

SUNFLOWERS IN BRAZIL

THE POTENTIAL OF SUNFLOWER AS AN  
EDIBLE OIL CROP IN BRAZIL

By

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Introduction

Although in Brazil a first paper on sunflowers was published in 1924, the starting point for this crop only took place about 30 years ago. In the State of Sao Paulo commercial interest has been referred to as having appeared in 1938.

During many years the volume of sunflowerseed production was insignificant. The seed was almost exclusively used as feed for parrots, but even this market was not an easy one.

Over a short period sporadic plantings were made in various States, mainly in the Southern Region of Brazil.

Initially these plantings were effected as an inter-row crop with other crops, specifically with corn. In the State of Sao Paulo it was later planted as male-row markers in fields planted to hybrid corn seed production.

Available sparse statistics indicate a sunflowerseed production in the State of Rio Grande do Sul, in 1959, with a total of 530 metric tons. It can safely be assumed that the influence of sunflower plantings in neighbor Argentina had a bearing on these plantings, which do not seem to have continued immediately at this volume.

In 1966 Brazil produced around 12,050 metric tons of sunflowerseed in the States of Parana, Sao Paulo and Bahia.

Estimates of later overall sunflowerseed productions show 14,000 metric tons for 1967; 13,500 for 1968; 18,000 for 1969; and 28,000 for production expected during the current year.

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## Production

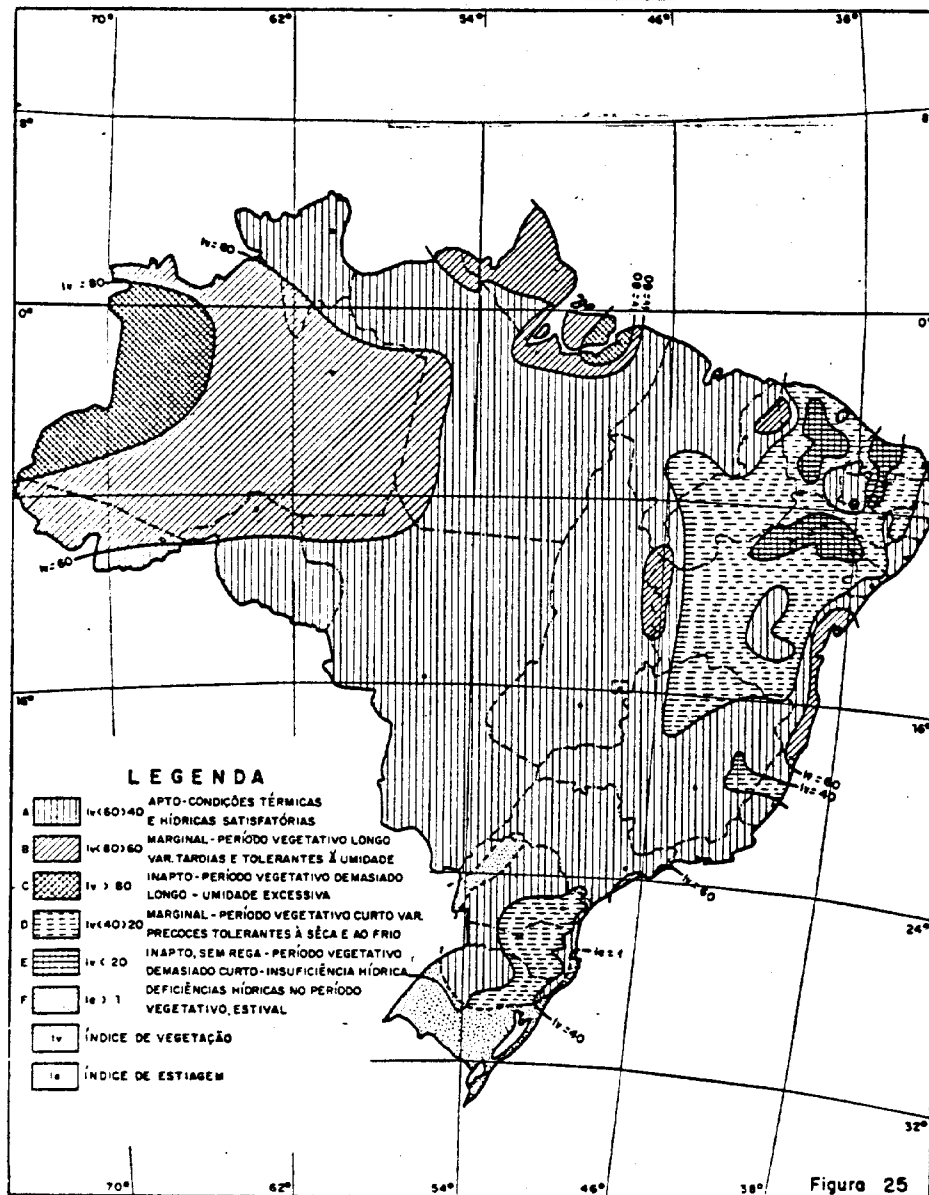
### Present Situation

A large area of Brazil has favorable conditions to grow sunflowers. This can be observed on the Viability and Climatic Limitation Chart prepared for this purpose.







Recommended planting periods will not be identical for each region, because the rainy seasons can differ greatly. This will cause different harvesting periods which, for a country of its size and its market potential can prove to be favorable on the whole.


In the Center-South Region sunflower can be planted for the "wet" and for the "dry" seasons. However, some changes have to be considered necessary in cases like crop years 1967/68 and 1968/69, that were very erratic, especially due to extended drought periods.


### VIABILITY AND CLIMATE LIMITATION CHART FOR SUNFLOWER GROWTH IN BRAZIL



References related to the Viability and Climate Limitation Chart for Sunflower Growth in Brazil.

	Iv	<60 >40	Favorable. Satisfactory thermic and hydric conditions.
	Iv	<80 >60	Marginal. Vegetative period moderately long. Humidity high. For late planting varieties.
	Iv	>80	Not suitable. Vegetative period too extended, with excessive humidity.
	Iv	<40 >20	Marginal. Short vegetative period. Only for short cycle varieties.
	Iv	<20	Short vegetative period. Non-satisfactory hydric conditions. Irrigation required. Short cycle varieties.
	Ie	>1	Hydric deficiency during summer

 Iv Indicator for vegetation

 Ie Indicator for drought conditions during summer

### Market

Even though Brazil shows a relatively low consumption of fats and oils, the trend is an increase in this field.

These aspects were surveyed in 1959 by the Technical Cooperating Mission of the Institut de Recherches pour les Huiles et Oleagineux (IRHO), together with Brazilian technicians from the Ministry of Agriculture. In accordance with the data obtained at that time, the consumption in Brazil showed 6.8 kilos per capita/year. Considering that part of the production is auto-consumption that does not find a place in statistics, a final over-all estimate was established at 8.5 kilos per capita/year as consumption of edible oils and fats in Brazil.

This final estimate, which includes vegetable and animal fats, considered low, moved the technicians to recommend doubling immediately oleaginous production, and tripling the production during the coming 20 years, to enable consumption to reach the normal level<sup>9</sup>.

A recent analysis made by FAO's Study Group on oilseeds, oil and fats, shows that consumption of fats and oils is increasing in South American countries, including those that are fairly important exporters, with a slight projection increase of demand over supply. On the other hand Brazil's edible, per capita/kilos/year, is estimated at 6.9 for the period 1961-63, 7.7 for 1975, and 8.5 for 1985.

These estimates indicate the real increase possibilities in store for the Brazilian oil production. In this field the possible share for sunflowerseed oil only came to light recently. The table that follows shows the rapid increase in consumption of imported sunflowerseed oil, this because of the small domestic production of sunflowerseed. This, an indicative fact that more and more consumers prefer sunflowerseed oil, is stimulating for a more defined promotion for this oil bearing seed, especially in the Center-South Region of Brazil.

Table IV

#### BRAZILIAN IMPORTATION OF SUNFLOWER

<u>Year</u>	<u>Semi-Refined Oil</u> (metric tons)	<u>Seeds</u> (m/tons)
1966	204	--
1967	-	75
1968	21,377 (99)	10(9)
1969	12,310	

(9) Planting seed.

(99) Comprises only January-June period.

(9) The Sao Paulo State's Dept. of Agriculture shows apparent oils and fats consumption per capita, for the State, at 14.4 kilos/year.

Another fact showing that an interesting consumer market is rapidly in the making, is that ten different sunflowerseed oils - straight or blended with other vegetable oils - are marketed domestically, as shown in the following table.

Table V

SUNFLOWERSEED OILS MARKETED IN BRAZIL

<u>State</u> <u>Where Produced</u>	<u>Nº Sunflowerseed Oil Brands</u>	
	<u>Sunflowerseed</u>	<u>Blended</u>
Sao Paulo	5	2
Guanabara	1	-
Bahia	1	-
Rio Grande do Norte	-	1
	<u>7</u>	<u>3</u>

Source: Anderson Clayton S.A., Brazil

In 1966 the Ministry of Agriculture Published estimates for production and demand for edible oils - cottonseed, peanut, soybean and corn - as indicated in the following table.

Table VI

BRAZILIAN PRODUCTION AND DEMAND ESTIMATE  
FOR EDIBLE VEGETABLE OILS

<u>Year</u>	<u>Production</u> (metric tons)	<u>Demand</u> (m/tons)
1966	311,000	292,000
1967	337,000	308,000
1968	366,000	325,000
1969	400,000	342,000
1970	434,000	361,000

Source: Oils Institute

Experimental and Promotional Activities

Federal

The basic PLAN EPE (Research and Experimental Office) 1.34 is related to sunflower culture, of which various projects and sub-projects are part, as follows:

Project EPE 1.34.1 - Improvement in Sunflowers

Sub-Project:

IPEANE (North-East Agronomic and Livestock Research Institute),  
Collection of Sunflower 'Cultivars'. Location: Recife, Pernambuco.

Project EPE 1.34.2 - Cultural Practices in Sunflowers  
Sub-Project:

IPEANE: Sunflower Culture Procedures. Location: Paraiba, Pernambuco, Alagoas. Results obtained for 1968/69: Increase of 'Cultivars', with 12 of Russian origin, all with an oil content higher than 40%.

IPEAL: (East Agronomic and Livestock Research Institute)  
Location: Cruz das Almas, Bahia. - Collection of Varieties.

Experimental Program in Sao Paulo

1. Plant Improvement - The sunflower improvement program, which is being developed, is still in its initial stage. It consists mainly of adaptation of varieties received from countries in which the crop is important, like Argentina, that has varieties resistant to rust (Puccinia helianthi).
2. Introduction of Varieties - Many are the varieties introduced from various countries - U.S.A., Russia, Argentina, Uruguay - which are being studied in relation to growth cycle, plant height, resistance to rust, hull and kernel yields, area production and oil content in seeds. The varieties that look most promising are quality selected and tested, for observational purposes, at different locations where the Sao Paulo State has experimental stations, to decide on the variety that shows best agronomic and industrial characteristics.

Through this process, the varieties selected to date are La Estanzuela 56, La Estanzuela 60 rr, from Uruguay, and Impira Inta, Guayacan Inta and Pehuen Inta, from Argentina.

3. Agricultural Practices - Test plantings continue to be carried out in relation to rate and time of planting, that can give best results, considering that in the Center-South Region of Brazil, and closely related to climatic conditions, two planting periods can be used, the first from September through December, and the second from January to February/March.
4. Technical Assistance - In the State of Sao Paulo the official technical assistance is furnished by its Department of Agriculture. This has been accompanying the increase in production, giving technical instructions to farmers and stimulating private enterprise activities, that also seek a better crop development for sunflowers.

A specific ecological area delimitation work is being carried out for sunflowers in cooperation with the private oil industry (Instioleos-Private Institute for Oleaginous Promotion).

Anderson Clayton's Contribution to Sunflowers in Brazil

In 1968, in view of the increasing interest shown by the consumer for sunflowerseed oil and the insufficient domestic production of sunflowerseed - which made it necessary to import semi-refined sunflowerseed oil -, Anderson Clayton decided to include sunflowers as another crop to

be promoted in its Farm Program.

To achieve this purpose, Impira Inta original basic seed was imported from Argentina, in enough quantity to plant over 1,500 hectares. This variety is 60/70% resistant to rust (Puccinia helianthi), can produce 1,800 to 2,000 kilos per hectare, 61/63% kernels, and 30/32% oil content in seed.

In 1969 Guayacan Inta seed was imported from Argentina. This variety is superior to Impira Inta, with a 70% resistance to rust, a production equal to Impira, 63/65% kernels, and 32/34% oil in seed. At the same time original basic seed of a new variety, Pehuen Inta, was imported from the same country, for seed production in Brazil, and scheduled for planting in the 1970/71 crop year. The performance of this variety is encouraging. A yield similar to Impira and Guayacan can be expected, but its rust resistance is 80%, with 70% and up of kernels, and around 40% oil content.

Anderson Clayton's promotion program is based on supplying the most recommendable planting seeds for Brazil, giving up-to-date technical assistance, financing help and a market guarantee for seed produced.

#### Summary

The economical interest for sunflowers in Brazil appeared around year 1938, however production was very low until about 1960, at which time statistical information started being gathered.

Production increase was noticeable since 1964, year in which statistics show that 1,000 metric tons of sunflowerseed was harvested, to arrive at a volume of 18,000 metric tons in 1969.

This increase fell short of industry's requirements. To fill the gap it was necessary to import 33,687 metric tons of sunflowerseed semi-refined oil during the period 1968 - 1969 (1st 6 months).

Consumer's preference for sunflowerseed oil is constantly increasing, a fact that enhances this crop's possibilities for the immediate future.

On the other hand domestic production of sunflowerseeds has favorable ecological conditions for satisfactory farming results, especially in the Center-South Region of Brazil.

A production estimate in Brazil, tentatively establishes volumes of sunflowerseeds at 28,000 metric tons for 1970 and 133,000 for 1974.

The limiting factor for this crop is diseases, especially rust (Puccinia helianthi). In this aspect the supply of high disease resistant varieties is emphasized.

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Bibliography

- Departamento Estadual de Estatística:  
Producao de Oleos e Gorduras Vegetais - Secretario de Coordenacao e Planejamento. Porto Alegre, 1968. 15 pages.
- Equipe Tecnica de Estatística Agropecuária:  
Oleos e Gorduras Vegetais - Publicacao No. 8. Ministerio de Agricultura, 1968. 40 pages.
- Food and Agricultural Organization of the United Nations:  
Study Group on Oilseeds, Oils and Fats - 2nd Session  
CCP: OF 67/3 1967. 20 pages.
- Lins, Everton R. de:  
Situacao dos Oleos e Gorduras Comestiveis no Estado de Sao Paulo. Agricultura em Sao Paulo XIV (1): 1-54. 1967
- Ministerio da Agricultura - Mercado Brasileiro de Oleo Alimenticios, 1ª Parte - Instituto de Oleos, Rio de Janeiro, 1966. 82 pages.
- Ministerio da Agricultura - Programa Nacional de Pesquisas Agropecuarias - EPE - 8ª Reuniao de Diretores, Colombo, Parana, 1970. 270 pages.
- Ministerio do Planejamento e Coordenacao Geral-Programa Estrategico de Desenvolvimento - 1968-1970. Rio de Janeiro, 1961. 257 pages.
- Ollagnier, M. e Mario - Sube, C. - Relatorio sobre os Oleaginosos no Brasil - Pesquisa Agronomica e Possibilidade de Desenvolvimento -- Instituto de Oleos, Rio de Janeiro, 1971. 196 pages.
- Sampaio, S.C. - O Girassol, Circular No. 7. Secretaria de Agricultura, Industria e Comercio do Estado de Sao Paulo, 1940. 15 pages.
- Savin, Guy - Problemas de Oleaginosas. Reunion Internacional Sobre Problemas de la Agricultura en los Tropicos Humedos de Latino America. Manaus, Belem. 1966. 27 pages.
- Sichmann, W. & Lasca, D. H. C. - Diagnostico das Oleaginosas. Programa de Trabalho da Seccao de Plantas Oleaginosas - C.A.T.I. - Secretaria de Agricultura de Sao Paulo. Campinas, 1966. 217 pages.
- Wetzel, C.T. - Aspectos Gerais da Producao de Alimentos no Rio Grande do Sul. I Simposio Brasileiro de Alimentacao e Nutricao (SIBAN) Caminas. 1965. 44 pages.