

UNITED NATIONS
ECONOMIC
AND
SOCIAL COUNCIL



GENERAL

E/CN.12/594
25 March 1961

ENGLISH
ORIGINAL: SPANISH

ECONOMIC COMMISSION FOR LATIN AMERICA
Ninth Session
Santiago, Chile, May 1961

STOCK FARMING IN URUGUAY: ITS STATUS AND PROSPECTS

Document prepared by the Joint ECLA/FAO Agriculture Division

Note: This text should be regarded as incomplete since the work of analysing the material collected is still in progress.

CONTENTS

	<u>Page</u>
Introduction and summary	1
I. Livestock resources and their utilization	6
II. Factors limiting livestock development	11
III. Future prospects	14
Annexed figures	15

INTRODUCTION AND SUMMARY

A historical analysis of events relating to Uruguayan stock farming activities leads to two basic conclusions: (1) the country's economy has depended very largely on the development of the livestock industry; and (2) livestock production shows clear signs of relative stagnation over the long term.

Uruguay has the highest livestock density figures in Latin America, both per square kilometre and per capita. It is therefore not surprising that a salient factor of its economy should be the preponderance of stock farming as a source of income and foreign exchange. Livestock exports have seldom fallen below 65 per cent of the country's total exports and in some years have exceeded 75 per cent. Virtually the whole area of the country - 187,000 kilometres - is used for agriculture. Of this total, 83 per cent is pasture-land, 9 per cent is used for food crops and the remainder consists of unproductive soil, urban areas, roads, etc. (see table 1).

The problems created by this unusual dependence on stock farming have become more acute in the past few years, during which the drop in livestock exports has had an adverse effect on Uruguay's overall economy. Total exports, after reaching a maximum figure of 238 million dollars in the three-year period 1951-53, slumped to only 98 million dollars in 1959 because of the approximately 110 million dollar drop in livestock exports. The heavy rains and floods in 1959, which caused the heaviest damage to agriculture within living memory, were an adverse factor. This calamity and the animal diseases which followed caused a drop of more than 20 per cent in the volume of the wool crop compared to 1958. Also affected was the production of beef and mutton, which had already started to decline in previous years.

World wool and meat price fluctuations have naturally had an impact on the total value of exports. However, the decrease in the export volume of wool and meat seems to have been caused less by fluctuations in world demand than by the stagnation of meat production and the rise in domestic consumption.

Table 1

URUGUAY: DISTRIBUTION AND USE OF LAND OCCUPIED BY RURAL ESTABLISHMENTS

(Thousands of hectares)

Use of land	Area	
Natural fields	13 689	
Artificial pasture	457	
Stubble-fields	270	
Natural forests	<u>435</u>	
Total grazing land		14 851
Truck gardens	46	
Orchards	36	
Vineyards	19	
Arable land (grains, industrial oilseeds)	1 439	
Artificial forests	<u>119</u>	
Total agricultural land		1 659
Non-productive land		<u>250</u>
Total area		16 760

Source: 1956 agricultural census.

/the Uruguayan

The Uruguayan livestock industry must develop more rapidly in the future if it is to satisfy the demand created by higher levels of living and population growth. The purpose of a study such as this is, therefore, to investigate the causes that have led to the present stagnation and, once these causes are known and have been analysed, to propose measures which will enable Uruguay to overcome its present inertia and to embark on a period of real growth in livestock production.

The Uruguayan cattle industry has remained static for a number of years because, for one thing, the agricultural frontier has long ceased to exist. In other words, Uruguay already consisted entirely of open plains when the cattle industry was first introduced into the country and livestock production to-day is still based on the same land. The increase in output achieved in earlier years was due almost entirely to the growth of livestock inventories and to the improved quality of the cattle. The stage has been reached to-day where the grasslands cannot carry more cattle unless they are improved, and therefore the additional benefits deriving from measures to improve cattle breeds are progressively diminishing. A radical change in stock farming methods therefore seems essential if a significant increase in livestock production is to be achieved and this will certainly require a powerful impetus at the initial stage.

Sufficiently strong inducements to cattle-breeders to increase their investment in activities which would improve output have long been lacking. Worse still, various adverse factors seem to have caused large amounts of capital to be diverted to other sectors. While it might be argued that this was done deliberately in order to develop secondary industries, it is none the less necessary to provide farmers with strong economic incentives to increase crop and stock production.

The reasons for the lack of progress in livestock production may be grouped into two major categories, one economic and the other institutional.

stals • account /

under the tenant-farming system it is very important and should be taken into
developed in Uruguay it must be recognized that the country is not yet

stagnation of stock farming can be expected to be highly complex. In fact, the prices which the Uruguayan farmer receives for his products are affected not only by the sharp fluctuations on world markets but also by Government intervention through multiple exchange rates, the monopoly of processing plants, ceiling prices for the consumer and subsidies for import substitutes. There has also been a marked tendency to maintain high prices for imported items required by agriculture: machinery, fencing, fertilizers, grass seeds, etc. As a result of all these measures, cattle-breeders show little inclination to increase livestock production.

Institutional factors have had an equally significant effect. The livestock industry in Uruguay is normally conducted on a vast scale. This has enabled stock farmers to effect substantial savings in a few cost factors, particularly labour, and thus to avoid the consequences of a drop in prices which is at times artificial. The price of land is high, in spite of the relatively low yield per unit of area, and this may be attributed to highly efficient work methods, the social benefits deriving from ownership of farmland and the demand for land as a bulwark against inflation.

The demand for land has had the adverse effect of causing higher prices for agricultural commodities to be reflected in corresponding increases in the value of land. The farmer uses his larger profits to buy more land instead of ploughing them back to improve the productivity of the land he already has.

The rural landowner in Uruguay does not normally live on his farm. Few landowners, therefore, know much about the technical aspects of farming and even less about the possibilities of improvement. On the other hand, their knowledge of the city provides them with ample opportunities for investing their surplus capital. This lack of technical knowledge is a particularly serious obstacle at a time when farming methods must be drastically changed, because the landowner is reluctant to make an investment, however profitable it might seem, in something which involves the adoption of new techniques with which he is not familiar and if he feels that such little technical advice as is available is inadequate.

account. Rentals are high and the tenant-farmer barely ekes out a meagre living and then only because he overloads the carrying capacity of his land with sheep. This represents a serious loss of capital to the livestock industry, because much of the land rented is spoiled by erosion over the years and its fertility is thus reduced.

Inadequate facilities for the marketing of meat and wool, illicit slaughter, smuggling and unsatisfactory extension and veterinary services are other economic and institutional factors which must be investigated in order to obtain a more complete picture of the causes underlying the present situation.

Once the chain of cause and effect is known, more satisfactory solutions can be considered. These will certainly include powerful economic incentives to induce farmers to invest more capital in livestock improvement. These inducements might take the form of a better cost-price ratio, easier and cheaper credit facilities, a discriminatory tax system to discourage the inefficient farmer, etc.

Technically speaking, the key to increased livestock production seems to be the widespread use of phosphate fertilizers, which would contribute, probably successfully, to the establishment of new artificial pastures and to the greater productivity of existing grasslands. This measure alone, as experience has shown, will substantially enhance the carrying capacity of the land and hence its productivity. This in no way obviates the need for supplementary measures such as the building of fences, watering places, sheep enclosures, improved shearing methods, etc. These measures, however, would be to little purpose unless more grasslands were provided through the use of phosphate fertilizers.

The State will naturally have an active part to play in connexion with all these measures since it must provide the proper economic and institutional framework in which the livestock industry can develop rapidly. Many of the measures which will have to be adopted have already been tested on an experimental basis, but it must be pointed out that no substantial progress can be expected unless extension, veterinary and research services are improved and expanded.

I. LIVESTOCK RESOURCES AND THEIR UTILIZATION

Several decisive factors have contributed to the outstanding development of the Uruguayan livestock industry in the last century and part of the present, perhaps the most important of them being the temperate climate, the satisfactory mean rainfall and the carrying capacity of the soil, amply endowed as it is with natural pasture. These natural conditions were so conducive to extensive and highly remunerative farming that Uruguay became the country where prime-quality meat was produced and exported at the lowest production cost. Factors contributing to this position were the constant progress in livestock improvement and in meat processing methods.

With regard to the quality of the cattle land, it should be pointed out that it is still generally quite satisfactory in spite of years of continuous grazing, not always properly managed. Taken as a whole, however, the land is not - contrary to the general belief - highly fertile. While no soil map is available, it is estimated that of the country's 14.85 million hectares of natural and artificial grasslands only 1 million hectares are exceptionally fertile, 2 million hectares are fairly fertile and the rest, except for a few patches of good quality soil, is progressively less fertile.

As for the improvement of the livestock - by crossing, selection and other breeding methods - it must be admitted that considerable progress was achieved during the same period, so much so that criollo cattle - 32 per cent of the cattle population in 1908 - have not appeared in any census since that of 1924. The same applies to sheep; no criollo strains have been reported since 1916, whereas they constituted some 5 per cent of sheep inventories in 1908. This does not mean that there is no room for further improvement. A brief examination of Uruguayan livestock production, compared with that of other cattle countries, shows the relative extent to which Uruguay has fallen behind.

While Uruguay still boasts the highest livestock production indices in Latin America in relation to its area and population, it has slowly been losing the eminent position it held in the world up to the 1930's. This

/is indicated

is indicated clearly in tables 2 and 3. The number of animals per square kilometre has remained unchanged in Uruguay but has grown considerably in other countries. The cattle-to-population ratio has dropped sharply, so much so that Uruguay is now clearly behind New Zealand and Australia.^{1/}

Notwithstanding its importance in the Uruguayan agricultural sector, the livestock industry has remained virtually static over the past few years. This is clearly apparent from the fact that the value added of livestock production rose by only 2 per cent between 1946 and 1958-59, a much lower rate than that of the population growth and was responsible for the drop of about 18.6 per cent in per capita production during the same period. Per capita consumption of foodstuffs of animal origin nevertheless remains among the highest in Latin America and the world.

Fortunately, Uruguay's natural resources offer ample development prospects for the livestock industry. They will enable Uruguay not only to continue satisfying its domestic requirements but also to maintain and even expand its exports, on which the growth of its economy is increasingly dependent.

Livestock inventories in 1959 amounted to 7,587,000 head of cattle and 21,259,000 sheep. Of the 14,850,000 hectares of land used for stock farming, only 4.5 per cent were artificial pastures, 2.9 per cent natural wooded areas, 1.6 per cent permanent stubble-fields and the remainder perennial natural pastures.

Cattle and sheep usually complement one another on farms throughout Uruguay, although the density of purely stock farms is lower in departments nearer the capital, where it is more economical to grow crops or carry on mixed farming because of land values and the requirements of the chief consumer market. Stock farming has become more intensive in several of these departments, large areas being used for the supply of fresh milk to Montevideo.

^{1/} Uruguay's decline in both aspects has actually been greater because the yield of meat, and particularly wool, per animal has increased proportionally more in Australia and New Zealand.

Table 2
LIVESTOCK DENSITY IN SELECTED COUNTRIES, 1927 AND 1958
(Animals per square kilometre)

Country	Cattle		Sheep		Standard animal units	
	1927	1958	1927	1958	1927 ^{a/}	1958 ^{b/}
Uruguay	45.1	42.0	120.4	131.6	69.0	68.7
Argentina	12.5	14.7	12.0	16.9	14.9	16.3
Brazil	4.1	8.2	0.9	2.4	4.2	9.7
United States	6.5	11.9	4.4	4.0	7.3	14.0
Australia	1.7	2.2	11.7	19.4	4.0	6.1
New Zealand	13.0	21.9	91.4	171.3	31.2	56.6
Union of South Africa	1.7	9.8	5.6	31.2	2.8	16.2

Source: S. Rodríguez, El Uruguay, país agropecuario (1928) and FAO, Production Yearbook (1950).

a/ Cattle and sheep.

b/ Cattle, sheep and pigs (the ratio of sheep and pigs is calculated on the basis of 0.200 of either to one cattle unit).

Table 3

RATIO OF POPULATION TO CATTLE IN SELECTED COUNTRIES, 1927 AND 1958

(Number of animals per capita)

Country <u>a/</u>	Cattle		Sheep		Standard animal units	
	1927	1958	1927	1958	1927 <u>b/</u>	1958 <u>c/</u>
Uruguay <u>d/</u>	4.8	2.8	12.8	8.6	7.3	4.5
Argentina	4.3	2.0	4.2	2.3	5.1	2.2
Brazil	1.1	1.1	0.2	0.3	1.2	1.3
Australia	2.5	1.7	14.0	15.1	5.3	4.8
New Zealand	2.8	2.6	18.8	20.2	6.6	6.7
Union of South Africa	1.3	0.8	4.6	2.7	2.25	1.4
United States	0.6	0.5	0.35	0.2	0.7	0.6

Source: Yearbooks of the International Institute of Agriculture in Rome, and S. Rodríguez, El Uruguay, país agropecuario (1928).

a/ The figures for some countries relate to different years falling within the period 1923-27.

b/ Cattle and sheep.

c/ Cattle, sheep and pigs.

d/ Cattle inventories for Uruguay are based on the 1956 agricultural census.

/The breeding

The breeding and fattening methods employed have led to the concentration of the pig population in several departments in the southern part of the country, particularly because of the abundant supply of fodder in that area. Poultry farming, on the other hand, is distributed fairly equally throughout the country, although most of the processing plants are situated in departments near the capital and the seaside resorts of the River Plate and the Atlantic coast.

While many stock farms have improved their techniques in the past ten years, the predominance of extensive farming on unimproved natural pastures - often badly managed and with unsatisfactory yields per animal - is responsible for stagnation in the production of meat per hectare. The same cannot be said about the output of wool and milk, which has risen slightly. The rate of cattle slaughter is only 14 per cent, which reflects the length of the preparation period - now four years and sometimes as high as five or six years for steers. The slaughter rate for sheep is also 14 per cent, this low figure being no doubt a result of the priority given to wool.

The annual production rates for dressed beef - 28 kg per head of cattle and 14.5 kg per hectare - are higher than in most other Latin American countries but lower than in Argentina, Australia and Chile - about 50 kg per animal - and much lower than in France, the United States and the United Kingdom, where they are over 70 kg per animal.

The wool yield per animal has grown over the past few years. In 1958-59, for example, the average output of wool per animal and per hectare was 3.8 kg^{2/} and 5.4 kg respectively. These figures compare unfavourably with those for New Zealand - 5.3 kg and 11 kg respectively.

With regard to dairy farming, the average annual national yield is 1,400 litres per cow, although in the Montevideo dairy region it is believed to have exceeded 2,300 litres per milk cow in 1960.

^{2/} Estimates based on inventories in May 1959.

II. FACTORS LIMITING LIVESTOCK DEVELOPMENT

The following are among the chief factors limiting livestock productivity: (a) the low level of technique in the grazing and feeding of livestock as well as in the prevention and treatment of disease; (b) the poor standards of efficiency in the handling of animals; (c) lack of integration between stock and crop farming, which impedes the more effective use of production factors; (d) lack of essential facilities for livestock improvement, such as the splitting-up of pastures, the building of silos and sheds for storing fodder, increase in the water supply, sanitary installations and the planting of trees for shelter and shade; (e) inadequate control of plant and animal pests commonly found in pastureland.

The following may be included among the more significant economic and administrative factors: (a) institutional factors related to land use and farm size, which could not be properly dealt with by the national resettlement organ for lack of funds; (b) insufficient national agricultural research and extension organizations; (c) the very small scale of reinvestment of profits in activities designed to increase productivity; (d) lack of systematic organization in marketing arrangements, both internal and external; (e) absence of a nutrition programme adequately geared to the overall economy and particularly to land policy.

Special reference should be made to the extraordinary incidence of cattle diseases, largely responsible for the higher mortality rate and substantial production losses, amounting in 1959 to about one-third of the value of total livestock output.^{3/}

Equally serious are the shortcomings and defects in animal feeding, which may be attributed chiefly to the following causes: (a) very few natural grasslands have been improved; they have generally lost their fertility and are overgrazed; (b) most stock farmers who have arable

^{3/} Losses caused by diseases cannot be attributed to that factor alone because they are often related to the pasture system, its poor handling and its crises. The borderline between these two negative factors cannot always be accurately laid down.

land do not grow grasses of high nutritional value, as indicated by the fact that artificial pastures represent only 4.5 per cent of the total grasslands; (c) the inadequate size and use of pastures where the rotation method is not applied; this has an adverse effect on the quality and quantity of grass and is responsible for the excessive growth of weeds, the lack of diversification in fodder crops and the formation of unsuitable mixtures; (d) lack of hay and silage stocks prepared from fodder harvested during the good seasons, which could be used as supplementary food during critical winter periods.

A brief reference should be made to the problems arising out of the supply and demand situation as regards animal products.

In the first place, it should be borne in mind that Uruguay has one of the highest per capita consumption rates of protective foods of animal origin. Of these, meat and milk are the most important. With regard to milk, supply has fully kept pace with the increase in demand produced by population growth, higher incomes and relatively favourable prices. Thus, the annual per capita supply of fluid milk rose from 163 litres in the three-year period 1948-50 to 229 litres during the period 1957-59.

The factors conditioning milk demand also affected the demand for meat. Here, however, supply failed to respond with the same degree of elasticity and a rise in meat prices ensued. Livestock inventories and productivity did not increase and this resulted in a gradual decline in per capita meat production. Thus the only way to avoid a sharp drop in per capita consumption was to reduce imports to an increasing extent. While thirty years ago 62 per cent of Uruguay's meat production was exported, exports amounted to only 14 per cent of total output in 1959. In spite of this huge increase in the domestic consumption of meat, consumption has had to be cut in order to avoid a further drop in exports. Thus, per capita consumption as a whole fell from 106 kg in the three-year period 1948-50 to 10 kg in 1957-59 and to only 95 kg in 1959.

If this situation continues at the rate of the historic trend of slaughter for consumption, beef exports will cease by 1968 and the drop in per capita consumption is bound to be more severe.^{4/} Viewed from

^{4/} In surveys carried out 20 years ago this situation was forecast for 1978, which shows how much more momentum it has gained in recent years.
/another angle,

another angle, the situation will perhaps make it possible for the first time to introduce into the diet of the population foods to replace meat which have so far been shunned by the consumer.

A study of distribution and supply difficulties reveals that producers are not responsible for some of the problems affecting the livestock industry. This would apply, for instance, to problems related to the marketing of cattle and meat and, of course, wool.

Other negative factors which compel the consumer to shoulder the higher cost resulting from the disorganized market and likewise reduce the farmer's share of the final price are: constant price fluctuations - often the result of official measures and sometimes caused by the proliferation of the black market in meat that exists alongside the legal monopoly held by the Frigorífico Nacional over the supply of cattle for the capital; the existence of middlemen who - like the host of middlemen connected with the black market - encourage speculation; the decentralization of slaughter operations - formerly concentrated mostly in three or four large refrigeration plants and to-day scattered over a vast number of slaughter-houses, many of them operating under deplorable conditions and uneconomically in view of the small number of animals available for slaughter and the virtually total wastage of by-products.

A plethora of middlemen may also be found in the marketing of wool, where many sales are transacted on the farms themselves and involve dealers, jobbers, brokers, exporters and industrialists.

As a rule, the producer does not concern himself with marketing or other functions - such as grading - which can be carried out near the farms. However, some wool co-operatives - though a very few - have begun to react. At present they deal with only some of the aspects of the wool marketing process but it is hoped that they will gradually extend their operations until the entire process is covered.

III. FUTURE PROSPECTS

It may be concluded from the data compiled for the present study that producers, experts and Government officials will have to make tremendous efforts to achieve a substantial increase in livestock production. The obstacles now impeding the development of the livestock industry in Uruguay are not insuperable, considering present prospects for improving techniques. On the contrary, the outlook for the expansion of the Uruguayan livestock industry is most promising. Yields very much above the average for the country have been achieved on experimental and some commercial farms. If techniques were applied on a broader scale so that modern and rational stock farming methods reached more farms, Uruguay could conceivably recover, at least in part, the outstanding position it formerly held on world markets.

Thus, for instance, it should not be difficult to raise the average yield of beef per hectare to 21 or 22 kg within 10 years, considering that good winter-grazing fields now produce about 75 kg per hectare per year^{5/} and that the yield on some modern farms is as much as 100 kg or even 150 kg. Another step which could be taken is to reduce the age at which steers are slaughtered by one year so as to bring the slaughter rate closer to those in Argentina and other countries. This would immediately produce a substantial increase in the yield of beef per hectare.

If Uruguay can attain the levels of output mentioned above, it will be in a position to satisfy the domestic market^{6/} and export about 120,000 tons of beef annually, thus equalling the highest figures reached in the past. Similarly, substantial increases are possible in the production of various meats, wool, milk, eggs and other products of animal origin, which would enable Uruguay to improve its foreign exchange position considerably and to achieve sounder and more balanced economic development.

^{5/} On farms without sheep or lambs.

^{6/} Assuming that per capita consumption does not exceed its present high levels.

ANNEXED FIGURES

FIGURE I

URUGUAY : AREA USED FOR LIVESTOCK, 1959

(Millions of hectares)

Natural scale

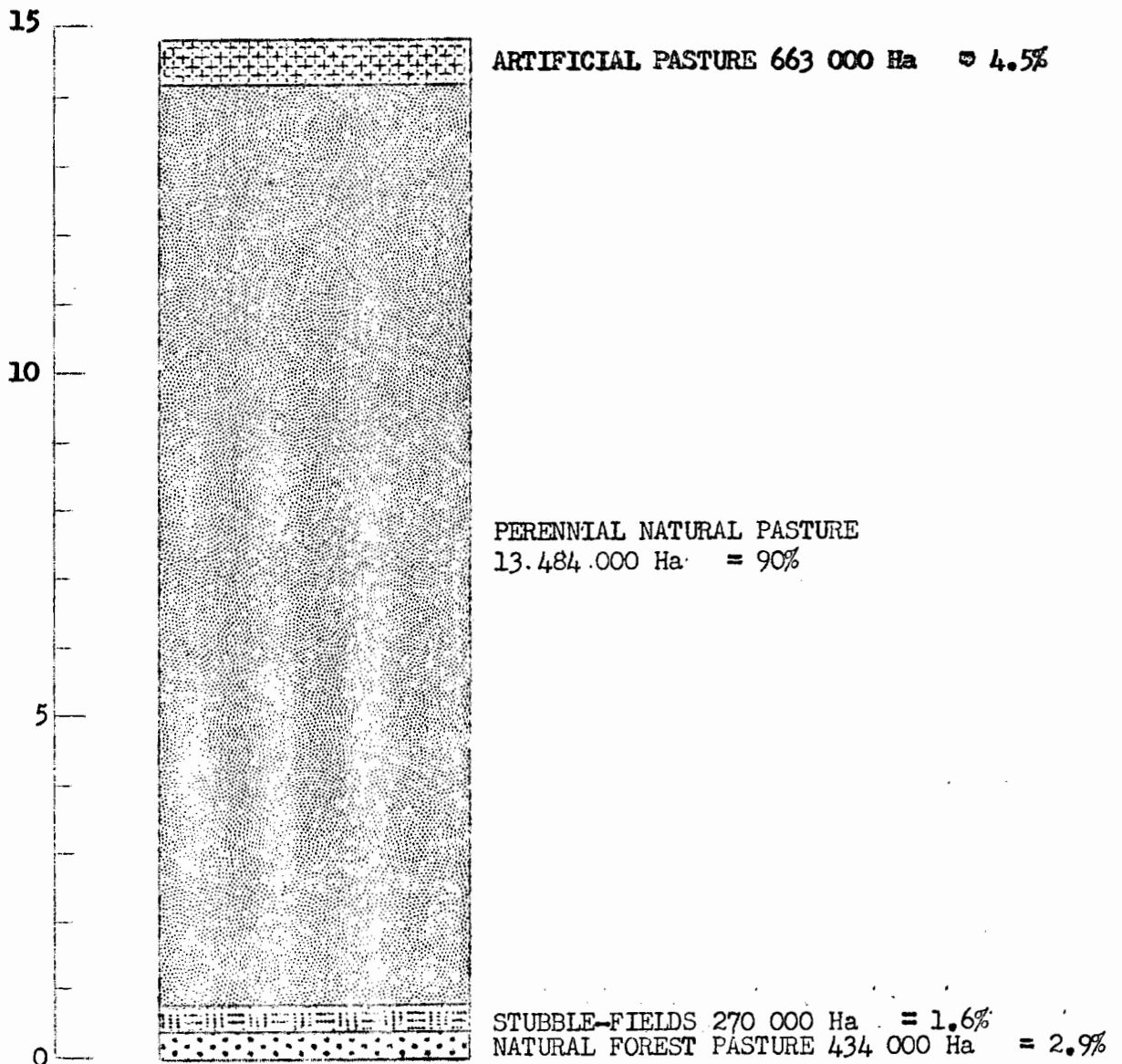
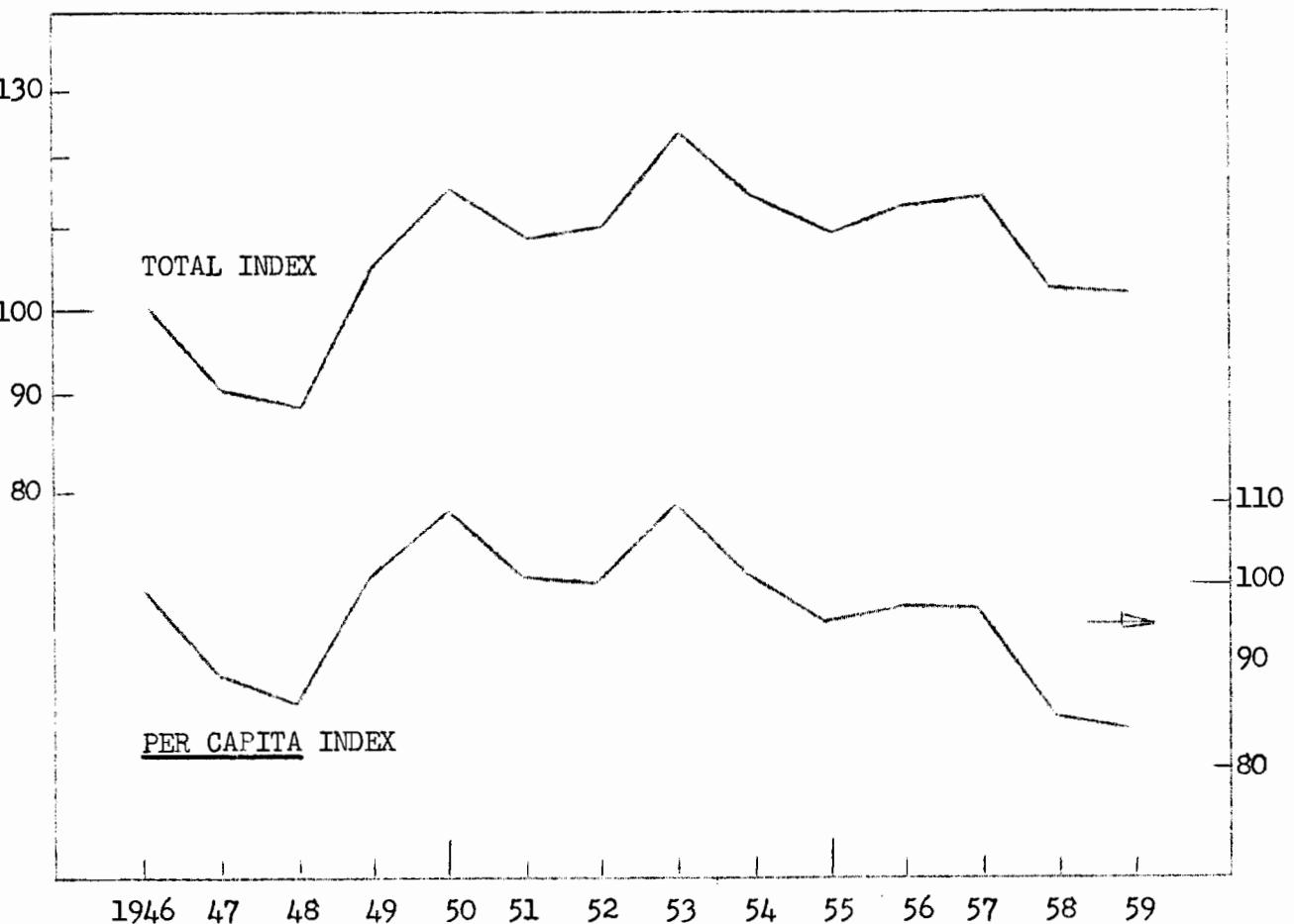


FIGURE II

URUGUAY : TOTAL^{a)} AND PER CAPITA LIVESTOCK PRODUCTION INDICES, 1946-59

(1946 = 100)

Semi-logarithmic scale



a) Cattle, sheep, pigs, poultry, wool, milk and eggs.

Source: Department of Rural Economy.

FIGURE III

URUGUAY : MEAT PRODUCTION BY SPECIES, 1958-59
(Annual average)

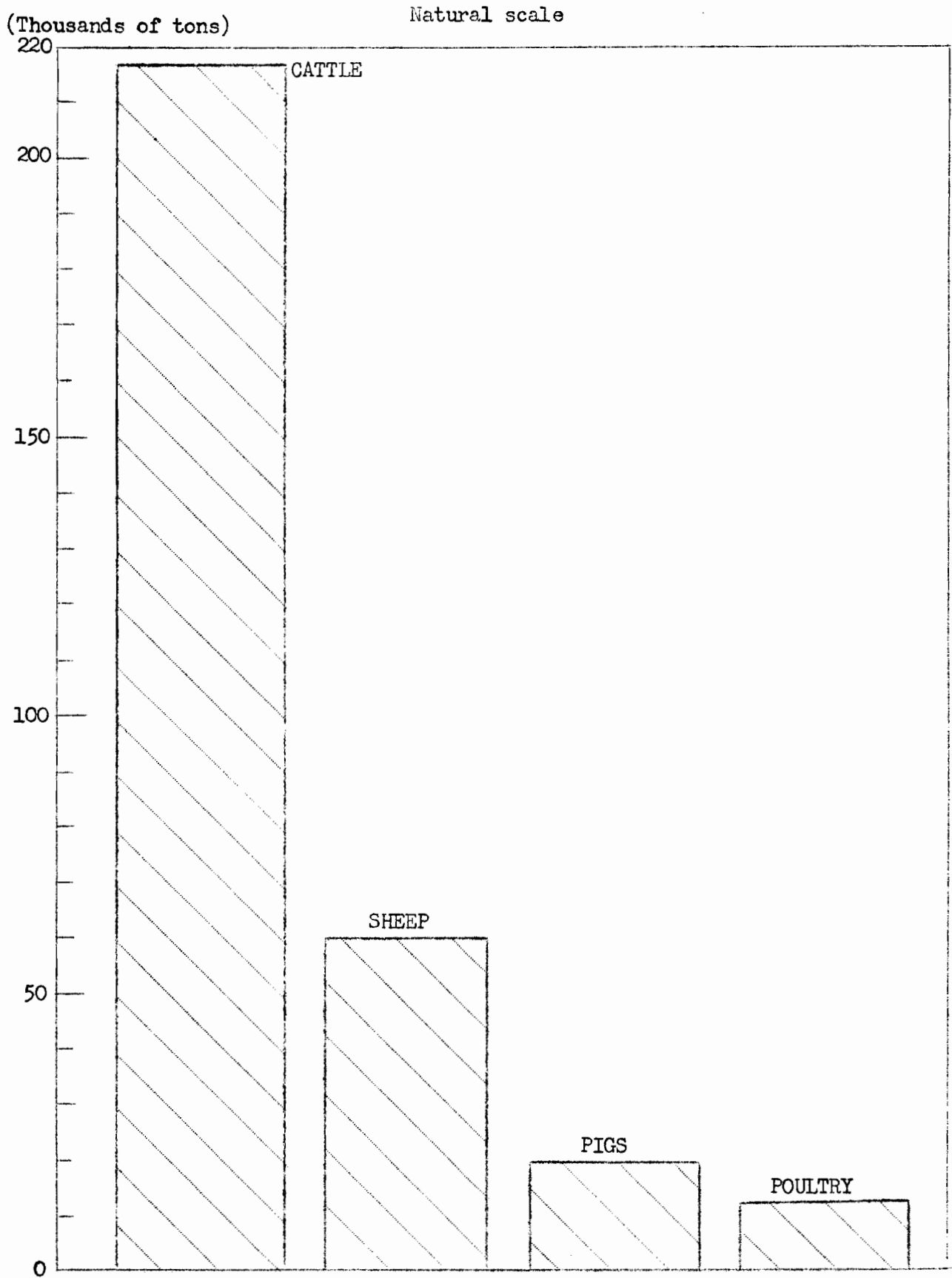


FIGURE IV

URUGUAY : HISTORIC TREND OF TOTAL CATTLE SLAUGHTER, 1916-59

Semi-logarithmic scale

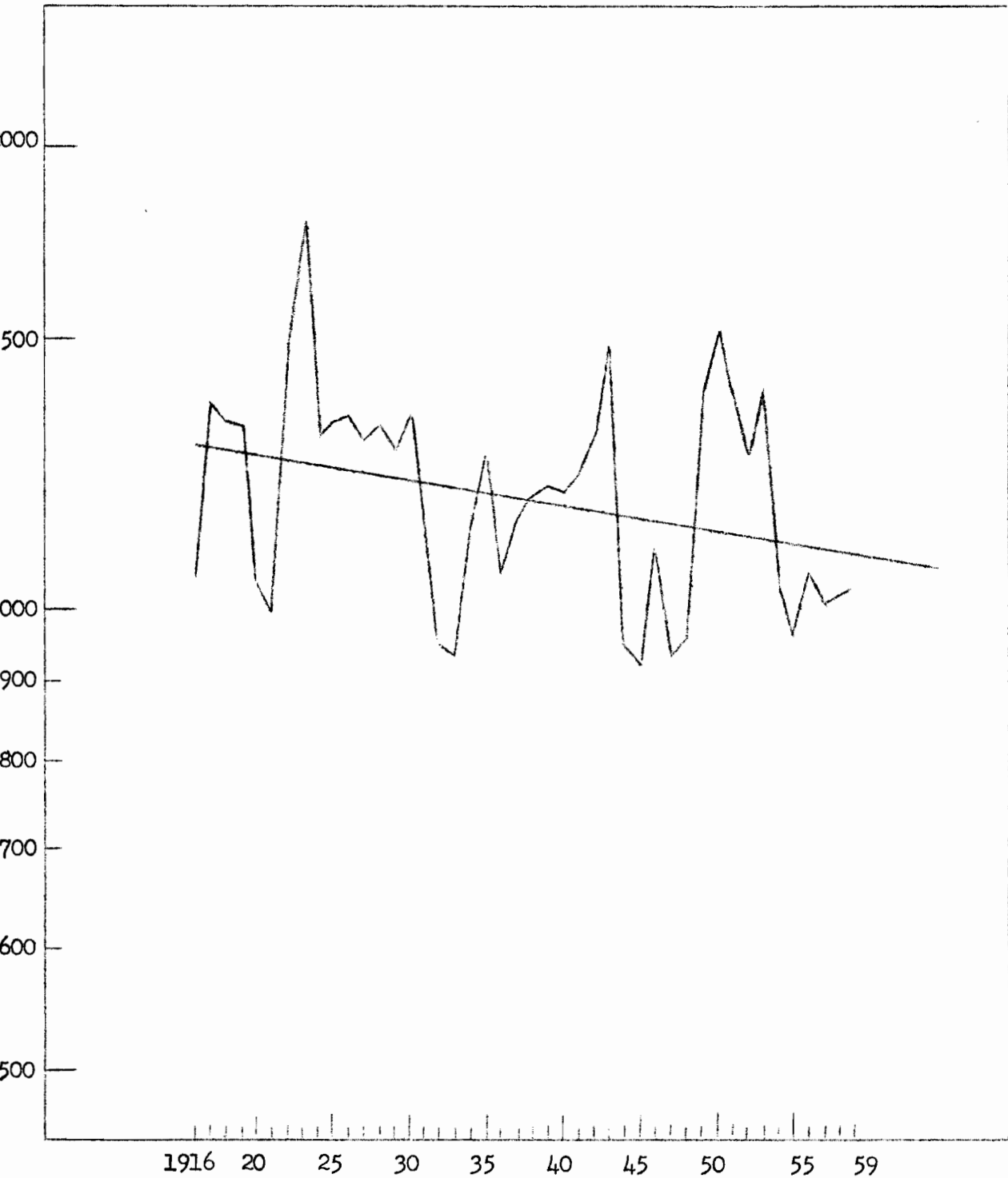


FIGURE V

URUGUAY : HISTORIC TREND OF CATTLE SLAUGHTER FOR INTERNAL CONSUMPTION
AND OF POPULATION GROWTH, 1928-59

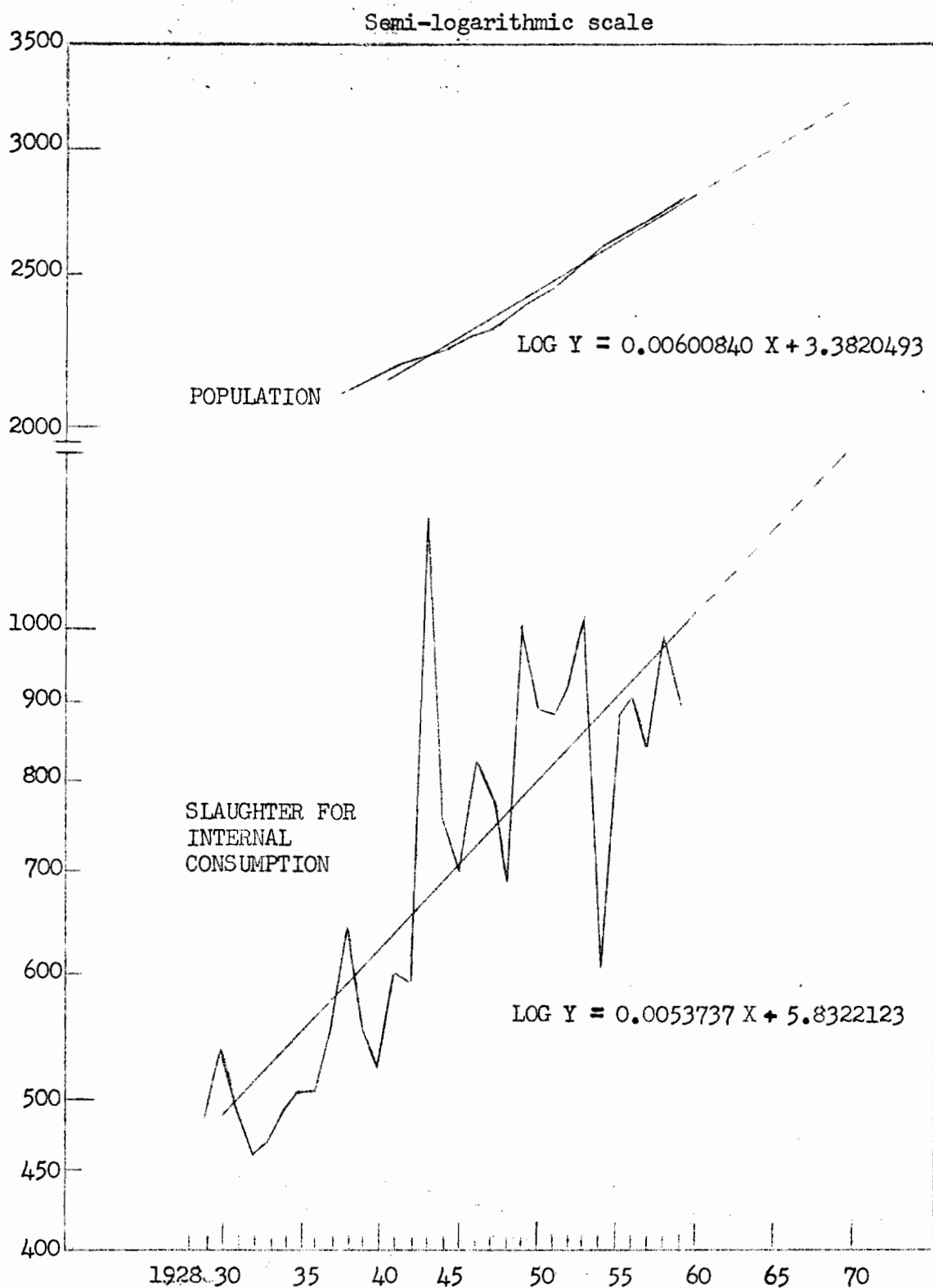
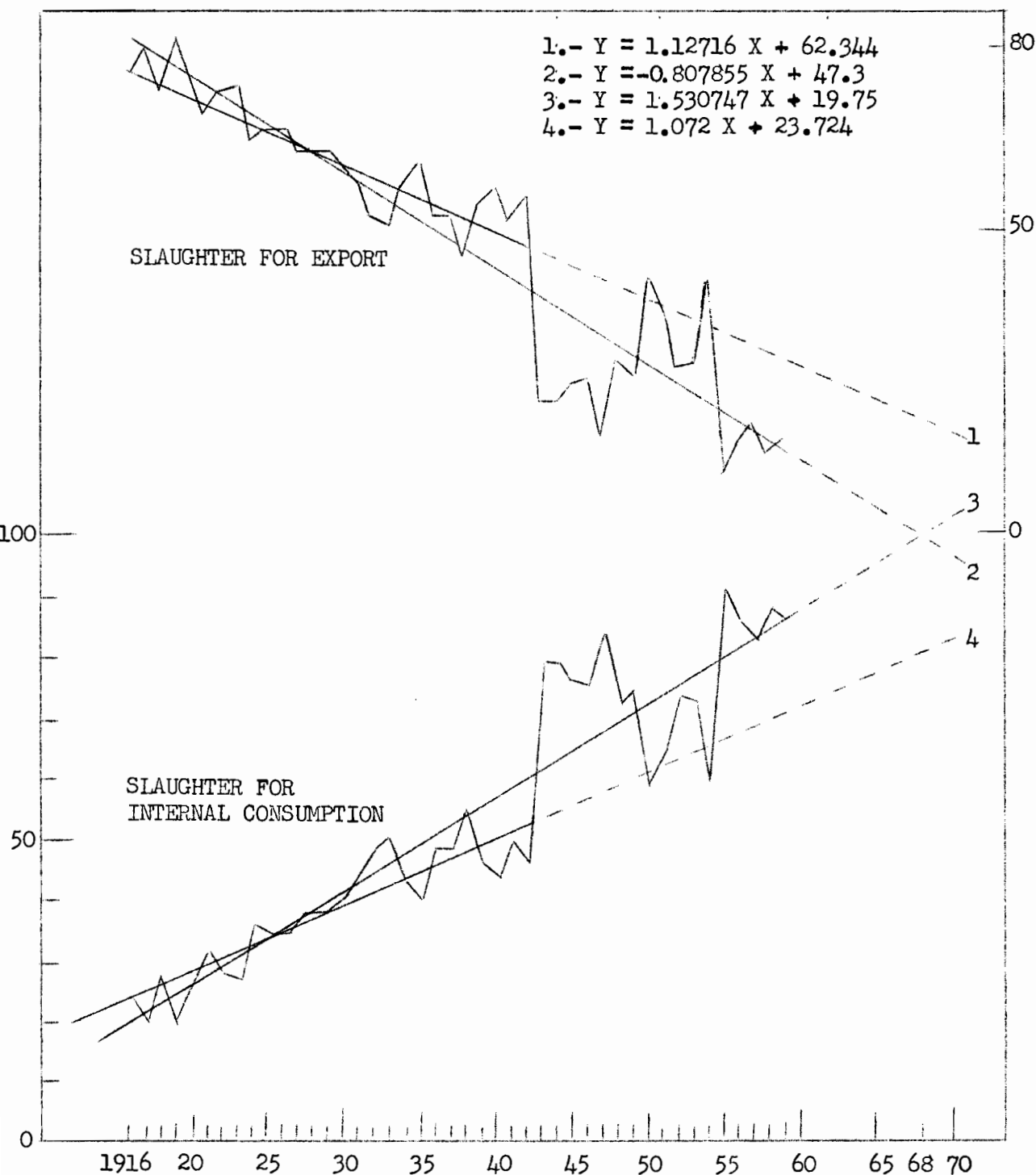


FIGURE VI

URUGUAY : PERCENTAGE OF ANIMALS SLAUGHTERED FOR INTERNAL CONSUMPTION
AND EXPORT, 1916-59 ^{a)}

Natural scale



a) This figure shows the rapid increase in slaughter for consumption and the correlative decline in slaughter for export and may be compared with an earlier survey covering the period up to 1942. It will be seen that the process has accelerated since then and that both lines converge in 1968, signifying the end of meat exports.

FIGURE VII

URUGUAY : HISTORIC TREND OF MILK PRODUCTION, 1948-59
(Millions of litres)

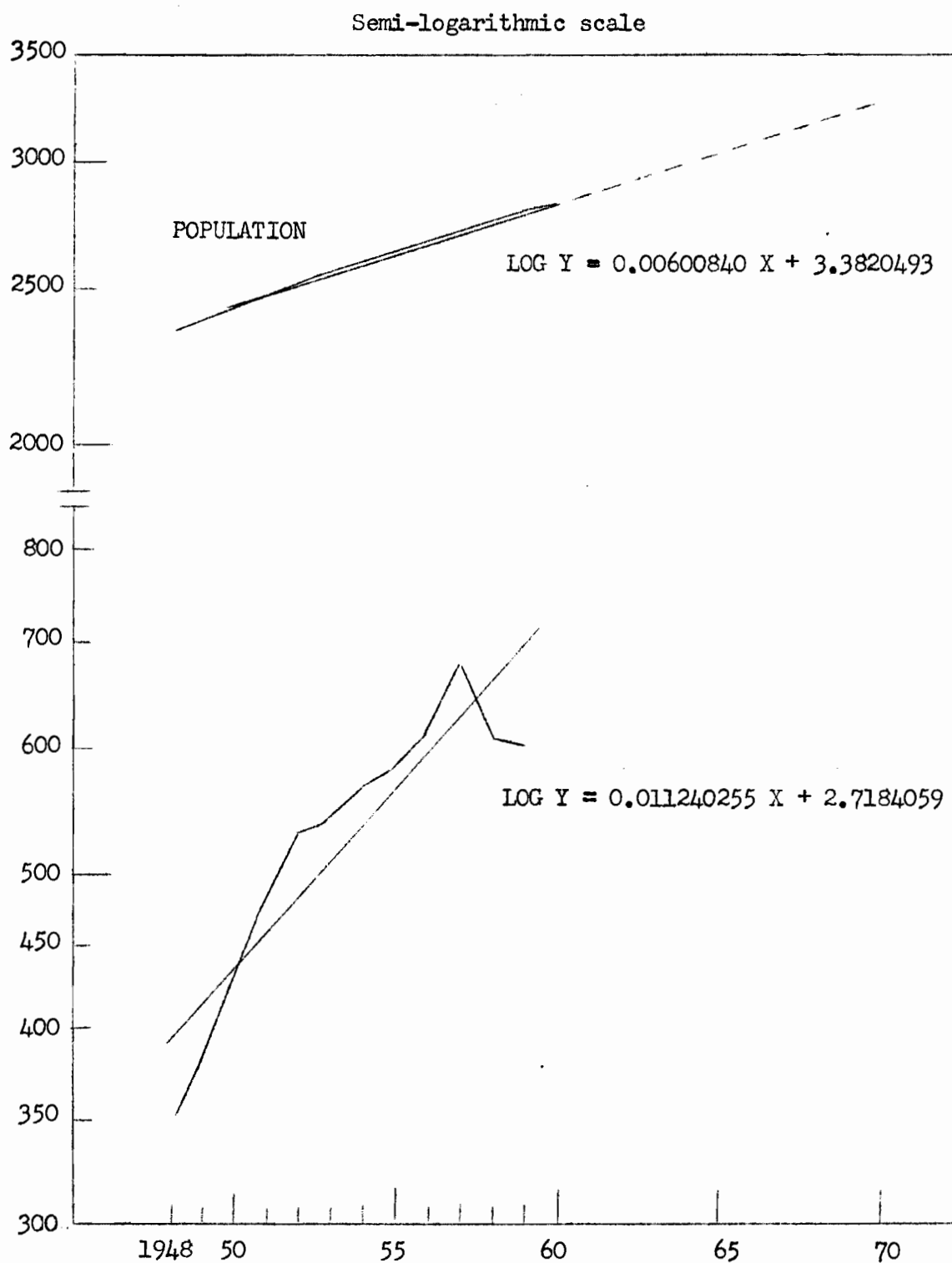


FIGURE VIII

URUGUAY : HISTORIC TREND OF FISH PRODUCTION, 1947-60

Semi-logarithmic scale

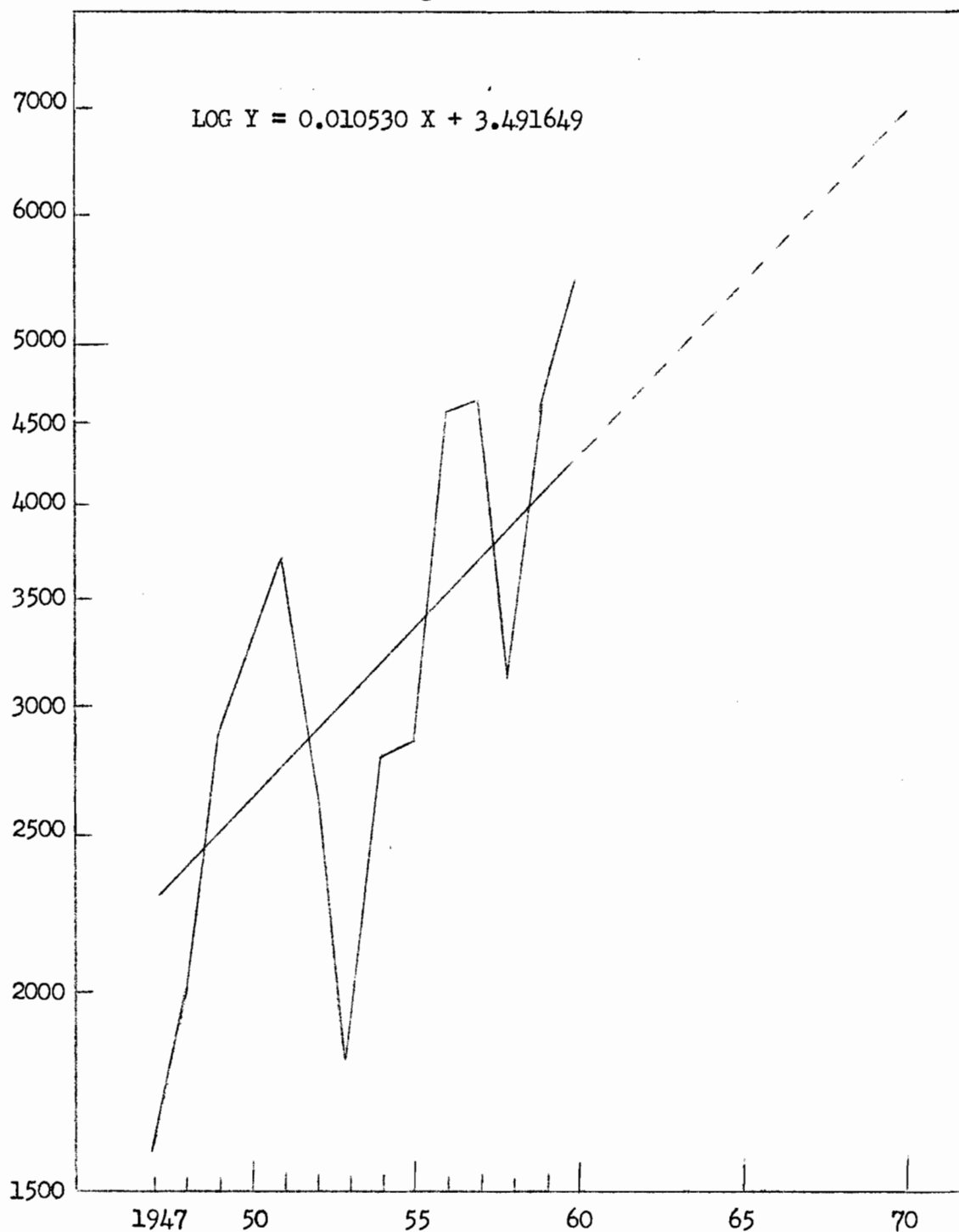


FIGURE IX

URUGUAY : HISTORIC TREND OF WOOL PRODUCTION, 1915/16-1959/60

(Thousands of tons)

Semi-logarithmic scale

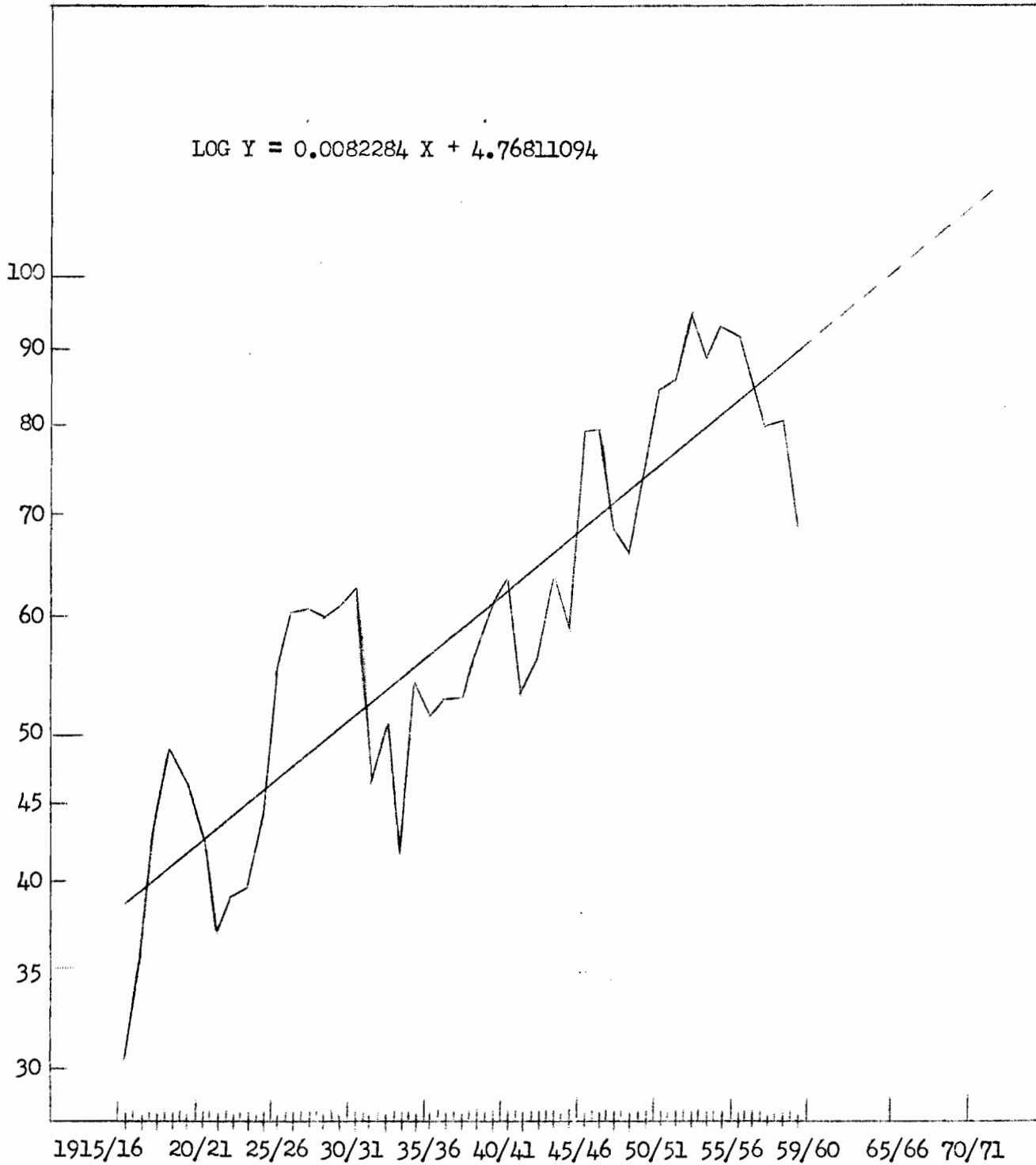
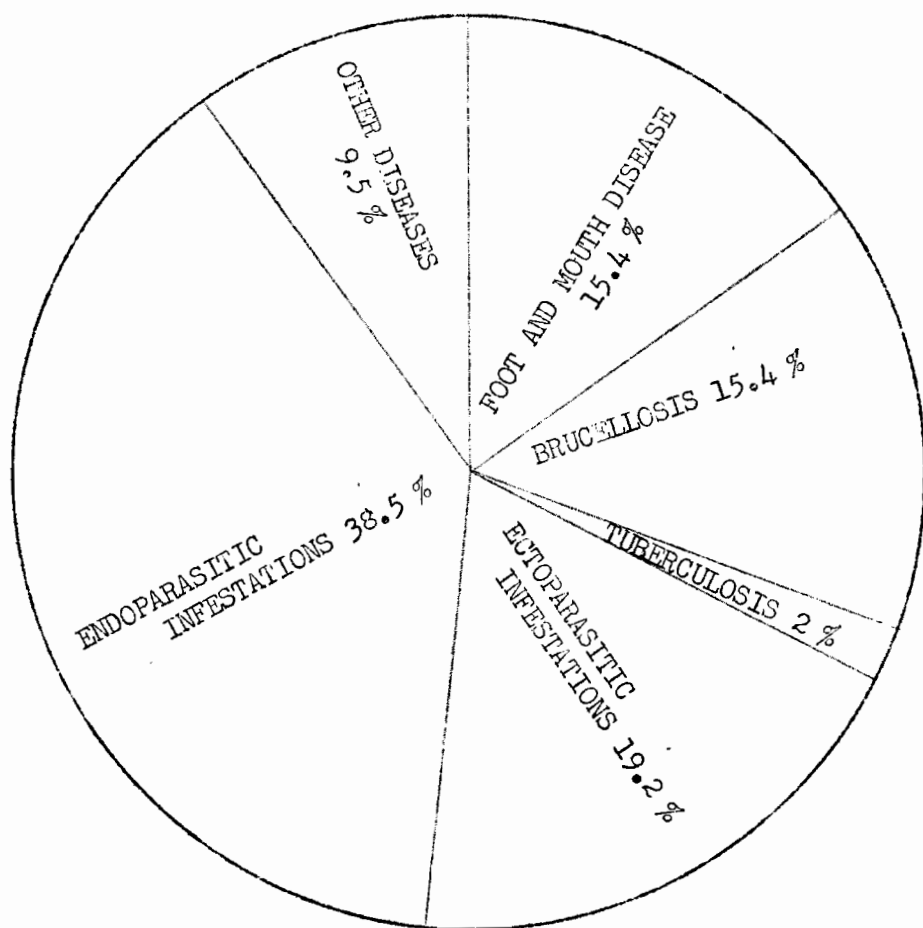


FIGURE X

URUGUAY : LOSSES ATTRIBUTABLE TO CATTLE DISEASE, 1959

Estimated total : 520 millions of pesos ^{a)}



a) At current prices.

