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STOCK FARMING IN VENEZUELA: ITS STATUS AND PROSPECTS

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INTRODUCTION AND SUMMARY

The present study is merely part of the general survey of stock farming development and conditions in Latin America being carried out jointly by ECLA and FAO. Hence, it is not intended to be an exhaustive analysis of Venezuelan stock farming problems but only an exposition of some of the chief factors that have either promoted or retarded the production and distribution of livestock products in recent years. Venezuela's livestock and the supply and demand problems affecting its products have special characteristics which must be taken into account in an economic survey of Latin American stock farming.

The subjects covered in the research and analytical work are basically adapted to the aspects and purposes of the general livestock survey. This explains the emphasis placed on overall assessments and figures. Some aspects have nevertheless been dealt with on a State or regional level.

Much of the information was obtained directly from the Ministry of Agriculture and Livestock, the Ministry of Development, the Banco Agrícola y Pecuário and other Government bodies. It is also based on personal observations in the field and on a number of technical publications concerned with Venezuelan stock farming.

Some of the general conclusions and aspects of the study are set out below.

Notwithstanding the fact that the domestic supply of food products of animal origin has increased substantially in recent years, present per capita consumption levels are still ostensibly low, in terms both of recommended nutritional standards and of Venezuela's current potential demand trends and volume. Thus, the average annual per capita consumption of red meat was 19 kg in 1956-58 and rose to about 22 kg in 1959, with beef accounting for four fifths of the total. Earlier, it had remained static at an average of 17 kg and had even dropped slightly in the three-year periods 1950-52 and 1953-55, starting to increase from 1956 onwards. Annual per capita consumption of milk products, expressed as an aggregate in terms of fluid milk,

/climbed from

climbed from an average of 112 litres in 1951-52 to 135 litres in 1956-58. The main increase was registered in the consumption of pasteurized milk, which rose from an average of 4.6 litres in 1948-50 to 25.5 litres in 1956-58, the increase in the consumption of powdered milk being somewhat smaller. On the other hand, per capita consumption of cheese and butter fell off in the past few years. An analysis of consumer trends shows that they are closely related to price levels. It should be noted at this point that the relative expansion in milk consumption is essentially related to lower real consumer prices.

An outstanding feature, well known in the Venezuelan protective food market, is the spectacular upward trend in the demand for these foodstuff. Both population and income have grown at a rate unequalled in any other Latin American country.^{1/} The high purchasing power and considerable elasticity of demand for the livestock products normally consumed in Venezuela tends to compensate for domestic consumption and production deficits through changes in foreign trade trends. For more than ten years Venezuela has suspended meat exports and has become an importer of meat. It is also the largest buyer of foreign milk products and eggs; for example, imports account for more than half the total consumption of milk products, expressed in terms of fluid milk. In 1956-58, the annual value of food imports of animal origin averaged about 156 million bolívares, of which 76.2 per cent was represented by milk products, 23.3 per cent by eggs and less than 1 per cent by meat, poultry and lard. Between 1948-50 and 1956-58, imports of tinned milk increased by 54 per cent, cheese by 150 per cent and eggs by about 200 per cent. In spite of the campaigns to promote stock farming now being conducted and the increases which livestock production may achieve, demand is expected to outstrip

^{1/} The annual population growth rate was extremely high (from 3.5 to 4.35 per cent) between 1950 and 1958, as was the per capita income growth rate which, according to the Central Bank (memoria de 1958) averaged 6 per cent.

/domestic supply.

domestic supply. As a result, imports will have to be resorted to in order to make up for inadequate domestic output, at least over the short and medium term.

Venezuela's livestock output is based on an estimated animal population of approximately 7 million cattle, 2.4 million pigs, over 1 million sheep and goats and about 12 million poultry. The number of animals other than goats increased between 1950 and 1956, the highest rate for beef cattle being registered in the past five years.

Annual production of red meat rose from 76,000 tons in 1947-49 to 119,000 tons in 1956-58 and 141,000 in 1959, a percentage increase of 58 and 85 per cent respectively, most of which has been achieved since 1956. This sharp rise is due not only to the larger number of animals slaughtered, the index for which rose by 61 points between the two periods, but also to the greater carcass meat yield of slaughtered cattle.^{2/} Fluctuations in per capita meat output were relatively small between 1939-51 and 1953-55 and then remained fairly stable - at about 17 kg - compared with a per capita increase of 6 kg in 1959 over the period 1947-49.

Venezuela is one of the few Latin American countries in which the meat supply has expanded so markedly in the past few years. Brief mention should perhaps be made of some of the factors which have caused this. In the first place, there is the cattle which has entered Venezuela from Colombia. There is no record of the number of cattle involved, since this traffic is illegal, but there is information indicating that over 100,000 head annually have thus been brought into the country in recent years. The marked increase in the average weight of cattle on the hoof for slaughter and of the carcass meat yield corroborates this estimate. In addition, mention should be made of the favourable effect of a series of measures taken by the

^{2/} An average of 168 kg per animal in 1956-58 compared with 155 kg in 1951-53 and 161 kg in 1954.

Government to promote an increase in cattle numbers and in livestock production. These include frequent large-scale imports of various breeds, an activity in which Venezuela has headed all other Latin American countries.^{3/} Health campaigns have also been carried out successfully, as indicated by the lower incidence and morbidity of pathogenous agents, the control of some diseases and the reduction in the death rate, with respect to which comparative figures are given in the relevant section of this report. The expansion of livestock credit is another incentive to production, but its effects will only be felt in future years, in view of the major effort made in 1958, unprecedented in the history of the Venezuelan livestock industry^{4/} now being carried out as a supplementary measure to the land reform Act adopted in March 1960.

Milk production has also increased substantially, its volume in 1959 being 102 per cent higher than in 1950. Production in the last two years covered in this report averaged about 400 million litres a year, of which 45 per cent was used for direct consumption, a little over 20 per cent for the manufacture of cheese, and the remaining 33 per cent for butter and powdered milk. The rise in the production of butter, powdered milk and pasteurized milk was particularly steep, especially for pasteurized milk, which rose from an average of 18 million litres in 1948-49 to 126 million in 1956-58 and 149 million in 1959. It should be noted that these increments resulted partly from the fact that less milk is used for cheese and butter, much of which is manufactured from imported cream.

The policy of subsidies to producers through pasteurization and processing plants and that of low prices to stimulate consumption are factors which have contributed to the expansion of the milk industry in Venezuela. Technological advances in dairy farming have also been of significance.

^{3/} A total of 17,633 cattle of different breeds was imported between 1945 and 1953, a figure which has increased considerably since then.

^{4/} By Decree No. 58 of 22 February 1958, a loan of 660.5 million bolívares for a five-year livestock development plan was authorized.

/As in

As in all tropical countries, but perhaps more so in Venezuela than in others, livestock productivity and yield are low, particularly with respect to meat. The reason for this is the extensive system of stock farming and fattening, often practised by primitive methods on natural pastures of little and often temporary nutritional value, and the predominance of the criollo breeds which are traditionally very low in yield.

The rate of slaughter - 7.15 per cent of the livestock population, excluding in situ slaughter - is one of the lowest in Latin America. The live weight of beef cattle slaughtered averages only 340 kg per mature animal, with a carcass meat yield of less than half that figure. These two factors are responsible for the extremely low meat yield per head of cattle, which in 1956 was estimated at 13 kg compared with 48 kg in Argentina, 36 kg in Uruguay, 20 kg in Paraguay and figures which are twice as high as those for Venezuela in many other Latin American countries.

The average output of milk per cow is low - 2 to 3 litres daily in herds of criollo or mestizo cattle with only a small percentage of improved blood - and the milking period is short. High-grade cows used on some dairy farms produce as much as 10 litres and even more of milk daily per head, but there are only very few such intensive farms.

The breeding efficiency rate barely averages 40 per cent^{5/}, half the rate achieved in properly organized breeding farms, and is the result of a low birth-rate and high mortality among young animals.

The productivity of capital and labour engaged in livestock production is low, particularly for small farms lacking in advanced techniques and for some extensive breeding activities, where marginal yields barely cover the cost of these factors and may even be negative, as is the case for marginal productivity of land in some areas. Thus, the low investment yield hampers attempts to improve production and to introduce advanced techniques.

^{5/} Ratio of calves weaned to number of breeding cows available.

/The reasons

The reasons for the low productivity and yield of Venezuelan stock farming may be summed up as follows: (a) low carrying capacity of the pastures - 2 to 4 hectares per animal - as a result of poor management and the fact that 80 per cent of the grazing area consists of natural pasture; (b) predominance of indigenous breeds of cattle which, while offering the advantage of adaptability to tropical conditions, have a low breeding efficiency rate; (c) incidence of cattle diseases and epidemics, causing high mortality and heavy financial losses; (d) low level of technique and primitive methods in the handling and management of livestock farms and ranches; (e) difficulties and shortcomings in the marketing, processing and distribution of livestock products.

As for the State-by-State breakdown of livestock distribution and type of activity, most of the pasture area is usually used for the raising of beef cattle, which constitute the majority of the livestock population. This activity - called the grass-feeding of livestock - is carried on mostly in the States of Anzoátegui, Apure, Barinas, Bolívar, Cojedes, Guárico, Monagas-Amacuro and Portuguesa, which account for approximately 70 per cent of the cattle population and perhaps over 80 per cent of the total stock farming area. While meat production is its main purpose, cheese production is often a secondary, though relatively important, activity. Stock farming is the only activity in the "pasture area" and is often practised by the very extensive "open range" method because the low quality of the pasture is not conducive to fattening. Herds tend to be large, since some 33 to 46 per cent of the farms have 1,000 to 5,000 or more head of cattle, as for instance in Apure.

Zulia and Lara, in the north-eastern part of the country, are the chief dairy cattle areas, followed by Carabobo, Aragua, Miranda and the Federal District in central Venezuela. This region represents about 11 per cent of the total livestock area and 17 per cent of the cattle population. Intensive farming is practised here on a large scale, mostly on farms with good artificial pasture, supplementary feed, special dairy-cattle breeds or mestizo cattle with a high percentage of improved blood, and proper management. Herds tend to be rather small, four-fifths of the dairy farms having less than 100 head of cattle each.

/Fattening, as

Fattening, as yet not properly organized in Venezuela, is concentrated mostly in the States of Aragua, Miranda and Falcón, but is combined with breeding and even dairy activities on mixed farms in other States. Mixed stock farming is also practised in the States of Mérida, Táchira, Trujillo and others.

In short, Venezuela has areas and regions suitable not only for all branches of the beef cattle industry but also for raising sheep and goats on a much larger scale. The country's livestock potential is being developed and long-term production prospects seem good, judging from the trend over the past few years and from the strong encouragement given to livestock development by the Government.

I. AVAILABLE RESOURCES

1. Livestock and poultry population

As in other Latin American countries, an inventory of livestock is taken at very infrequent intervals, the last one having been carried out in 1950. Adequate data are therefore lacking on the livestock population in recent years and even more so on its present breakdown by race, sex, grade, age and geographical distribution. To overcome these shortcomings, at least in part, the Ministry of Agriculture and Livestock has undertaken sample estimates and surveys, with special emphasis on cattle in view of its economic and numerical preponderance.

Venezuela would seem to have over 7 million head of cattle (or slightly more than one animal per inhabitant), 2.4 million pigs, a little over 1 million sheep and goats^{6/} and about the same number of horses, and about 12 million poultry (see table 1).

Although no data are available for estimating the annual livestock growth rate, it can be stated that the cattle population has increased at an annual rate of only some 2 per cent between 1937 and 1950, according to figures available from the respective censuses taken.^{7/} If so, the

^{6/} The goat population declined by 14 per cent between 1950 and 1956.

^{7/} According to the Ministry of Agriculture, La industria ganadera de carne en Venezuela (Caracas, 1958), the cattle population amounted to 4,305,505 head in 1937 and to 5,673,797 in 1950.

Table 1
VENEZUELA: ESTIMATED LIVESTOCK AND POULTRY POPULATION,
1950 TO 1956

(Thousands of head)

	1950	1956
Cattle	5 769	7 162
Pigs	1 454	2 362
Sheep	101	176
Goats	1 288	921
Horses	344	533
Mules	62	130
Asses	387	427
Poultry	10 368 ^{a/}	11 700

Source: 1950 census figures, 1959 edition. The 1956 figures are taken from the Ministry of Agriculture, Crop and Livestock Planning Department, Encuesta agropecuaria nacional (National Crop and Livestock Survey), September 1957.

^{a/} Chickens and pullets, cocks and hens, ducks and turkeys.

/cattle population

cattle population is expanding at a much slower pace than the human population, particularly in areas where beef cattle is raised. This fact, together with the low productivity of livestock - in terms of animals selected for slaughter - has produced an acute imbalance in the meat supply vis-à-vis growing consumer requirements. Between 1950 and 1956, the cattle population grew from 5.77 million head, according to the census, to 7.2 million, a figure based on the sampling survey; this is equivalent to an increase of approximately 26 per cent in six years, or an average annual rise of 4 per cent, which is virtually twice the rate recorded in the earlier period. A relative growth of this magnitude, such as has taken place in Venezuela during the past few years, can only be achieved in an expanding livestock industry. Its main results are apparent in the substantial increments in the production of meat and milk.^{8/}

With regard to the division of the cattle population by sex, the 1956 crop and livestock survey showed that, in round figures, 68 per cent were females and 32 per cent males. Breeding-cows - females over two years of age - constituted 46 per cent of the cattle population, a rather encouraging proportion from the point of view of reproduction.

Although the breakdown of the cattle population by activities during the past few years is not known, it may be assumed to be more or less similar to that determined by the sampling carried out in every State in 1954. Applying this percentage distribution to the estimated cattle population in 1956, the classification set out in table 2 was obtained. The proportion of breeding-cows (48.6 per cent) is clearly higher among dairy cattle than on mixed or stock-raising farms. As a result, the percentage of calves and heifers less than one year of age is also higher among dairy cattle. A comparison of the number of breeding-cows with the number of unweaned calves and heifers

^{8/} The increase in the cattle population and more particularly in meat production can be attributed in part to clandestine exports of Colombian cattle to Venezuela. It is estimated that 120,000 head of cattle were thus brought into the country in 1958.

Table 2
VENEZUELA: ESTIMATED BREAKDOWN OF CATTLE POPULATION BY LIVESTOCK
ACTIVITY, 1956

Livestock	Beef cattle farms a/		Dairy cattle b/		Mixed livestock c/	
	Thousands of head	Percent-age	Thousands of head	Percent-age	Thousands of head	Percent-age
Breeding cows d/	2 286	45.6	592	48.6	405	43.5
Yearling calves and heifers e/	878	17.5	242	19.8	178	19.1
Young bulls and steers f/	525	10.5	118	9.7	109	11.7
Heifers g/	628	12.5	145	11.9	144	15.5
Steers and bulls h/	564	11.3	105	8.6	76	8.2
Stud bulls	132	2.6	16	1.3	19	2.0
<u>Total</u>	<u>5 013</u>	<u>100.0</u>	<u>1 218</u>	<u>100.0</u>	<u>931</u>	<u>100.0</u>

Source: La Industria Ganadera de carne en Venezuela, 1958, tables V-2 and B-8, and 1956 Crop and Livestock Survey.

a/ Anzoátegui, Apure, Barinas, Bolívar, Cojedes, Guárico, Monagas-Amacuro and Portuguesa.

b/ Aragua, Carabobo, Lara, Miranda and Zulia.

c/ Federal District, Falcón, Mérida, Nueva Esparta, Sucre, Táchira, Trujillo, Yaracuy and Amazonas.

d/ Including heifers over 2 years of age.

e/ Steers and heifers up to 1 year of age.

f/ Males between 1 and 2 years of age.

g/ Heifers between 1 and 2 years of age.

h/ Males over 2 years of age.

/indicates that

indicates that the efficiency rate of reproduction is very low in the three types of cattle farming, amounting to only 38, 41 and 42 per cent in beef cattle farms, dairy farms and mixed farms respectively. The low birth rate and high mortality rate in young animals, as will be seen later, is responsible for the poor efficiency. Mixed farms have a higher proportion of males and females one to two years of age, because cattle-rearing^{9/} is often not practised in breeding-farms and heifers are generally reared only on dairy-farms. Cattle-rearing is at times a specialized activity which is included here in the mixed group. The low percentage of steers (usually 10 per cent) indicates that the rate of slaughter and the annual production of cattle for slaughter are also low, since most of the cattle slaughtered consists of steers over 3 years of age. The proportion of steers is a little higher among beef cattle, although these include young steers not yet ready for slaughter.

While no completely specialized cattle production is to be found, either for meat or milk,^{10/} States can be grouped according to the main type of cattle produced. Thus for instance, it is estimated that at least 70 per cent of the cattle population is concentrated in the States of Anzoátegui, Apure, Barinas, Bolívar, Cojedes, Guárico, Monagas-Amacuro and Portuguesa, where the chief activity is the breeding of beef cattle. The States of Aragua, Carabobo, Lara, Miranda and Zulia account for 17 per cent of the animal population, chiefly dairy cattle, except for Aragua and Miranda where fattening is also practised. The remainder of the cattle population (13 per cent) is apparently divided among the Federal District, the States of Falcón, Mérida, Nueva Esparta, Sucre, Táchira, Trujillo and Yaracuy, and the Territory of Amazonas, which are chiefly engaged in mixed stock farming.

^{9/} Raising of young bulls and steers or calves and heifers of 1 to 2 years of age.

^{10/} Most farms breed beef cattle or practise mixed stock farming, there being relatively few farms specializing in milk production.

The chief livestock States are Apure, with nearly one fifth of the total cattle population, Guárico and Zulia, with nearly one fourth, and Bolívar, Barinas and Anzoátegui, with about one million head of cattle each. These six States seem to account for two thirds of the cattle population, the remaining one third being divided among the rest of the country.

By using the conversion or equivalence factors mentioned in table 3, the total livestock population is reduced to standard units, expressed in terms of cattle. Thus, the total amounts to some 8.4 million head.

2. Pasture area and livestock zones

A comparison of the pasture area, as given in the 1950 inventory and the 1956 survey, shows that it rose from 13.8 million hectares in 1950 to 17.8 million in 1956, an increase of 13 per cent (see table 4). Relatively speaking, the most important change occurred in artificial pastures, which rose from 12 per cent of the total area in 1950 to 15 per cent in 1956. In spite of this favourable change, however, the proportion of natural pasture is still very high and this is reflected in the low carrying capacity usually found in most breeding areas where extensive grazing methods are practised, where from 2 to 4 hectares of grassland are required per head of cattle. In dairy farming areas where less extensive methods are used, the proportion of artificial pasture and its carrying capacity are much higher, as for instance in the States of Zulia, Lara, Aragua, Carabobo, Miranda, Falcón, Táchira, Trujillo and Yaracuy, where the average ratio of cattle to area is one head of cattle to one unit of area. It should be noted, however, that this more favourable ratio must be attributed not only to the better quality of the grasslands but also to more efficient ranch management and, in general, to better animal feeding methods.

For the country as a whole, the proportion of the total area under grass is 2.5 hectares per head of cattle. However, the actual forage area cannot be determined unless the natural and artificial grasslands are converted to standard units. Assuming that, as a rule,

/Table 3

Table 3

VENEZUELA: LIVESTOCK POPULATION IN STANDARD UNITS, 1956

Livestock	Thousands of simple units	Equivalence	Thousands of standard units
Cattle	7 162	1.000	7 162
Pigs	2 362 ^{a/}	0.200	189
Sheep	176	0.200	35
Goats	921	0.125	115
Horses	533	1.200	639
Mules	130	1.200	156
Asses	427	0.333	142
Standard units			<u>8 438</u>

^{a/} Conversion of only 40 per cent of the livestock population, corresponding to the proportion in pasture.

Table 4

VENEZUELA: AREA USED FOR LIVESTOCK, 1950 AND 1956

	1950		1956	
	Thousands of hectares	Percentage	Thousands of hectares	Percentage
Artificial pasture	1 660	12.0	2 604	14.7
Natural pasture	12 164	88.0	15 165	85.3
Total	<u>13 824</u>	<u>100.0</u>	<u>17 769</u>	<u>100.0</u>

Source: 1950 crop and livestock inventory and 1956 crop and livestock survey.

/1 hectare

1 hectare of artificial pasture has a carrying capacity 2.5 times greater than the perennial and seasonal natural grasslands combined, the total forage area would be 4.34 million hectares of grassland in terms of top-grade artificial pasture.

Thus, the existing ratio between standard livestock units and units of area under grass having been established, total livestock density would be 1.9 head of cattle per hectare, equivalent to 0.51 hectare per standard livestock unit (see table 5).

The most important area from the point of view of the concentration of livestock and volume of meat production is the so-called "grazing area" in which cattle-raising is the chief activity. Milk production plays a secondary role and the milk is used mainly for manufacturing cheese. In addition, it is the largest livestock area^{11/} where the "open range" type of extensive farming is practised on natural grasslands of little nutritional value, very often of the seasonal type, technologically under-developed in respect of disease control, breed improvement and management. These shortcomings are primarily related to the large size of the farms and, in some cases, to the extensive farming methods used. In the States of Apure, Barinas, Bolívar, Cojedes and Monagas, for instance, from 33 to 46 per cent of the cattle are on farms which have herds of from 1,001 to 5,000 head each. In Apure, 20 per cent of the cattle is on even larger farms. As will be seen later, the livestock yields of the grazing area are rather low.

The other important livestock zone is the dairy farming region, with 11 per cent of the livestock area and 17 per cent of the cattle population in the five major dairy farming States.^{12/} Here the quality of the soil, the grassland and the cattle is higher and the level of technique more advanced. Zulia and Lara are the chief milk-producing States, the former chiefly because of favourable natural conditions^{13/} and the latter mainly because of improved breeding and farm management.

^{11/} Slightly over 80 per cent of the total livestock area, according to the 1950 inventory.

^{12/} Aragua, Carabobo, Lara, Miranda and Zulia.

^{13/} Good soil quality, abundant rainfall and good pasture.

Table 5
VENEZUELA: PASTURE AREA AND LIVESTOCK DENSITY, 1956

	Thousands of hectares	Millions of standard units
<u>Livestock area</u>	<u>17 762</u>	
Artificial pasture	2 604	
Natural pasture	15 165	
Population in standard units <u>a/</u>		8 438
Density (head per hectare)		0.48
Hectares per head	2.1	
<u>Pasture area b/</u>	<u>4 335</u>	
Artificial pasture	1 302	
Natural pasture	3 033	
Population in standard units <u>a/</u>		8 438
Livestock population per hectare of pasture		1.94
Hectares per head	0.51	

Source: Tables 3 and 4.

a/ In terms of beef cattle, including light cattle.

b/ In terms of top-grade permanent artificial pasture and on the basis of the following preliminary equivalences: 0.500 for artificial pasture of either category and 0.200 for perennial and seasonal natural pasture.

/Next in

Next in importance is the dairy farming area in the central zone of the country, formed by the States of Carabobo, Aragua and Miranda. The special conditions prevailing in the "dairy farming zone" and the smaller size of the farms naturally permit the use of more intensive farming methods. Thus, for instance, in Carabobo and Aragua 88 per cent and 91 per cent of the stock farms, respectively, owned less than 100 head of cattle each in 1952, according to data obtained during the foot-and-mouth disease campaign undertaken by the Livestock Department.

Fattening is mainly carried out in Aragua, Miranda and Falcón although rearing and fattening are also combined in other States such as Anzoátegui, Bolívar, Guárico, Monagas-Amacuro, Portuguesa and Táchira.

II. CHARACTERISTICS OF PRODUCTION

1. Livestock production

(a) Meat production

Table 6 shows that the slaughter of livestock increased virtually without interruption between 1946 and 1958. The slaughter of beef cattle rose to an annual average of 575,000 head in 1956-58 and to 673,000 head in 1959, an increase of 61 and 81 per cent respectively over 1947-49 when 357,000 head of cattle were slaughtered. The highest rates have been recorded since 1956. The annual average number of pigs slaughtered in 1956-58 was 535,000, a 56 per cent more than in the base three-year period. The sharpest rise in the slaughter of pigs was registered in the last two years of the period under review. The slaughter of beef cattle and goats was 91 and 103 per cent higher in 1956-58, but declined sharply in 1959. The estimated number of poultry killed in 1959 was slightly over ten times the 1950 figure.

As a result of the increase in the number of animals slaughtered, the total production of meat rose from 78,000 tons in 1947-49 to an annual average of 129,000 tons in 1956-58 and 158,000 tons in 1959,^{14/} which is equivalent to an annual average increase of 67 per cent in the three-year period 1956-58 and of 204 per cent in 1959.

Production by species is as follows:

	<u>Cattle</u>	<u>Pigs</u>	<u>Sheep</u>	<u>Goats</u>	<u>Poultry</u>
1947-49	78.4	18.2	0.5	0.9	1.9
1950-52	78.5	17.7	0.4	0.5	2.8
1953-55	75.2	17.6	0.4	0.7	6.1
1956-58	75.0	16.5	0.4	0.8	7.3
1959	73.6	15.5	0.3	0.5	10.1

Some changes in the breakdown of production by species may be noted. Beef cattle, although output has declined, is still the biggest item, accounting for some three-fourths of the total and four-fifths of the red meat total. Pork is next, with about 18 per cent of the total volume,

^{14/} Provisional figure.

Table 6

VENEZUELA: SLAUGHTER OF LIVESTOCK AND POULTRY BY SPECIES, 1946-1959

(Registered slaughter, thousands of head)

	Cattle		Pigs		Sheep		Goats		Poultry	
	Number	Index	Number	Index	Number	Index	Number	Index	Number	Index
1946	363.0	101.8	311.7	90.6	22.9	99.6	43.1	91.3	...	..
1947	356.8	100.1	293.2	85.2	24.1	104.8	51.0	108.0	...	..
1948	345.0	96.7	344.0	100.0	19.0	82.6	28.5	60.4	...	..
1949	367.8	103.1	394.9	114.8	26.0	113.0	62.2	131.8	...	..
<u>1947-49</u>	<u>356.6</u>	<u>100.0</u>	<u>344.0</u>	<u>100.0</u>	<u>23.0</u>	<u>100.0</u>	<u>47.2</u>	<u>100.0</u>	-	-
1950	405.6	113.7	403.4	117.3	30.3	131.7	64.8	137.3	1 520	100.0
1951	443.6	124.4	374.3	108.8	26.0	113.0	50.6	107.2	2 080	136.8
1952	459.5	128.8	395.7	115.0	45.1	196.1	49.7	105.3	3 920	258.0
<u>1950-52</u>	<u>436.2</u>	<u>122.3</u>	<u>391.2</u>	<u>113.7</u>	<u>33.8</u>	<u>146.9</u>	<u>55.0</u>	<u>116.5</u>	<u>2 510</u>	<u>165.1</u>
1953	483.7	135.6	433.2	125.9	42.6	185.2	54.6	115.7	5 200	342.1
1954	474.0	132.9	478.3	139.0	41.0	178.2	63.8	135.2	6 880	452.6
1955	495.0	138.8	444.8	129.3	38.9	169.1	89.7	190.0	6 960	457.9
<u>1953-55</u>	<u>484.2</u>	<u>135.8</u>	<u>452.1</u>	<u>131.4</u>	<u>40.8</u>	<u>177.5</u>	<u>69.3</u>	<u>146.8</u>	<u>6 346</u>	<u>418.8</u>
1956	508.3	142.5	468.4	136.1	38.7	168.3	91.1	193.0	7 680	505.3
1957	571.0	160.1	555.1	161.4	47.0	204.3	101.6	215.2	9 120	600.0
1958	645.0	180.9	582.2	169.2	46.5	202.1	94.5	200.2	11 360	747.4
<u>1956-58</u>	<u>574.7</u>	<u>161.2</u>	<u>535.2</u>	<u>155.6</u>	<u>44.0</u>	<u>191.3</u>	<u>96.0</u>	<u>203.4</u>	<u>9 387</u>	<u>617.6</u>
1959	672.9	188.7	620.3	180.3	27.5	119.6	75.2	159.3	16 080	1 058.0

Source: Ministry of Agriculture, Crop and Livestock Planning Department, Economic Research Division, Anuario Estadístico, 1954 and Memoria de 1959 of the Central Bank of Venezuela.

/Table 7

Table 7

VENEZUELA: PRODUCTION OF RED MEAT AND POULTRY, 1947-49 TO 1959

(Thousands of tons)

Year	Cattle	Pigs	Sheep	Goats	Poultry	Total	
						Number	Index
<u>1947-49</u>	<u>60.8</u>	<u>14.1</u>	<u>0.37</u>	<u>0.77</u>	<u>1.50a/</u>	<u>77.5a/</u>	<u>100.0</u>
1950	70.8	17.0	0.42	0.46	0.52	90.1	116.2
1951	70.7	15.4	0.40	0.44	2.08	89.1	115.0
1952	71.4	15.5	0.42	0.52	3.92	91.7	118.3
<u>1950-52</u>	<u>71.0</u>	<u>16.0</u>	<u>0.41</u>	<u>0.47</u>	<u>2.51</u>	<u>90.4</u>	<u>116.6</u>
1953	76.2	18.7	0.39	0.64	5.20	101.1	130.4
1954	77.7	18.6	0.47	0.66	6.88	104.3	134.6
1955	82.2	18.0	0.57	0.86	6.96	108.6	140.1
<u>1953-55</u>	<u>78.7</u>	<u>18.4</u>	<u>0.48</u>	<u>0.72</u>	<u>6.33</u>	<u>104.6</u>	<u>135.0</u>
1956	85.0	18.8	0.57	0.93	7.68	113.0	145.8
1957	95.5	21.4	0.50	1.10	9.12	127.7	164.8
1958	110.3	23.6	0.47	0.94	11.36	146.1	188.5
<u>1956-58</u>	<u>96.9</u>	<u>21.3</u>	<u>0.51</u>	<u>0.99</u>	<u>9.39</u>	<u>129.1</u>	<u>166.6</u>
1959	116.3	24.5	0.40	0.84	16.08	158.0	209.9

Source: Ministry of Agriculture, Crop and Livestock Planning Department for the base period and memoranda 1959 of the Central Bank of Venezuela for the other years.

a/ Figures subject to revision.

/followed by

followed by goat meat and mutton, the relative percentage of which has also declined and amounts to a combined total of only about 1 per cent. The production of poultry meat has climbed steeply over the past few years. Actual meat production for the three smaller species of livestock is much greater because a considerable portion of the total slaughtered is not officially registered. While in situ slaughter of beef cattle is also common, it is not believed to exceed 10 per cent of the number sent to the abattoirs.

A study of changes in per capita meat production during the past twenty years shows that output has risen sharply only since 1956. In fact, the average annual per capita production was 19.4 kg in 1956-58, an increment of 3.2 kg over the three-year period 1947-49. Stated in index figures, this corresponds to a rise in per capita output of 20 per cent compared with the base three-year period.^{15/} As may be seen from table 8, the rate of per capita production rose only slightly (from 16.0 to 16.9 kg) between 1939-41 and 1953-55.

Venezuela is one of the few countries which in recent years has achieved so substantial a relative growth in the output of livestock for slaughter, as opposed to the decline in per capita consumption registered in many Latin American countries. The following are some of the factors which were responsible for this improvement:

(i) Livestock imports. Venezuela has led all other Latin American countries in livestock imports, at least during the past fifteen years. With respect to beef cattle, for instance, total imports of specimens for breed improvement amounted to 7,823 head between 1945 and 1953, four-fifths of which were females. Of all these imports 93 per cent were represented by Zebu cattle, either pure or mestizo. In subsequent years, imports of beef cattle breeds were stepped up, 9,443 head of Zebu cattle being imported in 1958.^{16/} It need hardly be said that results of these imports were very favourable, not only as a means of

^{15/} Per capita production in 1958 expanded only by an additional 5 kg compared with the figure for 1947-49.

^{16/} Memoria y Cuenta del Ministro de Agricultura y Cría al Congreso Nacional, 1959, volume I.

Table 8

VENEZUELA: PER CAPITA RED MEAT PRODUCTION, 1939-41 TO 1959

(Annual averages)

Period	Kg per capita	Index
1939-41	16.0	98.0
1945-46	16.8	103.7
1947-49	16.2	100.0
1950-52	16.8	103.7
1953-55	16.9	104.3
1956-58	19.4	119.8
1959	21.8	134.6

Source: As for table 7.

/promoting livestock

promoting livestock development but also as a method of speeding up the production of early-maturing livestock and animals with a higher meat yield.

(ii) Livestock credit. The credit facilities recently granted by the Government will undoubtedly have a decisive effect in promoting livestock development. Credit for the livestock industry has not only been more flexible and popular in the past few years but has increased considerably in volume, particularly through the Banco Agrícola y Pecuario. Particular importance should be attached to Decree No. 58 of 22 February 1958, which established a five-year livestock promotion plan involving a total investment of 660.5 million bolívares for the development of 2,500 stock farms,^{17/} mainly in the form of grassland improvement, imports of improved specimens, construction of fences and provision of water supplies. This plan is intended to expedite output of beef and pork. For the first time emphasis is placed, under this credit-backed livestock development plan, on the channelling and supervision of investment, the capacity of the applicants for hard work and the possibilities of the farms to pay. The fact that the technical and financial direction of plan has been entrusted to the Ministry of Agriculture and Livestock and the Bank of Agriculture, respectively, augurs well for the future. This marked credit expansion, coupled with recent legislation on land reform, will act as a strong incentive to livestock production and related activities.

(iii) Health control. While diseases still take a heavy toll of livestock, the veterinary services of the National Livestock Department have intensified their activities in recent years, particularly in order to improve and accelerate campaigns against foot-and-mouth disease,

^{17/} The development plan for beef cattle and pigs covers the whole country which, for this purpose, is divided into 24 livestock units, as follows:

1 Coro	7 Arismendi	13 Valle de Pascua	19 Ciudad Bolívar
2 Churuguara	8 Guanare	14 Zaraza	20 Maturín
3 Barquisimeto	9 San Carlos	15 Barcelona	21 Barrancas
4 San Cristóbal	10 Elorza	16 Aragua de Barcelona	22 Upata
5 Guardualito	11 San Fernando	17 Pariaguán	23 Maracaibo
6 Barinas	12 Calabozo	18 Caicara de Orinoco	24 Caracas

/epizootic abortion

epizootic abortion and other ailments which are responsibility not only for high mortality but also for considerable decreases in animal production. With respect to the foot-and-mouth disease campaign, for example, mass vaccinations in 1958 resulted in a sharp drop in the incidence of the disease, only 39 outbreaks being registered in 1958 as against 103 in 1957.

(b) Production of milk and milk products

Total milk production in Venezuela amounts to some 400,000 tons, broken down approximately as follows:

	<u>Percentage</u>
Pasteurized milk	37
Raw milk	8
Cheese	22
Butter	18
Powdered milk	15

This means that virtually half the output is consumed in the form of fluid milk, slightly over half being used for the manufacture of cheese, butter and powdered milk (see table 9).

While complete information is not available for the years covered in table 9, it will nevertheless be seen that total production doubled between 1950 and 1959. This is equivalent to an average annual increase of 8 per cent, which is much higher than the population growth rate. Dairy cattle production has also risen substantially; the annual average for pasteurized milk climbed from some 18 million litres in 1948-49 to 126 million litres in 1956-58, a rise of 600 per cent. During the same period, the manufacture of powdered milk and butter expanded by 171 per cent and 86 per cent respectively. Cheese output, which hitherto was the main activity, declined both in absolute and relative terms, its volume dropping from 15,000 tons to 14,000 tons between 1950-52 and 1956-57. In 1950, more than half the total output of milk was used for the manufacture of cheese as against only one-third in recent years.

./Table 9

Table 9

VENEZUELA: ESTIMATED PRODUCTION OF MILK AND MILK PRODUCTS, 1948-59

Year	Raw	Pasteurized	Powder	Butter	Cheese	Total (thousands of litres)
	Thousands of litres		Tons			
1948	23 420	15 727	1 651	1 721	...	...
1949	24 140	19 646	1 986	1 853	...	...
<u>1948-49</u>	<u>23 780</u>	<u>17 687</u>	<u>1 818</u>	<u>1 792</u>	...	...
1950	24 869	25 565	1 536	1 560	13 074	198 434
1951	25 623	35 847	1 737	1 318	14 447	217 301
1952	26 399	54 502	2 458	1 301	15 830	253 227
<u>1950-52</u>	<u>26 399</u>	<u>38 638</u>	<u>1 910</u>	<u>1 393</u>	<u>14 450</u>	<u>222 987</u>
1953	27 199	70 708	3 380	1 522	15 990	283 313
1954	28 023	84 476	3 750	1 992	16 160	311 626
1955	28 890	96 583	3 787	2 649	16 200	338 356
<u>1953-55</u>	<u>28 040</u>	<u>83 707</u>	<u>3 639</u>	<u>2 054</u>	<u>16 117</u>	<u>311 098</u>
1956	29 765	111 926	4 101	2 244	15 288	341 697
1957	30 670	127 114	4 487	2 498	12 560	344 130
1958	31 600	139 264	6 256	3 196	14 200	397 232
<u>1956-58</u>	<u>30 675</u>	<u>126 101</u>	<u>4 931</u>	<u>2 626</u>	<u>14 015</u>	<u>361 020</u>
1959	32 545	148 959	7 360	3 599	11 000	400 302

Source: Raw milk: computed on the basis of per capita consumption of 5 litres, according to La industria ganadera en Venezuela (FAO/EPTA, N° 406, 1955); pasteurized and powdered milk: Department of Statistics; butter and cheese: Crop and Livestock Planning Department (Ministry of Agriculture) and Memoria 1959 of the Central Bank of Venezuela. Total milk production was computed on the basis of the following conversion factors: powdered milk, 8.0; butter, 20.0 and cheese 8.0.

a/ For direct consumption.

b/ Including imported butter. However, its fluid milk equivalent is not included in the total milk production.

c/ In terms of fluid milk.

/Mention should

Mention should also be made here of the factors and measures which have promoted and continue to promote the production of milk and milk products. First, there is the policy of granting subsidies for milk produced for pasteurization,^{18/} introduced in 1948 by the Ministry of Development. Although Venezuela is a large-scale importer of dairy products, a protectionist policy has partly curtailed competition from foreign milk producers whose prices have been lower than those of domestically-produced milk, import duties and the quota system^{19/} applied to powdered milk have indeed raised domestic prices for these staple foodstuffs but, had this not been done, milk production would have stagnated. The rate of duty imposed has not proved completely effective, since foreign competition is still active, as may be seen from the fact that the fluid milk equivalent of imported products is greater than the total volume of production. There is no doubt that, in so far as milk products are concerned, the trade treaty with the United States has left the door open to foreign competition. The size of the quota restricts domestic production of powdered milk to some degree, and imports under the quota system are exempt from import duties, a fact which is reflected in a tendency for retail prices to rise.^{20/} Generally speaking, there are no customs restrictions in Venezuela, quantitative or otherwise, which can be considered to offer any strong protection to domestic production.

National production of processed milk and butter has been very much encouraged since 1958 by the extension - authorized in that period - of the subsidies to milk used for the manufacture of these products.^{21/}

^{18/} The subsidy amounts to 0.15 céntimos per litre of pasteurized milk sold.

^{19/} Nominal purchase by importers of one unit of domestic production per four imported units.

^{20/} The importer raises the price of imported milk in order to compensate for losses arising out of his having to pay more for the domestic product than the fixed wholesale price.

^{21/} From 1957 to 1959, milk produced for the manufacture of butter increased, in round figures, from 50,000 to 72,000 litres, and milk for sale in tins from 36,000 to 59,000 litres. (Memoria of the Central Bank of Venezuela for 1959, table 3-16).

The importation of improved specimens of specialized breeds is another factor which has contributed to the development of milk production during the past ten or fifteen years. Table 10 shows that the main breed of cattle imported was the Holstein, followed by the Brown Swiss and Jersey. Most of the animals were cows, as indicated in the table. Average annual imports amounted to 1,090 head in 1945-53, compared with 1,525 in 1958.

In addition, milk production was also accelerated by the Ministry of Agriculture's health campaigns against epizootic abortion, bovine tuberculosis and foot-and-mouth disease. These campaigns have been intensified in recent years, as have artificial insemination services and the registration of output.

2. Production trends

(a) Meat

Figure I shows meat production developments in Venezuela during the past 20 years and indicates the annual changes - in index figures - that have taken place, and the historical trends of production and of population growth. It is obvious that, except for a few years, production has risen steadily, albeit at an uneven rate which was particularly high during the past few years, the major increments being recorded in the periods 1944-46, 1949-50 and 1954-58.^{22/} Another important fact is that meat output has been expanding more rapidly than the population and that, as a result, per capita production has risen. Thus, between 1939 and 1952 the production of red meat grew at an annual compound rate of 3.8 per cent, whereas the rate for the population was 3.0 per cent. While the population growth rate was higher between 1953 and 1958, meat output climbed to the appreciably high figure of 8.8 per cent, largely because of the increments in 1957 and 1958.^{23/} In 1957, the rate of slaughter for the four main

^{22/} The higher rate of production during the past few years is apparently attributable in part to the effect of clandestine exports of Colombian cattle.

^{23/} The slaughter of cattle and pigs continued to increase in 1959, as a result of which total output of red meat rose to 142,000 tons.

Table 10
VENEZUELA: IMPORTS OF HIGH-GRADE CATTLE, 1945-53 AND 1958

(Units)

Imported breeds	1945-53			1958		
	Bulls	Cows	Total	Bulls	Cows	Total
Holstein	307	5 645	5 952	29	1 064	1 093
Brown swiss	430	1 400	1 830	48	201	249
Jersey	237	1 628	1 865	4	24	28
Others	22	141	163	5	150	155
<u>Total</u>	<u>996</u>	<u>8 814</u>	<u>9 810</u>	<u>86</u>	<u>1 439</u>	<u>1 525</u>

Source: La industria ganadera en Venezuela, op. cit., Ministry of Agriculture publication, 1958, and Memoria y Cuenta del Ministro de Agricultura y Cría sobre el año 1958, volume I.

/species of

species of livestock was high, and in 1958 the rise in production was due to the greater number of beef cattle slaughtered and the higher yield of carcass meat per animal.

Thus, not only total but also per capita production of meat has increased, substantially, raising the per capita consumption rate.

(b) Milk

Milk output has also increased noticeably and steadily during the past ten years, particularly in 1952 and 1958, for the reasons stated earlier, although there was a slight falling-off in the three-year period 1955-57. As shown by the indices in table 11, the rate of production rose more rapidly for milk than for meat, milk output in 1958 being 73 per cent higher than in 1950, compared with an increase of about 52 per cent in meat production.

3. Yields and productivity

The information available is not sufficient for a thorough analysis of the intensity of utilization of the various factors involved in livestock production, or of their yields or physical productivity. This is particularly true of capital and labour, in respect of which producers generally keep only a few haphazard records. At all events, certain data justify the statement that livestock productivity is exceptionally low, especially on farms where extensive methods are practised. Moreover, this weakness is one which affects the livestock economy in almost all underdeveloped countries. It should be noted that the aggregate effect of poor yields makes itself felt in very low returns on investment, which is well known to be particularly heavy in the livestock sector, above all in relation to land and animals.

(a) Rate of slaughter

It is difficult to indicate changes in production for slaughter on the basis of livestock inventories, as fairly complete statistics in this respect are available only for 1950 and 1956. In these two years the rate of slaughter would seem to have been 7.15 and 7.10 per cent of cattle inventories;^{24/} that is, no improvement in the rate of slaughter was

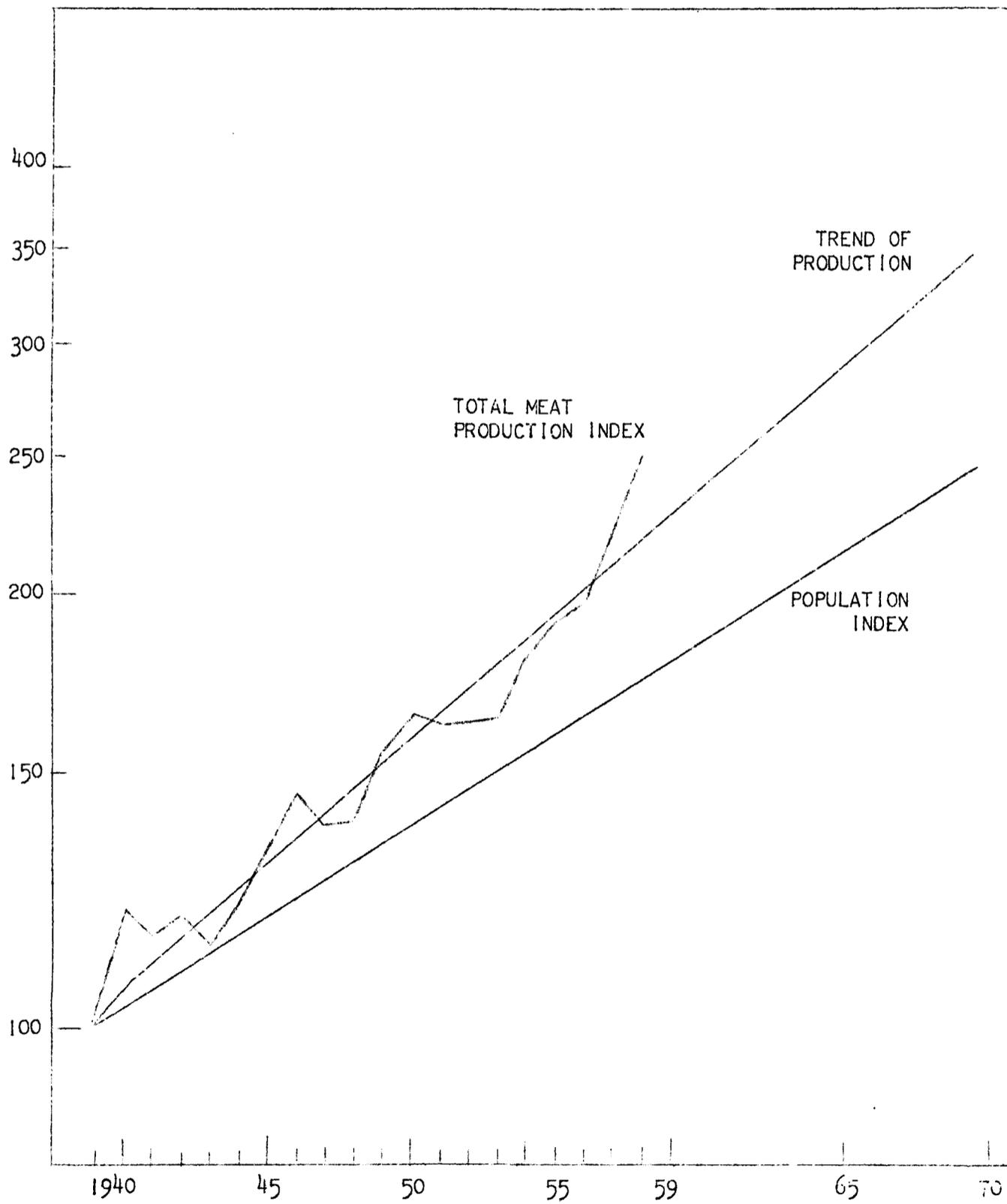
^{24/} Excluding in situ slaughter, not recorded in statistics but estimated at 10 per cent of registered slaughter, which would bring real slaughter rates up to 7.86 in 1950 and 7.81 in 1956.

/FIGURE I

FIGURE 1

VENEZUELA : TOTAL MEAT PRODUCTION AND POPULATION
GROWTH RATE INDICES

SEMI-LOGARITHMIC SCALE



/Table 11

Table 11
VENEZUELA: LIVESTOCK PRODUCTION INDICES, 1950-59

(1950 = 100)

Year	Red meat	Milk
1950	100.0	100.0
1951	97.6	109.5
1952	97.8	127.7
1953	98.9	142.8
1954	109.2	157.0
1955	115.5	170.5
1956	119.8	172.2
1957	136.0	173.4
1958	151.8	200.1
1959	186.8	201.7

Source: Tables 7 and 9.

/registered. It

registered. It may be asserted a priori that the rate of cattle slaughter did rise in 1957 and 1958, since had it remained the same slaughter statistics for the latter year would imply the existence of a cattle population of about 9 million head, as against 7.16 million in 1956, which would mean a 25-per cent increment in two years. As so great an expansion is unlikely to have been achieved, it may be concluded that the increase in the volume of cattle slaughtered is more probably the effect of a higher slaughter rate and of clandestine imports. The tendency observable in the last few years to slaughter younger cattle than used to be the case would seem to confirm the foregoing statement. Given better feeding systems and breeds or types of cattle that are quicker to mature, the rate of slaughter might of course be further raised, in as much as fat stock could be brought at a yet earlier age into satisfactory condition for the slaughterhouse, to which they are still sent somewhat belatedly (at 4 to 5 years of age, on an average).

For pigs, sheep and goats the rate of slaughter is equally low, since registered slaughter represents barely one fifth of inventories, whereas in countries whose livestock activities have attained a more advanced stage of development, stocks of these species are renewed from one year to the next. Even on the assumption that clandestine slaughter figures are high, the rate of slaughter is unlikely to exceed 50 per cent, owing to feeding and fattening problems.

(b) Meat yields

Another indication of the low degree of efficiency registered in meat production is afforded by the poor yields of the cattle that reach the slaughterhouses. Although the average live weight of beef cattle (340 kilogrammes) cannot be considered low in absolute terms, what matters is the degree of fattening and the age of slaughter, and such a weight in the case of full-grown animals suggests that there is something wrong with the fattening practices adopted. Many animals do in fact reach the slaughterhouses in a frankly undesirable condition from this standpoint. Moreover, the carcass yield amounts to barely 50 per cent in bulls and steers and rather less in cows, the weighted average being 47 per cent. In short, so low a rate of slaughter and so poor a meat yield per head reduce meat production per head of the cattle population to minimal levels, as is

/shown by

shown by the figure estimated for 1956 - 13 kilogrammes -, ^{25/} which is definitely unfavourable in comparison with 48 kilogrammes in the case of Argentina, 36 in that of Uruguay and 20 in that of Paraguay.

It is important to note that average meat yields per head vary considerably from one State to another, and even, in the same part of the country, from one year to the next. This is naturally due to differences in types of cattle, proportions of male and female animals slaughtered and kinds of pasture, as well as to climatic factors and to economic reasons which induce cattle fatteners to hasten or delay the sale of the animals in their hands.

The following were the variations in average annual beef yields for the country as a whole:

<u>Year or period</u>	<u>Kilogrammes</u>
1945-47	172
1948-50	173
1951-53	155
1954	161
1955	166
1956	167
1957	167
1958	171
1959	173

It can be seen from the foregoing statistics that the average yield of carcass meat per animal slaughtered rose significantly from 1955 onwards. The greater expansion of total and per capita meat production in recent years must be attributed not only to the increase in the number of cattle slaughtered but also to the improvement in their utilizable weight.

As regards disparities between yields by areas, suffice it to note that the highest figures are registered in the Federal District, together with the States of Carabobo, Lara, Miranda, Táchira and Zulia, mainly

^{25/} On the assumption that clandestine slaughter represents 10 per cent and that the average yield of carcass meat is 170 kilogrammes.

/owing to

owing to the predominance of slaughter of males and of animals whose live weight is greater; at the other extreme are found the States of Apure, Barinas, Bolívar, Cojedes, Guárico and Monagas, where yields fall below 150 kilogrammes, because supplies are based mainly on the slaughter of cows, as happens in all meat-producing areas which send their young bulls and steers to the more densely populated centres.

(c) Milk yields

There are also appreciable differences in milk yields per cow, resulting from the kind of cattle prevalent, the quality of the soil and of the available fodder, climate, and management and administration practices. In the milk-producing areas the daily yield per cow varies from upwards of 2 litres in dairy farms based on criollo herds to as much as 12 litres in farms possessing specialized breeds of foreign origin. In the south of the State of Zulia, the soil and climate are especially favourable for milk production, but the average yield per cow/day is only 4 to 5 litres, owing to the preponderance of criollo and low-yielding mestizo cattle. In the State of Lara and in the central zone of Venezuela natural conditions are less propitious, on account of the shortage of good fodder, due in its turn to the low rainfall, but yields are much higher because the farmers work with improved dairy breeds (Holstein, Brown Swiss and Jerseys, in particular) and devote more attention to the management and supplementary feeding of cows during the lactation period.

(d) Natality rate

A series of factors are responsible for a level of reproductive efficiency which must be considered really low, especially on extensive farms in the tropics. As a general rule, the natality figure amounts to only 50 per cent of the cows that have entered upon the reproductive period, which means that, if the death rate for nursing calves - estimated at 10 per cent - is discounted, the reproductive efficiency rate would seem to be 40 per cent, or half that achieved on farms run entirely on the basis of modern breeding techniques. Unquestionably, this is due not only to the extensive farming systems current in Venezuela and the practice of grazing the cattle "out on the range" - which hinders the supervision and

/management of

management of breeding stock -, but also in large measure to protein and mineral deficiencies, to the incidence of diseases that adversely affect fertility and to the shortage of good stud bulls.

(e) Productivity of other factors

The productivity of the other factors of livestock production - land, capital and labour - varies considerably from one area to another, but on an average is strikingly low, especially on small and technologically under-developed farms. Thus, for example, in stock-breeding activities, the marginal yields of labour and capital barely suffice to cover the cost of the factors; the productivity of capital is sometimes much less than long-term interest rates on cash deposits and, of course, far below the rate of interest on capital invested in crop farming. Investment in improvements and the introduction of more advanced techniques is remunerative only in the case of relatively large farms, which means that for small producers there is no incentive to take such steps. As for the land factor, its marginal productivity is negative.^{26/} It is worth noting that productivity is much higher on farms where livestock activities are supplemented by crop cultivation, as a logical result of the more efficient distribution and utilization of factors that can be achieved through the integration of crop and stock farming, or combined production.

^{26/} On farms in the States of Barinas, Monagas and Guárico Occidental, according to research conducted by the Crop and Livestock Programming Department of the Ministry of Agriculture.

III. FACTORS LIMITING PRODUCTION

The obstacles to the development of stock farming in Venezuela derive from a wide variety of factors. The majority consist in defective production techniques, but others, like the unsatisfactory marketing of livestock commodities, are independent of producers' decisions and unconnected with the production process.

1. Livestock diseases

The heavy incidence of diseases which cause livestock mortality and losses in Venezuela is imputable not only to the tropical conditions in which stock farming is carried on in the Llanos and along the littoral, but also, and above all, to the fact that health control measures are not adopted everywhere as current practices. Through the Veterinary Unit of the National Department of Livestock Production and other technical services, an increasingly intensive campaign is being waged to prevent disease and eliminate the commonest pathological agents which cause the severest losses.^{27/} The results achieved are encouraging, but the morbidity indices registered at present are still fairly high (see tables 12 and 13 below).

The death rate is approximately calculated at 12-15 per cent of nursing calves and 5 per cent of older animals. In rangeland areas, average mortality indices rise as high as from 25 to 30 per cent in calves and from 6 to 7 per cent in adult cattle.^{28/}

(a) Infectious and contagious diseases

Although the economic losses caused by infectious diseases have not been ascertained, they are known to be responsible for high mortality figures and for slowing up production of meat, milk, wool and other livestock commodities.

^{27/} In 1958 the staff of the Sanitary Protection Unit of the Ministry of Agriculture gave preventive treatment in 591,127 cases and curative treatment in 108,166 others.

^{28/} Census taken in 16 small stock farming areas in the States of Anzoátegui, Apure, Aragua, Barinas, Bolívar, Falcón, Guárico, Miranda and Táchira.

(i) Foot-and-mouth disease. This malady made its first appearance in Venezuela in 1950, and since then has made serious inroads on herds in various parts of the country. By 1954 it had already spread to the States of Aragua, Carabobo, Cojedes and Portuguesa, as well as the Federal District. A few years later (in 1958 and 1959) it was found in all States, with the exception of Bolívar, classified as an "uncontaminated area". However, the corresponding morbidity rate has been largely brought under control, thanks to mass inoculation in all the affected areas, disinfection, regulation of movement from one place to another, and other health measures. In 1958 the total number of cases officially inoculated against the "A" and "O" types of foot-and-mouth virus amounted to 3,167,218, and in the first half of 1959 inoculations with both types of virus had already reached a total of 1,852,366, at a cost of 2,373,375 bolivars.^{29/}

As already pointed out, the incidence of foot-and-mouth disease has been considerably modified, since in 1958 the number of outbreaks diagnosed was 39, as against 103 in the preceding year.

(ii) Bang's disease (Brucellosis abortus). This disease also occasions substantial losses, especially among breeding and dairy farms in the States of Carabobo, Lara, Mérida, Miranda, Trujillo and Zulia. To reduce the losses in question, inoculation with Strain 19 has been intensified, applications of this vaccine having numbered about 60,000 in 1958 and 43,865 in the first half of 1959; it was in the former year that inoculation was for the first time extended to the greater part of the country. Also in 1958, the sero-agglutination service performed over 6,000 tests, and this figure was exceeded in the first half of the following year.

(iii) Bovine tuberculosis. The rate of mortality among animals infected with this disease is not high, but bovine tuberculosis represents a grave danger to consumers. Its incidence is heaviest in farms where intensive methods are practised, and especially among herds in the Federal District and the States of Miranda, Aragua, Carabobo and Lara, that is, in the central zone, which is the most densely populated area. Prior to 1959, the level of infection ascertained to exist was somewhat alarming,

^{29/} Ministry of Agriculture, Memoria del Ministro de Agricultura, 1959, and Material para la Segunda Convención de Gobernadores, 1959.

since in the Federal District and the State of Miranda 22 and 9 per cent, respectively, of the total number of cattle subjected to tuberculin tests were found to be infected. In 1958, 7,283 cases had been diagnosed out of a total of 136,103 tuberculin-tested cattle, which implied an average level of infection of 5.35 per cent; of the total number of sick animals 1,017 were slaughtered in the course of the year, that is, 14 per cent of the reactors. But in the first half of 1959 the incidence of bovine tuberculosis was a good deal less, since tuberculin tests numbering 80,185 in all showed minimum and maximum levels of infection of only 0.10 and 0.85 per cent.^{30/}

(iv) Other infectious diseases. Other infectious and contagious maladies likewise cause significant losses among various animal species. Cases in point are hog cholera, infectious Coryza and Newcastle disease in poultry, pneumoenteritis among young cattle, haemorrhagic septicaemia in several species, anthrax and clostridium chauvoei, etc.

The spread and incidence of the agents that cause infectious or contagious diseases have been checked to a considerable extent through the special campaigns undertaken by the Sanitary Protection, Foot-and-Mouth Disease, Tuberculosis and Brucellosis Units of the Animal Health Division. In other aspects of veterinary pathology, more dependent upon the care taken by the farmers themselves, the progress of sanitary control measures has been very limited in the past few years. The incidence of clostridium chauvoei, pneumoenteritis and haemorrhagic septicaemia, for instance, and the mortality caused by these diseases, are in fact still high (see table 12).

(b) Parasitic diseases

Endoparasitic and ectoparasitic infestation is fairly widespread in all stock farming areas in Venezuela, and although the mortality it causes is not high, it inflicts substantial losses on the livestock economy through the spoliative action of the parasites. Table 13, which registers only those cases of endoparasitic infestation which were certified by the Veterinary Unit, gives some idea of the frequency of the commonest parasitic diseases. As can be seen, blood parasites (anaplasma, babesia, piroplasma

^{30/} Material para la Segunda Convención de Gobernadores, op.cit., p.30.

Table 12
VENEZUELA: FREQUENCY OF SOME INFECTIOUS AND CONTAGIOUS
DISEASES, 1954 AND 1958

Disease	1954 Number of cases	1958	
		Number of cases diagnosed	Number of deaths certified
Bang's disease (Brucellosis abortus)	806	447	-
Anthrax	446	62	52
Clostridium chauvoei	263	328	202
Hog cholera	3 247	4 144	423
Avian infectious coryza	51 308	12 509	340
Vesicular stomatitis a/	1 019	1 601	26
Foot-and-mouth disease	3 116	...	...
Mastitis	...	2 968	-
Pneumoenteritis b/	1 352	1 278	126
Newcastle	2 489	221	47
Bovine paralytic rabies	78	57	50
Haemorrhagic septicaemia c/	3 076	3 782	830
Bovine tuberculosis	7 283	1 017	1 017 d/

Source: For 1954: Ministry of Agriculture, Department of Livestock Production, Animal Health Division, Información estadística, 1954. For 1958: Special report by the Animal Health Division.

- a/ Especially in cattle.
b/ In cattle.
c/ In cattle, horses, pigs and poultry.
d/ Slaughtered against compensation.

Table 13

VENEZUELA: COMMONEST ENDCPARASITIC DISEASES, 1958

Disease	Number of cases diagnosed	Number of deaths certified <u>a/</u>
Anaplasmosis <u>b/</u>	621	26
Babesiosis <u>b/</u>	10	4
Piroplasmosis <u>c/</u>	1 410	51
Trypanosomiasis <u>e/</u>	21 760	202
Verminous bronchopneumonia <u>d/</u>	1 604	1
Verminous bronchitis <u>b/</u>	478	17
Coccidiosis <u>e/</u>	2 942	3
Gastro-intestinal parasitic infestation	5 964	24

Source: Direct information supplied by the Animal Health Division,
Sanitary Protection Unit.

a/ These do not invariably correspond to cases previously diagnosed.

b/ In cattle.

c/ In cattle and horses.

d/ Mainly in cattle.

e/ In poultry and cattle.

/and trypanosoma)

and trypanosoma) are much in evidence, cases of trypanosomiasis, piroplasmiasis and anaplasmosis being the most numerous and responsible for the largest number of deaths. Gastro-intestinal and broncho-pulmonary parasitic infestations are decidedly frequent, particularly among young animals of all species, and the high mortality to which they usually lead is not generally shown in veterinary records.

Ectoparasitic infestation is also widespread, especially that produced by ticks and by torsalo (Dermatobia hominis, locally known as gusano de monte). The former are not only harmful to development and to meat and milk yields, on account of the intensity of their spoliative effects, but are also vectors of other pathological agents, such as the three haematozoa causing the diseases listed at the beginning of table 13. Torsalo damages the animals' hide, fosters mycosis and cutaneous infections, and, when the animal is very badly infested, is detrimental to production. This group of ectoparasites constitutes one of the most serious obstacles to the importation and adaptation of improved European breeds. Fortunately, the Ectoparasites Unit of the Animal Health Division is intensifying its campaign to exterminate them, by means of baths and spraying, and recently by systematic dosing and spraying with specific anti-torsalo insecticides. Venezuela may be said to have taken the lead in the use of such insecticides to eradicate torsalo, a parasite which up to a short time ago seemed impossible to control.

(c) Deficiency diseases

This group includes a long list of organic disorders and disturbances of animal metabolism, of whose origin farmers as a rule know little, and which are caused by the total or partial lack of mineral elements, proteins and vitamins. Most of these deficiencies are not apparent causes of mortality, but they are reflected in the retarding of growth and productive capacity, loss of weight, reduction of fertility - and consequently of the birth rate -, lowered resistance to disease, disorders of the nervous system, etc.

Among the commonest of the diseases and disorders caused by mineral deficiencies are hypophosphorosis and aphosphorosis, since phosphorus is the mineral in which both soils and pasturage are most seriously lacking;

/this is

this is particularly true of the overgrown and toughened fodder plants so often to be seen in much of the grazing-land used for the extensive type of stock farming in Venezuela. Another problem in pastures of the latter kind is constituted by protein deficiencies, attributable to the predominance of grasses, which, as is common knowledge, are poor in nitrogenous substances.

Vitamin deficiencies, broadly speaking, affect only the poultry-keeping industry.

2. Nutritional deficiencies

Despite advances in animal nutrition in Venezuela in recent years, nutritional deficiencies are still a major obstacle to increased livestock production. Feeding methods are still obviously backward as regards grasses better adapted to the climate and of greater nutritive value, pasture management and the use of supplementary feeds. The following observations, although brief, give some idea of the nutritional problems of the Venezuelan livestock industry.

(a) Pastures and grasses

In the extensive type of stock farming prevailing in Venezuela, the animals generally graze on large pastures or stretches of open range, consisting mainly of natural grasslands. More than 80 per cent of the total pasture land in Venezuela is of this type. Its carrying capacity is distinctly low, partly because of the predominance of natural grasses, often only seasonably available, and partly because of their low nutritive value. The most important native grasses include Gamelotillo (Paspalum plicatum), which is drought-resistant, and Carretero (Eragrostis maypurensis) and Lambedora (Leersia hexandra), which flourish only in humid soils. Where there is suitable soil and rainfall, some native legumes that are much more valuable as fodder grow in conjunction with the grasses.

Artificial pastures have a much higher carrying capacity, but these constitute only 15 per cent of the total grazing land. Guinea grass (Panicum maximum) and Yaraguá (Hyparrhenia rufa) grow well in dry soil, and Fará (Panicum purpurascens) in humid conditions. Other high-quality artificial grasses such as pangola grass (Digitaria decumbens) and

/Bermuda grass

Bermuda grass (Cynodon dactylon) are cultivated on a very small scale, but there seems to be a growing interest in their cultivation. The cultivated legumes include tropical kudzu (Pueraria phaseoloides), which is becoming more widely used because of its high nutritive value and its qualities as a soil protector.

(b) Inadequate pasture management

The low carrying capacity is a result not only of the type of grasses and of the predominance of a single grass,^{31/} but also of management, many aspects of which are unsatisfactory. For example, the grasses are often left to grow for too long, so that their nutritive value is reduced and they become so tough that the animals refuse to eat them. Neglect is also often evidenced by the presence of weeds and even poisonous plants. Only a small number of livestock farmers practice systematic pasture rotation, and it is fairly common practice to maintain perennial pasture with the same type of livestock grazing on it. The use of fertilizers, irrigation and reseeding are not among current livestock practices, and there is very little cultivation of fodder plants for cutting, even on dairy farms.

(c) Lack of supplementary feeding

The use of cut fodder, hay ensilage and concentrates is very limited, either because the farmers are not familiar with them, or because they are scarce and expensive.

In many livestock areas, conditions are favourable for the cultivation of fodder varieties suitable for making hay or ensilage, but it is not the practice to use such fodder, even during seasonal shortages of grasses. During the rainy season there is usually abundant growth on the pastures, in some areas to such an extent that hay or ensilage could be made, thus offsetting the enormous seasonal fluctuations in production, for example on dairy farms, caused by the lack of an adequate and balanced diet for milk cows during the dry season. Hay and ensilage could be produced at a comparatively low cost, but before these practices could become general, a campaign to demonstrate their advantages on a wider scale would be required.

^{31/} Only on a few intensive and well organized farms is there a combination of plants in one pasture.

Other supplementary foods for livestock - grain, molasses, oilcake (cottonseed, sesame, copra), by-products from slaughterhouses and breweries and commercial preparations - are also available on only a very limited scale and can only be obtained at very high prices.

It should be noted that one of the main reasons why supplementary foods are not available on most farms is the lack of integration in animal husbandry or of mixed livestock and crop farming, systems that are highly desirable and necessary if there is to be a more efficient utilization of the factors of production.

3. Breed improvement

Here too Venezuelan problems are very similar to those in other tropical and subtropical countries. The characteristic feature of stock farming in these areas is the presence of criollo breeds that require little care and are very resistant to the rigours of the climate, but in most cases give only a very low economic yield. The fact is that much livestock activity based on the breeding and raising of native strains has sunk to a level of marginal productivity - or at least of very low yield - as the use of the factors of production has become more competitive and costly. Often stock farming has been replaced by mechanized or higher-yield forms of agriculture, but the vast increase in the demand for livestock products means that animal production can survive even at the low levels of physical productivity of the native breeds. As stated previously, Venezuela has made a praiseworthy effort to raise the genetic level of its livestock. This has been done mainly by large and growing imports of specimens of improved breeds, in order not only gradually to absorb criollo strains that are not likely to lead to any improvement of stock, but also to develop programmes of cross-breeding, hybridization and grading that have been shown or appear likely to be well suited to Venezuelan conditions. The beneficial effects of imports and the technical guidance that is being given justify expectations of even better results in the future.

In many areas conditions with respect to the soil, grasses, climate, organization, management, etc., are unfavourable and preclude the use of intensive systems with specialized foreign breeds, and attempts to establish

/them in

them in such circumstances have resulted in complete failure. Hence in Venezuela, as in other tropical countries, the emphasis is on the selection and improvement of certain groups of criollo cattle, especially those with characteristics suited for milk production in the tropics, where the high temperature limit the reproductive functions as well as milk production in specialized breeds of European origin. Increasing use of highly specialized breeds, both for milk and meat, will naturally depend on efforts to improve livestock conditions and on scientific progress in the field of disease and pest control, acclimatization, nutrition, etc.

4. Defective management

Animal hygiene, the supply of fodder and supplementary foods and the level of genetic improvement do not depend solely on ecological conditions, but can be considerably modified and improved by intelligent and progressive methods of administration and management on the farms and ranches. Unfortunately this particular factor of production tends to be neglected in the livestock sector, either because there is an absentee landlord, or because the landlord lacks the required administrative ability, or because management is left entirely to bailiffs or foremen with very limited qualifications. Farmers are well aware that the herd's productivity is high when its health is well cared for, when its diet is adequate and balanced, and, from a longer-term standpoint, when there is control of stud services and births and the animals are selected on a yield basis. All this can usually be done with a relatively modest outlay of capital and labour, but many livestock producers fail to attach to the administrative and management aspects the importance they deserve. There are many operations and practices on stock farms that should be part of the routine of management and that can generally be carried out at little expense. The most important include periodic vaccination, anti-parasitic dips and treatments, castration at the proper time, control of reproduction and the timing of births, the admixture of minerals as required and the careful handling of animals. There should also be routine rotation and cleaning of pastures, records of production and mortality, and many other similar measures connected with administration and organization.

/5. Marketing and

5. Marketing and distribution systems

The marketing, slaughtering and distribution of livestock products are dealt with here as factors limiting livestock production, because although they are not production operations, the backward conditions in which they are practised have adverse effects on the interests of the producers, and often also on the quality of the products. It is common knowledge that an efficient marketing organization benefits both the producer and the consumer; it ensures for the former the sale of his products at the most convenient time and place and at normal market prices, and for the consumer a regular supply of the products suitably graded as to quality and guaranteed as to hygienic conditions. This is not the case in Venezuela, where present conditions as regards marketing and slaughtering, meat, milk and other livestock products leave a great deal to be desired with respect both to marketing operations and to marketing organization and services. A detailed consideration of all these aspect and questions would not be appropriate in the present study, especially since they have been carefully studied and analysed for livestock and meat;^{32/} accordingly this section will merely outline the main features and point out the most obvious shortcomings.

(a) Livestock and meat marketing

Although Venezuela has made considerable progress in means of transport and roads, most animals for slaughter still travel to the consumption or fattening centres on the hoof, with consequent loss of weight^{33/} and deaths. The transport of livestock by lorry and railway is also in need of improvement. Although it is true that the present decentralization of slaughtering reduces transport difficulties, it is equally true that the concentration and centralization of slaughtering and the establishment of large public cattle markets will not be possible without rapid and adequate means of transport. Moreover centralized slaughtering requires established supply centres and a separate organization for fattening centres. Hence gradual centralization is advisable, through a number of strategically placed centres.

^{32/} La industria ganadera en Venezuela and La industria ganadera de carne en Venezuela, 1958, published by the Ministry of Agriculture and Livestock.

^{33/} The average loss is 8 per cent of live weight.

/In addition

In addition to the transport problem, there is also the matter of the sale of livestock, since cattle fairs and trading are not properly organized. The animals sent to market or directly to the abattoirs are usually of different ages and often deplorably lean, and there are no regulations on the subject or uniform standards of grading. Even in official purchases of cattle for slaughtering, the differences in price relate only to differences in carcass weight, regardless of the degree of fattening and quality of the animals, and this naturally destroys any incentive for the producers to provide animals of better quality.

Slaughtering and processing conditions are defective in the same way as in other countries - such as Bolivia, Brazil, Cuba, Colombia, Ecuador, Peru and Central America - where there are abattoirs in every municipality, however small the population. In many places there is no organized marketing of livestock for food; there are usually one or two slaughterers who buy a few steers or old cows on the same farm, carry out the slaughtering and other operations themselves at the municipal slaughter-house on payment of a fee, and then sell the meat in a small shop which has none of the required equipment or facilities. Thus operations at small slaughter-houses are carried out in dangerous hygienic conditions with no public health control; moreover, the limited volume of operations does not justify expenditure on a suitable and properly equipped building, far less the utilization of by-products, which involve machinery and trained staff. This is the situation in the semi-urban areas and in the small centres. In large towns and in more populated municipalities livestock and meat marketing is better organized, although much remains to be done as regards the marketing, slaughtering and processing of animal products.

Up to the end of 1958 the following was the calendar of cattle fairs, according to direct information from the Statistical Division of the Ministry of Agriculture and Livestock:

- (1) San Cristóbal (Táchira), 21 January
- (2) Maracay (aragua), 20 February
- (3) Valencia (Carabobo), 21 March
- (4) Maturín (Monagas), 15 April

/(5) San Felipe

- (5) San Felipe (Yaracuy), 1 May
- (6) Carola (Lara), 24 June
- (7) San Carlos (Zulia), 16 July
- (8) Táriba (Táchira), 16 August
- (9) Tovar (Mérida), 9 September
- (10) Ciudad Bolívar (Bolívar), 15 October

There is public health inspection of livestock and meat at about 150 slaughter-houses. In many of them the volume of operations is small, with a daily slaughtering rate of 1 to 10 animals. A daily rate of over 50 head of cattle is recorded for very few abattoirs (see table 14).

The Ministry of Agriculture and Livestock, in order to remedy present defects in slaughtering, is carrying out a programme for the building or reconditioning of industrial abattoirs, preferably in the stock raising and fattening areas and in conformity with studies on location, capacity and operation carried out by the Ministry.^{34/}

Considerable interest has been shown in Venezuela in the storage of meat products, as evidenced by the fact that at the end of 1958 there were 34 refrigerating plants in the country with a capacity of 109,140 cubic metres. But only about a quarter of this capacity has been used, because of the consumer's preference for fresh meat, and also because seasonal variations in the supply of livestock are not sufficient to leave large surpluses for storage and conservation.^{35/} Moreover, refrigeration is not combined with the other processing operations, which would be the rational arrangement.

The operations included in the various stages of marketing are carried out by a large number of middlemen who do not have the specialized functions of their counterparts in the large towns, or else by wholesalers who undertake the slaughtering and the supplying of meat to retailers,

^{34/} W. Dubuc Marchiani, Recopilación sobre mataderos industriales (Caracas, 1958)

^{35/} The estimated seasonal variation in slaughtering is 12 to 13 per cent of the annual average, with the minimum levels in April, May and June and the maximum in December and January, for reasons relating to the condition of the pastures. (See La industria ganadera de carne en Venezuela, op.cit.)

Table 14

VENEZUELA: REGIONAL DISTRIBUTION OF THE MAIN SLAUGHTER-HOUSES, 1958 ^{a/}

State	Number of slaughter-houses	State	Number of slaughter-houses
Federal District	3	Mérida	11
Anzoátegui	12	Miranda	8
Apure	6	Monagas	2
Aragua	10	Portuguesa	6
Barinas	7	Sucre	6
Bolívar	4	Táchira	7
Carabobo	5	Trujillo	11
Cojedes	4	Yaracuy	6
Falcón	3	Zulia	13
Guárico	6	Amazonas territory	1
Lara	11	Delta Amacuro territory	1

Source: Statistical Division of the Crop and Livestock Planning Department of the Ministry of Agriculture.

^{a/} Subject to veterinary inspection provided by the Ministry of Health and Social Welfare.

/institutional consumers

institutional consumers and shopkeepers. Better organized marketing and distribution services are provided by a small number of producer-wholesalers who manage their own plans and sell the meat through various channels, or through a private or public industrial wholesaler.

Retail services vary in efficiency and volume of operations according to whether they are in the large towns or small centres. In the latter, the small turnover and absence of suitable legislation means that the retail sale of meat is carried out in unsatisfactory conditions. In the more populated centres, retail marketing conditions are better, but costs are rather high; there are many suitably equipped retail butchers, but the turnover is very low and the resulting high costs are passed on to the consumer in the form of high meat prices.^{36/}

The lack of specialized marketing operations and the great variations in the quality of the products result in high marketing margins that fluctuate enormously not only as between areas but even within a single market. The lack of proper grading and information also contributes to these discrepancies.

The large marketing margins in Venezuela are dearly due to the high marketing costs, attributable in turn to slaughtering and marketing systems that are still very unsatisfactory. These margins are obviously a heavy burden for the consumer and the high prices are unrelated either to the quality of the products or to the type of service provided. Apart from the disadvantages of the large number of middlemen who add to marketing costs - although they provide important services, often in return for only a modest profit - it should be emphasized that the profit margin on low-grade meat is usually quite unjustifiable, because of the small differentiation between the final prices and because of other marketing defects.

Up to a few years ago the slaughtering and marketing margin for beef in the Caracas market was 23 per cent of the final price, or 23 céntimos for each bolívar paid by the consumer, of which 16.8 céntimos went to

^{36/} In the central zone of Venezuela there are over 3,000 retail butchers, with average sales of barely one quarter carcass per day.

the retailer and only 1.86 to the wholesaler, the rest being for transport and slaughtering costs. The average national pattern is different, since, in 1956, 57.7 of the price paid by the consumer went to the producer, 18.6 to the wholesaler and 23.7 to the retailer.^{37/} Data on changes in marketing margins between 1950 and 1956 show that the producer's and retailer's share has increased steadily, while the wholesaler's share has decreased considerably. This change occurs as services become more specialized or efficient, as costs climb and the volume of operations expands; this is confirmed by the data given above for Caracas, where the meat market is better organized.

(b) Marketing of milk products

Advances in the marketing, processing and distribution of milk and milk products have been more rapid than for livestock and meat. The official policy of developing milk production and increasing consumption has benefited the producer, the processor and the consumer.

The situation with respect to milk collection and transport to the distribution and consumption centres has improved as a result of the building of new thoroughfares, road improvement and the organization of collection and transport services by the processing plants. Some weaknesses nevertheless remain to be remedied, especially with respect to the quality and condition of milk supplied by certain dairy farms that are in remote areas or that have no proper milking and refrigerating facilities. With respect to the production of cream, butter and cheese, there are also notorious shortcomings as regards quality, hygiene, conservation and distribution. Cream for butter making is sent from dairy farms in remote areas to the towns where there are processing plants - Maracaibo, for instance - whence it is sent to the consumer centres. The same applies to cheese.

The marketing and processing of pasteurized milk are at a fairly advanced level and there has been a great expansion in recent years. In 1955, there were already 11 pasteurization plants in operation and 8 under construction; by the end of 1958 there had been a considerable increase, as shown by the following list:

37/ La industria de carne en Venezuela, 1958, op.cit.

Federal District	Sindicato de la Leche, S.A. (Silsa)
Federal District	Cremería Nacional
Federal District	Marcor y Alaca (Soc.)
Federal District	Pastelería Venecia
Federal District	Prolaca
Federal District	Kempis
Federal District	Lactuario Zulia
Aragua	Sindicato de la Leche, S.A. (Silsa)
Aragua	Lechería Aragua, S.A.
Aragua	Lactuario Maracay
Carabobo	Industrias Lácteas de Carabobo, C.A.
Guárico	Productos Lácteos LLano Oriental, S.A.
Lara	Productos de Lara, C.A.
Lara	Hijos de Rincón Herrera, C.A.
Lara	Pasteurizadora del Norte, C.A.
Miranda	Pasteurizadora Caracas, C.A.
Miranda	Leche Delta, C.A.
Miranda	Industrias Lácteas Venezolanas (Inlaca)
Miranda	La Normanda
Monagas	Rafael Casas
Táchira	Pasteurizadora Táchira, C.A.
Zulia	Vía Láctea, C.A.
Zulia	Unión de Productores Agrop. (Upaca)
Zulia	Lactuario y Explotaciones "Alfa"
Zulia	INDOSA
Zulia	Empresa Láctea, S.A.
Zulia	INDULAC
Zulia	Cremería Nacional
Zulia	Lactuario Perijá
Zulia	Agapeca

In 1958, the total volume of raw milk received at pasteurization plants amounted in round figures to 144 million litres, of which some 139 million were pasteurized. Plant capacity greatly exceeds present supply; Caracas plants are working at between 60 and 90 per cent and other plants at only 30 or 40 per cent of capacity. Although this situation is favourable from the standpoint of future expansion of consumption, it poses the problem of high production costs in low-capacity production units, which is what most of the existing pasteurization plants are. The high price of pasteurized milk might logically be expected to fall with the growing use of available capacity, but this is not likely to happen except to a limited extent, since the trend is to set up plants in all the large towns because of the widespread preference for and consumption of this type of milk.^{33/}

^{33/} Grade B pasteurized milk with a bacterial count of not more than 50,000 per cubic centimetre and with an average fat content of 4.2 per cent, according to Government regulations.

/The preserved

The preserved milk business has also expanded yearly as a result of the growing encouragement of production aimed at reducing the greater volume of imports.^{39/} There are two plants for condensed and dried milk in Venezuela, one (Indulac) at Santa Barbara de Zulia, with a processing capacity of about 200,000 litres of raw milk daily, and the other, which has a much lower capacity, at Quebrada Arriba, Distrito Torres, in the State of Lara; these plants are subsidiaries of Nestlé and Borden, whose activities have greatly increased as a result of the change authorized early in 1958 in the authorized proportion of imported to domestic milk powder, reducing the proportion from 6:1 to 5:1.^{40/} Nevertheless, the first plant still has unused capacity; its equipment and organization are excellent, and its products are well known throughout the country.

The marketing margin for pasteurized milk sold in Caracas at the end of 1958 was approximately 30 per cent of the final retail price and 26.3 per cent of the price paid by institutional buyers. Thus the producer's share was 70 per cent of the retail price plus the Ministry of Development's subsidy paid through the processing plants. For milk powder the estimated margin is 1.60 bolivares per kilogramme. The prices paid to producers, which are not subject to any form of Government control, are set by agreement between the producers and the processing plants through the Venezuelan Milk Council (Consejo Venezolano de la Leche), whose executive board includes representatives of both parties. The Government does, on the other hand, have a say in the fixing of maximum consumer prices, through the same Council.

^{39/} In September 1958, the subsidy for raw milk for processing was increased to 14 and 10 céntimos for second- and third-grade milk respectively, less than that for first-grade milk (15 céntimos per litre), for which the requirements are a reduction time of 6 hours at a maximum temperature of 10°C., herds that are officially inspected and free from tuberculosis and brucellosis, and staff with health certificates.

^{40/} Towards the middle of 1960 the ratio was changed again to 4:1.

IV. CONSUMPTION OF AND DEMAND FOR LIVESTOCK PRODUCTS

1. Variations and trends in consumption levels

Although the consumption levels for protective foods in Venezuela have improved in recent years, they remain low in relation to nutritional requirements. Under-consumption of meat, milk products and eggs is found especially among rural wage-earners and among the greater part of the lower-paid urban workers.

One favourable factor is the rapid increase in the effective demand resulting from population growth - one of the world's highest - and the visible increase in available income. These special socio-economic circumstances, in conjunction with a fairly stable price level, have had the effect of encouraging the consumption of foods of animal origin. Figure II gives indices for the total consumption of meat and milk products and for their price levels during the period 1951-58. It can be seen that an appreciable expansion in consumption coincided with fairly stable price levels during this period and, in recent years, there has been an increase in per capita consumption for most such products. It is hoped that these improvements will continue, since conditions favour a greater supply of protective foods from domestic production. The Venezuelan livestock industry will naturally have to be encouraged to attain higher physical productivity in order to bring down production costs. By this means the natural level of relative prices will continue to stimulate consumption. The partial import substitution that may reasonably be expected calls for the encouragement of relatively low-cost domestic consumption.

(a) Meat consumption

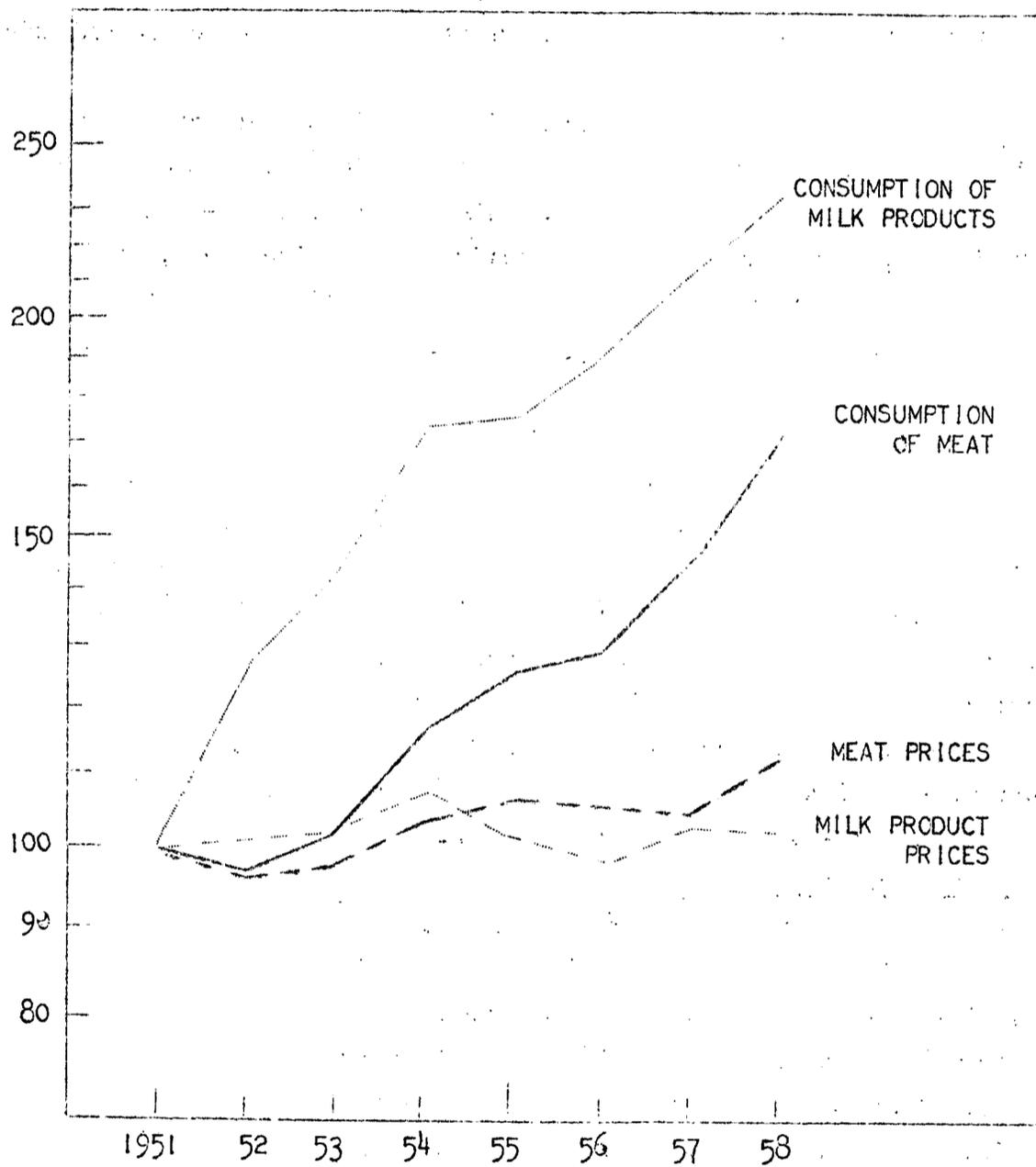
Table 15 shows the almost continuous increase in the total consumption of meat of all types of livestock (excluding poultry) during the last decade, the indices for 1957 and 1958 being particularly high. Apparent consumption rose from an annual average of 81,000 tons in 1947-48 to 95,000 in 1953-55 and 119,000 in 1956-58, which is equivalent to an increase of 17 per cent in the first case and 47 per cent in the second. Something over 80 per cent of the consumption of red meat is represented by beef, 17 per cent by pork, and the small remaining balance by mutton and goat meat.

/FIGURE II

FIGURE 11

VENEZUELA: INDICES OF APPARENT CONSUMPTION AND WEIGHTED PRICES
OF MEAT AND MILK PRODUCTS ^{a/}
(INDICES 1951 = 100)

SEMI-LOGARITHMIC SCALE



^{a/} MEAT: BEEF AND PORK. MILK PRODUCTS: PASTEURIZED MILK, MILK POWDER,
BUTTER AND CHEESE.

Table 15

VENEZUELA: CONSUMPTION OF RED MEAT, TOTAL AND PER CAPITA, 1947-49 TO 1956-58 ^{a/}
(Annual averages)

	1947-49	1950-52	1953-55	1956-58
<u>Total consumption, all meats</u> (thousands of tons)	<u>81.0</u>	<u>88.0</u>	<u>95.0</u>	<u>119.3</u>
Index	(100.0)	(108.6)	(117.3)	(147.3)
Beef	65.8	71.8	76.2	96.9
Pork	14.1	15.2	17.6	20.8
Mutton	0.37	0.37	0.45	0.53
Goat meat	0.77	0.63	0.75	1.05
<u>Per capita consumption, all meats</u> (kilogrammes)	<u>17.28</u>	<u>17.16</u>	<u>16.94</u>	<u>19.45</u>
Index	(100.00)	(99.30)	(98.03)	(112.56)
Beef	14.04	14.00	13.58	15.80
Pork	3.00	2.96	3.14	3.39
Mutton	0.08	0.07	0.08	0.09
Goat meat	0.16	0.13	0.14	0.17

Source: Data in table 7 and information from the Department of Trade on meat imports.

^{a/} Excluding meat from unregistered slaughterings.

/In recent

In recent years, total meat consumption has expanded faster than the population, despite the rapid population growth stimulated by immigration, which means that there has been an increase in per capita consumption. The annual changes in per capita consumption in recent years are as follows:

Year	<u>Per capita consumption (kilogrammes)</u>	Year	<u>Per capita consumption (kilogrammes)</u>
1939	14.6	1949	18.4
1940	17.2	1950	18.6
1941	16.0	1951	16.9
1942	16.1	1952	16.3
1943	14.9	1953	17.0
1944	15.5	1954	17.1
1945	16.4	1955	17.2
1946	17.5	1956	17.4
1947	16.1	1957	19.5
1948	17.2	1958	21.1
		1959	22.0

The lowest average per capita consumption levels for meat are for the first period, 1939-47; from then on livestock exports were suspended and Venezuela became an importer of meat, especially frozen meat. The greatest volume of imports was during 1948-50, ^{41/} and there was a marked increase in per capita consumption precisely during those three years. Between 1951 and 1956, consumption fell off and settled at about 17 kilogrammes per person, but in 1957, 1958 and 1959 there was a sharp rise to 19.5, 21 and 22 kilogrammes per person respectively; these rises correspond to the considerable increase in slaughtering recorded for these years.

(b) Consumption of milk products

The rapid development of Venezuela's economy throughout the period 1950-58 ^{42/} and the consequent increase in purchasing power also resulted in a greater consumption of milk and milk products. Apparent total annual

^{41/} Carcass weights of chilled meat imported from Argentina in 1948, 1949 and 1950 were 7,300, 7,583 and 5,155 tons respectively.

^{42/} Between 1950 and 1958, the increase in the gross national product was higher in Venezuela (100 per cent) than in any other Latin American country, and at the same time the population growth attained the high rate of 29 per cent in eight years (Latin American Business Highlights, Vol. 10, No.2).

/consumption of

consumption of milk products, expressed in terms of fluid milk, rose from 582 million litres in 1951-52 to 735 million litres in 1956-58, an increment of 26 per cent equivalent to an annual increase of about 5 per cent (see table 16). It can be seen from the breakdown of consumption by origin that both domestic production and imports contributed to this improvement.

The most remarkable expansion was in the consumption of fluid milk, especially pasteurized milk, which rose from an annual volume of 22 million litres in 1948-50 to 157 million litres in 1956-58, a sixfold increase. There was also a fairly large increase (62 per cent) in the consumption of preserved milk. The total consumption of butter and cheese, on the other hand, decreased during this period.

As the total consumption of milk products grew faster than the population, an increase in per capita consumption was possible, and this rose from the fluid milk equivalent of 112 litres in 1951-52 to 136 litres in 1956-58, which is an increment of about 22 per cent (see table 16). The rise in per capita consumption was spectacular for pasteurized milk; it was somewhat less, although still considerable, for milk powder and fell for cheese and butter.

There was also considerable expansion in the consumption of other foods of animal origin such as eggs and fish; between 1950 and 1956 the total consumption of fish increased by 33 per cent, from 29,439 tons to 39,140 tons, which was the equivalent of a per capita increase from 5.9 to 6.6 kilogrammes.

(c) The effect of relative prices

As stated previously, increased total and per capita consumption of livestock products must be attributed not only to the vast growth in the population and to larger incomes, but also to the structure and favourable trends of relative prices. In some Latin American countries, improvement in per capita income has not been reflected in a greater per capita consumption, because the effect of the additional income has been nullified by the concurrent rise in prices. In Venezuela, however, the relative prices of meat, milk products and eggs have been maintained at a level that encourages the greater consumption referred to previously. In recent years relative prices have tended to be fairly stable and in some cases have fallen. Between 1953 and 1959, for example, and more especially in 1958 and 1959, parity

Table 16

VENEZUELA: CONSUMPTION OF MILK PRODUCTS, ^{a/} 1948-50 TO 1956-58

	1948-50	1951-52	1953-55	1956-58
<u>Total consumption, all products (thousands of litres)</u>	...	581 864	735 369	831 519
Fluid milk (<u>thousands of litres</u>)	22 228	35 593	111 747	156 677
Preserved milk (<u>tons</u>)	28 950	31 011	39 243	46 913
Cheese (<u>tons</u>)	...	19 530	21 142	19 365
Butter (<u>tons</u>)	4 134	3 799	3 419	3 584
<u>Per capita consumption, all products (litres)</u>	...	111.85	131.10	135.56
Fluid milk (<u>litres</u>)	4.60	6.47	19.92	25.54
Preserved milk (<u>kilogrammes</u>)	6.0	5.96	7.0	7.65
Cheese (<u>kilogrammes</u>)	...	3.75	3.77	3.15
Butter (<u>kilogrammes</u>)	0.86	0.73	0.61	0.58

Source: Data from table 9, and information from the Ministry of Agriculture and the Department of Trade of the Ministry of Development, respectively, on imports during 1948-56 and 1956-58.

^{a/} All milk products are expressed in terms of the in fluid milk equivalent, calculated with the conversion factors given in table 9.

/prices of

prices of pasteurized milk showed no substantial rise in relation to the general wholesale price level of 82 articles; on the contrary, in 1954, 1955 and 1956 they fell, and in 1957, 1958 and 1959 they remained stable. It is to this favourable development for the consumer that the spectacular rise in annual per capita consumption - from 6.47 litres in 1951-52 to 25.5 litres in 1956-58 - must be attributed. The prices of milk powder, a very popular food in Venezuela, have also remained at a favourable level and have even fallen in recent years. Per capita consumption, variations which have already been referred to, has expanded every year. The trend towards low relative prices also applies to butter, cheese and eggs since 1954. Because of the marked substitution effect as between milk products, there was a decrease in the per capita consumption of butter and cheese, despite their lower relative prices because of plentiful supplies on the world market and smaller domestic demand.

With respect to meat, the increase in per capita consumption in 1957, 1958 and 1959 was also appreciable, rising from 17.4 kilogrammes in 1956 to 19.5, 21 and 22 respectively in 1957, 1958 and 1959. Although there were rises in the relative prices of pork and beef, especially beef, these were only at the modest annual rate of 1 or 2 per cent, compared with an annual increase of 6 per cent in per capita national income^{43/} during the period 1950-58 as a whole, and of 9 per cent during 1957 and 1958, when there was also higher per capita consumption. (See figure III.) The highest levels of per capita available income are for the more populous States and towns - Zulia and the Federal District -, where per capita demand, supply and consumption of meat are all higher.

2. Breakdown of consumption by origin

(a) Meat

It can be seen from table 17 that imports made no significant contribution to meat consumption except during the three-year period 1948-50, when a annual average of 6,679 tons of frozen Argentine meat were imported. In subsequent years these imports were suspended and Vene

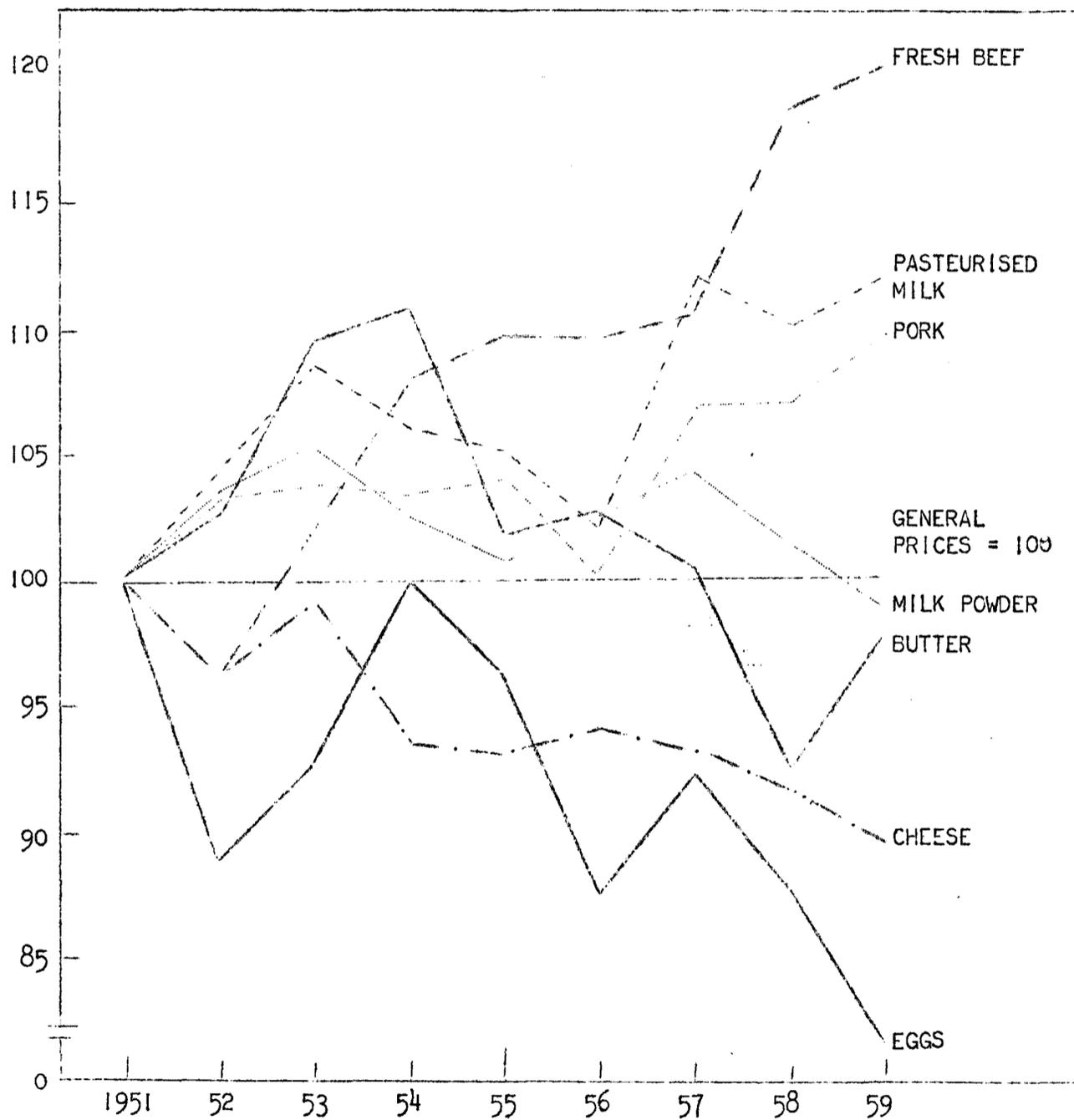
^{43/} These are compound rates of increase of per capita national income, not available income, which for 1957 was calculated by the Central Bank as 1,773 bolívares compared with a per capita national income of 2,545 bolívares.

FIGURE III

VENEZUELA : CURVES OF PARITY PRICES OF FOODS OF ANIMAL ORIGIN IN
RELATION TO THE GENERAL PRICE CURVE = 100

(INDICES 1951 = 100)

NATURAL SCALE



SOURCE : PRICE INDICES AND WHOLESALE PRICES PUBLISHED BY THE DEPARTMENT
OF STATISTICS.

/Table 17

Table 17
VENEZUELA: BREAKDOWN OF CONSUMPTION OF MEAT AND MILK PRODUCTS BY ORIGIN,
1948-50 TO 1956-58
(Average annual percentage)

	1948-50		1951-52		1953-55		1956-58	
	Domestic- produc- tion	Im- ports	Domestic produc- tion	Im- ports	Domestic produc- tion	Im- ports	Domestic produc- tion	Im- ports
Red meat	92.3	7.7	99.4	0.6	99.9	0.1	99.9	0.1
Poultry	84.0	16.0	85.1	14.9	100.0	a/	100.0	a/
Milk powder	6.0	94.0	6.8	93.2	9.3	90.7	10.5	89.5
Cheese	...	b/	78.4	21.6	76.2	23.8	62.0	38.0
Butter	41.5	58.5	38.8	61.2	74.9	25.1	93.2	6.8
Whole milk	...	c/	41.3	58.7	49.3	50.7	47.6	52.4

Source: Tables 15 and 16 and data on imports from the Ministries of Agriculture and Development.

a/ Imports amounted to less than 0.1 per cent of total consumption.

b/ Annual imports were 2 947 tons for the three-year period 1948-50, compared with 4 220 tons during 1951-52.

c/ Annual imports of preserved milk, cheese and butter averaged 316 litres (in terms of fluid milk) in 1948-50.

Venezuelan consumption of red meat came to depend almost entirely on domestic production, except for small imports of prepared, dried and salted meats and the illegal entry of livestock for food.

Before 1952, about 15 per cent of the poultry consumed came from North America and Europe; since 1952 there has been a substantial cut in these imports and their present contribution to consumption is negligible

(b) Milk products

It can be seen from the last column in table 17 and from figure IV that more than half the total consumption of milk products - expressed in terms of fluid milk - is supplied by large imports of milk powder, cheese and butter, especially of the first two. This means that there is wide scope for import substitution, development of better quality products and reduction of costs, in order to place the domestic product on a better footing to compete with imports.

Up to a few years ago most of the consumption of preserved milk was supplied by imports. Although domestic production of milk powder is expanding, it is still far from enough to meet the growing demand for this item; in 1956-58 domestic production supplied only about a tenth of consumption. Obviously the production of dried milk in Venezuela could be rapidly expanded, since there is an extensive market for it. As things are, however, it appears difficult to restrict, far less eliminate, foreign competition; this could only be done by (a) reducing domestic production costs, (b) amending the trade treaty with the United States and (c) altering the quota proportion^{44/} or replacing it altogether by other measures of protection and encouragement. In view of the high price at which milk is sold in Venezuela, the duty of 50 céntimos per kilogramme on imports of milk powder under the treaty with the United States is not a sufficient tariff restriction to discourage imports. A higher import duty would merely result in higher consumer prices. It should be noted that the exemption from duty of the imported product through the quota

^{44/} On 23 June 1960, the quota proportion was reduced to 4:1; two weeks earlier it had been reduced to 4.5:1.

FIGURE IV

VENEZUELA : PERCENTAGE DISTRIBUTION OF CONSUMPTION OF WHOLE MILK PRODUCTS, 1951-52, 1953-55 AND 1956-58

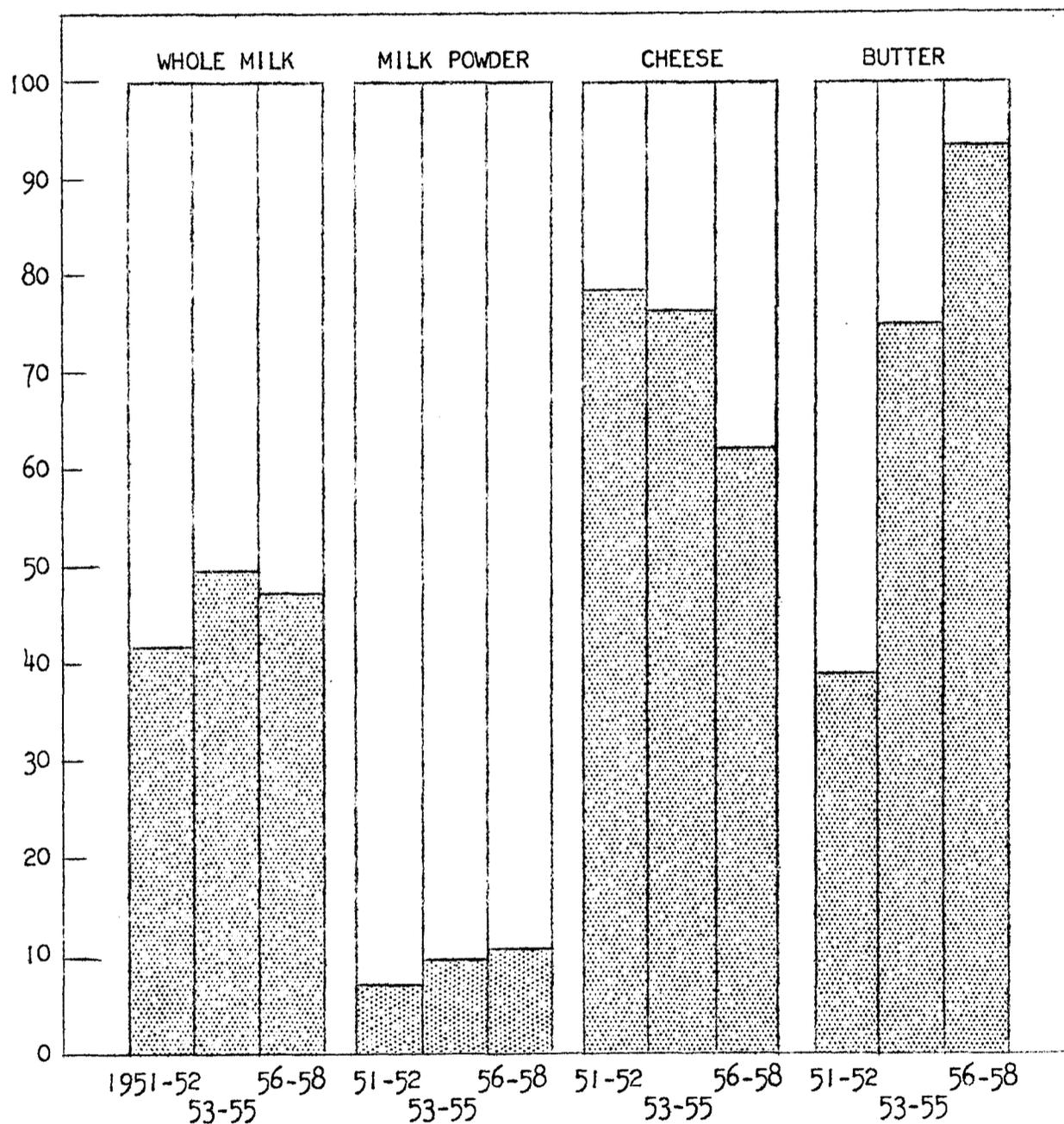
NATURAL SCALE



DOMESTIC PRODUCTION



IMPORTS



/system is

system is a purely fictional measure. The importer does not in fact buy 1 kilogramme of domestic milk powder for every 4 kilogrammes he imports; he actually takes the duty upon himself, because, under the existing regulations, he is obliged to sell the domestic product for 37 per cent less than he pays for it. What happens is that he pays the domestic producer 29 bolivares for every 6 cases of milk powder he imports. The importer raises the price of the imported product to make up the loss. If he cannot do this, he pays the import duty and becomes free of the quota restrictions.

So long as the present import system remains in force, any reduction of the quota ratio will favour the domestic product, but at the same time the importer will prefer to pay the duty rather than buy the national product or else to replace milk powder imports with cheese, for instance. In practice it is difficult to determine the most appropriate proportion between domestic output and imports, because of variations in the former.

The consumption of cheese is also largely supplied by imports, and this tendency has become more marked in recent years. Thus, whereas in 1951-52 21 per cent of consumption was represented by imports, in 1956-58 the percentage rose to 38. This change, which coincided, as explained previously, with a decline in per capita consumption, was obviously due to the reduction in domestic output that began in 1957, to the import substitution effect previously referred to and to the much higher quality of the foreign product.

With respect to butter consumption, table 17 shows that there has been a marked change in favour of domestic production, since, whereas eight years ago more than half the consumption was supplied by imports,^{45/} in 1956-58 the average contribution of imports had been reduced to 7 per cent. This change was due to an increase in domestic production - especially after 1956 -, which was further stimulated in 1958 by an extension of the subsidy to milk for butter making, the existence of surpluses and a falling-off in demand accompanied by a drop in per capita consumption.

^{45/} In fact the import contribution was even higher, since the figures for domestic output include butter made with imported cream.

/There is

There is also a considerable dependence on imports as regards other foods of animal origin. This applies to eggs, for which purchases abroad averaged 16,000 tons a year in 1955-56, which was approximately 56 per cent of the total available for consumption.^{46/}

3. Comparative consumption and nutritional aims

(a) Comparative consumption

Table 18 compares the per capita consumption of meat, milk, eggs and fish in a number of Latin American and European countries. It can be seen that the annual average per capita consumption of meat of livestock of all types (excluding poultry) in Venezuela is barely 21 kilogrammes, which is one of the lowest levels in Latin America. As stated previously, per capita supplies of meat have improved in recent years, but there is still a deplorable degree of under-consumption, both in relation to recommendable nutritional standards and, even more, in relation to the great demand in Venezuela for most foods of animal origin.

The consumption of milk products, on the other hand, has expanded more rapidly, so that the Venezuelan consumer is relatively well situated by comparison with the extremely low levels of consumption in such other Latin American countries as Brazil, Colombia, Honduras, Mexico and Peru.

Per capita consumption of eggs and fish is also relatively high in Venezuela, especially compared with that in other Latin American countries; this applies especially to fish, for which the per capita consumption is higher than in any other Latin American country except Chile.

(b) Nutritional aims

Despite the theoretical nature of nutritional standards of consumption compared with the variety of factors that determine actual per capita consumption, it is important to compare figures of actual consumption

^{46/} Archivos Venezolanos de nutrición, January 1960.

Table 18
COMPARATIVE CONSUMPTION OF FOODS OF ANIMAL ORIGIN IN SELECTED COUNTRIES
(Annual per capita average in kilogrammes)

	Red meats a/	Milk b/	Eggs c/	Fish c/
Argentina	90	251	6	2
Brazil	30	65	5	2
Chile	27	116	5	13
Colombia	27	72	3	2
Denmark	65	212	8	13
France	56	...	10	6
Netherlands	40	234	9	6
Honduras	17	64	4	2
Mexico	21 d/	74	4	2
Paraguay	59	83	...	...
Peru	16	47	3	2
United States	70	264	21	5
Uruguay	104	227	7	1
Venezuela	21 e/	135 e/	5 f/	66 g/

Source: Meat: ECLA, on the basis of official figures, and United States Department of Agriculture, Foreign Crops and Markets, World Summaries: Crops and Livestock (29 September 1960).

Milk: United Nations, The role of agricultural commodities in a Latin American regional market (E/CN.12/499).

Eggs and fish: FAO, Production Yearbook 1958.

a/ 1958-59; kilogrammes of carcass meat of beef, pork, mutton and goat meat; the figures do not include the consumption of meat represented by in situ slaughterings.

b/ 1954-56: milk and milk products expressed in terms of fluid milk.

c/ 1954-55 and 1954-56.

d/ 1957-58; this includes estimated consumption of meat from in situ slaughterings.

e/ 1957-59.

f/ 1956-57.

g/ 1956: fresh fish (Archivos Venezolanos de Nutrición, January 1960).

/with the

with the nutritional standards recommended for the Venezuelan consumer, since this is the only way of quantifying the deficit of various foods of animal origin in terms of the consumption recommended for a balanced diet adapted to local conditions.

What is mainly lacking in the consumption of red meat is beef, for which annual per capita consumption should be about 5 kilogrammes, which would represent an increase of 31 per cent over the present level of consumption. Consumption of pork should be stepped up by about 1 kilogramme per person. For fresh fish, too, the recommended level is far higher (51.5 per cent) than actual consumption in recent years (see table 19). Although at present no nutritional recommendations are available for mutton and goat meat, the present per capita levels of consumption seem to be in line with the dietary habits of the average consumer. With respect to milk products, nutritional requirements could probably be met by raising the present level of consumption (in terms of fluid milk) by about a third.

4. Projections of demand

In the last few years there have been fundamental changes in Venezuela's economy. There is rapid growth both of industrial and urban development and also of population and national income. A major change is also expected in the livestock sector, as a result both of developments and trends in other sectors and of new policies aimed at improving methods of agricultural production and raising the rural population's standard of living. All these changes are likely to have a more or less direct influence in future on the supply of and demand for livestock products. Hence it would be both at least difficult if not hazardous to attempt to predict what consumption is likely to be during the next five or ten years. It ~~cannot~~ be foreseen what new price structure is likely to emerge, or what changes there will be in import trade, which could have a marked effect on demand and actual consumption. It is true that certain principles can be postulated, and certain tendencies assumed in the factors determining demand, as a basis for projecting the many alternative forms that future demand might take. Thus future production and supply requirements

/Table 19

Table 19

VENEZUELA: RECOMMENDED NUTRITIONAL STANDARDS AND DEFICIT IN THE
PER CAPITA CONSUMPTION OF FOODS OF ANIMAL ORIGIN

	Actual	Recommended	Deficit	
	consumption	consumption	Kilogrammes	Percentage
	Kilogrammes			
Red meat, total	<u>19.45</u>	<u>25.40</u>	<u>5.95</u>	<u>30.51</u>
Beef	15.80	20.72	4.92	31.14
Pork	3.39	4.42	1.03	30.38
Mutton and goat meat	0.26	0.26	-	-
Poultry	<u>1.35</u>	<u>1.60</u>	<u>0.25</u>	<u>18.52</u>
Fish b/	<u>6.60</u>	<u>10.00</u>	<u>3.40</u>	<u>51.52</u>
Milk	<u>135.00</u>			
Eggs c/	<u>5.25</u>			

Source: Tables 15 and 18 and data from the National Institute of Nutrition
(Instituto Nacional de Nutrición) on recommended nutritional standards
of consumption for Venezuela.

- a/ 1956-58 average.
b/ Fresh fish, 1956.
c/ 1956-57 average.

/could be

could be estimated and targets fixed for the execution of development programmes. Published studies on Venezuela's livestock industry include some projections of the demand for meat in 1964 and 1967, but they need to be brought up to date and modified in the light of the consumption levels attained in the last few years and of recent and foreseeable trends in population, available income, elasticity of demand and relative prices. New projections of demand would give a potential and probable future consumption much higher than that calculated previously. New projections are not included in this study, it being considered more relevant, from the standpoint of analysis at least, to compare the figures for projected demand with those recorded for actual consumption in 1958, for example (see table 20 and figure V).

Actual consumption in 1958 exceeded almost all the projections of demand for that year, being 33 per cent higher than the most pessimistic projection (projection (a)) and 18 per cent higher than the figure for one of the most optimistic projections (projection (b)), which is based on a completely elastic supply and consequently a stable price level.

Projection (c) calls for comment, however brief, because it is the only figure for projected consumption for 1958 that exceeds actual consumption for that year. This was not so much an economic projection as an estimate of potential consumption, on the assumption that the desirable nutritional standard could be met for beef, namely nearly 21 kilogrammes per person, which was 7 kilogrammes more than the average level for the three-year period 1954-56. It must be admitted that such a large estimated increase was unrealistic.

Effective consumption in 1958 also proved appreciably higher than the figures in the last three projections, despite the assumption of a much higher population growth than was in fact the case (6.3 million in 1958). On the other hand, the annual average increase in net per capita income was estimated at only 3 per cent, and the coefficient of income-elasticity of demand adopted was only 0.6, although consumer habits, the low level of consumption and certain surveys seem to indicate that it might well be between 0.8 and 0.9.

/Table 20

Table 20

VENEZUELA: PROJECTED DEMAND FOR MEAT AND ACTUAL CONSUMPTION, 1958

Pro- jec- tion	Projected demand	Actual consumption	Difference between projected and actual consumption (percentage)
	Tons		
(a) Estimated population (6.09 million) and <u>per capita</u> consumption 1939-52	83 210	110 300	32.6
(b) Consumption trend, 1939-52	85 809	110 300	28.5
(c) Estimated population (6.09 million) and nutritional target of 20.72 kg per person	126 244	110 300	-12.6
(d) Estimated population (6.82 million) and stable consumption of 13.3 kg per person	90 594	110 300	21.8
(e) Estimated population (6.82 million), average consumption in 1954-56 (13.3 kg per person) and annual increases of 0.677 due to higher income	91 160	110 300	21.0
(f) Population growth of 4 per cent (6.82 million for 1958); average consumption in 1954-56 and annual increase of 1.8 per cent due to higher income; elastic demand and constant prices	93 200	110 300	18.3

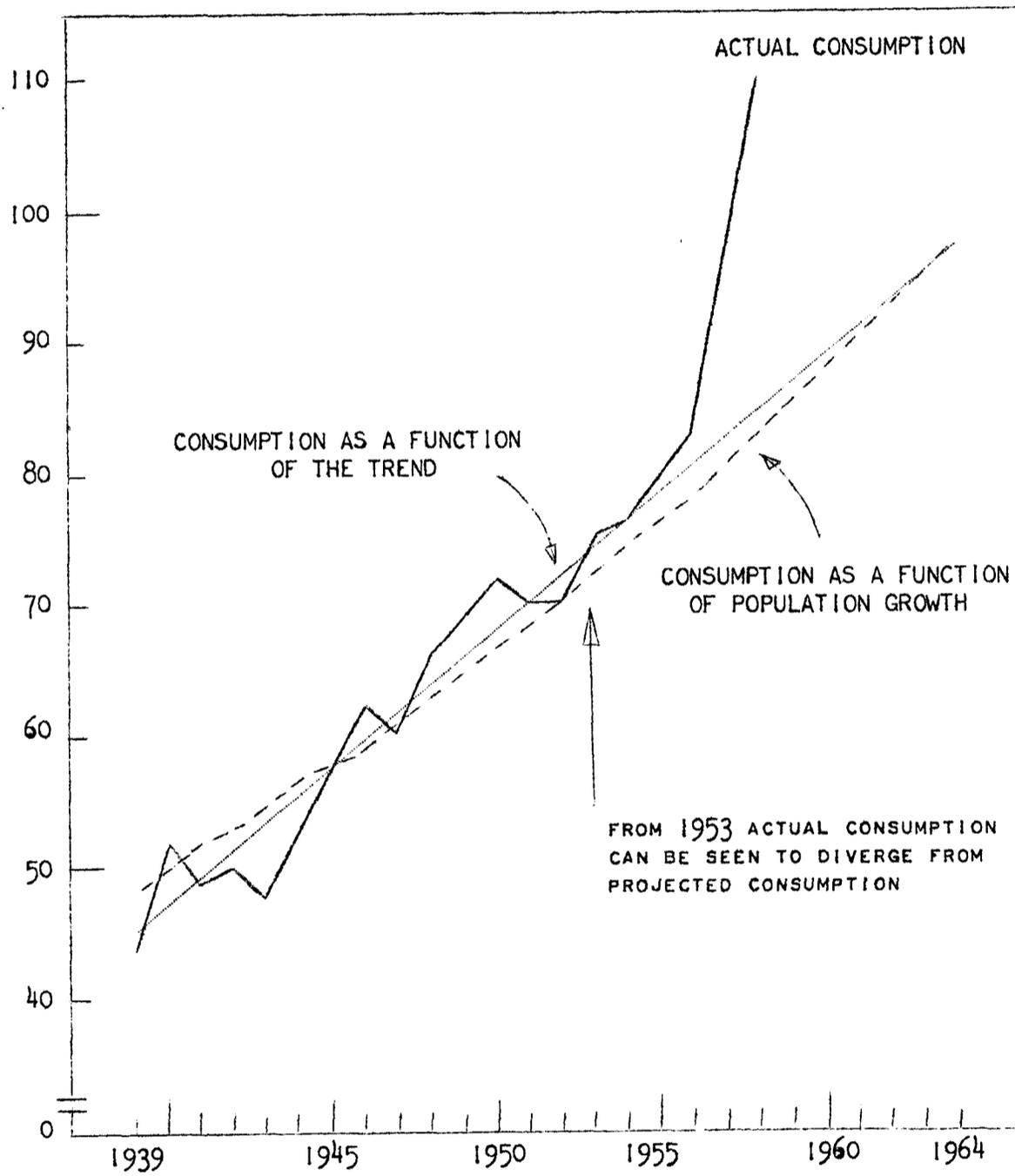
Source: Figures for projections (a), (b) and (c) are from La industria ganadera en Venezuela, op. cit., and those for projections (d), (e) and (f) from La industria ganadera de carne en Venezuela, op. cit. The figures for actual consumption are taken from table 7.

/FIGURE V

FIGURE V

VENEZUELA : PROJECTED AND ACTUAL CONSUMPTION OF BEEF ^{a/}

NATURAL SCALE



SOURCE : FIGURE N^o7 IN LA INDUSTRIA GANADERA EN VENEZUELA, OP. CIT., PLUS DATA OF ACTUAL CONSUMPTION FOR 1953-58.

^{a/} - PROJECTIONS BASED ON ACTUAL TOTAL AND PER CAPITA CONSUMPTION FOR 1939-52.

/At present

At present there is no adequate information on which to base a quantitative estimate of the relative effect of factors that might have led to such an unforeseen increase in consumption. However, it can be assumed a priori that the relatively larger volume of (and hence more elastic) supply had the greatest effect. The comparatively small rise in parity prices,^{47/} despite severe restrictions on meat imports and free market prices, appears to confirm that supply was the major factor in improving levels of consumption.

^{47/} The current prices of livestock and meat in Venezuelan markets, compared with those in Colombia, are a strong encouragement to smuggling.

V. FOREIGN TRADE IN LIVESTOCK PRODUCTS

Venezuela is the principal Latin American importer of products of animal origin, especially foodstuff. The steady rise in demand caused by high growth rates of population and income has increased the country's dependence on the import trade in the last few years, at least with respect to a number of milk products. This has happened despite the policy of self-sufficiency repeatedly advocated and despite measures restricting imports, whose effect has been nullified by the nature and increasing extent of effective demand. Although a policy of development and protection of domestic livestock production has been pursued, its growth has been less than the rate of increase in consumer trends resulting from Venezuela's greater economic development and from consequently greater purchasing power. These circumstances have influenced the structure and composition of foreign trade in animal products, producing changes which are briefly analysed below.

1. Meat imports

In earlier years, Venezuela was an exporter of livestock,^{48/} but the growing requirements of domestic consumption not only led to the suspension of exports in 1947, but also obliged Venezuela in subsequent years to resort to increasing imports of livestock for food and various kinds of frozen meat. Thus, in the three-year period 1948-50 Venezuela imported an annual average of 5,642 tons of meat, representing an average value of 13.2 million bolívares. Although the purchase of large quantities of beef were suspended in subsequent years, as in the case of poultry (see table 21), Venezuela was still obliged to import beef cattle for more or less immediate consumption and, more recently, to import frozen meat, although only as a temporary measure. Some years ago there were substantial imports of poultry, but these have now been restricted.

^{48/} In 1934-38, annual exports of cattle averaged 27,000 head.

Table 21

VENEZUELA: VOLUME AND VALUE OF IMPORTS OF FOODS OF ANIMAL
ORIGIN, 1948-50 TO 1956-58

(Annual averages)

Food	Volume (tons)				Value (thousands of bolivars)			
	1948-50	1951-52	1953-55	1956-58	1948-50	1951-52	1953-55	1956-58
Meat <u>a/</u>	5 642	518	55	47	13 244	...	...	174
Poultry	1 821	1 251	19	23	7 582	4 572	93	101
Preserved milk	27 226	28 914	35 604	41 982	70 740	73 164	87 436	95 018
Cheese	2 947	4 420	5 025	7 365	8 795	10 906	13 178	18 111
Butter	2 420	2 836	858	244	11 343	8 950	3 358	1 074
Cream	-	...	1 408 <u>b/</u>	2 056	-	...	3 904 <u>b/</u>	5 006
Lard	5 202	3 555	604	374	6 907	4 161	710	483
Eggs	7 113	10 552	13 473	19 371	15 556	21 470	23 282	36 454
<u>Total</u>					<u>134 167</u>	<u>123 223 <u>c/</u></u>	<u>131 961 <u>d/</u></u>	<u>156 423</u>

Source: Department of Trade of the Ministry of Development.

a/ Chilled, frozen and dried meat and meat in containers, not including ham, sausages and prepared meats.b/ 1955.c/ Not including meat and cream.d/ Not including meat.

2. Imports of milk products

Milk products are the main item in the import trade; in the three-year period 1956-58, their average annual value was 119.2 bolívares which was 76 per cent of the total value of purchases of foods of animal origin. One of the main items is preserved milk, for which the volume of imports expanded by 54 per cent between 1948-50 and 1956-58. There has also been a sizable increase in imports of cheese and cream in recent years, amounting in the case of cheese to 150 per cent. On the other hand, there was a marked drop in the volume of butter imports.

3. Other foods of animal origin

During the base period, annual imports of lard reached an average of 5,202 tons, with a value of nearly 7 million bolívares. In 1951-52, imports were lower, although still considerable, but in subsequent years they declined because of a preference for vegetable oils and fats, and during the three-year period 1956-58 amounted to only 604 tons.

There was a marked upward movement in egg imports, the increase for the period under examination being 172 per cent. In 1956-58, the annual value of egg imports was 36.4 million bolívares and they stood next in importance to milk products.

4. Origin of imports

(a) Meat

In recent years - 1958, for instance -, most imports have come from the United States, which supplies 80 per cent of the total imports of chilled, frozen and other (unspecified) meat. The remaining 20 per cent is imported from Spain, New Zealand, the Netherlands and other countries. Poultry imports also come mainly from the United States, but there are imports on a smaller scale from Canada, Curaçao and Denmark.

(b) Milk products

Venezuelan imports of preserved milk and cheese come from many different countries, but mainly from Canada, Denmark, the Netherlands, and the United States. Very little is imported from other Latin American countries, except for Argentine cheese (see table 22).

Table 22
VENEZUELA: BREAKDOWN OF IMPORTS OF PRESERVED MILK AND
CHEESE BY ORIGIN, 1948-49 AND 1958

(Percentage)

Country of origin	Milk powder				Cheese			
	1948-49		1958		1948		1958	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Argentina	-	-	-	-	30.0	22.0	14.0	16.0
Canada	0.8	0.5	23.0	26.0	-	-	-	-
Colombia	-	-	-	-	0.5	0.3	-	-
Denmark	0.1	0.1	18.7	14.6	1.0	1.0	28.0	21.0
Italy	-	-	-	-	0.2	0.2	15.0	21.0
Netherlands	0.7	0.6	22.0	16.8	41.0	48.0	25.0	21.0
United States	98.0	98.0	34.0	41.0	25.0	26.0	15.0	17.0

Source: Anuarios de Estadística Mercantil y Marítima and Boletín Mensual de Estadística, No.12, 1958.

/Between 1948

Between 1948 and 1958, there were considerable changes in the provenance of these imports. In 1948, purchases of milk powder and cheese in Denmark made up only a small proportion of the total, but in recent years they have increased substantially. The same applies to imports of preserved milk from the Netherlands, but not to purchases of Dutch cheese; the relative volume of imported Dutch cheese has shrunk considerably, from 41 per cent in 1948 and 62 per cent in 1952 to 25 per cent in 1958. Although the bulk of these imports, particularly preserved milk, still come from the United States, that country's relative contribution has declined in recent years. Before 1950, practically all the milk powder imported by Venezuela came from the United States. The tendency has been to expand the import trade with the other countries mentioned - such as Denmark and the Netherlands - where the relation between volume and price is more favourable for the Venezuelan importer. In 1948, no Italian cheese was bought, whereas in 1958 they constituted 21 per cent of the total volume. Canada is also an important source of milk powder imports (23 per cent of the total volume in 1958, compared with less than 1 per cent in 1948-49).

Venezuelan imports of butter are supplied mainly by Argentina, Denmark, the Netherlands and the United States, which together contribute 99 per cent of the total. In 1958 Denmark shipped 82 per cent of the imported cream; the remaining 18 per cent came from the Netherlands and the United States.

5. Imports restrictions

Generally speaking, there are no direct restrictions on livestock imports, apart from customs duties.^{49/} Yet, the restrictive effect of the duties has grown weaker as the consumer's purchasing power has become stronger and costs and domestic prices have risen. Furthermore, there are no exchange restrictions of any kind, nor any preferential trade apart from that resulting from the most-favoured-nation clause included in a number of trade treaties. Nor are there quantitative restrictions, except for the quota system that applies to milk powder imported free of duty.

^{49/} Specific duties in bolívares per kilogramme: butter 2.20; cheese 1.20; United States Cheddar 1.00; cream 1.20; and preserved milk 0.50.

/Nevertheless, in

Nevertheless, in practice import licences and prior authorization have a considerable restrictive effect. For condensed milk, for example, an import licence from the Ministry of Development is required in advance; for ham, imports are authorized only to the extent necessary to make up the deficit between consumption and domestic production, and at present commercial imports of butter are prohibited on the grounds that domestic output is sufficient to supply consumer needs.

/VI. LIVESTOCK

VI. LIVESTOCK DEVELOPMENT AND PROSPECTS OF EXPANSION

1. Livestock development programmes

This is not the place to give a detailed account of the various campaigns and services organized by various official bodies in Venezuela, but mention should be made of some programmes of livestock development undertaken by the Ministry of Agriculture and Livestock and of the great expansion of livestock credit provided by the Banco Agrícola y Pecuário.

With respect to production problems, the Livestock Department of the Ministry of Agriculture and Livestock concentrated on eliminating factors that limit productivity and on encouraging, at the same time, the more rapid expansion of the livestock population. Reference has already been made to the favourable effect of technical services for the diagnosis of animal diseases, the control of epizootics, the prevention and treatment of livestock diseases and pests, the control of animal movements, border and port inspection, and technical assistance; all these services are carried out through the 63 veterinary stations and the special animal health campaigns, with the co-operation of other veterinary and research services. As a result of these campaigns, it has been possible to control many livestock and poultry diseases and to reduce the resulting deaths and other losses to the livestock economy.

There has also been considerable progress in other aspects of the livestock industry, such as genealogical^{50/} and milk production records, studies on cattle fattening and programmes for industrial slaughterhouses. The importing of improved breeds and the channelling of livestock credit into technically worthy activities, for both of which the Livestock Department is responsible, deserve special mention for their favourable impact on the development of Venezuela's livestock industry. Mention has already been made of the Livestock Development Plan, operating through credit, as an outstandingly important measure

^{50/} Of the Zebu, Holstein, Brown Swiss, Jersey, Charolais, Santa Gertrudis, Guernsey, Pura Criolla Lechera, Brangus and Charbray breeds, there were only 65 cattle registered in 1950, compared with 2,133 in 1958 and 1,391 in the first half of 1959.

/destined to

destined to have favourable effects on future meat production in Venezuela; this plan constitutes a very valuable contribution to the General Land Reform Plan, which is already being carried out.

The Agriculture Department has also improved and extended its campaigns and research on grasses, preservation of fodder, livestock nutrition, promotion of poultry raising, selection of criollo breeds and comparative studies of foreign breeds. At the Experimental Centres of Maracay and Sanare, intensive research is being conducted on the cultivation and yield of various grasses and legumes for fodder.

The Crop and Livestock Programming Department of the Ministry of Agriculture and Livestock is organizing and promoting series of studies and activities to supplement Government action with respect to livestock and animal products. Increasing attention is being devoted to economic studies and statistical analyses of the production, distribution, processing and consumption of these products.

The Venezuelan Land Reform Act is one of the principal measures adopted recently for the benefit of crop and stock farmers and the rural population in general. Far-reaching changes in the country's agrarian structure are expected, since the reform was conceived as an integrated whole and is intended not only to ensure fulfilment of the social obligations entailed by rural land ownership, by regulated land tenure and requiring efficient land use by the owners, but also to conserve and develop natural resources, raise the rural worker's standard of living, encourage the organization of agricultural co-operatives, extend credit facilities for small and medium producers, to establish rational methods of storage, transport, preservation, processing and distribution of products, and to guarantee minimum prices for the producer. Consequently, it is reasonable to expect great advances in the livestock sector in the future, through the organization of production in intensive economic units that are intended to replace the inefficient extensive type of stock farming that is often found on large farms with fertile arable soil.

/2. Future livestock

2. Future livestock expansion

It is not possible to make even an approximate quantitative estimate of the future increases in livestock production that will result from the livestock credit plan, the current land reform programme and other Government and private activities aimed at developing the livestock industry.

From the short-term and almost certainly also from the medium-term standpoint, Venezuela will have to continue making up the deficit in its livestock production by importing various animal products, especially milk products. The low per capita consumption of essential foods of animal origin and the steadily rising purchasing power of the Venezuelan consumer, especially in the large towns, will continue to stimulate the demand for milk and meat. Domestic production cannot be expected to meet consumer requirements within the next few years. Hence increases in effective demand will probably continue to be met partly by imports, which will obviate sharp price increases leading to restrictions on consumption for the lower-income groups. In practice it is sometimes difficult to determine what volume of imports will be consistent with the interests of domestic production and will not involve major changes in the structure and level of domestic prices. In any case, the development of existing self-sufficiency programmes in Venezuela with respect to cattle and other livestock products calls for the encouragement and protection of domestic production by appropriate regulation of import trade.

On a long-term basis, however, it can confidently be asserted that Venezuela can count on a level of livestock production sufficient to supply the domestic market at higher per capita levels of consumption, if the present steady impetus to the livestock sector is maintained. Very substantial increases in production are planned, both through extending the area devoted to livestock and enlarging the herds and also through raising productivity. This, in turn, will make it possible to improve the output-input ratio and thus to get a better return on the capital and labour that goes into the livestock economy. In conclusion, it should be pointed out that if profits and returns on livestock and

/and related

and related activities do not improve in relation to other sectors of the economy, the rate of production in the livestock industry will remain insufficient to meet the steady expansion of effective demand resulting from high purchasing power. There is every reason to expect that Government action will continue to provide the required incentives and to encourage a rate of livestock development fully consistent with the growth in other sectors of Venezuela's economy.



