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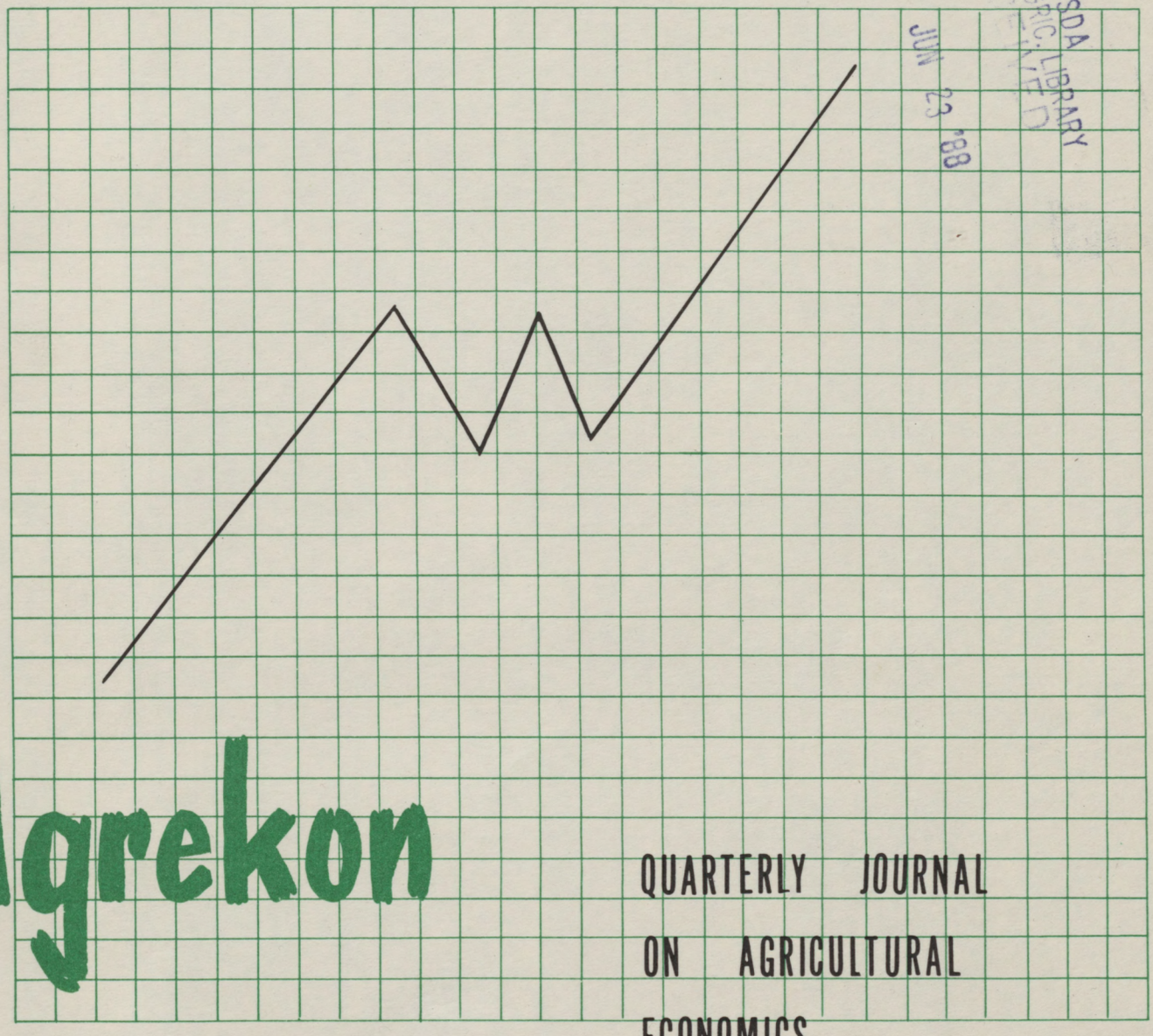

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SOUTH-WEST AFRICA AS AN EXTENSIVE BEEF PRODUCING COUNTRY*

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1. INTRODUCTION

Any farmer can operate only within the limitations imposed by the resources available to him. It is, however, equally true that the producer must achieve the maximum efficiency allowed by his most limited resources. Stock farming is therefore the predominant type of land use in South-West Africa (2, p. 9).

South-West Africa lies in a summer rainfall region, with the rainfall steadily increasing from south-west to north-east (6, p. 6). Natural factors such as vegetation and water supplies affect the carrying capacity of the natural grazing land (see figure A).

In this article the features of South-West Africa as a beef producing country as well as the economic importance of the livestock industry are analysed.

2. EXTENSIVE BEEF PRODUCTION

Limited resources impose certain ranges within which a farmer must operate. It is, however, equally true that the producer must reach for the maximum efficiency allowed by his most limiting resources. Within environmental limitations the beef cattle producer in South West Africa has developed certain strategies to stretch the use of resources available to their maximum. This comprises a roughage oriented approach to beef production, which is biologically a sound approach to the nutrition of beef cattle. Beef cattle, like all ruminants, are very well adapted to the conversion of roughage, which cannot be utilised as such by humans, into food products of very high nutritional value.

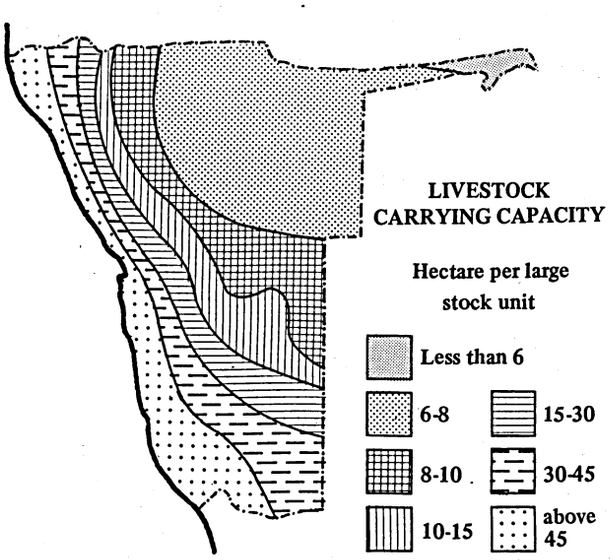

FIG. A - Livestock carrying capacity

2.1 The economic importance of the livestock

Although agriculture contributed more than one fifth of South-West Africa's gross domestic product (G.D.P.) in 1965 while mining contributed more than 40 per cent during the same year, it constitutes the country's economic basis and will most probably continue to do so (4, p. 62). Yet droughts, stock disease epidemics and fluctuating marketing conditions in the Republic of South Africa (the major export market for agricultural products), factors largely beyond local control, render this industry liable to severe setbacks.

In 1965, animal husbandry accounted for 99 per cent of the total gross output of commercial agriculture, which was estimated at R44,4 million. Cattle alone contributed 61 per cent of that total (vide Table 1).

TABLE 1 - Estimated Gross Value of Agricultural Production : 1965 (6, p. 63)

Product	R	%
Animal husbandry		
Cattle		
Beef	24 945 976	56,2
Breeding	215 166	0,5
Dairy products	2 041 200	4,6
Sheep		
Pelts	14 027 414	31,6
Breeding	33 117	0,1
Wool	1 079 727	2,4
Mutton	970 596	2,2
Hides and skins	376 631	0,8
Pigs	351 720	0,8
Agriculture		
Cash crops	230 001	0,5
Horticulture	120 000	0,3
Total	**44 391 548**	**100,0**

The large majority of commercial herds produce beef, milk being almost entirely incidental and secondary except in the case of fresh milk

* Based on an M.Sc. Thesis by J.M. Laubscher, University of Illinois, U.S.A., 1974

TABLE 2 - Cattle slaughterings in South-West Africa for local consumption and processing purposes: 1965-1974(8)

Year	No. of cattle slaughtered in S.W.A for local consumption (b)	Col. 2 as a percent. of the total of col. 10	No. of Cattle slaughtered in S.W.A for processing purposes (c)	Col. 4 as a percent. of the total of col. 10	Total no. of interior slaughterings (col. 2 & col. 4)	Col. 6 as a percent. of the total of col. 10	Total no. of exports from the territory (a)	Col. 8 as a percent. of the total of col. 10	Total no. exported & slaughtered in the terr.
1	2	3	4	5	6	7	8	9	10
1965	27 756	8	102 674	27	130 430	35	245 325	65	376 814
1966	28 412	9	93 986	31	122 398	41	176 671	59	299 069
1967	27 093	9	45 832	15	72 925	23	239 582	77	312 507
1968	26 666	8	30 676	10	57 342	18	259 490	82	316 832
1969	24 620	8	46 882	15	71 502	23	240 591	77	312 093
1970	29 358	7	75 193	18	104 551	25	310 856	76	416 934
1971	28 653	6	101 782	20	130,435	26	369 643	74	501 937
1972	31 673	5	122 300	21	153 973	26	424 480	73	583 168
1973	33 263	7	149 386	29	182 649	36	316 663	62	507 196
1974	29 446	11	33 845	12	63 291	23	208 245	76	275 769

(a) This is the total number of cattle exported from the territory to the Republic of South Africa and other countries.
(b) This figure does not include cattle slaughtered outside municipal areas in the interior.
(c) Processed meat is also exported to external markets in various forms, however, a certain unknown percentage is locally consumed.

producers near some towns. South-West Africa's small population, which totalled 746 328 in a census survey done in 1970 (7, p. 301), can absorb only a fraction of the beef produced (vide Table 2, column 3). For the remainder, external markets have to be found.

This dependence on external markets for sales of live cattle can be seen from column 9 in Table 2, where the total number of live cattle exported out of the country is shown as a percentage of the total supply of live cattle. Unfortunately, however, the extensive methods of cattle raising dictated by the physical environment cannot yield regular supplies of high-grade beef for the very competitive markets in the Republic of South Africa and overseas. The irregularity of the supply of high-grade slaughter cattle is shown in Table 3, where the number of cattle from South-West Africa slaughtered in the controlled areas in the Republic and graded GRADE 1 and higher is expressed as a percentage of the total number of slaughter cattle exported. It is immediately clear that there is considerable variation not only within years but also from year to year.

The beef industry can therefore not yield regular supplies of high-grade or quality beef. However, owing to the relatively small internal market in South-West Africa and to a combination of factors that are all causally linked with the vast economic distances separating the productive activities from outside supplies, the economy is bound to remain heavily dependent on primary exports.

It is clear from their willingness and ability to adapt to the climatic limitations that the farming community expect to maintain the significance of livestock production as an income-generating activity. Nature dictates that man should use natural resources this way. The question remains what guides the beef producer in his decisions about profit maximisation from his scarce resources.

2.2 Production potential

With regard to extensive beef producing areas the most limiting resource is generally feed. Its availability during a production year, along with other variables, determines the quantity and quality of beef produced. The quantity as well as quality of natural grazing depends heavily on the rainfall and varies directly with the amount and distribution of the precipitation (3, p. 71). Beef producers in the central and northern areas of South-West Africa are in the particularly fortunate position that the nutritional value of the natural veld (a term commonly used in South-West Africa for what is

TABLE 3 -The percentage of higher-grade* beef slaughtered in controlled areas in the Republic of South Africa: 1965-1974 (8)

Month	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
January	6,9	26,7	48,1	52,3	51,2	41,2	24,1	22,9	24,5	43,6
February	10,3	29,9	53,8	55,7	47,9	40,1	24,0	23,0	22,8	46,2
March	16,9	40,1	56,1	54,7	54,3	40,6	34,6	25,3	23,8	40,7
April	18,8	41,5	58,4	59,7	54,4	39,3	34,7	35,1	28,3	51,8
May	28,8	42,8	56,2	60,3	55,3	38,1	34,8	39,0	30,0	52,4
June	30,1	44,9	56,2	58,2	53,2	36,5	36,3	43,0	29,3	51,9
July	31,8	52,0	54,0	63,5	51,0	31,2	35,5	38,7	34,1	47,4
August	34,7	52,6	49,1	57,3	48,8	27,9	33,4	40,9	32,1	42,3
September	36,2	43,3	42,0	51,4	43,1	28,5	34,8	37,8	34,6	38,6
October	33,9	45,5	46,1	54,1	42,3	28,7	35,1	37,2	36,5	42,2
November	30,4	45,3	43,3	52,3	42,5	25,4	30,4	36,9	42,6	41,2
December	26,6	41,4	39,5	53,1	36,2	25,8	27,9	33,3	39,3	41,5

*Grade 1 and higher.

known as natural grazing or forage) is sufficiently high almost throughout the year to satisfy the minimum nutrient requirements for maintenance and also the requirements for growth and reproduction. That this holds true for the autumn and winter is due, in part, to the fairly high fertility of soil in these comparatively dry regions and to the fact that, because of the dry autumns and winters there is not much leaching out of nutrients from the grass plant in the mature stage (4, p. 33). Although the southern areas of South-West Africa do produce beef, they are considered not to be very consistent in production and produced roughly 10 per cent of the annual total supply of beef from South-West Africa during the period 1969-1974 (8). This is due to the more severe climatological limitations, e.g. the low annual rainfall and the great variations, along with periodical seasonal droughts (2, p. 6) and other related factors. For the purpose of this discussion the southern areas are therefore excluded when referring to extensive beef producing areas.

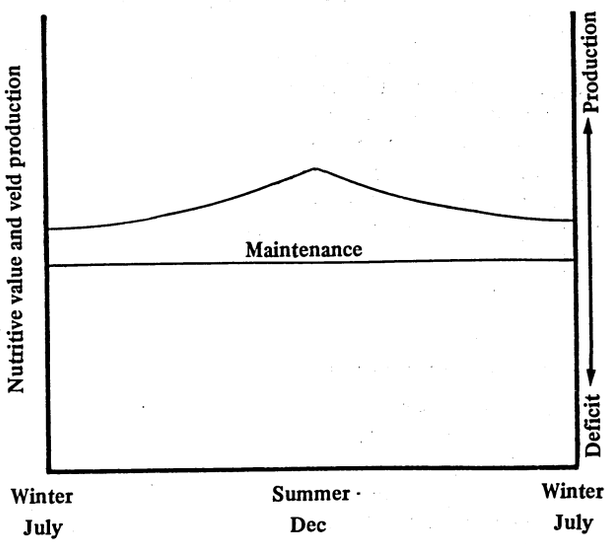

FIG. B - Schematic representation of the distinguishing characteristics of sweet veld (5, p. 56)

Natural grazing in the central and northern cattle producing areas can be categorised as what is known as "sweet veld". In practice, the most important characteristic of "sweet veld" is that it remains palatable and nutritious during the winter or after the veld or natural grazing has reached a matured stage. The specific characteristics of this type of veld are represented schematically in Figure B. From this it is clear that "sweet veld" can meet the production requirements of cattle throughout the year. This type of veld predominates in the low-rainfall areas of the whole of southern Africa within which the central and northern cattle producing areas of South-West Africa fall (5, p. 56).

The only time when cattle under "sweet veld" conditions show a drastic loss of weight, indicating a serious lack of nutrients, is during a period of about four weeks after the first good summer rains. During this period there is still a shortage of fresh, green grass, while the residual dry grass of the previous season is unpalatable and not eaten by cattle (4, p. 34). Summer rainfall usually starts in November and continues until the end of April, the rest of the year being dry. Although it declines towards autumn and winter, the nutritive value of this "standing hay" remains at a level which permits substantial growth and improvement in the condition or quality of the cattle. The browsing of edible trees occurring in these regions also contributes towards satisfying the minimum nutrient requirements of beef animals. The relationship between the supply of high-grade beef and the nutritive value and quantity of natural grazing is emphasised when Figure B is compared with Figures C and D. The percentage of quality beef slaughtered shows an increase two to three months after the natural grazing has reached a peak in terms of quality and quantity. The distribution in Figure B was constructed assuming average rainfall and the differently shaped curves for 1970 and 1973 in Figures C and D respectively resulted from bad rainy seasons (8).

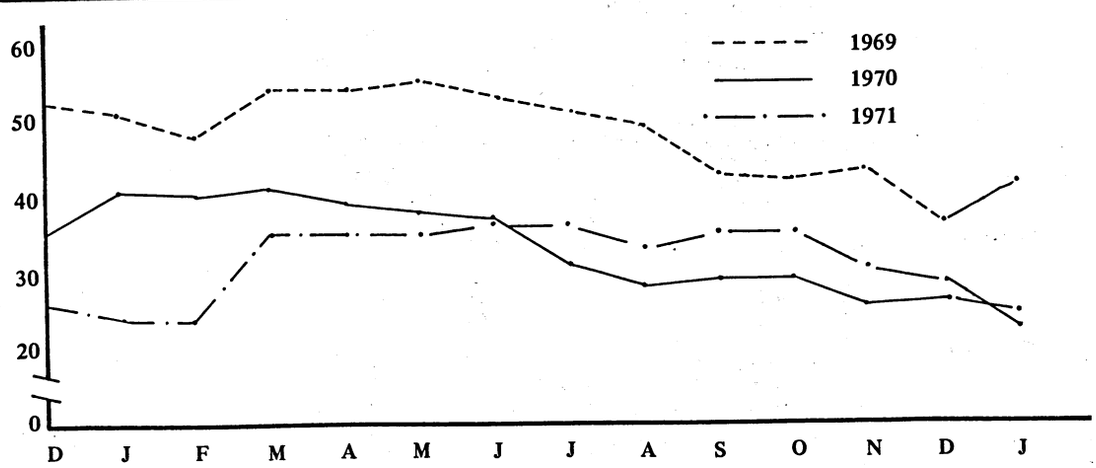

FIG. C - Percentage of quality* beef marketed from South-West Africa: 1969-1971 (8)

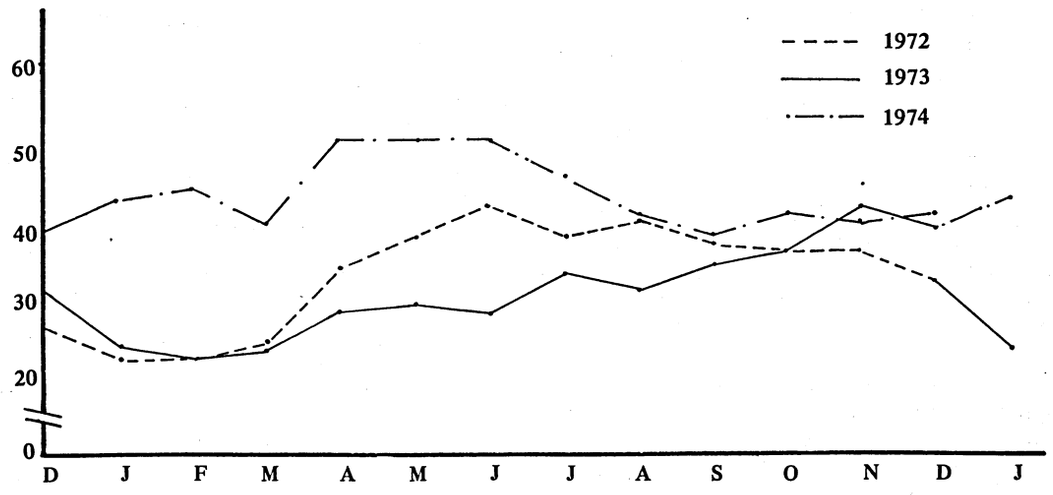

FIG. D - Percentage of quality beef marketed from South-West Africa: 1972-1974 (8)

2.3 Strategies open to the beef producer

In its most condensed form strategy for the cattle farmer in South-West Africa refers to the choice of products and decisions concerning marketing, such as when to market and where to sell. The beef farmer has a choice of a number of "products", namely weaners, feeders (± 1½ years old), stores (oxen older than 1½ years) and beef (young animals or older animals finished on natural grazing). A number of breeding cattle such as culled cows and ordinary cows and heifers for herd replacement purposes constitute another product.

A characteristic of the growth pattern of cattle on "sweet veld" is that as they grow older they continue to gain weight rapidly during the summer, gain more slowly during the autumn, remain more or less constant during the winter and lose a little weight in the spring. This growth pattern is determined by the quantity and nutritional value of the grazing. Data obtained over a period of nine years on Afrikaner oxen on good "sweet veld" are presented in Figure E. This distribution is a typical example of the growth pattern of cattle in extensive areas (1, p. 21), and will be used to explain the principle of product differentiation for the beef producer.

From the schematic presentation in Figure E the different options open to the beef producers can be postulated. At an average age of eight months, weaners become available and are usually used for replacement of the herd or sold to feeders in the Republic of South Africa and ranchers in South-West Africa. At this stage weaners are usually not in a condition to be marketed as slaughter cattle. Ten months later another "product" comes available - 18-month old cattle. Cattle at this age are generally too light and not in a marketable condition for slaughtering in controlled areas in the Republic of South Africa, and those that are not used for herd replacement purposes are sold. After leaving the farm of the seller, they find their way either to feedlots or to other cattle ranches. The exchange of ownership usually takes place before the summer rains and within six months after that, at an age of 20 to 24 months, these cattle are marketable providing good summer rains have occurred. Good quality cattle at

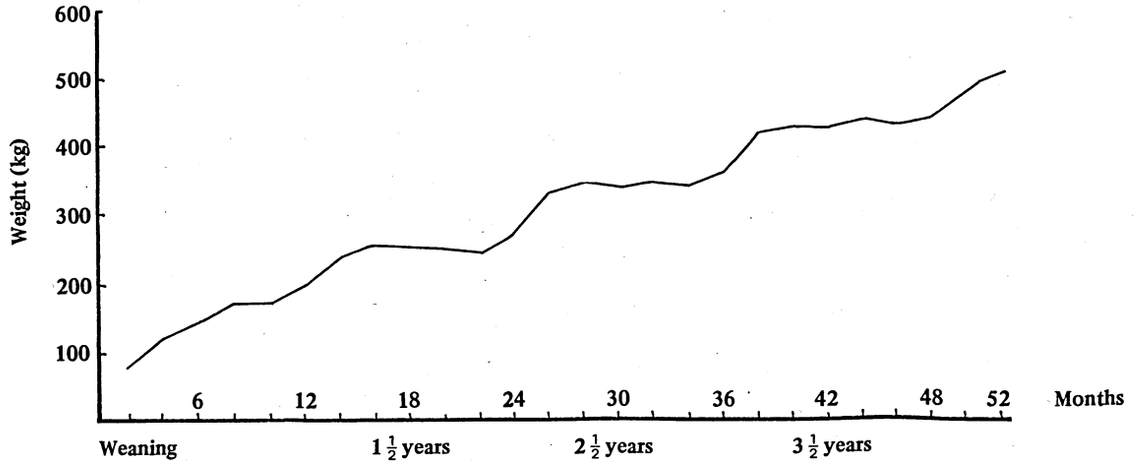

FIG. E - The growth pattern of beef cattle under extensive conditions (1, p. 23)

this age can reach the highest grades.

Marketing of slaughter cattle generally starts during March and reaches a peak in June and July, whereafter it levels off in terms of quantity as well as quality. Cattle that are not in slaughtering condition at an age of 20 and 24 months are kept over until the next autumn, providing the farmer has enough natural grazing or feed available for the remainder of the production season. Generally, the next peak of quality beef marketed for slaughtering purposes will be at an age of 36 to 40 months, roughly determined by the quantity and nutritional value of the feed and again assuming an average rainfall. This "cyclical" movement of availability of quality slaughtering cattle can be followed in the curve in Figure E. The peaks seem consistently to follow two to three months after the first good summer rains.

3. CONCLUSION

The features of South-West Africa as an extensive beef producing country have been briefly outlined but certain characteristics stand out : first, the beef cattle industry's vulnerability to climatic factors; secondly, the country's dependence on the livestock industry with special reference to the beef cattle industry; thirdly, the inability of South-West Africa's beef industry to yield a regular supply of quality beef, which limits the competitiveness of the beef producer on external markets; and, fourthly, the high standards of farm management required to cope with a harsh environment and marketing problems and to make farming profitable under such conditions.

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