

FOOD RESEARCH INSTITUTE
(Council for Scientific and Industrial Research)

Special Report No. 2
in
Animal Products :

THE MEAT SUPPLY OF GHANA

By
St. John A. Clotney
Research Officer

ANIMAL PRODUCTS SECTION

Food Research Institute, P.O. Box M-20, Accra.
July 1969.

PREFACE

This paper represents an attempt to present a more complete picture of the meat supply of Ghana than had been done in the past. In my Special Report No. 1 - "Production & Utilization of Animal Products in Ghana" published in April, 1968 and a subsequent cyclostyled material "Ghana: Selected Production and Trade Data on Animal Products" of November 1968, the values presented were based entirely on the then known and recorded production and trade data of the time. Thus values for usually unrecorded internal production and consumption (such as unofficial slaughters) were not included in the computations. However, with this material now available, a further attempt is being made to fill the gap, and broaden the scope of the subject as well as improve its organization and presentation.

I am greatly indebted to the Animal Health Division of the Ministry of Agriculture for supplying the data on the local production and the Central Bureau of Statistics for the figures on importation.

St. John A. Clottey

Accra
July 1969.

PART I

INTRODUCTION

CONTENTS

PART I

INTRODUCTION

<u>Section</u>		<u>Page</u>
	Preface	
1.	Definitions	2
2.	Structure of the Meat Supply of Ghana	2
3.	Conversion Factors and Evaluation Indices	3

PART II

THE MEAT SUPPLY

1.	Unofficial Slaughters	9
2.	Official Slaughters (Domestic)	11
3.	Official Slaughters (Import)	13
4.	Prepacked Carcass Meat	15
5.	Processed Meat	17

PART III

SUMMARIES

1.	Summary of Sub-Totals	22
2.	Summary of Grand Totals & Overall Averages	24
3.	Summary of Findings	26

* * * *

	Literature Cited	27
--	----------------------------	----

List of Tables in Part I

<u>Table No.</u>		<u>Page</u>
A	Estimation of Official Slaughters (Domestic)	3
B	Estimation of Unofficial Slaughters	4
C	Estimated Production Values for Ghanaian Livestock ..	5
D	Average Values for yield of Meat and Quantity of Protein in Ghanaian Livestock	7
E	Ghana: Official Slaughter Returns, 1961-67	7

Definitions

The term "meat" as used in this paper refers to the edible portion of the carcasses and the edible offal of cattle, sheep, goat and pig, otherwise referred to as beef (including veal) mutton (including lamb), goat meat and pork.

By "edible portion of the carcass" is meant the following:

- a) the lean or muscle part of the carcass - with its associated connective tissue, blood vessels, nerves and residual body fluid;
- b) fat - in all forms - subcutaneous, inter-muscular and intra-muscular, etc.

Edible offal comprises mainly visceral organs. These include the spleen, liver, heart, kidney, lung, stomach and intestine. Others are parts of the head (including the brain, tongue, the cheek meat), shanks, tail, and to a less-extent, hides.

The term meat as used here, does not include poultry, game or wildlife or any other source of animal food not identified in this paper. It excludes also synthetic animal foods and animal food substitutes.

Structure of the Meat Supply of Ghana

Ghana's supply of meat is drawn from both the local production and import sources. Importations furnish meat in three forms :

- a) as live animals for slaughter in local abattoirs : this source of meat has been referred to in this paper as official slaughters (import);
- b) as prepacked carcass meat; and
- c) as processed meat products.

The local supply, drawn of course, from the national livestock herd, comprises mainly of freshly slaughtered meat - very little of which is processed. The local supply may be classified into two varieties :

- a) meat from official slaughters, designated herein as official slaughters (domestic), and
- b) meat from unofficial slaughter sources.

The term "official slaughters" refers to slaughters conducted in recognized, local government-supervised slaughter-houses and slabs. Meat, in this instance, is subjected to official inspection, quantification and marketing and health regulations.

"Unofficial slaughters", by contrast, are conducted outside official slaughter-houses - usually without the official knowledge of the local government authority. They include all forms of private and ceremonial slaughters both at the household and communal level. Since unofficial slaughters necessarily escape official quantification, the values and yields indicated in this report have been arrived at by estimation. A full discussion of the methods involved is presented below.

Conversion Factors and Evaluation Indices

Official Slaughters

Ghana maintains a fairly accurate and consistent record of the total official slaughters in the country - although the source of animals (i.e. whether from domestic or import outlets is not indicated in the records). At the same time, records are kept of all importations of live animals. And although a certain proportion of these imports are held for breeding purposes, by far, the greater percentage (perhaps about 98) is slaughtered annually for consumption. Because the numbers held for breeding is small, it has been assumed (for purposes of this paper) that all animals imported into Ghana are slaughtered for food. However, since the overall national slaughters usually exceed importations, a further assumption has been made that this excess is equivalent to extraction from the national herd for official slaughters (domestic).

We may illustrate these series of discussions with the case for cattle in the year 1962.

TABLE A

<u>Estimation of Official Slaughters(Domestic)</u>		<u>x 10³</u>
* Total cattle population	468.0
* Total national slaughters	108.7
** Live Imports, i.e. official slaughters (import)		96.5

* Source: Animal Health Division, Ministry of Agriculture, Accra.
** Source: External Trade Statistics, Dec., 1962, Central Bureau of Statistics, Accra.

Official slaughters (domestic) = 108.7-96.5 = 12.2.

A complete table of the total national slaughters of all species for the period, 1961-67 is presented in Table E.

Unofficial Slaughters

The estimation of unofficial slaughters require a more elaborate process. The method employed here is a modified version of one originally proposed by the FAO (1949). Known as "livestock balance", the calculation takes into consideration such factors as the mortality rate and the reproduction rate - and which values as indicated for Ghanaian livestock (Table C) are estimates based on an observation of the performance of these animals.

Below, the method of calculation is presented for cattle in the year 1962.

TABLE B

Estimation of Unofficial Slaughters

Total cattle population, 1962	468,000
Number of cows (as % of total population, 40% = 468,000 x 40% = 187,280	

Births (calving rate, 40% x no. of cows = 40% x 187,280) .	74,912
Deaths (mortality rate, 5% x total pop. = 5% x 468,000) .	23,410

. . Excesses of births over deaths (74,912-23,410) . .	51,502

Increase in cattle population in 1963 (1963 pop.-1962 pop.) or 476,600 - 468,000	8,400
Official Slaughters in 1962	12,190

. . Total known extraction and left overs (8,400+12,190)=20,590	

. . Total unknown (or unofficial extraction) 51,502-20,590 = <u>30,912</u>	

NOTE

The value for unofficial slaughters as obtained by this method, if added to official slaughters (domestic) as well as to the numbers of animals left unslaughtered, will not necessarily tally up with the official census returns for the year. This is because among certain species such as the pig, the rates of reproduction and growth are extremely high, thus necessitating ~~an~~ early marketing of the animals and their inevitability to escape official count at the time of the census. Thus readers will find, for example, that although the census returns for pigs in 1961 totalled 49,000, the sum of unofficial and official slaughters for the same year was 56,300 or an extraction rate of 114.9%!

TABLE C

Estimated Production Values for Ghanaian Livestock

	Reproducing females (As % of total population of the species)	Reproduction rate (As % of the pop. of reproducing females)	Mortality rate (As % of total pop)
Cattle	40	1961-64: 40 1965-67: 45	5 3
Sheep	30	200	5
Goat	20	400	7
Pig	10	1,200	4

Meat Yield

The term meat yield refers to the total edible meat of the species. It is made up as follows: the edible portion of the carcass, and the edible offal. For cattle slaughtered in Ghana (Aver. wt. 500 lb) the meat yield averages 275 lb. or 55% of live animal weight. (see Table D). This is calculated as follows, given the following:

Average live weight of cattle = 500 lb.
 Carcass wt., 50% of live wt. = 250 lb.

	<u>Quantity</u>	<u>Protein Content</u>
Edible portion of carcass (72% of carcass wt.)	= 180 lb.	20%
Edible offal (20% of live wt.)	= 100 lb.	19%
. . . Edible Portion Equivalent = $180 + \left(\frac{19 \times 100}{20}\right)$		
(E.P.E)		
	= 275 lb.	

This edible portion equivalent, based on the work of Bredon & Marshall (1959) is a measure of the total edible meat, and has been obtained by adjusting the protein content of the offal to that of the edible portion of the carcass, and then adding the adjusted offal weight to the weight of the edible portion of the carcass.

By multiplying the E.P.E. with the total number of animals slaughtered, the overall yield of meat is obtained. For the 1962 unofficial slaughters, therefore, the meat (beef) yield is $275 \times 30,912 = 8.50 \times 10^6$ lb. or 3.80×10^3 tons.

Per Caput Meat Availability

If the values of all slaughters as well as their protein values are known and the total human population is also known, then one could proceed to work out the per capita meat and meat protein availability for the country.

For slaughter beef, the situation is as follows:

<u>Period: 1961-67</u>	<u>$\times 10^3$</u>
Average unofficial slaughters	30.0
Average official slaughters (domestic)	24.1
Average official slaughters (import)	<u>82.2</u>
Total slaughters	136.3

Average annual human population for the period 1961-67 = 7.5×10^6

Calculation

a) Total beef availability : $275 \times 136.3 \times 10^3 = 37.48 \times 10^6$ lb.
 Availability of slaughter beef/
 caput/year: $\frac{37.48 \times 10^6}{7.5 \times 10^6} = \underline{\underline{4.997}}$ lb.

b) Slaughter beef protein availability/
 caput/day:

From Edible Portion (gram)

$$\frac{180 \times 136.3 \times 10^3 \times 454 \times .20}{7.5 \times 10^6 \times 365} = 0.8137 \text{ gram}$$

From Edible Offal (gram)

$$\frac{100 \times 136.3 \times 10^3 \times 454 \times .19}{7.5 \times 10^6 \times 365} = 0.04295 \text{ gram}$$

∴ Overall slaughter beef protein avail./caput/day, gram

$$= 0.8137 + 0.04295 = \underline{\underline{0.8567}} \text{ gram}$$

NOTE

This method of determining the per caput meat and meat protein availability is being offered merely as a piece of information, and no values of the nature have been presented in this report.

TABLE D

Average Values for Yield of Meat & Quantity
of Protein in Ghanaian Livestock

	<u>Cattle</u>	<u>Sheep</u>	<u>Goat</u>	<u>Pig</u>
Live Weight, lb.	500	35	50	100
Carcass Wt., lb.	250	24.5	35.0	85
Edible Portion of Carcass (E.P.), lb.	180	17.2	26.3	72.3
Edible Offal (E.O.), lb.	100	7.3	9.7	15.0
Protein, E.P., %	20	16	14	12
Protein, E.O., %	19.0	12.3	8.1	2.3
Edible Portion Equivalent (E.P.E) or Edible Meat.	275	22.8	32.5	75.0

TABLE E

Ghana: Official Slaughter Returns, 1961-67

	<u>Cattle</u>	<u>Sheep</u>	<u>Goat</u>	<u>Pig</u>
1961	137.7	109.1	179.7	30.1
1962	108.7	73.1	146.4	26.8
1963	78.7	53.9	102.6	23.0
1964	89.1	53.4	107.3	24.2
1965	78.5	40.3	83.8	21.5
1966	76.1	44.6	90.7	19.8
1967	78.3	58.8	115.1	22.4

P A R T II

THE MEAT SUPPLY

SECTION 1

UNOFFICIAL SLAUGHTERS (DOMESTIC)

	NUMBERS		MEAT EQUIVALENT	
	Total Livestock Population x 10 ⁵	Unofficial Slaughters x 10 ⁵	lb. x 10 ⁶	ton x 10 ⁵ kg. x 10 ⁶ (approx)
<u>1961</u>				
Cattle	465.9	49.9	13.74	6.13
Sheep	214.8	108.1	2.46	1.10
Goat	220.0	121.8	3.96	1.77
Pig	49.0	26.5	1.99	0.89
Total	-	-	22.15	9.89
<u>1962</u>				
Cattle	468.2	30.9	8.50	3.80
Sheep	224.8	108.7	2.48	1.11
Goat	222.7	127.4	4.14	1.85
Pig	49.5	29.7	2.23	0.99
Total	-	-	17.35	7.75
<u>1963</u>				
Cattle	476.6	5.8	1.60	0.72
Sheep	236.6	21.0	0.48	0.21
Goat	229.9	38.9	1.26	0.56
Pig	50.5	34.6	2.59	1.16
Total	-	-	5.93	2.65
<u>1964</u>				
Cattle	504.6	6.6	1.81	0.81
Sheep	332.8	141.3	3.22	1.43
Goat	319.1	128.7	4.18	1.87
Pig	50.9	14.0	1.05	0.47
Total	-	-	10.26	4.58

Unofficial Slaughters - contd.

	NUMBERS		MEAT EQUIVALENT	
	Total Livestock Population x 10 ³	Unofficial Slaughters x 10 ³	lb. x 10 ⁶	ton x 10 ² kg. x 10 ⁶ (approx)
<u>1965</u>				
Cattle	511.2	64.7	17.80	0.79
Sheep	354.7	33.0	0.75	0.34
Goat	380.5	174.1	5.66	2.53
Pig	73.0	54.5	4.09	1.83
Total	-	-	28.30	5.49
<u>1966</u>				
Cattle	527.6	39.3	10.81	4.83
Sheep	486.3	213.8	4.88	2.18
Goat	412.0	244.1	7.93	3.54
Pig	80.5	73.6	5.52	2.47
Total	-	-	29.14	13.02
<u>1967</u>				
Cattle	552.0	12.6	3.47	1.55
Sheep	517.0	175.7	4.01	1.79
Goat	371.6	146.6	4.77	2.13
Pig	76.2	52.1	3.91	1.74
Total	-	-	16.16	7.21
<u>AVERAGE VALUES FOR THE PERIOD, 1961-67</u>				
CATTLE	500.9	30.0	8.25	2.66
SHEEP	268.7	114.5	2.61	1.17
GOAT	308.0	140.2	4.56	1.53
PIG	61.4	40.7	3.05	1.36
TOTAL :	-	-	18.47	6.72

SECTION 2

OFFICIAL SLAUGHTERS (DOMESTIC)

	NUMBERS		MEAT EQUIVALENT	
	Total Livestock Population x 10 ³	Official Slaughters(d) x 10 ³	lb.x10 ⁶	ton x 10 ³ kg.x 10 ⁶ (approx)
<u>1961</u>				
Cattle	465.9	0.0	0.0	0.0
Sheep	214.8	0.0	0.0	0.0
Goat	220.0	36.1	1.17	0.52
Pig	49.0	29.8	2.23	1.00
Total	-	-	3.40	1.52
<u>1962</u>				
Cattle	468.2	12.2	3.35	1.50
Sheep	224.8	3.1	0.07	0.03
Goat	222.7	37.9	1.23	0.55
Pig	49.5	26.7	2.00	0.89
Total	-	-	6.65	2.97
<u>1963</u>				
Cattle	476.6	18.7	5.13	2.29
Sheep	236.6	12.9	0.29	0.13
Goat	229.9	39.8	1.29	0.58
Pig	50.5	23.6	1.77	0.79
Total	-	-	8.48	3.79
<u>1964</u>				
Cattle	504.6	42.2	11.62	5.19
Sheep	332.8	19.8	0.45	0.20
Goat	319.1	42.9	1.39	0.62
Pig	50.9	22.1	1.66	0.74
Total	-	-	15.12	6.75

Official Slaughters (Domestic) - contd.

	NUMBERS		MEAT EQUIVALENT	
	Total Livestock Population x 10 ³	Official Slaughters (d) x 10 ³	lb. x 10 ⁶	ton x 10 ³ kg. x 10 ⁶ (approx)
<u>1965</u>				
Cattle	511.2	25.6	7.05	3.14
Sheep	354.7	30.5	0.70	0.30
Goat	380.5	72.2	2.35	1.05
Pig	73.6	23.9	1.79	0.80
Total	-	-	11.89	5.29
<u>1966</u>				
Cattle	527.6	15.4	4.24	1.90
Sheep	486.3	22.9	0.52	0.23
Goat	412.0	56.6	1.84	0.82
Pig	80.5	19.8	1.48	0.66
Total	-	-	8.08	3.61
<u>1967</u>				
Cattle	552.0	54.8	1.51	0.67
Sheep	517.0	58.2	1.33	0.59
Goat	371.6	95.4	3.10	1.38
Pig	76.2	29.5	2.22	0.99
Total	-	-	8.16	3.63

AVERAGE VALUES FOR THE PERIOD, 1961-67

CATTLE	500.9	24.1	4.70	2.10
SHEEP	268.7	21.1	0.48	0.21
GOAT	308.0	54.4	1.77	0.79
PIG	61.4	25.1	1.88	0.84
TOTAL :	-	-	8.83	3.94

SECTION 3

OFFICIAL SLAUGHTERS (IMPORT)

	NUMBERS	VALUE		MEAT EQUIVALENT	
	x 10 ³	Total N/10 ⁶	Per head N/0.00	lb.x10 ⁶	ton x 10 ³ kg.x10 ⁶ (approx)
<u>1961</u>					
Cattle	137.7	6.77	49.10	37.88	16.91
Sheep	109.1	1.02	9.30	2.49	1.11
Goat	143.6	1.14	8.00	4.67	2.08
Pig	0.3	0.00	9.00	0.03	0.12
Total	-	8.93	-	45.07	20.22
<u>1962</u>					
Cattle	96.5	4.83	50.00	26.55	11.85
Sheep	70.3	0.59	8.50	1.60	0.72
Goat	108.7	0.66	6.10	3.53	1.58
Pig	0.0	0.00	8.00	0.01	0.00
Total	-	6.08	-	31.69	14.15
<u>1963</u>					
Cattle	83.6	5.68	67.90	22.99	10.26
Sheep	53.4	0.46	8.60	1.22	0.54
Goat	102.7	0.75	7.30	3.34	1.49
Pig	0.1	0.00	58.20	0.01	0.00
Total	-	6.89	-	27.56	12.29
<u>1964</u>					
Cattle	77.6	6.15	79.20	21.33	9.52
Sheep	64.5	0.65	10.00	1.47	0.66
Goat	49.4	0.49	10.00	1.61	0.07
Pig	0.0	0.00	124.70	0.00	0.00
Total	-	7.29	-	24.41	10.25

Official Slaughterers (Import) - contd.

	NUMBERS	VALUE		MEAT EQUIVALENT	
	x 10 ³	Total N o x10 ⁶	Per head N o 0.00	lb.x10 ⁶	ton x 10 ³ kg.x10 ⁶ (approx)
<u>1965</u>					
Cattle	56.4	4.43	78.60	15.51	6.92
Sheep	19.6	0.20	10.00	0.45	0.20
Goat	30.0	0.13	4.40	0.98	0.44
Pig	0.0	0.00	34.00	0.06	0.00
Total	-	4.76	--	17.00	7.56
<u>1966</u>					
Cattle	61.6	4.96	80.50	16.95	7.57
Sheep	26.7	0.27	10.10	0.61	0.27
Goat	33.0	0.33	10.00	1.07	0.48
Pig	0.0	0.00	5.70	0.00	0.00
Total	-	5.56	-	18.63	8.32
<u>1967</u>					
Cattle	62.4	5.24	84.00	17.16	7.66
Sheep	23.8	0.28	11.80	0.54	0.24
Goat	30.6	0.32	10.50	0.99	0.44
Pig	0.0	0.00	5.10	0.00	0.00
Total	-	5.84	-	18.69	8.34

AVERAGE VALUES FOR THE PERIOD, 1965-67

CATTLE	82.3	5.44	69.91	22.62	10.09
SHEEP	52.50	0.50	9.76	1.20	0.53
GOAT	71.1	0.55	8.04	2.31	0.94
PIG	0.0	0.00	34.96	0.02	0.02
	-	6.49	-	26.15	11.58

SECTION 4.

PREPACKED CARCASS MEAT (IMPORT)

	QUANTITY		VALUE	
	lb. x 10 ⁶	ton x 10 ² kg. x 10 ⁶ (approx)	Total N\$ x 10 ⁶	Per lb. N\$0.00
<u>1961</u>				
Beef	0.38	0.17	0.14	0.36
Mutton	3.24	1.45	0.04	0.22
Pork	0.12	0.05	0.04	0.32
Unspecified carcass meat	0.90	0.40	0.14	0.16
Edible offal	0.01	0.00	0.00	0.36
Total	4.65	2.07	0.36	-
<u>1962</u>				
Beef	0.55	0.16	0.14	0.40
Mutton	3.69	1.65	0.40	0.10
Pork	0.02	0.01	0.01	0.48
Unspecified carcass meat	0.24	0.11	0.04	0.18
Edible offal	0.12	0.05	0.03	0.28
Total	4.42	1.98	0.62	-
<u>1963</u>				
Beef	0.64	0.29	0.23	0.36
Mutton	6.55	2.92	0.49	0.08
Pork	0.14	0.06	0.03	0.20
Unspecified carcass meat	0.20	0.09	0.05	0.28
Edible offal	0.05	0.02	0.02	0.42
Total	7.58	3.38	0.82	-
<u>1964</u>				
Beef	0.63	0.28	0.51	0.34
Mutton	3.36	1.50	0.44	0.14
Pork	0.14	0.06	0.03	0.48
Unspecified carcass meat	0.27	0.12	0.10	0.38
Edible offal	0.08	0.03	0.03	0.36
Total	4.48	1.99	0.81	-

Prepacked Carcass Meat - contd.

	QUANTITY		VALUE	
	lb. x 10 ⁶	ton x 10 ² kg. x 10 ⁶ (approx)	Total N¢ x 10 ⁶	Per lb. N¢0.00
<u>1965</u>				
Beef	0.61	0.27	0.21	0.34
Mutton	2.71	1.21	0.44	0.17
Pork	0.07	0.03	0.02	0.28
Unspecified carcass	0.76	0.34	0.22	0.29
Edible offal	0.71	0.32	0.08	0.11
Total	4.86	2.17	0.97	-
<u>1966</u>				
Beef	0.32	0.14	0.13	0.40
Mutton	0.95	0.43	0.16	0.17
Pork	0.07	0.03	0.02	0.31
Unspecified carcass	0.38	0.17	0.07	0.18
Edible offal	0.10	0.04	0.03	0.31
Total	1.82	0.81	0.41	-
<u>1967</u>				
Beef	0.47	0.21	0.24	0.50
Mutton	3.03	1.35	0.49	0.16
Pork	0.02	0.01	0.01	0.44
Unspecified carcass	0.50	0.22	0.12	0.25
Edible offal	0.16	0.07	0.06	0.37
Total	4.18	1.86	0.92	-

AVERAGE VALUES FOR THE PERIOD, 1961-67

BEEF	0.49	0.22	0.19	0.42
MUTTON	3.36	1.50	0.35	0.15
PORK	0.10	0.04	0.02	0.32
UNSPECIFIED CARCASS	0.46	0.21	0.11	0.25
EDIBLE OFFAL	0.18	0.08	0.04	0.31
TOTAL	4.59	2.05	0.71	-

SECTION 5

PROCESSED MEAT (IMPORT)

	QUANTITY		VALUE	
	lb. x 10 ⁶	ton x 10 ³ kg. x 10 ⁶ (approx)	Total N\$ x 10 ⁶	Per lb. N\$0.00
<u>1961</u>				
<u>Beef products</u>				
Smoked & salted beef	1.50	0.67	0.27	0.18
Corned beef	5.06	2.26	1.48	0.30
<u>Pork products</u>				
Salted pork	6.53	2.92	0.43	0.06
Bacon	0.54	0.24	0.14	0.26
Ham	0.22	0.10	0.03	0.14
<u>Miscellaneous</u>				
Unspecified salted meat	1.36	0.61	0.21	0.16
Sausages	0.42	0.19	0.13	0.32
Meat extracts	0.01	0.01	0.08	0.64
Canned meat(excluding corned beef)	0.80	0.36	0.21	0.26
Total	16.44	7.36	2.98	-
<u>1962</u>				
<u>Beef products</u>				
Smoked & salted beef	1.09	0.49	0.18	0.16
Corned beef	4.17	1.86	1.22	0.30
<u>Pork products</u>				
Salted pork	2.87	1.28	0.17	0.06
Bacon	0.32	0.14	0.09	0.28
Ham	0.06	0.03	0.03	0.42
<u>Miscellaneous</u>				
Unspecified salted meat	1.13	0.50	0.12	0.12
Sausages	0.20	0.09	0.08	0.40
Meat extracts	0.00	0.00	0.00	0.52
Canned meat(excluding corned beef)	0.53	0.24	0.14	0.26
Total	10.37	4.63	2.03	-

Processed meat - contd.

	QUANTITY		VALUE	
	lb. x 10 ⁶	ton x 10 ³ kg. x 10 ⁶ (approx)	Total NØ x 10 ⁶	Per lb. NØ0.00
<u>1963</u>				
<u>Beef products</u>				
Smoked & salted beef	1.05	0.47	0.17	0.16
Corned beef	4.27	1.91	1.13	0.26
<u>Pork products</u>				
Salted pork	1.59	0.71	0.11	0.06
Bacon	0.25	0.11	0.08	0.32
Ham	0.54	0.02	0.03	0.54
<u>Miscellaneous</u>				
Unspecified salted meat	0.89	0.40	0.10	0.10
Sausages	0.26	0.12	0.10	0.38
Meat extracts	0.00	0.00	0.00	1.00
Canned meat (excluding corned beef)	0.41	0.18	0.12	0.30
Total	9.26	3.92	1.84	-
<u>1964</u>				
<u>Beef products</u>				
Smoked & Salted beef	0.78	0.35	0.17	0.22
Corned beef	2.86	1.28	0.77	0.26
<u>Pork products</u>				
Salted pork	0.88	0.39	0.06	0.08
Bacon	0.14	0.06	0.05	0.36
Ham	0.02	0.01	0.01	0.54
<u>Miscellaneous</u>				
Unspecified salted meat	0.42	0.19	0.06	0.14
Sausages	0.26	0.11	0.08	0.32
Meat extracts	0.00	0.00	0.00	1.06
Canned meat (excl. corned beef)	1.28	0.57	0.27	0.20
Total	6.64	2.96	1.47	-

Processed meat (import) - contd.

	QUANTITY		VALUE	
	lb. x 10 ⁶	ton x 10 ³ kg. x 10 ⁶ (approx)	Total N \o x 10 ⁶	Per lb. N \o 0.00
<u>1965</u>				
<u>Beef products</u>				
Smoked & salted beef	0.25	0.11	0.06	0.24
Corned beef	4.08	1.82	1.20	0.29
<u>Pork products</u>				
Salted pork	0.13	0.06	0.01	0.08
Bacon	0.07	0.03	0.04	0.53
Ham	0.04	0.02	0.03	0.68
<u>Miscellaneous</u>				
Unspecified salted meat	0.06	0.02	0.02	0.35
Sausages	0.17	0.08	0.07	0.43
Meat extracts	0.00	0.00	0.00	0.73
Canned meat (excl. corned beef)	3.16	1.41	0.36	0.12
Total	7.96	3.55	1.79	-
<u>1966</u>				
<u>Beef products</u>				
Smoked & salted beef	0.32	0.15	0.08	0.26
Corned beef	3.14	1.40	0.92	0.29
<u>Pork products</u>				
Salted pork	0.27	0.12	0.03	0.10
Bacon	0.04	0.02	0.02	0.40
Ham	0.02	0.01	0.02	0.78
<u>Miscellaneous</u>				
Unspecified salted meat	0.85	0.38	0.14	0.17
Sausages	0.14	0.06	0.06	0.43
Meat extracts	0.02	0.00	0.00	0.24
Canned meat (excl. corned beef)	1.33	0.59	0.26	0.19
Total	6.13	2.73	1.53	-

Processed meat - contd.

	QUANTITY		VALUE	
	lb. x 10 ⁶	ton x 10 ³ kg. x 10 ⁶ (approx)	Total Nø x 10 ⁶	Per lb. Hø0.00
<u>1967</u>				
<u>Beef products</u>				
Smoked & salted beef	1.23	0.55	0.33	0.27
Corned beef	4.27	1.90	1.75	0.41
<u>Pork products</u>				
Salted pork	1.70	0.76	0.17	0.10
Bacon	0.05	0.02	0.03	0.58
Ham	0.08	0.03	0.05	0.69
<u>Miscellaneous</u>				
Unspecified salted meat	0.93	0.42	0.16	0.17
Sausages	0.15	0.07	0.09	0.59
Meat extracts	0.00	0.00	0.00	2.53
Canned meat (excluding corned beef)	0.51	0.23	0.24	0.47
Total	8.92	3.98	2.82	-

AVERAGE VALUES FOR THE PERIOD, 1961-67

<u>BEEF PRODUCTS</u>				
SMOKED & SALTED BEEF	0.89	0.40	0.18	0.21
CORNED BEEF	3.98	1.78	1.21	0.30
<u>PORK PRODUCTS</u>				
SALTED PORK	2.00	0.89	0.14	0.07
BACON	0.23	0.09	0.06	0.39
HAM	0.14	0.03	0.03	0.54
<u>MISCELLANEOUS</u>				
UNSPECIFIED SALTED MEAT	0.81	0.36	0.12	0.17
SAUSAGES	0.23	0.10	0.09	0.41
MEAT EXTRACTS	0.00	0.00	0.01	0.96
CANNED MEAT (EXCLUDING CORNED BEEF)	1.15	0.51	0.23	0.26
TOTAL	9.43	4.16	2.07	

PART III

SUMMARIES

SECTION 1

SUMMARY OF SUB-TOTALS

A. CLASSIFICATION BY SPECIES
All values in ton: x 10³ or kg. x 10⁶ (approx)

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>Aver.</u>
<u>BEEF</u>								
Unofficial sl.(d)	6.13	3.80	0.72	0.81	0.79	4.83	1.55	2.66
Official sl. (d)	0.00	1.50	2.29	5.19	3.14	1.90	0.67	2.10
Official sl.(imp)	16.91	11.85	10.26	9.52	6.92	7.57	7.66	10.09
Prepacked carc. "	0.17	0.16	0.29	0.28	0.27	0.14	0.21	0.22
Processed meat "	2.93	2.35	2.38	1.63	1.93	1.55	2.45	2.18
Total	26.14	19.66	15.94	17.43	13.05	15.99	12.54	17.25
<u>MUTTON</u>								
Unofficial sl.(d)	1.10	1.11	0.21	1.43	0.34	2.18	1.79	1.17
Official sl. (d)	0.00	0.03	0.13	0.20	0.30	0.23	0.59	0.21
Official sl.(imp)	1.11	0.72	0.54	0.66	0.20	0.27	0.24	0.53
Prepacked carc. "	1.45	1.65	2.92	1.50	0.21	0.43	1.35	1.50
Processed meat "	--	--	--	--	--	--	--	--
Total	3.66	3.51	3.80	3.79	2.05	3.11	3.97	3.41
<u>GOAT</u>								
Unofficial sl.(d)	1.77	1.85	0.56	1.87	2.53	3.54	2.13	2.04
Official sl. (d)	0.52	0.55	0.58	0.62	1.05	0.82	1.38	0.79
Official sl.(imp)	2.08	1.58	1.49	0.07	0.44	0.48	0.44	0.94
Prepacked carc. "	--	--	--	--	--	--	--	--
Processed meat "	--	--	--	--	--	--	--	--
Total	4.37	3.98	2.63	2.56	4.02	4.84	3.95	3.77
<u>PORK</u>								
Unofficial sl.(d)	0.89	0.99	1.16	0.47	1.83	2.47	1.74	1.36
Official sl. (d)	1.00	0.89	0.79	0.74	0.80	0.66	0.99	0.84
Official sl.(imp)	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Prepacked carc. "	0.05	0.01	0.06	0.06	0.03	0.03	0.01	0.04
Processed meat "	3.26	1.55	0.84	0.46	0.11	0.15	0.81	1.01
Total	5.32	3.44	2.85	1.73	2.77	3.31	3.55	3.27
<u>MISCELLANEOUS (All imported)</u>								
Carcass variety	0.40	0.16	0.11	0.15	0.66	0.21	0.29	0.28
Processed variety	1.17	0.83	0.70	0.87	1.51	1.03	0.72	0.97
Total	1.57	0.99	0.81	1.02	2.17	1.24	1.01	1.25
GRAND TOTAL	41.06	31.58	26.03	26.53	24.06	28.48	25.02	28.95

Summary of Sub-Totals - contd.

B. CLASSIFICATION BY TYPE

All values in ton: x 10³ or kg. x 10⁶ (approx)

	1961	1962	1963	1964	1965	1966	1967	Aver.
<u>UNOFFICIAL SLAUGHTER MEAT (DOMESTIC)</u>								
Beef	6.13	3.80	0.72	0.81	0.79	4.83	1.55	2.66
Mutton	1.10	1.11	0.21	1.43	0.34	2.18	1.79	1.17
Goat	1.77	1.85	0.56	1.87	2.53	3.54	2.13	2.04
Pork	0.89	0.92	1.16	0.47	1.83	2.47	1.74	1.36
Total	9.89	7.75	2.65	4.58	5.49	13.02	7.21	7.23
<u>OFFICIAL SLAUGHTER MEAT (DOMESTIC)</u>								
Beef	0.0	1.50	2.29	5.19	3.14	1.90	0.67	2.10
Mutton	0.0	0.03	0.13	0.20	0.30	0.23	0.59	0.21
Goat	0.52	0.55	0.53	0.62	1.05	0.82	1.38	0.79
Pork	1.00	0.89	0.79	0.74	0.80	0.66	0.99	0.84
Total	1.52	2.97	3.79	6.75	5.29	3.61	3.63	3.94
<u>OFFICIAL SLAUGHTER MEAT (IMPORT)</u>								
Beef	16.91	11.85	10.26	9.52	6.92	7.57	7.66	10.09
Mutton	1.11	0.72	0.54	0.66	0.20	0.27	0.24	0.53
Goat	2.08	1.53	1.49	0.07	0.44	0.48	0.44	0.94
Pork	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Total	20.22	14.10	12.29	10.25	7.56	8.32	8.34	11.58
<u>PREPACKED CARCASS MEAT (IMPORT)</u>								
Beef	0.17	0.16	0.29	0.23	0.27	0.14	0.21	0.22
Mutton	1.45	1.65	2.92	1.50	1.21	0.43	1.35	1.50
Pork	0.05	0.01	0.06	0.06	0.03	0.03	0.01	0.04
Miscellaneous	0.40	0.16	0.11	0.15	0.66	0.21	0.29	0.28
Total	2.07	1.98	3.38	1.94	2.17	0.81	1.86	2.04
<u>PROCESSED MEAT (IMPORT)</u>								
Beef	2.93	2.35	2.33	1.63	1.93	1.55	2.45	2.18
Pork	3.26	1.45	0.84	0.46	0.11	0.15	0.81	1.01
Miscellaneous	1.17	0.83	0.70	0.87	1.51	1.03	0.72	0.97
Total	7.36	4.63	3.87	2.96	3.55	2.73	3.98	4.16
GRAND TOTAL	44.06	31.48	26.03	26.53	24.06	28.49	25.02	28.95

SECTION 2

SUMMARY OF GRAND TOTALS & OVERALL AVERAGESA. CLASSIFICATION BY SPECIESAll values in ton: x 10⁷ or kg. x 10⁶ (approx)

<u>1961</u>	<u>BEEF</u>	<u>MUTTON</u>	<u>GOAT</u>	<u>PORK</u>	<u>MISCEL.</u>	<u>TOTAL</u>	
Domestic	6.13	1.10	2.29	1.89	-	11.41	
Import	20.01	2.56	2.08	3.43	1.57	29.65	
Total	26.14	3.66	4.37	5.32	1.57	41.06	
<u>1962</u>							
Domestic	5.30	1.14	2.40	1.88	-	10.72	
Import	14.36	2.37	1.58	1.56	0.99	20.86	
Total	19.66	3.51	3.98	3.44	0.99	31.58	
<u>1963</u>							
Domestic	3.01	0.34	1.14	1.95	-	6.44	
Import	12.93	3.46	1.49	0.90	0.81	19.59	
Total	15.94	3.80	2.63	2.85	0.81	26.03	
<u>1964</u>							
Domestic	6.00	1.63	2.49	1.21	-	11.33	
Import	11.43	2.16	0.07	0.52	1.02	15.20	
Total	17.43	3.79	2.56	1.73	1.02	26.53	
<u>1965</u>							
Domestic	3.93	0.64	3.58	2.63	-	10.78	
Import	9.12	1.41	0.44	0.14	2.17	13.28	
Total	13.05	2.05	4.02	2.77	2.17	24.06	
<u>1966</u>							
Domestic	6.73	2.41	4.36	3.13	-	16.63	
Import	9.26	0.70	0.48	0.18	1.24	11.86	
Total	15.99	3.11	4.84	3.31	1.24	28.49	
<u>1967</u>							
Domestic	2.22	2.38	3.51	2.73	-	10.84	
Import	10.32	1.59	0.44	0.82	1.01	14.18	
Total	12.54	3.97	3.95	3.55	1.01	25.02	
<u>AVERAGE VALUES FOR THE PERIOD, 1961-67</u>							
Domestic	4.76	1.38	2.83	2.20	-	11.17	38.6%
Import	12.49	2.03	0.94	1.07	1.25	17.78	61.4%
Total	17.25	3.41	3.77	3.27	1.25	28.95	100.0%
	59.6%	11.8%	13.0%	11.3%	4.3%	100.0%	

Summary of Grand Totals - contd.

B. CLASSIFICATION BY TYPE

All values in ton: x 10³ or kg. x 10⁶ (approx)

	<u>UNOFFICIAL SL. MEAT</u>	<u>OFFICIAL SL. MEAT</u>	<u>PREPACKED CARCASS</u>	<u>PROCESSED MEAT</u>	<u>TOTAL</u>
<u>1961</u>					
Domestic	9.89	1.52	-	-	11.41
Import	-	20.22	2.07	7.36	29.65
Total	9.89	21.74	2.07	7.36	41.06
<u>1962</u>					
Domestic	7.75	2.97	-	-	10.72
Import	-	14.15	1.98	4.73	20.86
Total	7.75	17.12	1.98	4.73	31.58
<u>1963</u>					
Domestic	2.65	3.79	-	-	6.44
Import	-	12.29	3.38	3.92	19.59
Total	2.65	16.08	3.38	3.92	26.03
<u>1964</u>					
Domestic	4.58	6.75	-	-	11.33
Import	-	10.25	1.99	2.96	15.20
Total	4.58	17.00	1.99	2.96	26.53
<u>1965</u>					
Domestic	5.49	5.29	-	-	10.78
Import	-	7.56	2.17	3.55	13.28
Total	5.49	12.85	2.17	3.55	24.06
<u>1966</u>					
Domestic	13.02	3.61	-	-	16.63
Import	-	8.32	0.81	2.73	11.86
Total	13.02	11.93	0.81	2.73	28.49
<u>1967</u>					
Domestic	7.21	3.63	-	-	10.84
Import	-	8.34	1.86	3.98	14.18
Total	7.21	11.97	1.86	3.98	25.02

AVERAGE VALUES FOR THE PERIOD, 1961-67

Domestic	7.23	3.94	-	-	11.17	38.6%
Import	-	11.58	2.04	4.16	17.78	61.4%
Total	7.23	15.52	2.04	4.16	28.95	100.0%
	25.0%	53.6%	7.0%	14.4%	100.0%	

SECTION 3

SUMMARY OF FINDINGS

This study, taking into consideration estimated values of usually unquantified domestic slaughters in Ghana, arrives at a value of approximately 29,000 tons as the average annual total quantity of meat available for consumption in Ghana for the period, 1961-67. The breakdown of this is as follows:

AVERAGE ANNUAL AVAILABILITY OF MEAT
FOR THE PERIOD, 1961-67

<u>BY SPECIES</u>			<u>BY TYPE</u>		
	<u>Quantity</u>			<u>Quantity</u>	
	<u>x 10³ tons</u>	<u>%</u>		<u>x 10³ tons</u>	<u>%</u>
BEEF	17.2	60	UNOFFICIAL SLAUGHTERS	7.2	25
MUTTON	3.4	12	OFFICIAL SL. (DOMESTIC)	3.9	13
GOAT	3.7	13	OFFICIAL SL. (IMPORT)	11.6	41
PORK	3.3	11	PREPACKED CARCASS	2.0	7
MISCEL.	1.3	4	PROCESSED MEAT	4.2	14
Total	28.9	100	Total	28.9	100

The availability of meat over the period ranged from 41,000 tons for 1961 to 24,000 tons for 1965. For 1967, the quantity of supply was valued at 25,000 tons.

Approximately 40% (or 11,000 tons) of the total supply is drawn from the domestic production, while the remaining 60% (18,000 tons) is derived from importation.

^{6.3} On the average, the per capita availability for meat amounted to ~~8.6~~ lb. annually - the mean annual human population for the period, being of the order of 7.5 million.

Cost : The C.I.F. value of all imported reached a level of approximately N¢9.30 million annually. Of this about N¢6.5 million was spent on live animals, N¢2.1 million on processed meat and N¢700,000 on prepacked carcass meat.

Literature Cited

1. Bredon, R.M. and B. Marshall, 1959. Notes on the Composition of Cattle for Slaughter and the Availability of Meat in Uganda, Trop. Agr. 36 : 309.
2. Clottey, St. J.A., 1966. An Approach to the Development of Meat Technological Research in Developing Countries. M.S. Thesis, Cornell University, Ithaca, New York.
3. _____ 1968. Production and Utilization of Animal Products in Ghana : Special Report No.1 in Animal Products; Food Research Institute, P.O. Box M-20, Accra.
4. _____ 1968. Ghana : Selected Production and Trade Data on Animal Products, 1961-66; Food Research Institute, P.O. Box M-20, Accra.
5. Food and Agriculture Organization of the United Nations (FAO) 1949. Handbook for the Preparation of Food Balance Sheets, p. 21 ff.
6. Ghana : Animal Health Division (Ministry of Agriculture), Cyclostyled material on livestock census and slaughter house returns 1961 ff.
7. Ghana : Central Bureau of Statistics. External Trade Statistics of Ghana. December issues, 1961-~~66~~7; data on livestock and meat importations, P.O. Box 1098, Accra.