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REQUIREMENTS FOR CONTRIBUTIONS

Articles in the field of agricultural economics, suitable for publication in the journal, will be welcomed.

Articles should have a maximum length of 10 folio pages (including tables, graphs, etc.), typed in double spacing. Contributions, in the language preferred by the writer, should be submitted in triplicate to the Editor, c.o. Department of Agricultural Economics and Marketing, Pretoria, and should reach him at least one month prior to date of publication.

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The Production of Sisal Fibre in South Africa

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Ten years ago, sisal was virtually unknown as a field crop in the Republic. Within a period of ten years the industry has expanded so considerably that it now stands at the cross-roads. The question is frequently asked: What does the future hold for this new industry?

Sisal (Agave sisalana) is the most important single fibre crop of the group of hard leaf fibres. Approximately 75 per cent of the world consumption of hard fibre consists of sisal. Other important fibre plants in the group include abaca or manila (Musa textilis), henequen (Agave fourcroydes), Mauritius hemp (Furcraea gigantica), New Zealand hemp (Phormium tenax) and maguey (Agave contala).

Except for abaca, which is used mainly for the manufacture of ships' ropes, and New Zealand hemp, which is used mainly for bags, the other leaf fibres are all used for the same purposes. With these two exceptions the fibres in the group are to a great extent substitutes for one another.

The most important use of this group of hard fibres is for the manufacture of ropework and baling and binder twine used for agricultural purposes. Less important uses include string, commercial ropes, floor-coverings, paper and upholstery. Approximately half of all hard leaf fibres, or two-thirds of all sisal and henequen is used for baling and binder twine.

WORLD REVIEW OF HARD LEAF FIBRES

Sisal, which is the most important of the group of hard leaf fibres, is cultivated mainly in Tanzania, Brazil, Kenya, Angola and Mozambique. These five countries together are now responsible for more than 90 per cent of the world production of sisal. Approximately 95 per cent of all abaca is grown in the Philippine Islands, and about 90 per cent of all henequen in Mexico. Nearly the entire production of hard leaf fibres therefore comes from only seven countries.

The world production of hard leaf fibres, in metric tons, is given in Table 1.

According to Table 1, sisal is the most important single hard leaf fibre and in 1963 represented about 68 per cent of the total production of this group of fibres. It also appears that sisal production is increasing in all the major producing countries; in most of these countries, the increase is gradual - but in Brazil production has doubled within a decade. On the other hand, the group of countries classified as "other" shows a decrease in production.

As regards abaca, production has remained fairly constant; while there has been a gradual increase of henequen.

The plantings of hard fibre plants for the years 1958 to 1963 are indicated in Table 2. Only the most important producing countries, with the exception of Angola, are dealt with here. Unfortunately, statistics are not available for Angola.

The most important points emerging from Table 2 are the following:

- Tanzania has the greatest area under sisal. During 1959 and 1960 there was

TABLE 1 - World production of hard leaf fibres, average 1955/59 and separately from 1960 to 1963

Country and type	Average 1955/59	1960	1961	1962	1963*
	1,000 metric tons				
Sisal					
Tanzania	193	208	201	217	218
Kenya	45	64	64	60	72
Angola and Mozambique	76	87	88	98	94
Brazil	108	164	170	194	200
Other	91	77	74	65	66
Total sisal	513	600	597	634	650
Abaca	130	114	97	112	120
Henequen	132	166	166	168	150
Other leaf fibres	32	31	28	31	30
Total	807	911	888	946	950

* Provisional

practically no extension, but since then a relatively small expansion in acreage has taken place. Over a period of six years the area increased by six per cent, or an average of approximately one per per cent per annum.

- In Kenya the total expansion for the six years was only about two per cent. The aid programmes of both Kenya and Tanzania provide for area expansions during the years immediately ahead.

- The most important increase occurred in Brazil. For the six-year period under discussion, the increase in acreage was 60 per cent, or an average of 12 per cent per annum. If Brazilian plantings continue to expand at the present rate, Brazil will soon become the most important sisal producer in the world.

- Complete data for the two Portuguese territories, Mozambique and Angola, are not available. According to indications, the same trend is found in Angola as in Mozambique, that is, an approximately stable area. It is known that the plantings in each of these countries were 125,000 acres in 1960.

Seen as a whole, Table 2 shows that the total area under sisal increased by 17 per cent between 1958 and 1963. This increase will later be correlated with the demand for sisal fibre.

As regards abaca, plantings show an initial decrease, followed by a gradual increase.

The plantings of henequen show a gradual increase.

A COMPARISON OF SISAL PRODUCTION IN TANZANIA AND BRAZIL

An attempt will be made here to compare sisal production in Tanzania and Brazil. This is based on data given in Table 3. These two countries are

TABLE 2 - Plantings of hard leaf fibres, 1958 to 1963

Country and type	1958	1959	1960	1961	1962	1963
	1,000 acres					
Sisal						
Tanzania	651	662	664	675	684	694
Kenya	265	264	266	266	264	269
Brazil	287	313	349	372	396	459
Mozambique	122	111	125	139	121	124
Total four countries	1,325	1,350	1,404	1,452	1,465	1,546
Abaca (Philippines)	476	475	433	431	451	449
Henequen (Mexico)	395	400	405	430	432	430
Total*	2,196	2,225	2,242	2,213	2,348	2,425

* This total represents the four major producers of sisal and the major producers of abaca and henequen. Jointly, they produce over 80 per cent of the total.

compared because their sisal production policies have a decisive influence on the world situation. Together they are responsible for two-thirds of world production.

Calculations were made only for sisal in full production, hence the lapse of three years between plantings and production. This is because sisal takes about three years to come into production. Plantings have therefore been compared only with the theoretical actual production after the plants had reached maturity, as too many young sisal plants not yet in production would influence the yield per morgen.

According to Table 3, mature sisal now yields an average of 0.59 metric tons of dry fibre per acre per season (± 1.2 tons per morgen) in Brazil, as against 0.32 metric tons per acre (± 0.6 tons per morgen) in Tanzania. If, therefore, Brazil maintains its area expansion at a more rapid rate than Tanzania, that is, at about 12 per cent per annum as against one per cent, Brazil should

TABLE 3 - Comparison of sisal production, areas planted and production per unit in Brazil and Tanzania

Brazil			Tanzania		
Area 1,000 acres	Yield 1,000 tons	Yield per acre	Area 1,000 acres	Yield 1,000 tons	Yield per acre
349 ('60)*	200 ('63)*	.57	664 ('60)	218 ('63)	.33
313 ('59)	194 ('62)	.62	662 ('59)	217 ('62)	.33
287 ('58)	170 ('61)	.59	651 ('58)	201 ('61)	.31

* Area compared with production three years later

soon become the most important sisal producer in the world. The greater the percentage of the world area under sisal in Brazil, therefore, the more rapidly will production increase; that is, at an increased rate. This, of course, is on the assumption that both countries maintain the yield per unit. World production would also increase at a higher rate if these planting trends continue.

CONSUMPTION OF HARD LEAF FIBRES

The world consumption of hard leaf fibres is given in Table 4. A percentage of the fibres is processed in the country of origin for local use or for export. The greater part, however, is exported to other countries as raw fibre for processing. Together they represent the world consumption.

According to Table 4, consumption shows a rising trend at a rate of approximately one per cent per annum over the past six years, which is appreciably slower than the increase in plantings and production. (Compare Tables 1 and 2.) This means that there are unsold stocks at the end of every year. While this carry-over was only 12,000 tons in 1959, it exceeded 50,000 tons during each of the last four seasons. In view of these trends, large surpluses may arise in the future.

INFLUENCE OF THE PRESENT PRODUCTION SITUATION ON PRICES

The c.i.f. (European ports) prices for Grade I East African sisal fibre are given in graph I. Although the course of prices is given in respect of Grade I only, all grades follow an approximately similar course.

According to graph I the prices for Grade 1 sisal fibre are at present lower than at any time during the past six years. During this period considerable rises in price did occur, reaching a peak in 1963 and the first part of 1964. These rises were due mainly to the strong short-term increases in demand as a result of record grain harvests in Europe during 1963/64. (Slightly more than half of all the leaf fibres are used for agricultural purposes.) These high prices probably stimulated the great expansions in the areas cultivated. During 1964 prices started to show a strong downward trend, and whereas the price was still R296 per ton

TABLE 4 - World consumption and carry-over of hard fibres for the years 1959 to 1964

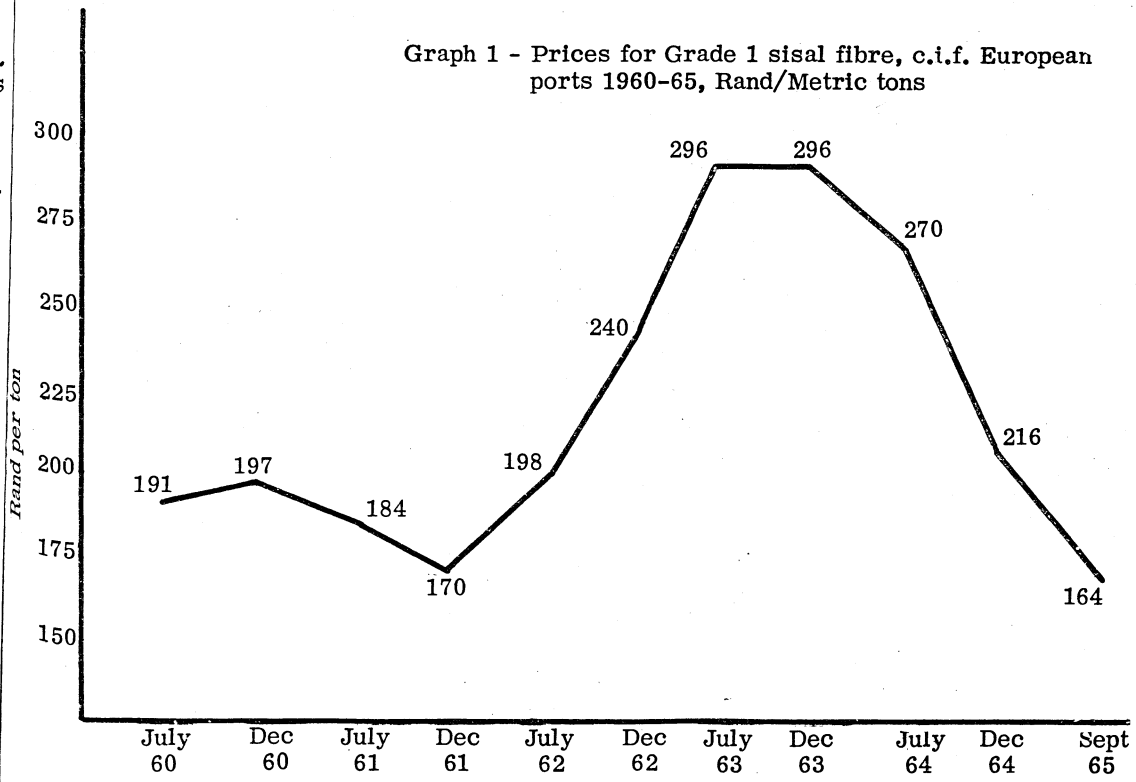
	1959	1960	1961	1962	1963[1]	1964[2]
	1,000 metric tons					
Consumption in producing countries[3]	169	159	170	170	185	204
Consumption in importing countries	688	642	650	650	677	698
Total consumption	857	801	820	820	862	902
Unsold stocks at end of year	12	27	54	61	64	55

[1] Revised estimate

[2] Estimate

[3] For own consumption as well as quantity exported in processed form

Graph 1 - Prices for Grade 1 sisal fibre, c.i.f. European ports 1960-65, Rand/Metric tons



in July 1964, it fell to R164 per ton in September 1965 (the latest price available).

On the face of it, it would appear that the plantings, which have expanded considerably since 1963 and will make their real influence on the supply position felt only from 1966 onwards, make it very unlikely indeed that there will be increases in price in the near future - in fact a further drop in prices is more likely.

FACTORS INFLUENCING THE WORLD SITUATION AS REGARDS HARD LEAF FIBRES

The world situation of a leaf fibre like sisal is influenced by various factors, of which the following are the most important:

- The greater part of the world's sisal is obtained from only a few countries. Of these, Brazil is the country which - with its very considerable expansion programme and favourable yields - is constantly endeavouring to secure a greater share of the world market. There is therefore strong composition between the sisal-producing countries, while efficiency of production will be the decisive factor.
- Sisal must also compete against henequen from Mexico and to some extent against abaca from the Philippines, and against the other less important fibre plants.
- Hard leaf fibres are also faced with constantly increasing competition from artificial fibres. Various types of artificial fibre have already taken over a great part of the market for natural fibres. These include:

  polyamides (nylon, perlon, etc.);
  polyesters (terylene, dacron, etc.);
  acrylic fibres (orlon, redon, etc.);
  polyethylene (drylene, reevon, etc.).

The polyamides, in particular, are penetrating the market previously held by leaf fibres.

- The demand for sisal products for agricultural purposes, too, is no longer as secure as it was. Apart from the fact that agricultural crops fluctuate continuously, thereby influencing the demand for baling and binding twine,the increasing mechanisation of harvesting processes in particular is also resulting in a significant reduction in the use of binding twine.

In addition to the artificial fibres mentioned above baling wire can also be used as a substitute for sisal baling twine. According to the British Information Services, a baling twine is now also being made of polypropylene which, according to the manufacturers, will be highly satisfactory.

THE LOCAL SISAL INDUSTRY

Sisal is a relatively new industry in South Africa. It made its appearance here during the late fifties. An active world market, together with the interest of a local company manufacturing sisal products, was largely responsible for the launching of this industry. The production of sisal also received a strong impetus from immigrants, particularly those from Kenya and Tanganyika. Production was encouraged by the Department of Bantu Administration and Development, which regards sisal as a highly suitable crop for the Bantu Areas and has already initiated a long-term planting programme. The exceptionally high prices realised, especially during 1963, encouraged planting.

There are four important factories in the Republic which process sisal. These manufacturers at present buy the total local output and import sisal to meet the balance of their requirements. Together, they process between 9,000 and 10,000 tons of sisal fibre annually, of which approximately 2,000 tons is destined for the export market. Local consumption now amounts to approximately 7,500 tons of sisal annually.

One of these factories, which processes about half of the total production, estimates the total requirements of all factories at 60 per cent long fibres (that is, Grades 1, A, 2 and 3L), 30 per cent short fibre (that is, Grade 3 and Undergrade) and 10 per cent waste, also designated "Tow". It would therefore be desirable for any sisal producer to endeavour to keep his production in these proportions - otherwise he may find that there is no market for certain grades. Incidentally, this same proportion obtains when production takes place under good management. Theoretically, the market should therefore show the same shortages or surpluses for all grades if farmers follow sound production practices.

According to calculations based on the receipts of the first six months, the local production for 1965 will amount to slightly less than 7,000 tons. A fairly considerable number of plantations are now coming into production and it is expected that a surplus will become available for export early in 1966. It has also been calculated that present plantings when they come into full production towards the end of the sixties, should yield approximately 30,000 tons of fibre annually. In future years, therefore, producers will become increasingly dependent on the world market. The most important areas are Hluhluwe/Mkuze in Natal, and the Potgietersrus district. In adddition, the Department of Bantu Administration and Development is planting large areas in various parts of the Transvaal. Existing plantings cover between 20,000 and 30,000 morgen.

Local marketing

Grading regulations for sisal fibre have already appeared. These regulations provide for the same grades adopted for East African sisal on the world market. They may be summarised as follows:

Grade 1. Longer than 3 ft., clean, white and well-brushed.

Grade A. As for Grade 1, with an inferior colour.

Grade 2. Longer than 2 ft. 6 in. Otherwise as for Grade 1.

Grade 3L. Longer than 3 ft., with such minor defects that it cannot pass as Grades 1, A or 2.

Grade 3. Longer than 2 ft., but otherwise of good quality.

Grade R or UG. Undergrade, and does not meet the requirements for another grade. Must be at least 2 ft. long.

The brushing process yields additional fibres known as "Tow". This, in turn, is divided into two grades known as "Tow 1" and "Tow 2".

When differences of opinion arise in regard to the grading, a system of arbitration is applied to settle disputes.

The local producers of sisal are organised into four bodies which market their product jointly. One of these is the Department of Bantu Administration and Development, which produces mainly in the Northern Transvaal. The Natal Sisal Growers Association consists of farmers in the Hluhluwe, Mkuze and Magudo areas. The Transvaal Sisal Growers Association covers mainly the Potgietersrus area; and the members of the South African Sisal Producers Association operate from both the Natal and the Transvaal areas.

The members of these four bodies market jointly, each through its own body, through a central committee known as the South African Sisal Liaison Committee. The latter is composed of representatives of both the producers and the manufacturers. The principle followed is that all producers obtain a proportional share of the local market according to individual production. When the export market is entered, the Liaison Committee negotiates with agents in London and it is not necessary for individual producers to sell overseas.

SUMMARY

1. The production of sisal continues to increase. In East Africa, the decline in production anticipated by some people did not occur, while in Brazil - which began producing 20 years ago - production has expanded rapidly.

2. During recent years production has increased more rapidly than consumption. Viewed in the light of Brazil's very considerable area expansion, together with her greater yield per unit, surpluses may present a problem.

3. The mechanisation of grain harvesting processes, coupled with bulk handling and the production of artificial fibres which can partly replace hard leaf fibres, may cause a decline in demand for hard leaf fibres.

4. Sisal is subject to great price fluctuations. Prices rose sharply in 1962, but have been falling ever since. This trend has been continued during the past 18 months and may have a serious effect on the profitability of the industry.

5. The supply of sisal is comparatively inelastic and it is not possible for producers to react rapidly to price fluctuations. New plantings require from three to four years to come into full production, and by that time prices may have changed completely.

6. As far as the local sisal industry is concerned, production should outstrip consumption during 1966, while present plantings are sufficient to produce an estimated output approximately four times the local requirements within about five years. It will, therefore, be necessary to enter the world market fairly soon.

7. On the whole, the future of the sisal industry does not appear to be as favourable as some years ago.

Note

The demand for sisal products centres mainly in agriculture and shipping. In both these spheres the cost of the sisal products used is small in relation to other costs. Thus neither an increase nor a

decrease in sisal prices has a significant effect on demand. Supply is also inelastic in the short run, because when once the plants reach the production stage, they continue to produce leaves.

If low prices continue for an extended period, however, output is reduced because high-cost producers suspend or discontinue production, further expansion does not take place and elsewhere the scale of operations may be restricted. Since world production of hard fibres has reached about one million tons a significant reduction in output would only become apparent after a time.

- Editor.

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POINTERS IN AGRICULTURE

FARMING REPRESENTS THE ACHILLES HEEL IN ALL ADVANCED ECONOMIC SYSTEMS

Farm planning and farm-enterprise planning cannot provide for or against factors beyond the control of the farmer. But this problem will undoubtedly be solved in time, and with the assistance of the farmer. When this happy day dawns, the farmer will enter a new world - economically as well as socio-economically. He will then experience a measure of stability for his enterprise and tranquility of mind for himself.

IF FARMING IS A "BUSINESS", IT SHOULD BE CONDUCTED AS A BUSINESS

Sixty years ago farming in South Africa was a "way of life" and moved at the pace of the ox. Today, however, farming is a business which places great responsibilities on the shoulders of the farmer or manager of the business. In other words, farming today is no longer a "life's existence" but a "life's enterprise".

- Submitted anonymously.