	0.06	0.15	5.2
Filékam	8	3.68	83	72.0	20.7	6.3	140	1.0	310		10	2.1	0.08	0.15	5.8
Indrefilé	8 a	0.25	100	75.0	21.5	2.1	105	1.2			13	3.1	0.03	0.17	6.6
Ytrefilé	8 b	0.45	100	74.9	21.9	1.1	98	1.0			11	2.3	0.08	0.17	6.8
Mørbradstek	6	4.00	75	72.0	20.2	6.1	135	1.3	100		11	2.2	0.09	0.17	5.7
Mellommørbradstek	5	2.85	87	70.7	19.9	8.1	153	1.0	100		10	2.3	0.09	0.17	5.0
Isbradstek	4	9.27	83	70.8	20.5	7.4	149	1.0	310		11	1.9	0.10	0.16	5.2
Lårskive	3	6.00	95	74.7	21.1	3.3	114	1.1	180		11	2.2	0.09	0.17	5.7
Lårstykke	2	4.24	71	72.8	21.8	4.3	126	1.1	310		11	2.2	0.09	0.18	5.5
Bakknoke	1	3.87	49	73.7	21.8	3.7	121	1.0	270		11	2.3	0.07	0.16	4.3
Slagside	7	4.06	83	73.6	22.0	3.8	122	1.1	100		11	2.1	0.07	0.14	4.9
Bibringe	9	5.72	84	68.3	21.0	10.3	177	1.0	320		11	2.3	0.07	0.15	4.4
Nyre		0.34	99	78.2	15.3	4.7	104	1.1	600		9	2.9	0.60	0.22	6.0
<u>Fore quarter.</u>															
Høyrygg	12	12.44	83	73.4	20.2	5.5	130	1.0	260		10	2.3	0.10	0.18	3.8
Nakke	15	5.80	83	74.3	20.8	4.3	122	1.0	160		10	2.5	0.08	0.16	4.1
Bog	13	7.37	82	73.0	20.6	5.3	130	1.1	220		10	2.8	0.08	0.18	4.6
Forknoke	14	3.85	55	72.1	22.7	5.0	136	1.0	180		11	2.1	0.08	0.18	3.9
Bryst	11	7.18	81	67.4	18.7	13.5	196	0.9	360		10	2.3	0.07	0.13	4.2
Half carcass		86.5	80	2)											

1) SEE FIGURE 1.

2) THE VALUE IS CALCULATED FROM THE SUM OF THE TRIMMED CUTS.

Table 6. Heifer, medium fat, I, 185,6 kg.

Nutrients and Food Energy in the Edible Portion of 100 grams of Meat.

C u t	1) Cut No.	Weight of trimmed cut kg	Edible %	Water g	Pro- tein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phos- phorus mg	Cal- cium mg	Iron mg	B - Vitamins		
													Thia- mine mg	Ribo- flavin mg	Nia- cin mg
<u>Hind quarter</u>															
Kam	10	6,00	78	57,4	17,4	24,2	287	0,8			10	1,9	0,08	0,14	3,1
Kam ÷ synlig fett ²⁾	10		60	71,4	21,5	7,2	151	1,0			11	2,7	0,12	0,17	4,3
Filékam	8	3,55	80	63,5	19,1	16,1	221	1,0			11	2,2	0,11	0,18	4,3
Filékam ÷ synlig fett ²⁾	8		64	71,1	20,8	6,0	137	1,0			11	2,2	0,14	0,18	5,0
Indrefilé	8a	0,53	100	72,7	20,7	4,4	122	1,0			11	2,2	0,17	0,18	4,0
Ytrefilé	8b	1,02	100	73,0	21,3	3,8	119	1,0			10	2,7	0,14	0,17	5,3
Mörbradstek	6	4,37	74	64,3	18,1	15,7	213	0,8			12	2,7	0,14	0,19	3,5
Mörbradstek ÷ synlig fett ²⁾	6		54	71,4	20,1	6,8	142	1,0			10	2,8	0,14	0,17	3,8
Mellommörbradstek	5	3,28	94	60,9	17,3	20,8	256	0,9			12	2,5	0,14	0,18	3,0
Mellommörbradstek ÷ synlig fett ²⁾	5		72	73,1	21,0	3,8	118	1,0			10	2,8	0,13	0,18	4,1
Isbenstek	4	9,65	84	68,3	19,8	10,1	170	1,0			10	2,7	0,16	0,16	3,4
Lårskive	3	7,14	96	70,3	20,6	7,7	152	1,0			10	2,5	0,13	0,17	4,8
Lårstykke	2	4,15	74	67,0	20,2	11,4	183	0,9			11	2,3	0,16	0,16	3,4
Bakknoke	1	4,07	49	69,6	21,6	18,0	158	1,0			10	2,8	0,12	0,18	4,1
Slagside	7	3,51	91	53,6	17,8	27,4	318	0,8			12	2,7	0,11	0,13	3,9
Bibringe	9	6,48	82	52,2	16,5	29,4	331	0,9			11	1,5	0,10	0,15	4,0
Nyre		0,37	100	76,4	15,9	6,2	119	1,2			12	4,5	0,78	1,96	5,0

Tablo 6 (cont.)

C u t	1) Cut No.	Weight of trimmed cut kg	Edible %	Water g	Pro- tein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phos- phorus mg	Cal- cium mg	Iron mg	B - Vitamins		
													Thia- mine mg	Ribo- flavin mg	Nia- cin mg
<i>Fore quarter.</i>															
Höyrygg	12	11,23	82	64,5	17,8	16,1	216	0,9			11	2,0	0,13	0,18	2,4
Nakke	15	5,23	78	67,9	19,8	10,8	176	0,9			13	2,3	0,13	0,18	3,5
Bog med kuleben	13a	3,88	77	64,5	18,7	15,0	210	0,9			11	2,5	0,15	0,19	3,3
Bog med kuleben ÷ synlig fett ²⁾	13a		66	72,4	21,6	4,8	130	0,9			11	2,5	0,15	0,19	3,3
Bog uten kuleben	13b	3,01	88	69,4	19,6	9,3	162	0,9			11	3,3	0,17	0,19	4,0
Bog uten kuleben ÷ synlig fett ²⁾	13b		78	73,9	21,6	3,2	158	0,9			11	3,3	0,17	0,19	4,0
Bog	13	6,89	82	66,8	19,1	12,3	187	0,9			11	2,9	0,16	0,19	3,6
Bog ÷ synlig fett ²⁾	13		71	73,1	21,6	4,0	122	0,9			11	2,9	0,16	0,19	3,6
Forknoke	14	3,22	50	68,4	22,4	8,1	163	1,0			10	3,1	0,12	0,19	4,1
Spissbryst	11a	5,75	77	51,0	14,8	31,4	342	0,8			12	1,8	0,13	0,13	3,2
Flatbryst	11b	2,65	85	50,7	15,2	33,0	358	0,7			12	2,1	0,11	0,13	3,0
Bryst	11	8,40	79	51,0	15,0	32,0	348	0,8			12	2,0	0,12	0,13	3,1
Half carcass		87,54	80 ³⁾	63,2	18,7	16,5					11	2,2	0,13	0,17	3,4
Flatbiff (inside round)		3,70	100	73,6	22,1	2,6	112	1,1			11	2,6	0,17	0,17	4,5
Rundbiff (sirloin tip)		3,46	100	73,5	21,2	3,5	116	1,1			10	2,5	0,14	0,20	3,4
Bankekjött (outside round)		4,27	100	74,0	21,0	3,0	111	1,1			11	2,6	0,15	0,19	4,1
Bogplomme (cloud)		1,77	100	74,3	21,6	3,0	110	1,1			11	3,3	0,14	0,23	4,9

1) See figure 1.

2) ÷ synlig fett = all visible fat removed, before and after boning.

3) The value is calculated from the sum of the trimmed cuts.

Table 7. Baby calf, 21,0 kg.

Nutrients and Food Energy in the Edible Portion of 100 grams of Meat.

C u t	1) Cut No.	Weight of trimmed cut kg	Edible %	Water g	Pro- tein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phos- phorus mg	Cal- cium mg	Iron mg	B - Vitamins		
													Thia- mine mg	Ribo- flavin mg	Nia- cin mg
Bakknoke	1	0,89	34	75,9	21,9	0,9	96	1,1		120	15	2,5	0,25	0,28	6,1
Forstek (isbenstek)	2b	1,24	79	77,1	19,6	0,9	87	1,1		110	13	1,8	0,20	0,30	8,2
Bakstek	2a	1,31	71	76,6	20,6	0,8	90	1,2		110	12	1,8	0,20	0,31	7,8
Hel stek ²⁾	2	2,55	75	76,8	20,1	0,9	89	1,1		110	13	1,5	0,23	0,31	7,6
Mörbradstek	3	0,70	71	77,0	20,0	1,0	89	1,1		110	14	1,9	0,20	0,36	8,9
Kam	5a	1,07	64	76,7	20,4	1,0	91	1,1		110	14	1,6	0,20	0,32	7,4
Side	5b	0,67	85	75,0	22,2	1,1	99	1,2		110	14	1,8	0,18	0,28	8,2
Nyrestykke uten nyre ³⁾	5	1,74	72	76,0	21,2	1,0	94	1,1		110	14	1,7	0,29	0,26	6,8
Nyre		0,10	100	77,0	15,0	4,6	102	1,3		120	11	2,9	0,48	1,60	6,4
Bryst	6	1,54	72	77,5	20,2	1,0	90	1,2		100	12	1,7	0,21	0,31	5,8
Bog	7	1,36	74	77,0	20,8	0,8	90	1,1		110	12	1,8	0,19	0,35	7,0
Forknoke	8	0,70	39	74,9	22,2	0,9	97	1,1		110	13	2,0	0,27	0,29	6,0
Nakke	9	0,78	69	77,3	20,1	0,8	88	1,1		90	13	2,1	0,18	0,28	6,0
Half carcass		10,36	67 ⁴⁾	76,7	20,6	1,0					13	1,8	0,22	0,31	7,3

1) See figure 2.

2) Hel stek = Forstek + bakstek.

3) Nyrestykke uten nyre = Kam + side.

4) The value is calculated from the sum of the trimmed cuts.

Table 8. Suckling calf, medium fat, II, 56,3 kg.

Nutrients and Food Energy in the Edible Portion of 100 grams of Meat.

C u t	1) Cut. No.	Weight of trimmed cut kg	Edible %	Water g	Pro- tein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phos- phorus mg	Cal- cium mg	Iron mg	B - Vitamins		
													Thia- mine mg	Ribo- flavin mg	Nia- cin mg
Bakknokke	1	1,72	39	72,9	22,0	4,8	131	1,1			14	1,9	0,09	0,20	5,5
Forstek (isbenstek)	2b	3,78	82	30,9	20,5	7,1	146	1,2			13	1,4	0,11	0,23	6,1
Forstek ÷ synlig fett ²⁾	2b		72	75,1	21,7	1,7	102	1,2			13	1,3	0,12	0,22	7,4
Bakstek	2a	3,51	81	71,8	20,6	5,8	135	1,2			12	1,3	0,10	0,23	5,7
Bakstek ÷ synlig fett ²⁾	2a	2,57	73	75,1	21,2	2,0	103	1,2			12	1,7	0,11	0,23	7,3
Hel stek ³⁾	2	7,29	81	71,4	20,6	6,5	141	1,2			13	1,4	0,10	0,23	5,9
Hel stek ÷ synlig fett ²⁾	2		72	75,1	21,5	1,9	103	1,2			13	1,5	0,11	0,22	7,4
Mörbradstek	3	2,13	76	68,0	19,5	9,7	165	1,1			12	1,3	0,10	0,22	6,2
Kam	5a	3,40	73	69,2	20,6	8,7	161	1,1			13	1,3	0,09	0,19	6,6
Kam ÷ synlig fett ²⁾	5a		62	73,9	22,5	3,3	120	1,1			13	1,5	0,10	0,22	6,7
Side	5b	2,21	85	63,1	20,0	15,4	219	1,1			15	1,7	0,07	0,17	4,8
Nyrestykke uten nyre ⁴⁾	5	5,61	78	66,6	20,3	11,6	186	1,1			14	1,5	0,08	0,18	5,8
Nyre		0,19	100	74,0	15,0	8,8	139	1,3			12	2,9	0,20	1,43	7,2
Bryst	6	4,02	72	67,7	18,5	13,1	192	1,0			12	1,5	0,09	0,23	4,5
Bog	7	3,86	81	71,8	19,7	6,6	138	1,2			12	1,5	0,09	0,23	6,4
Bog ÷ synlig fett ²⁾	7		73	75,6	21,2	2,3	106	1,2			12	1,7	0,10	0,23	6,8
Forknokke	8	1,61	43	72,5	22,1	4,2	126	1,0			15	1,6	0,08	0,21	5,4
Nakke	9	2,03	67	70,9	19,4	8,3	152	1,0			18	2,4	0,09	0,23	4,5
Half carcass		28,46	73 ⁵⁾	69,8	20,1	8,5					13	1,5	0,09	0,22	5,6

1) Se figure 2.

2) ÷ synlig fett = all visible fat removed,
before and after boning.

3) Hel stek = Forstek + bakstek.

4) Nyrestykke uten nyre = Kam + side.

5) The value is calculated from the sum of the trimmed cuts.

Table 9. Medium calf, medium fat I, 67,7 kg.

Nutrients and Food Energy in the Edible Portion of 100 grams of Meat.

Cut	1) Cut No.	Weight of trimmed cut kg	Edible %	Water g	Protein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phosphorus mg	Calcium mg	Iron mg	B - Vitamins		
													Thiamine mg	Riboflavin mg	Niacin mg
Bakknoke	1	2,60	41	74,4	23,2	1,6	107	1,1		120	12	2,1	0,11	0,20	5,5
Forstek (isbenstek)	2b	4,73	84	74,5	22,2	2,3	110	1,1		140	12	1,9	0,10	0,23	5,6
Forstek ÷ synlig fett ²⁾	2b		80	75,4	22,3	0,8	96	1,1		160	13	1,7	0,11	0,22	6,6
Bakstek	2a	4,13	81	74,5	21,9	2,2	107	1,2		150	11	1,5	0,10	0,21	5,6
Bakstek ÷ synlig fett ²⁾	2a		77	75,7	22,2	0,8	96	1,1		150	12	1,7	0,10	0,21	6,3
Hel stek ³⁾	2	8,86	82	74,5	22,1	2,3	109	1,1		150	12	1,8	0,10	0,23	5,8
Hel stek ÷ synlig fett ²⁾	2		78	75,5	22,3	0,8	96	1,1		160	13	1,8	0,10	0,23	6,4
Mörbradstek	3	2,45	76	72,4	20,8	4,0	87	1,1		140	13	1,7	0,11	0,27	5,7
Kam	5a	3,69	73	73,8	22,5	3,0	93	1,1		130	13	1,5	0,09	0,22	5,1
Kam ÷ synlig fett ²⁾	5a		71	74,8	22,7	1,7	101	1,1		140	13	1,5	0,11	0,20	6,9
Side	5b	2,66	83	72,0	22,8	3,5	123	1,0		120	13	1,6	0,10	0,16	4,8
Nyrestykke uten nyre ⁴⁾	5	6,35	77	73,0	22,6	3,2	119	1,1		130	13	1,5	0,10	0,19	5,0
Nyre		0,25	100	75,5	15,2	7,7	130	1,1		110	10	3,6	0,35	1,97	6,2
Nyrestokk		0,14		17,0	3,7	77,0	681			30					
Bryst	6	4,61	71	73,3	20,3	5,0	126	1,0		110	12	1,8	0,10	0,25	6,8
Bog	7	4,41	79	74,8	21,4	2,4	107	1,0		110	11	1,7	0,11	0,22	5,4
Bog ÷ synlig fett ²⁾	7		76	75,6	22,1	0,9	97	1,1		120	11	1,8	0,11	0,24	5,4
Forknoke	8	1,75	45	74,4	22,4	1,6	104	1,1		110	12	2,0	0,09	0,21	4,1
Nakke	9	2,75	76	75,7	21,0	1,9	101	1,1		120	13	1,7	0,10	0,22	4,6
Halve slaktet		33,6	74 ⁵⁾	74,1	21,7	2,9					12	1,7	0,10	0,22	5,5

1) Se figur 2.

2) ÷ synlig fett = all visible fat removed, before and after boning.

3) Hel stek = Forstek + bakstek.

4) Nyrestykke uten nyre = Kam + side.

5) The value is calculated from the sum of the trimmed cuts.

Table 10. Sheep, medium fat, I, 25,9 kg.

Nutrients and Food Energy in the Edible Portion of 100 grams of Meat.

C u t	1) Cut No.	Weight of trimmed cut kg	Edible %	Water g	Pro- tein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phos- phorus mg	Cal- cium mg	Iron mg	B - Vitamins		
													Thia- mine mg	Ribo- flavin mg	Nia- cin mg
Stek uten mörbrad	1a	3,46	85	64,5	17,4	17,3	225	0,9	250		9	2,4	0,16	0,20	5,6
Stek uten mörbrad ÷ synlig fett ²⁾	1a		66	73,7	19,7	4,3	118	1,1	290		13	2,8	0,18	0,29	8,7
Mörbradstek	1b	0,89	84	57,9	16,5	24,8	289	0,9	220		10	2,1	0,13	0,25	5,4
Mörbradstek ÷ synlig fett ²⁾	1b		56	73,5	20,3	4,3	120	1,1	280		12	2,4	0,19	0,30	6,9
Lår ³⁾	1	4,35	85	63,1	17,2	18,9	239	0,9	240		9	2,3	0,15	0,21	5,5
Lår ÷ synlig fett ²⁾	1		64	73,7	19,8	4,3	118	0,9			13	2,5	0,16	0,26	6,2
Koteletter	2a	1,75	82	55,9	16,0	26,8	305	0,8	320		13	2,0	0,13	0,19	5,4
Koteletter ÷ synlig fett ²⁾	2a		51	72,8	19,9	5,5	129	1,1	320		11	1,9	0,17	0,28	6,9
Side	2b	1,51	87	50,3	16,9	31,8	356	0,9	340		11	2,3	0,11	0,20	4,4
Nyrestykke uten nyre ⁴⁾	2	3,26	84	53,2	16,5	29,2	329	0,9	330		12	2,2	0,12	0,20	4,9
Bog	3	2,31	83	62,8	17,1	19,2	241	0,9	280		13	2,0	0,14	0,20	4,8
Bog ÷ synlig fett ²⁾	3		63	73,9	19,2	5,6	127	1,0	350		13	2,4	0,19	0,22	5,4
Hals og bryst	4	2,79	81	57,8	16,0	26,0	298	0,9	240		12	1,8	0,07	0,21	3,7
Sadel ⁵⁾	2x2a	3,50	82	55,9	16,0	26,8	305	0,8	320		13	2,0	0,13	0,19	5,4
Sadel ÷ synlig fett ²⁾	2x2a		51	72,8	19,9	5,5	129	1,1	320		11	1,9	0,17	0,28	6,9
Nyre		0,084	100	80,3	15,1	3,4	91	1,2	720		11	6,9	0,80	2,50	6,7
Halve slaktet		12,79	84 ⁶⁾	60,7	17,0	21,5	262				12	2,1	0,14	0,20	5,2

1) See figure 3.

2) ÷ synlig fett = all visible fat removed, before and after boning.

3) Lår = Stek + mörbrad.

4) Nyrestykke uten nyre = koteletter + side.

5) Sadel = the chops on both sides of the carcass.

6) The value is calculated from the sum of the trimmed cuts.

Table 11. Lamb, medium fat, I, 16,8 kg.

Nutrients and Food Energy in the Edible Portion of 100 grams of Meat.

C u t	1) Cut No.	Weight of trimmed cut kg	Edible %	Water g	Pro- tein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phos- phorus mg	Cal- cium mg	Iron mg	B - Vitamins		
													Thia- mine mg	Ribo- flavin mg	Nia- cin mg
Stek uten mörbrad	1a	2,24	81	67,8	18,6	12,3	185	1,1	280		13	2,2	0,36	0,23	6,5
Stek uten mörbrød ÷ synlig fett ²⁾	1a		67	74,9	19,7	3,3	109	1,1	280		13	2,2	0,39	0,24	7,5
Mörbradstek	1b	0,60	84	60,0	17,0	21,7	263	1,0	260		14	2,1	0,36	0,20	6,1
Mörbradstek ÷ synlig fett ²⁾	1b		61	73,5	20,0	4,6	121	1,2	300		15	2,3	0,46	0,20	7,5
Lår ³⁾	1	2,84	82	66,0	18,2	14,4	202	1,1	270		13	2,2	0,36	0,22	6,4
Lår ÷ synlig fett ²⁾	1		66	74,7	19,8	3,6	112	1,1							
Koteletter	2a	1,13	80	60,6	16,3	22,0	263	0,9	260		14	2,4	0,33	0,18	6,2
Koteletter ÷ synlig fett ²⁾	2a		63	73,0	20,8	5,2	130	1,2	290		12	2,9	0,41	0,22	7,7
Side	2b	0,84	87	59,7	16,9	22,8	273	0,9	280		14	2,9	0,30	0,18	4,5
Nyrestykke uten nyre ⁴⁾	2	1,97	83	60,2	16,6	22,4	268	0,9	270		14	2,6	0,32	0,18	5,4
Bog	3	1,46	80	63,5	17,1	17,5	227	1,0	320		12	2,7	0,24	0,21	5,0
Bog ÷ synlig fett ²⁾	3		64	74,4	19,8	4,0	115	1,1	280		12	2,3	0,29	0,22	6,5
Hals og bryst	4	1,88	17	58,8	15,8	24,4	283	1,0	260		15	2,9	0,25	0,12	4,7
Sadel ⁵⁾	2x2a	2,26	80	60,6	16,3	22,0	263	0,9	260		14	2,4	0,33	0,18	6,2
Sadel ÷ synlig fett ²⁾	2x2a		63	73,0	20,8	5,2	130	1,2	290		12	2,9	0,41	0,22	7,7
Nyre		0,044	100	80,5	13,9	2,7	80	1,2			12	7,3	0,73	2,30	8,7
Half carcass		8,19	81 ⁶⁾	63,4	17,9	18,3	236				13	2,6		0,18	5,5

1) See figure 3.

2) ÷ synlig fett = all visible fat removed, before and after boning.

3) Lår = stek + mörbradstek.

4) Nyrestykke uten nyre = koteletter + side.

5) Sadel = the chops on both sides of the carcass.

6) The value is calculated from the sum of the trimmed cuts.

Table 12. "Spellam", ¹⁾ medium fat, I, 12,8 kg.

Nutrients and Food Energy in the Edible Portion of 100 grams of Meat.

C u t	Cut No.	Weight of trimmed cut kg	Edible %	Water g	Protein g	Fat g	Food energy k.cal	Ash g	NaCl g	Phosphorus mg	Calcium mg	Iron mg	B - Vitamins		
													Thiamine mg	Riboflavin mg	Niacin mg
Stek uten mörbrad	1a	1,77	82	69,5	18,2	12,0	181	1,0			9	2,4	0,18	0,25	5,1
Stek uten mörbrad ÷ synlig fett ³⁾	1a		69	74,9	19,6	4,0	114	1,1			11	3,0	0,19	0,29	6,3
Mörbradstek	1b	0,41	82	58,5	15,1	25,9	294	0,9			10	2,7	0,22	0,28	4,9
Mörbradstek ÷ synlig fett ³⁾	1b		59	74,9	19,8	3,9	114	1,0			11	2,5	0,19	0,36	7,6
Lär ⁴⁾	1	2,18	82	67,6	17,7	14,3	200	1,0			9	2,5	0,19	0,26	5,1
Lär ÷ synlig fett ³⁾	1		67	74,9	19,6	4,0	114	1,0			9	2,5	0,19	0,28	5,9
Koteletter	2a	0,73	79	61,5	17,2	20,5	253	0,9			9	2,0	0,14	0,21	5,5
Koteletter ÷ synlig fett ³⁾	2a		61	72,9	19,4	6,0	132	1,1			11	2,4	0,17	0,26	5,5
Side	2b	0,69	89	53,8	15,9	30,1	335	0,8			11	2,0	0,09	0,14	3,4
Nyrestykke uten nyre ⁵⁾	2	1,42	84	57,3	16,5	25,6	296	0,8			10	2,0	0,11	0,18	4,4
Bog	3	1,14	81	65,0	16,2	17,8	225	0,9			9	1,9	0,17	0,19	3,8
Bog ÷ synlig fett	3		65	74,7	19,0	5,1	122	1,0			10	2,1	0,22	0,19	4,8
Hals og bryst	4	1,40	78	56,1	14,5	29,0	319	0,8			10	2,2	0,11	0,16	3,0
Sadel ⁶⁾	2x2a	1,46	79	61,5	17,2	20,5	253	0,9			9	2,0	0,14	0,21	5,5
Sadel ÷ synlig fett ³⁾	2x2a		61	72,9	19,4	6,0	132	1,1			11	2,4	0,17	0,26	5,5
Nyre		0,037	100	79,5	14,5	2,6	292	1,3			10	5,1	1,15	2,7	8,1
Half carcass		6,18	82 ⁷⁾												

1) Old Norwegian lamb.

2) See figure 3.

3) ÷ synlig fett = all visible fat removed.

4) Lär = Stek + mörbradstek.

5) Nyrestykke uten nyre = Koteletter + side.

6) Sadel = the chops on both sides of the carcass.

7) The value is calculated from the trimmed cuts.

TABLE 13. PORK. STAR GRADE, 21MM. BACKFAT. WEIGHT: 73.1 KG.

NUTRIENTS AND FOOD ENERGY IN THE EDIBLE PORTION OF 100 GRAMS OF MEAT.

Cut	Cut No.	Weight of trimmed cut Kg	Edible %	Water g	Protein g	Fat g	Food energy k.cal	Ash g	NaCl mg	Phosphorus mg	Calcium mg	Iron mg	B - Vitamins		
													Thiamine mg	Riboflavin mg	Niasin mg
Bakknoke	1	0.85	78	58.1	17.7	23.4	281	0.8		90		1.1	0.20	0.16	2.5
Bakknoke uten synlig fett 2)	1		46	74.0	20.4	4.9	126	1.0		140		1.4	0.23	0.21	4.5
Hel skinke uten knoke	2	6.32	93	59.8	17.7	20.2	253	0.9		100		0.9	0.37	0.15	3.5
Hel skinke uten knoke ÷ synlig fett 2)	2		71	75.5	18.9	4.1	113	1.2		140		1.1	0.29	0.20	3.8
Skinkespekk uten svor				10.2	3.1	85.0	777	0.2		20		0.7	0.03	0.07	0.7
Skinkesvor				40.8	48.9	9.6	282		560	60					
Mørbrad	3	1.10	78	60.1	17.5	20.6	255	0.9							
Mørbrad ÷ synlig fett 2)	3		60	72.6	19.7	6.2	135	1.1							
Koteletter	5	4.55 3)	83	60.4	16.4	21.7	261	0.9		110		0.7	0.31	0.14	3.4
Ko teletter ÷ synlig fett 2)	5		67	71.6	20.5	7.1	146	1.2		150		0.8	0.31	0.15	4.0
Nakke-koteletter	8	2.81 3)	86	59.7	16.2	22.0	263	0.9		95		1.1	0.33	0.17	2.5
Nakke-koteletter ÷ synlig fett 2)	8		76	66.0	17.6	15.7	212	0.9		120		1.3	0.31	0.22	3.1
Forknoke	9	0.92	66	63.1	20.3	16.0	225	0.8		150		1.5	0.15	0.16	2.9
Forknoke ÷ synlig fett 2)	9		37	72.3	19.4	7.6	146	1.0		150		1.2	0.21	0.22	4.4
Bog uten knoke	7	3.79	90	60.1	17.0	22.0	266	0.9		150		0.9	0.24	0.16	3.0
Bog uten knoke ÷ synlig fett 2)	7		69	72.7	19.3	7.2	142	1.1		150		1.2	0.36	0.16	3.4
Siddeflesk med ben	6	4.65	92	41.4	13.3	44.0	459	0.7		65		0.8	0.18	0.12	2.5
Nyre		0.13	100					1.2	800	150					
Half carcass		25.1	88 4)												
Bacon		3.96	100	35.0	10.6	48.8	482	3.6	3.500	70		0.6	0.19	0.09	0.9

1) SEE FIGURE 4.

2) ÷ SYNLIG FETT = ALL VISIBLE FAT REMOVED BEFORE AND AFTER DEBONING.

3) WITH 5 MM OF FAT LAYER.

4) THE VALUE IS CALCULATED FROM THE TRIMMED CUTS.

TABLE 14. PORK. STAR GRADE, 24MM BACKFAT. WEIGHT: 69,0 KG.

NUTRIENTS AND FOOD ENERGY IN THE EDIBLE PORTION OF 100 GRAMS OF MEAT.

Cut	Cut ¹⁾ No.	Weight of trimmed cut Kg	Edible %	Water g	Protein g	Fat g	Food energy K.cal	Ash g	NaCl mg	Phos- phorus mg	Calcium mg	iron mg	B - Vitamins		
													Thiamine mg	Ribc- flavin mg	Niacin mg
Bakknoke	1	0.85	75	59.5	16.8	22.6	271	0.8			11	1.9	0.43	0.22	4.1
Bakknoke ÷ synlig fett 2)	1		47	73.4	20.6	5.0	127	1.0			11	2.5	0.62	0.25	7.2
Hel skinke uten knoke	2	6.12	92	69.5	17.7	18.8	210	0.9		110	11	2.1	0.84	0.24	5.5
Hel skinke uten knoke ÷ synlig fett 2)	2		71	72.9	21.2	4.2	123	1.1			11	2.5	1.00	0.23	6.9
Skinkespekk uten svor				13.7	2.7	78.4	716	0.2			6	0.7	0.03	0.10	1.5
Skinkesvor				52.6	42.7	4.8	214								
Marbrad	3	1.10	79	59.7	17.8	21.0	260								
Marbrad ÷ synlig fett 2)	3		61	72.0	21.3	5.2	132								
Koteletter	5	4.40 ³⁾	84	59.1	17.5	22.1	269	0.9		100	11	1.5	0.90	0.22	4.6
Koteletter ÷ synlig fett 2)	5		68	71.7	21.2	5.3	133	1.1			10	2.5	1.18	0.22	6.2
Nakkekoteletter	8	2.62 ³⁾	84	60.4	15.5	22.3	253	0.9		95	12	2.2	0.62	0.24	4.1
Nakkekoteletter ÷ synlig fett 2)	8		67	69.5	19.2	10.3	170	1.0			13	2.3	0.82	0.28	4.2
Forknoke	9	0.73	62	64.1	20.5	15.0	217	0.9		95	15	2.1	0.40	0.24	4.6
Forknoke ÷ synlig fett 2)	9		39	74.2	20.9	4.1	121	1.1			15	3.0	0.55	0.32	5.8
Bog uten knoke	7	3.51	90	60.7	17.1	20.7	255	0.9		95	10	2.1	0.92	0.28	4.4
Bog uten knoke ÷ synlig fett 2)	7		68	72.1	20.1	6.7	141	1.1			10	2.1	1.05	0.34	6.6
Sideflesk med ben	6	4.72	90	42.2	13.0	43.9	447	0.6			10	1.1	0.45	0.18	3.9
Nyre		0.12	100	79.2	16.0	3.7	97	1.2			10	7.8	0.54	2.20	8.7
Half carcass		24.2	87 ⁴⁾												

TABLE 14 CONTINUED NEXT PAGE.

TABLE 14 CONTINUED

NUTRIENTS AND FOOD ENERGY IN THE EDIBLE PORTION OF 100 GRAMS OF MEAT.

Cut	Cut 1) No.	Weight of trimmed cut Kg	Edible %	Water g	Protein g	Fat g	Food energy K.cal	Ash g	NaCl mg	Phos- phorus mg	Calcium mg	Iron mg	B - Vitamins		
													Thiamine mg	Ribo- flavin mg	Niacin mg
Sideflesk med ben	6	4.72	90	42.2	13.0	43.9	447	0.6			10	1.1	0.45	0.18	3.9
Bacon		3.95	100	34.8	10.5	46.5	461	4.0	4100	70	10	1.0	0.43	0.18	3.1
Koteletter	5	4.40	84	59.1	17.5	22.1	269	0.9			11	1.5	0.90	0.22	4.6
The following cuts are from another carcass.															
Flatribbe (uten svor)	5)	3.71	85	45.6	11.6	40.5	411	0.7			11	1.0	0.70	0.13	4.7
Flatribbe med kam	6)	8.11	84	52.9	14.7	30.8	336	0.8			11	1.3	0.81	0.18	4.7
Buklist	7)	1.85	100	44.9	12.5	41.6	424	0.6			8	0.9	0.60	0.11	4.0
Flatribbe med svor	8)	3.87	87	41.5	12.9	43.8	446								

1) SEE FIGURE 4.

2) ÷ SYNLIG FETT = ALL VISIBLE FAT REMOVED BEFORE AND AFTER DEBO

3) WITH 5 MM OF FAT LAYER.

4) THE VALUE IS CALCULATED FROM THE TRIMMED CUTS.

5) FLATRIBBE WITHOUT THE RIND = CUT NO. 6 ÷ CUT NO. 4. FLATRIBBE WITHOUT THE RIND HAS GOT ONLY A THIN LAYER OF FAT.

6) FLATRIBBE MED KAM = THE ABOVE-MENTIONED FLATRIBBE WITHOUT THE RIND + CUT NO. 5.

7) BUKLIST, CUT NO. 4 KEEPS THE RIND.

8) FLATRIBBE WITH THE RIND = CUT NO. 6 ÷ CUT NO. 4.

TABLE 15.A. SURVEY OF THE ANALYSES OF LONGISSIMUS DORSI AND ADJOINING CUTS FROM 7 DIFFERENT PORKS.
NUTRIENTS AND FOOD ENERGY IN THE EDIBLE PORTION OF 100 GRAMS OF MEAT.

Specifications	Cut	Cut No.	1) Weight of trimmed cut Kg	Edible %	Water g	Protein g	Fat g	Food energy K.cal	AS H g	NaCl mg	Calcium mg	Iron mg	B - Vitamins		
													Thiamine mg	Riboflavin mg	Niacin mg
Controlled feeding 2) Pork no. 3 67.9 kg, 19 mm backfat.	Mørbrad	3	1.15	86	67.2	19.5	13.0	195	1.1	300	13	1.4	0.69	0.21	5.5
	Koteletter 4)	5	4.85	84	63.8	18.9	16.6	225	1.1	250	17	1.3	0.72	0.16	5.6
	Longissimus dorsi		1.90	100	72.1	23.1	3.5	124	1.3	300	7	1.3	0.91	0.18	6.7
Controlled feeding Pork no. 4 62.4 kg, 28 mm backfat	Mørbrad	3	1.00	78	61.1	18.2	20.1	254	0.9	200	10	1.3	0.74	0.23	3.5
	Koteletter	5	3.65	82											
	Koteletter ÷ synlig fett 5)	5		61	70.9	21.2	6.5	143	1.1	240	10	1.2	1.0	0.21	4.3
	Longissimus dorsi		1.55	100	72.3	21.8	4.3	126	1.1	200	6	1.0	1.2	0.18	4.0
Controlled feeding Pork no. 5 66.3 kg, 25 mm backfat	Mørbrad	3	0.90	79	62.9	18.6	17.6	233	1.0	270	14	1.6	0.81	0.19	4.4
	Koteletter	5	4.02	83											
	Koteletter ÷ synlig fett	5		59	71.7	22.2	5.3	137	1.1	280	13	1.1	1.05	0.19	5.8
	Longissimus dorsi		1.45	100	73.2	23.5	2.5	117	1.1	280	7	1.0	1.11	0.17	6.0
Controlled feeding Pork no. 6 66.1 kg, 24 mm backfat	Mørbrad	3	0.92	84	64.9	18.3	16.0	217	1.0	260	10	1.4	0.77	0.18	4.0
	Koteletter	5	4.40	85											
	Koteletter ÷ synlig fett	5		64	72.5	20.5	5.8	134	1.1	280	7	1.2	0.94	0.16	4.2
	Longissimus dorsi		1.69	100	74.2	21.4	3.5	117	1.1	280	5	1.0	1.1	0.14	4.5
Uncontrolled feeding 3) Pork no. 7 70.4 kg, 24 mm backfat	Mørbrad	3	0.76	74	62.0	17.9	19.6	248	0.9	260	12	1.4	1.09	0.19	3.6
	Koteletter	5	4.19	82											
	Koteletter ÷ synlig fett	5		57	72.1	21.1	6.3	141	1.2	290	9	1.1	1.24	0.15	6.3
	Longissimus dorsi		1.52	100	74.6	21.8	2.8	112	1.2	280	5	1.1	1.29	0.14	7.7
Uncontrolled feeding Pork no. 8 70.0 kg, 24 mm backfat	Mørbrad	3	0.93	79											
	Mørbrad ÷ synlig fett	3		60	70.4	22.2	6.8	150	1.2	180	8	1.3	0.44	0.20	3.7
	Koteletter	5	3.85	84											
	Koteletter ÷ synlig fett	5		58	69.8	22.2	7.2	154	1.1	250	7	1.4	0.35	0.19	4.2
	Longissimus dorsi		1.61	100	72.4	23.2	3.5	124	1.2	250	6	1.1	0.32	0.18	4.0

TABLE 15 CONTINUED

NUTRIENTS AND FOOD ENERGY IN THE EDIBLE PORTION OF 100 GRAMS OF MEAT.

Specifications	Cut	1) Cut No.	Weight of meat cut kg	Edible %	Water g	Protein g	Fat g	Food energy K.cal	Ash g	NaCl mg	Calcium mg	Iron mg	B - Vitamins			
													Thiamine mg	Riboflavin mg	Niacin mg	
<u>Uncontrolled feeding</u>																
Perk no. 9	Mørbrad	3	1.05	81												
70.6 kg, 24 mm backfat	Mørbrad ÷ synlig fett 5)	3		62	69.4	21.3	8.8	164	1.1	230	8	1.9	0.57	0.25	5.6	
	Koteletter	5	3.69	86												
	Koteletter ÷ synlig fett	5		60	69.2	21.2	8.4	160	1.1	200	7	1.1	0.53	0.20	5.3	
	Longissimus dorsi		1.46	100	71.2	22.3	5.5	139	1.1	180	4	0.9	0.53	0.17	5.5	
Average values:																
Number of samples	4	Mørbrad	3	0.93	79	62.7	18.3	18.3	238	1.0	248	12	1.4	0.85	0.20	3.9
"	2	Mørbrad ÷ synlig fett	3	0.93	61	70.0	21.8	7.8	157	1.2	205	8	1.9	0.51	0.23	4.7
"	3	Koteletter	5	4.18	84	61.0	17.6	20.1	252	1.0		14	1.2	0.64	0.17	4.5
"	8	Koteletter ÷ synlig fett	5	4.18	68	71.2	21.3	6.5	144	1.1	257	9	1.3	0.83	0.18	5.0
"	7	Longissimus dorsi		1.60	100	73.0	22.4	3.7	123	1.2	253	6	1.1	0.92	0.17	5.5

1) SEE FIGURE 4.

2) "CONTROLLED FEEDING" MEANS THAT THE PIGS CAME FROM A BREEDING STATION WHERE THE FEED COMPOSITION IS UNDER CONTROLL FROM 20 KG - 90 KG LIFE WEIGHT.

3) "UNCONTROLLED FEEDING" MEANS THAT THE FEED COMPOSITION IS KNOWN ONLY TO SOME EXTENT.

4) WITH 5 MM OF FAT LAYER.

5) ÷ SYNLIG FETT = ALL VISIBLE FAT REMOVED BEFORE AND AFTER DEBONING.

NORWEGIAN MEAT RESEARCH LABORATORY /
THE NORWEGIAN GOVERNMENT HOME ECONOMICS RESEARCH INSTITUTE.

TABLE 16. BROILERS. WEIGHT: 800 - 1200 GRAMS.

NUTRIENTS AND FOOD ENERGY IN THE EDIBLE PORTION OF 100 GRAMS OF MEAT.

Way of preparation	Number of samples	Average weight g	Cooking loss %	Edible %	Water g	Protein g	Fat g	Food energy Kcal	Ash g	Phosphorus mg	Calcium mg	Iron mg	B - Vitamins		
													Thiamine mg	Riboflavin mg	Niacin mg
Raw	3	1080		70	70.1	18.7	9.9	164	1.0	127	10	1.2	0.10	0.18	6.7
Cooked in steam, 100°C, 90 min.	3	950	19.7	70	65.1	23.3	8.9	173	0.9		10	1.5	0.06	0.17	6.7
Cooked in water, 100°C, 90 min.	3	1020	21.8	71	69.2	22.2	6.9	151							