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(English Version)

THE FAMILY SECTOR

Observations and Indicators

for

Agricultural Planning

Ministry of Agriculture
Food and Agriculture Organization of the United Nations
Support to Agricultural Planning and Policy Analysis
Maputo, March 1988

This report is the second field document prepared by the project identified on the title page. The conclusions and recommendations given in the document are those considered appropriate at the time of its preparation. They may be modified in the light of further knowledge gained at subsequent stages of the project.

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FAO/UNDP. The Family Sector: Observations and Indicators for Agricultural Planning, based on the work of F.Tarp in collaboration with Tuáhira Daude Husseine and João Carrilho. Maputo, 1988. 61 p., 2 tables and 25 figures. ES: DP/86/007, Field Document no. 2, Vol.1 (English Version).

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LIST OF ABBREVIATIONS

CFA	-	Centre for Agrarian Training
CPD	-	Centre for Data Processing
DEA	-	Directorate for Agricultural Economics
DINAGECA	-	National Directorate for Geography and Cadastre
DNDR	-	National Directorate for Rural Development
DNE	-	National Directorate of Statistics
FAO	-	Food and Agriculture Organization of the United Nations
INIA	-	National Institute for Agricultural Research
INPF	-	National Institute for Physical Planning
MIA	-	Mission for Agricultural Statistics
UNDP	-	United Nations Development Programme
PRE	-	Economic Rehabilitation Programme

TRANSLATION OF PORTUGUESE TERMS

Província/Distrito	-	Province/District
Superfície	-	Surface
População Residente	-	Resident Population
Densidade Populacional	-	Population Density
População Econ. Act.	-	Economic Active Population
Sec. Agra.	-	Agricultural Sector
Agregados Familiares	-	Number of Families
Total Agricultores	-	Total farmers
Região Agrícola	-	Agricultural Region
Area Cult. por Agricultor	-	Av. Area Cropped/Farmer
Area Total Cultivada	-	Total Area Cropped
Mandioca	-	Cassava
Mapira	-	Sorghum
Milho	-	Maize
Arroz	-	Rice
Amendoim	-	Groundnut
Feijão	-	Beans
Mexoeira	-	Pearl Millet
Nachenim	-	Finger Millet
Batata D.	-	Sweet Potato
Gergelim	-	Sesame
Algodão	-	Cotton
Cajueiros	-	Cashewtrees
Coqueiros	-	Palmtrees

1. INTRODUCTION[1]

The implementation of the Economic Rehabilitation Programme (PRE) requires as a key measure efficient planning which focus at the same time on the strategic importance of the family sector. However, the last agricultural census in Mozambique was carried out between 1965 and 1969 by the socalled Mission for Agricultural Statistics, and the latest agricultural statistics which cover the family sector are those of 1970 (MIA, 1973).

On the basis of the above surveys various analises of the overall agricultural production structure and the regional production system have already been made[2]. In general it can be concluded that the total cultivated area in the family sector in 1970 probably was approximately 2.5 million ha with annual crops, the following being the most important: maize, cassava, sorghum, cotton, groundnut, bean and millet.

The information on permanent crops varies considerably[3].

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[1] This report in two volumes was prepared at the suggestion of Mr. J. Carrilho, National Director of Rural Development in the Ministry of Agriculture, who participated actively in the development of the work with fruitful proposals and observations.

The assistance of the National Institute for Physical Planning (INPF) and of project TCP/MOZ/4508 in the elaboration of a map of the localities of Mozambique (at scale 1:2,000,000) is appreciated. We are also grateful for the assistance of staff at the Institute of Agricultural Research (INIA) and of project MOZ/81/015 who participated in many fruitful debates about the work and put at disposal specialized equipment without which it would not have been possible to implement the study.

Ms. Tuáhira Husseine, Agronomist in DNDR had the responsibility for the work with the various maps, an important aspect in interpreting existing data correctly. The responsibility for the rest of the work lies with Mr. Finn Tarp, Temleader of project MOZ/86/007.

[2] Reference may for example be made to Casimiro (1968), Mendes (1977 and 1982) and Wuyts (1978).

[3] In accordance with the 1970 statistics there were approximately 35.6 million cashewtrees (90% in the family sector), 10.2 million cocopalms (half in the family sector), 11.6 million bananas (two thirds in the family sector), 3.2 million papayas (almost all in the family sector), 36.0 million pineapple (almost all in the family sector), 2.6 million citrustrees (75% in the family sector) and 3.9 million mangotrees (almost all in the family sector). The total area occupied is difficult to estimate, but should be more than one million ha (see also

Recent work by INIA, which is not yet published, based on measurements of the land use map (see Snijders, 1985) also indicates that the total area cultivated by the family sector was around 2.5 million ha during the seventies.

The relative importance of the family sector is clearly shown in the study by Wuyts (1978), who indicates that of the 1975 total agricultural production 55% was produced by peasants for auto consumption. It is estimated that one third of the 45% of the production which was marketed had its origin in the family sector.

Since 1975 and until now there were few organized attempts to improve the lack of data about the family sector. The UNDP/FAO project MOZ/75/011 - Agricultural Statistics initiated some activities in this field, but it was not possible to achieve the objective of implementing a new census in 1980, and the project terminated in 1983[4].

The work of Snijders (1985) provides an inventory of land use, and the recent measurements of the land use map also gives, as mentioned above, an indication of land use in the family sector[5]. However, this information is very globalized, little operational and it has not - as is the case with other previous studies - been linked to the existing administrative division of the country.

There are therefore no answers to questions like the following at district and/or locality level:

- What is the area cropped in the family sector?

- What is the share of the total cultivated area of the surface area?

- What is the distribution of the cultivated area among the different crops?

- What is the average area cropped by a family?

Consequently, it is very speculative to make comments (or

Mendes, 1982).

[4] See UNDP/FAO (1983).

[5] It is estimated that a total of 2.5 million ha are being cultivated in the family sector, distributed as follows: high intensity 67,750 km^2 (27%), medium intensity 104,150 km^2 (41%) and low intensity 80.700 km^2 (32%).

estimates) about family sector production (and therefore the food situation) - not only year by year, but also in an "absolute " sense. It also follows that it is a difficult exercise to estimate input needs and analyse questions related to the production systems, family income etc. Finally, it becomes difficult to choose priority regions/districts/localities for rural development activities, to be assisted by the Government and the International Community, based on objective criteria.

Various studies have already been prepared at INIA through which it is possible to obtain basic information about the potential of agricultural resources of Mozambique, which is indispensable for effective planning at national and regional as well as at project level[6].

That is, the main constraint in the planning process is clearly statistical information about the agriculture presently practiced.

The up-dating of the MIA statistics can theoretically be done in various ways. The ideal would obviously be to make a new census. Another hypothesis is to compare existing data with the reality in an organized manner, basing the analysis on qualitative information as well as local and/or regional samples. The scope of this report is to propose a framework for work in this second area and at the same time provide some new observations and indicators which, with the necessary caution, could serve so as to facilitate planning in the present critical phase of rehabilitating the national economy.

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[6] See for example Voortman and Spiers (1981) , Voortman (1984), Eschweiler (1986) and Reddy (1986).

2. METHODOLOGY

The statistical information used in this study comes from Carvalho (1969) and the National Directorate of Rural Development (DNDR), based on the 1980 Population Census. In addition the land use map (see Snijders, 1985) was used and a map of the localities at scale 1:2,000,000 was elaborated.

On the basis of the results from the last agricultural census from the years 1965-69 as well as on the basis of supplementary studies and information, Carvalho (1969) identified some 130 basic agricultural regions which were clearly defined by their crops, their relative importance in terms of area and by the presence or lack of cocopalms and cashewtrees as well as by the average area cropped by farmers. These regions are shown in map 2 of Carvalho (1969), which is at scale 1:2,000,000.

It can be stressed that a linkage between the above regions and the administrative division of the country was never established. However, given the fact that the number of localities is very much larger (810 not including the 12 main cities) than the number of regions of Carvalho (approximately 130) it was thought worthwhile to find out whether it would be possible to classify the localities in accordance with the classification of the regions. This was not possible without some difficulties, but the number of localities where it was not possible is relatively small, 188 or 11% of the total; and in these cases it was possible without difficulty to divide the locality in two or three sub-areas, which could be assigned a clearly identified classification among the agricultural regions. Of the 88 localities which were divided, 81 were divided in two sub-areas and 7 localities were divided in three sub-areas.

In practice the relationship between the localities and the agricultural regions was determined through a comparison of the locality and the Carvalho maps, using as well the land use map. It must be noted, that the reason why it was possible to establish a rather precise relationship is that the land use map gives an indication of where land is cultivated in a given locality. So almost all of the doubts which existed at the stage of comparing the locality map and the map of Carvalho disappeared in this way. That is, the doubts which in practice exist appear when the land use map and the map of Carvalho are compared and when the locality map does not indicate the limits of a locality[7], or when a locality does not appear on the map[8]. One

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[7] That is, when some localities appear grouped on the map. The total number of these localities is 290 in 114 groups (see annex 1a). The surface and the area cultivated of a specific grouped locality were for this study estimated on the basis of

locality (Sede of Inharrime) is on the map but not in the Census.

In the cases where a cultivated area (appearing on the land use map as one block and which comparing with the map of agricultural regions involves more than one region) it was decided to attribute the characteristics of the dominant region to the block. In fact this corresponds to saying that the region map of Carvalho was slightly modified in these cases. This is reasonable considering that the Carvalho map was elaborated before having access to the land use map, given that it is very unlikely that what appears on the land use map as one block cannot be identified with the same agricultural characteristics, and considering that any other criteria would be very arbitrary.

In the cases where it was necessary to divide a locality among various agricultural regions it was decided to use the criteria that a sub-area may have 25, 50 or 75% of the surface and the total population of the locality. It must be stressed that these weights are arbitrary, but to have a complete analysis it is necessary to choose weights, and the conclusions do not change significantly with the choice of other possibilities such as for example 10, 20, ... 90%.

In this manner each of the localities or sub-areas of a locality of the country were linked with one specific agricultural region.

To be able to estimate the total cultivated area and its distribution by crop in a locality it is necessary to know the number of farmers. This number is not known with certainty. However, an analysis made together with CPD and DNDR indicated that it may be estimated with a reasonable degree of precision, taking as a basis the number of families per locality and multiplying this number with the share of the economically active population in agriculture in relation to the total economically active population. These three statistics are known at the level of the localities through the 1980 census.

A projection of the number of farmers in 1987 was also made using as a basis a growth rate of 2.6% per year.

In this manner it was possible to project the total cultivated area in 1987 of the following ten crops : cassava, maize, rice, groundnut, beans, pearl millet, finger millet, sweet potato, sesame and cotton as well as the number of cashewtrees and cocopalms.

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the relative weight of the resident population in relation to the total surface of the group.

[8] This happened in 11 cases (See annex 1b)

With a view to complement the above mentioned indicators, the summary tables in this volume and the tables by locality in volume 2 also include data about surface area, resident population and population density etc. The population density is known through information from the 1980 Census, but for this study it was necessary to digitalize the locality map and calculate the surface areas on this basis.

The system used for this is the geographic information system CRIES (Schultink et. al., 1986) of the University of Michigan. The routine "MONONIG" of the "DIGITIZE" module converts map data (coordinates of a locality) in a digitalized manner. The 'dig-files' created in this manner are afterwards converted into surface areas through the routine "POLYFILL". The 'raster file' created in this way is afterwards corrected with a "CUTTER" routine to ensure that boundaries are correctly registered. The information was finally printed through the "HISTOGRAM" phase.

The degree of exactness (the grid) used was squares of one km^2. In other words, a network of grids of one km^2 each was put on top of a map of Mozambique[9]. Afterwards, the squares or grids were distributed among the localities. That is, the level of precision is in this regard very high, and it can be noted that the 'raster file' occupied 4.7 megabytes of memory in the IBM/XT/SFD computer, which was used for the processing.

It must, however, be stressed that the locality map is not an exact and final map. The limits of some localities (a total of 290, in particular in the provinces of Gaza, Tete, Niassa, Nampula and Sofala) are for example unknown and other limits were only drawn with approximation. In addition, there are 11 localities which do not appear on the map. That is, although the surface areas are at present the best estimates in existence they should be interpreted as estimates only, which are to be verified in the future through the elaboration of an official map under the responsibility of DINAGECA or INPF[10].

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[9] Excluding the surface of the Niassa Lake and the Cahora Bassa dam.

[10] For the elaboration of the map, use was made of the following: a) for the country boundaries - the Carvalho map; b) for the provincial and district divisions - a map of CFA; and c) for the locality divisions - information and maps from INPF. None of the three maps coincide in their limitations which vary between 0.5 and 5 mm which at scale 1:2,000,000 implies a big margin of error which was compensated aided by the eye. In addition there is the limitation that the locality map is incomplete as already referred to above.

Using the data on resident population and surface area, the 1980 population density was calculated, and a projection to 1987 was made using a rate of population increase of 2.6% per year.

All the data referred to above were introduced in spreadsheets of the LOTUS 123 type province by province[11]. Each one of these provincial spreadsheets is divided into three areas: area 1 with information locality by locality; area 2 with a summary at district level (which copy with formulas the district sums from area 1; and area 3 which contains the numerical values of area 2. It is only area 1 which was printed and included in the tables in volume 2 of this study.

Analyses at locality level changing parametres to see the consequences in the calculated indicators can be carried out in accordance with the standard principles for LOTUS spreadsheets.

The numerical districts values contained in area 3 in each of the 10 provincial table (see volume 2) were transferred to a national spreadsheet divided into three areas: area 1 with a national summary at district level; area 2 with a national summary at provincial level (which copies with formulas the provincial sums in area 1); and area 3 with the numerical values of area 2. It is only the information contained in areas 1 and 2 which was printed and included in the national summaries in respectively section 3 (printed in figure form in figures 3-25 in annex 2[12]) and annex 3 of this volume. It can be mentioned that the only formulas which these national tables have are the formulas which calculate the national totals.

To allow analytic exercises at district and provincial level a national spreadsheet with formulas defined for calculating derived indicators was prepared. This spreadsheet has two areas: area 1 with a summary at district level where district parametres can be modified to see the consequences for derived indicators, and area 2 where the analysis can be done at provincial level.

A last point to be mentioned is that the cultivated area in the cities was not considered here[13]. The number of farmers and the average area cropped by farmers in the cities were

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11 The data on Maputo city were introduced directly in the national summaries.

12 The assistance of Ms. Vitoria da Silva Pereira, Cooperant/Economist in project MOZ/86/007, in the elaboration of these figures is appreciated.

13 The cities are: Maputo, Xai-Xai, Chokwe, Inhambane, Beira, Chimoio, Tete, Quelimane, Nampula, Nacala, Pemba and Lichinga.

therefore introduzed as nil. However, to ensure consistency in relation to surface area and population density at provincial and national level, data on resident population and surface area of the cities were introduzed as can be seen in the tables. In future, when relevant information about land use in the cities become available it will be easy to introduce this into the computer to have a more complete averall picture.

3. RESULTS

The results of this study at national and provincial level are summarized in table 1 on the following pages.

The total surface area measured in this study is 795,435 km^2, which is close to the surface area published by DNE (1986) of 799,380 km^2. Considering that this study does not include the Niassa Lake and the Cahora Bassa Dam the degree of exactness is acceptable at national level. At provincial level some differences can be identified as may be seen below:

Province	Surface indicated by DNE (1986) in km^2	Surface measured in this study in km^2
Niassa	129 056	124 529
Cabo Delgado	82 625	80 692
Nampula	81 606	84 110
Zambézia	105 008	105 704
Tete	100 724	98 526
Manica	61 661	62 881
Sofala	68 018	67 393
Inhambane	68 615	70 634
Gaza	75 709	76 483
Maputo Prov.	25 756	23 881

The biggest difference appear in the province of Maputo where it is 7%, but this is obviously a question of defining provincial limits because the difference for the whole of the southern zone (Inhambane, Gaza and Maputo) is less than 0.6%. In the case of Manica-Sofala the difference is even less. In the case of Cabo Delgado-Nampula there is also a question of defining provincial limits, but the total surface area of the two provinces taken together is the same. The surface area in this study is less in the case of Niassa and Tete because of the exclusion of the lakes.

In conclusion, the surface areas at provincial level show some differences, but they are of minor importance and clearly linked to uncertainty regarding provincial limits. Considering that provincial surface areas in this study were calculated from areas measured at locality level the difference can be considered neglible, although it underlines the preliminary character of the locality map.

The national population density in this study was 14.7 persons per km^2 in 1980 and varied between 4.1 in Niassa and more than a thousand people in the city of Maputo. Considering the above mentioned conclusions regarding surface areas, it follows that the data on population density are also acceptable estimates. The estimated 1987 density is based on a rate of

Table 1: National Summary by Province *

PROVINCIA/DISTRITO		SUPERFICIE (km2)	POPULACAO RESIDENTE 1980 (ag)	DENSIDADE POPULACIONAL 1980 (ag/km2)	DENSIDADE POPULACIONAL est. 1987 (ag/km2)	POPULACAO ECONOMIC. ACTIVA 1980 (ag)	POPULACAO ECON.ACT. REC.AGR. 1980 (ag)	AGREGADOS FAMILIARES 1980 (ag)	TOTAL AGRICULTORES est. 1980 (ag)	REGIAO AGRICOLA	AREA CULTIV. POR AGRICULT. (ha./ag.)	AREA TOTAL CULTIVADA 1980 (ha.)	AREA TOTAL CULTIVADA est. 1987 (ha.)
NIASSA		124529	511863	4.1	4.9	245138	226738	132752	115999		1.3905	161254	193041
CABO DELGADO		80692	900704	11.2	13.4	465359	436328	211724	192612		1.0933	210585	252034
NAMPULA		84110	2241745	26.7	31.9	1148979	1046945	621609	529985		1.2198	646458	773699
ZAMBEZIA		105704	2418851	22.9	27.4	1159835	1069241	578756	513958		0.7954	409291	489850
TETE		98526	780081	7.9	9.5	382617	353646	182376	161100		1.4563	234806	281142
MANICA		62881	587345	9.3	11.2	272753	237786	107463	84687		1.8146	153696	183708
SOFALA		67393	958731	14.7	17.6	453496	330632	206865	123168		1.1366	139987	167641
INHAMBANE		70634	1023879	14.5	17.3	526464	478926	223296	189756		2.1224	402741	482011
GAZA		76483	982603	12.8	15.4	478688	396656	196358	155003		1.5573	241488	288916
PROVINCIA DE MAPUTO		23881	500892	21.0	25.1	218567	167388	103530	79254		1.3988	110830	131927
CIDADE DE MAPUTO		602	739077	1227.7	1465.3	226587	28653	157316	0		0.0000	0	0
PAIS	TOTAL	795435	11677771	14.7	17.6	5576464	4754831	2712439	2145633		1.2632	2710388	3243866

* For translation of Portuguese terms see page vi.

PROVINCIA/DISTRITO		AREA TOTAL CULTIVADA	MANDIOCA		MAPIRA		MILHO		ARROZ		AMENDOIM	
		(ha.)	ha.	%	ha.	%	ha.	%	ha.	%	ha.	%
NIASSA		193041	22879	11.9	68143	35.3	64213	33.3	1479	0.8	3587	1.9
CABO DELGADO		252034	108584	43.1	56505	22.4	34503	13.7	2661	1.1	16762	6.7
NAMPULA		773699	472167	61.0	134729	17.4	28158	3.6	18942	2.4	68311	8.8
ZAMBEZIA		489850	178564	36.5	96404	19.7	76492	15.6	41581	8.5	37677	7.7
TETE		281142	187	0.1	38862	13.8	169508	60.3	481	0.2	13443	4.8
MANICA		183708	793	0.4	53080	28.9	77482	42.2	860	0.5	3260	1.8
SOFALA		167541	2711	1.6	73743	44.0	53814	32.1	12231	7.3	3708	2.2
INHAMBANE		482011	78027	16.2	13493	2.8	185259	38.4	1263	0.3	120916	25.1
GAZA		288914	21464	7.4	9211	3.2	160215	55.5	2681	0.9	70125	24.3
PROVINCIA DE MAPUTO		131927	1424	1.1	7812	5.9	78838	59.8	790	0.6	21392	16.2
CIDADE DE MAPUTO		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
PAIS	TOTAL	3243866	886799	27.3	551982	17.0	928481	28.6	82968	2.6	359181	11.1

	FEIJAO		MEXOEIRA		MACHEMIN		BATATA D.		GERGELIN		ALGODAO		CAJUEIROS		COQUEIROS	
	ha.	%	ha.	%	ha.	%	ha.	%	ha.	%	Area/ Agric. (ha)	Area Total (ha)	No Arvores/ Agric.	Arvores Total (no)	No Arvores/ Agric.	Arvores Total (no)
NIASSA	25208	13.1	627	0.3	548	0.3	1177	0.6	473	0.2	0.3111	43187	1.5	214969	0.0	0
CABO DELG.	25401	10.1	1640	0.7	22	0.0	152	0.1	5701	2.3	0.4225	97404	20.6	4743191	1.2	265896
NAMPULA	41835	5.4	7485	1.0	363	0.0	23	0.0	1270	0.2	0.3144	199413	23.7	15050704	2.0	1239626
ZAMBEZIA	48077	9.8	7196	1.5	447	0.1	1985	0.4	702	0.1	0.1876	115412	6.8	4207499	9.6	5886660
TETE	24360	8.7	25288	9.0	5554	2.0	1827	0.6	0	0.0	0.0843	16265	0.0	643	0.0	0
MANICA	1862	1.0	30217	16.4	14716	8.0	269	0.1	1065	0.6	0.0861	8718	2.3	235386	0.0	0
SOFALA	1302	0.8	17812	10.6	67	0.0	977	0.6	953	0.6	0.2184	32195	4.0	595785	0.2	25178
INHAMBANE	75019	15.6	7241	1.5	0	0.0	234	0.0	0	0.0	0.0423	9603	44.3	10066820	15.3	3484084
GAZA	13989	4.8	7621	2.6	0	0.0	286	0.1	0	0.0	0.1817	33718	13.4	2483367	0.4	72089
PROV. MAPU.	17989	13.6	1376	1.0	0	0.0	361	0.3	0	0.0	0.0182	1729	3.1	292749	0.0	0
CID. MAPUT.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
PAIS	275042	8.5	106502	3.3	21717	0.7	7291	0.2	10164	0.3	0.2172	557644	16.8	37891112	4.3	10973532

population increase of 2.6% per year.

The data on number of families and economically active population come from the census directly, and the estimates of number of farmers confirm the importance of the provinces of Zambezia and Nampula with almost 50% of the total. The provinces of Cabo Delgado and Inhambane follow with 7-9% each, and the provinces of Tete and Gaza have 7-8% each. The provinces of Niassa, Manica, Sofala and Maputo all have less than 5-6% of the total number of farmers.

The estimated average area per farmer in 1980 (excluding cotton) in the family sector varied between 2.1 ha in Inhambane and 0.8 ha in Zambezia, and the national average is estimated at 1.3 ha per farmer. Taking account of a total number of farmers of 2.1 million in 1980 the total area cultivated by the family sector in this year can be estimated at 2.7 million ha, excluding the cotton area. Taking into consideration an annual growth rate of 2.6% in the number of farmers, this gives a total of 2.7 million in 1987, which ceteris paribus implies, a total cultivated area in 1987 of 3.2 million ha, excluding cotton. With the cotton area included the total becomes 3.8 million ha.

The distribution of the total cultivated area by province (including cotton) is ilustrated in figure 1 below. The importance of the Nampula, Zambezia and Inhambane provinces with 55% of the total cropped area is obvious. The provinces of Cabo Delgado, Gaza and Tete have between 7 and 9% of the cultivated area and other provinces less than 6%.

The distribution of total cultivated area by crop (including cotton) is ilustrated in figure 2 below. The importance of maize and cassava with almost 48% of the total cropped area is obvious. Other important crops are cotton (15%), sorghum (15%), groundnut (10%) and beans (7%). The other crops included have a total area of only 6% of the total.

The distribution of the cultivated area among the various crops in a given province, and the distribution of the total area of a given crop among the various provinces is shown in table 1 above and in figures 3-25 in annex 2 which gives summaries which are visually easier to understand.

The importance of maize, groundnut and beans in terms of area in the South (Maputo, Gaza and Inhambane) is striking. Some cassava and sorghum was also grown but on areas which are relatively much less important, in particular in Maputo and Gaza. That is, the dependence on maize, groundnut and beans in the South is big, with the diversification being better in Inhambane than in Maputo and Gaza. In the North (Nampula, Cabo Delgado and Niassa) the areas of cassava and sorghum are relatively much more important than in the South and the diversification is a little

Figure 1

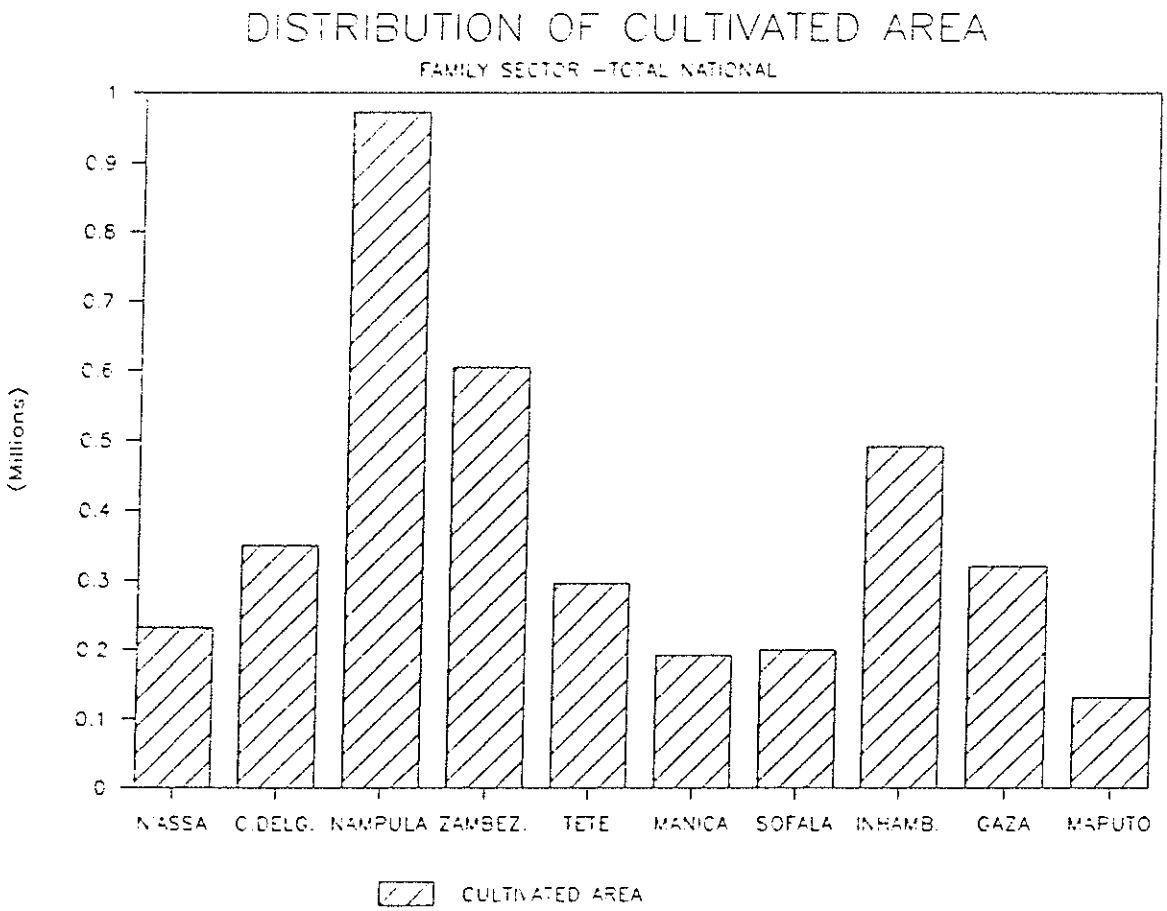
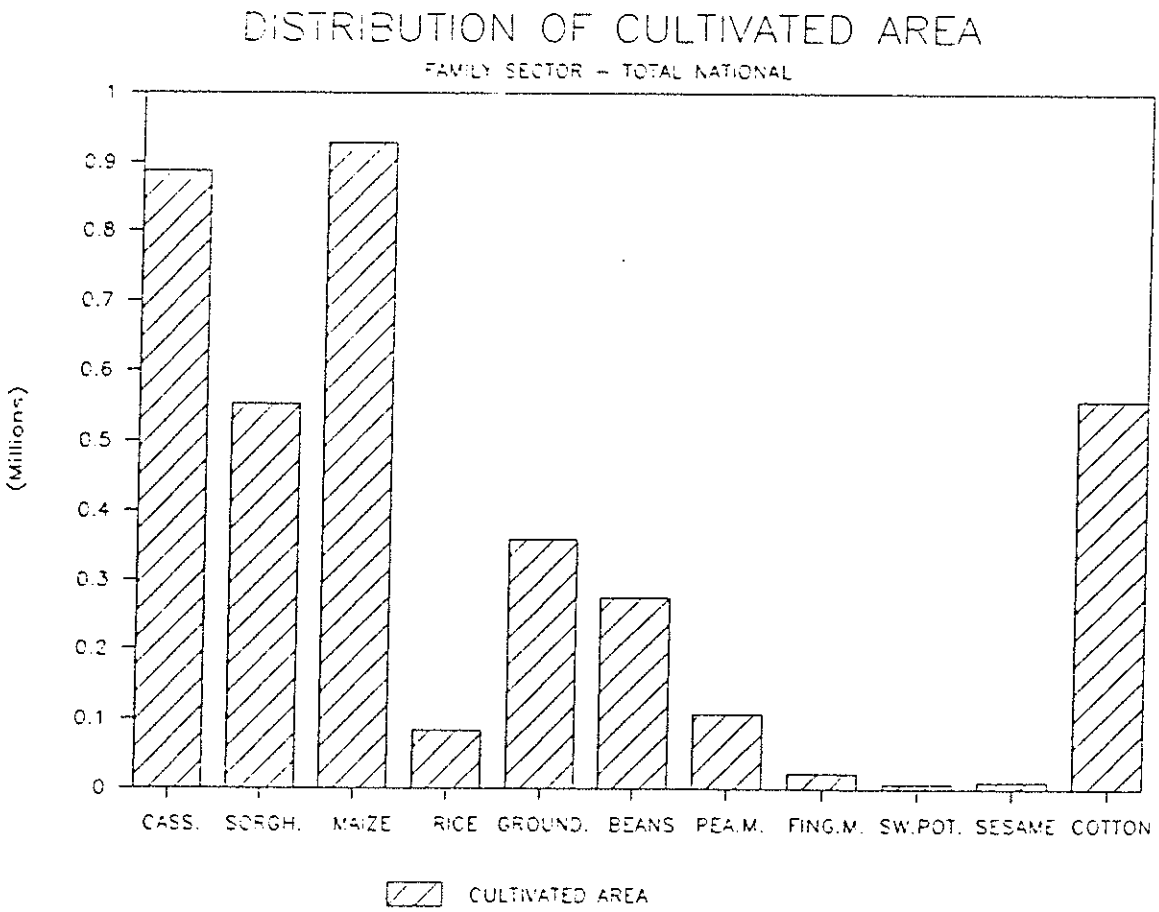

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR -TOTAL NATIONAL
(Millions)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
NASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
CULTIVATED AREA

Figure 2


DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR - TOTAL NATIONAL
(Millions)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
CULTIVATED AREA

better, in particular in Niassa and Cabo Delgado. In the Central region (Sofala, Manica, Zambezia and Tete) cassava was very important in Zambezia and sorghum and maize were very important in terms of area in the whole of this zone. The diversification in Zambezia was very good. In Tete, maize is the basic crop, but other crops in areas of relatively less importance are also grown. Sofala and Manica are provinces of sorghum, maize and millet.

The areas cropped with cassava, sweet potato and sorghum were clearly concentrated in the North and Central parts of the country. To a certain extent the opposite happened for maize, groundnut and beans, but there were also important areas with these crops in the North/Central parts.

The millet crops were particularly grown in Manica and Tete although the pearl millet is more dispersed than finger millet.

The sesame area was concentrated in Cabo Delgado although there also was production in five more provinces in the Centre/North of the country.

Rice in the family sector was concentrated in three provinces, Zambezia, Nampula and Sofala.

The cotton crop occupied important areas in almost all provinces, particularly the provinces of the North/Central parts of the country, and here the importance of Nampula was very big.

The geographic distribution of cocopalms and cashewtrees is very much concentrated in the provinces of Nampula, Zambezia and Inhambane, and in the case of cashewtrees including the provinces of Cabo Delgado and Gaza as well.

The above conclusions are not by themselves new. However, it must be highlighted that they are for the first time based on quantified estimates of areas cultivated by crop at the level of the administrative units of the country. That is, the same kind of results as discussed above at national level can also be obtained at provincial, district and local levels from the data in volume 2 of this study, and can be compared with resident population etc.

4. ANALYSIS

The estimates given above (and included in the annexes of this volume as well as in volume 2) of cultivated areas in 1987 were based on important assumptions including in particular:

- The last agricultural census was representative. It is not possible to verify whether this assumptions is correct but considering that the sample used in the census was large (approximately 1% of the population) this is normally acceptable in analyses of this kind.

- The linking of administrative localities with agricultural regions did not introduce any significant bias. As already explained in section 2 this process was carried out with some difficulties, but they do not appear significant. That is, this assumption also seems reasonable.

- The average area cropped by farmer remained constant since the 1960'ies. Under normal conditions it would be perfectly possible to expect that the average cropped area could remain stable during 25 years. Under conditions where there is no lack of arable land and with the technology used in the family sector the area cropped depends mainly on availability of labour. However, conditions were not "normal" during the last 25 years. There is little doubt that the area cropped per family decreased due to a series of unfavourable factors. In the first place reference can be made to the impact of the war and all the constraints it implies, and which diminished the time available to farm. In addition, there are also other factors which imply a decrease in the average area cropped such as lack of incentives to produce for the market (prices and consumer goods) and the fact that a considerable part of the population was grouped in communal villages which are further away from the fields than previously. Factors like natural calamities have also diminished the average area.

- The production structure (that is the relative weight of the various crops in terms of area) remained constant since the 1960'ies. This assumption could also be reasonble in a situation of stability, which did not exist, however, in the case of Mozambique. There is no doubt for example that the area dedicated to cash crops diminished in relation to food crops such as maize and sorghum. There are historical reasons as well as policy reasons to explain this. One example is cotton where the cultivation was forced before Independence. It would be reasonble to expect that families forced to grow this crop diminished their area in preference of for example maize after the element of cohersion disappeared; and this is even more so when account is taken of the fact that the price policy and availability of consumer goods were not positive for this crop.

It is therefore clear that the 1987 estimates were not made to be used without due care. In other words, the actual situation in 1987 was not the one reflected in the numbers indicated.

The fundamental question was not to try to estimate the cultivated area in one or another area. The objective was to give an order of magnitude (a reference), linked to the administrative division, which could serve as a basis for more in-depth analyses, and which could demonstrate what it would be possible to crop (the potential) if the farming systems had remained as they were at the end of the 1960'ies.

5. RECOMMENDATIONS

It would be against the intensions and spirit of this study to try to draw conclusions about the development of family sector production from one year to the next. No possibility exists to estimate this kind of development on the basis of the data presented here. However, the study can be utilized in attempts to establish a general, clearer and quantified picture of what happened in the family sector during the last 25-30 years. And it is obvious that this kind of analysis is of fundamental importance as a background for the definition of agricultural policy action in the present food crisis, as well as in the definition of a medium to long term development strategy.

The study can be used at two levels at the national/provincial level and at the district/local level. For macro analyses the tables in this volume can be used as a starting point which can be further developed as follows:

- On the basis of estimates of the number of farmers in a specific base year (for example 1970) a more complete picture of the situation in the family sector can be constructed, including the area cultivated per crop and total production (using yields given by MIA for 1970 and previously)[14].

- On the basis of the above assumption and assuming that yields remained stable[15] points of reference may also be constructed for example for the years 1980, 1985 and 1990 etc. These "images" should as already pointed out not be interpreted

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[14] That is, total national production of a given crop can be calculated as the sum of the production in the various provinces, which in turn can be calculated multiplying the average area per farmer by the total number of farmers, the percentage of the area dedicated to the crop in reference and the yield in the province.

[15] This assumption can as the assumptions mentioned in section 4 be considered reasonable under normal conditions, taking into account that no major modifications were introduced in the technology in use in the family sector. For example the family sector did not at national level receive large new areas with infrastructures. However, the conditions were not "normal". There is the war which is influencing the average area cropped as well as yields, because it is impossible to dedicate the same attention to agricultural practices (the production is affected), and the fact that there are large groups which are producing nothing or very little (displaced people). And finally there was a series of natural calamities, lack of seed etc. which also decreased yields.

as estimates of "reality", but as reference points.

- Introducing additional assumptions about developments in yields, average areas, the production structure province by province and in the number of farmers, images which may be called more realistic can gradually be constructed using Lotus type spreadsheets.

- The images referred to above can then be used in analyses of the nutritional status (introduzing assumptions about the food habits and nutritional needs) etc. as well as in basic analyses for the definition of a food production strategy.

For analyses at district/local level it is clear that the above methodology can be repeated, but in addition there is the possibility of typing to verify the conclusions made.

Even in the present war situation "samples can be drawn" so as to compare the actual situation with the images established through the above analysis. It is clear that under present condiitons there are greater uncertainties regarding statistical errors (samples which are not representative). However, the almost complete lack of reasonable estimates which is now characteristic also has a very high cost and carries an implicit risk for the effectiveness of the planning process and the decision making.

It also follows from what was said above that this study may serve as a reference point in the preparation of an agricultural census, which should be implemented as soon as possible, and in the analysis of information collected through satelite images or aerial photography.

At provincial or district level farm models for the family sector can also be constructed using the above projections. The lack of these models is at the moment a very important limiting factor in any analysis about policies to be proposed for the family sector.

Finally, the need to elaborate a locality map without the limitations listed in section 2 can be highlighted. It is important for improving the results of this study as well as in future studies that it is clear where a given locality is and which are the limits of this locality.

Annex 1a: Localities Grouped on the Map

Niassa	Attribute Value[16]
Etatara, Cuamba	90
Cobué, Lupilichi	26
Maniamba, Chala, Meponda	49
Meluluca, Mepoche, Chissindo	44
Chimbonila, Sede (Lichinga)	85
Litunde, Miquinha, Muaquinha	30
Nairubi, Malunga	81
Itepele, Ngauma	82
Mucuaiaia, Mussoma, Nanlicha	32
Muapula, Sede (Marrupa), Mugoma, Nhassa	65
Muembe, Mataca	46
Mbamba, Naulala, Sede (Mecula)	21
Tete	
Banga, Lidowo, Namingona	343
Calomué, Chimwala, Ulongue, Dziwanga, Mangani	345
Campessa, Catondo, Chifumbe, Domué, Kombe, Liranga, Mpandula, Ndaula, Nkame, Seze	346
Chivano, Maonekera, Met-Mbal., Mulomba	344
Chiyandamo, Tsangano	348
Mualadzi, Lumadzi	351
Capirinkho, Chipera	388
Estima, Mulinge	392
Chacucoma, Marara, Mufacaconde	395
Dzunga, Mazoé, Mutchenga, Sede (Changara), Temangau	396
Angombe, Msadzo	352
Camuenje, Chifumbe, Tsacale	353
Manje, Mfigo, Tanwib, Muchena	354
Baue, Chidzolon., Furancungo, Kassupe	349
Casula, Chipiriri, Matenje	355
Gandale, Namadende	350
Calue, Mpende	385
Daque, Mucumbura	386
Malomera, Ucanha	365
Nhenda, Fingoé	368
Moatize, Mphanzo, Nsungo	359
Cambulatsitsi, Mamene	358
Kapiridzan, Mussacama, Nkondedzi, Samoa, Zobué	356
Campata, Chueza, Nhamaiabué, Ntondoubodzi	360
Canamua, Canhungue, Inhamgoma	364
Mutarara, Sinjal, Zambawe	362
Charre, Nhampale, V. Nova da F.	363

[16] Each of the areas on the locality map have a number (an attribute value) for its identification.

Zemira, Doa	361
Puato, Zambue	381

Nampula

Sede (Angoche), Boila, Sangaje	150
Muchepua, Namapuiza, Napruma	149
Namaponda, Nangulo	148
Odinepa, Namapa	53
Anduce, Crusse, Matibane, Macucha, Napone	119
Sede (Memba), Nioca, Simuco	96
7 Abril, Baixa Pinda, Niaja, Nhocure	98
Cava, Mazua, Metupula	52
Netia, N. Vida	114
Liupe, Quixaxe	143
Lunga, Namirropela	144
Sede (Nacala), Mezope, Micolene, Namiepe	116
Mutivaze, Napone	126
Nova Chaves, Sauassama	125
I.A.M., Sloha	136

Sofala

Caia, Nhamastanda	439
Nhamatanda, Tica	454
Maringue, Subue	440
Maviga, Solone	449
25 de Set., Macate, Matsinhe	416
Bandula, Vanduzi	415

Manica

Muhoa, Dumbe	421
Sussundenga, Rotanda	420
Guro, Sabeta, Nahacolo	403

Zambézia

Muriamualy, Namirreco	160
Chirimane, Gonhane	314
Chapala, Cololo	202
Nimala, Nauela	199
Micaune, Mitange, Mungari, Boroma, Ziwe-Ziwe	312
Moneia, Mahetxe, Sede (Gilé)	168
Intxotxa, Muiane, Namihaly	162
Nanhope, Kaiane	169
Muximua, Nicorropele, Nipive	258
Maquival, Mutange, Nangoela	335
Mugaveia, Curriane	240
Comane, Mabu	238
M'Pemula, Nagobo	236
Nante, Moneia	213

Annex 1b: Localities not Appearing on the Map[17]

Zambézia

Nacuaca
Putine
Mulele

Manica

Chitundo

Gaza

Nhangono
Zacanhe
3 de Fevº
Ngulelene
Chinhamgane
P.S.Kamkomba
Tihovene

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[17] In addition, Sede de Inharrime which appears on the map was not included in the 1980 Census.

Annex 2: Distribution of Cultivated Area in the Family Sector by Province and Crop

Figure 3

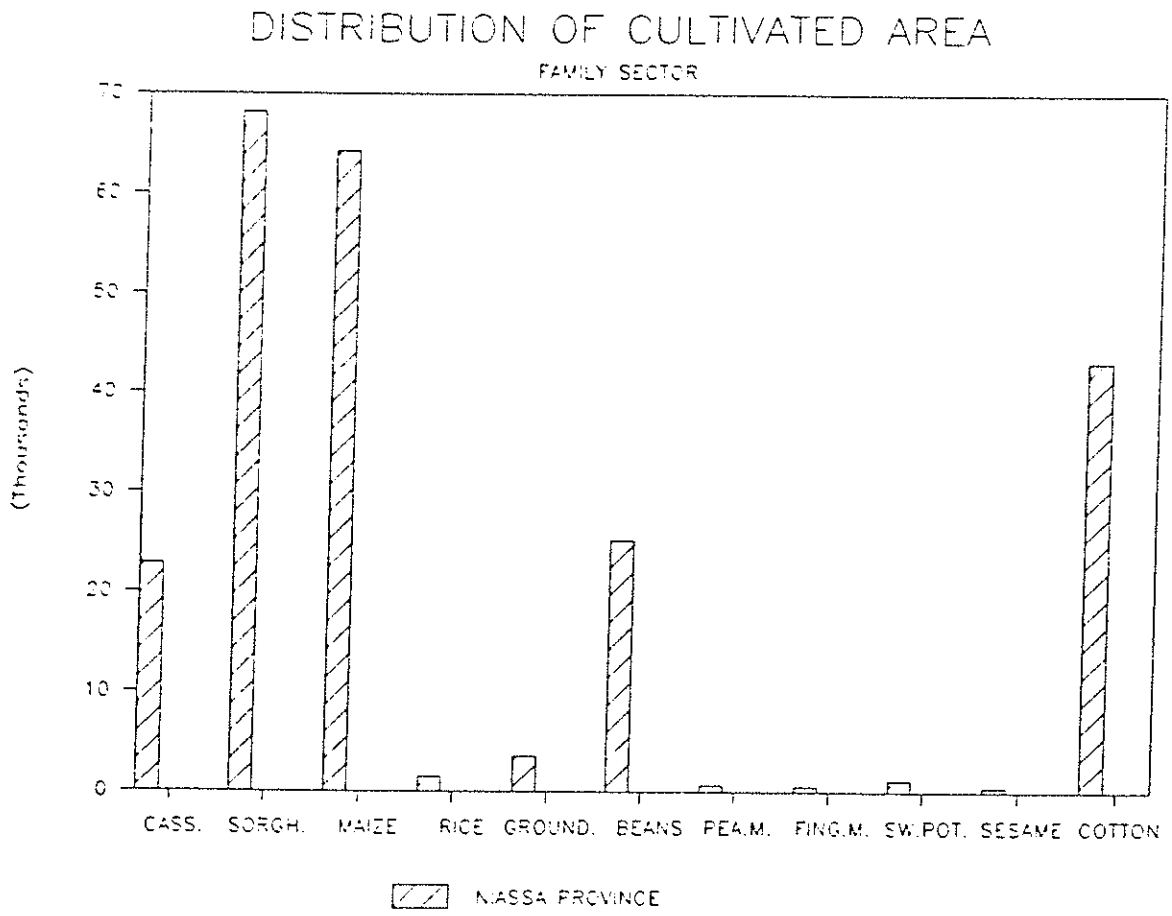

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
70
60
50
40
30
20
10
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
NASSA PROVINCE

Figure 4

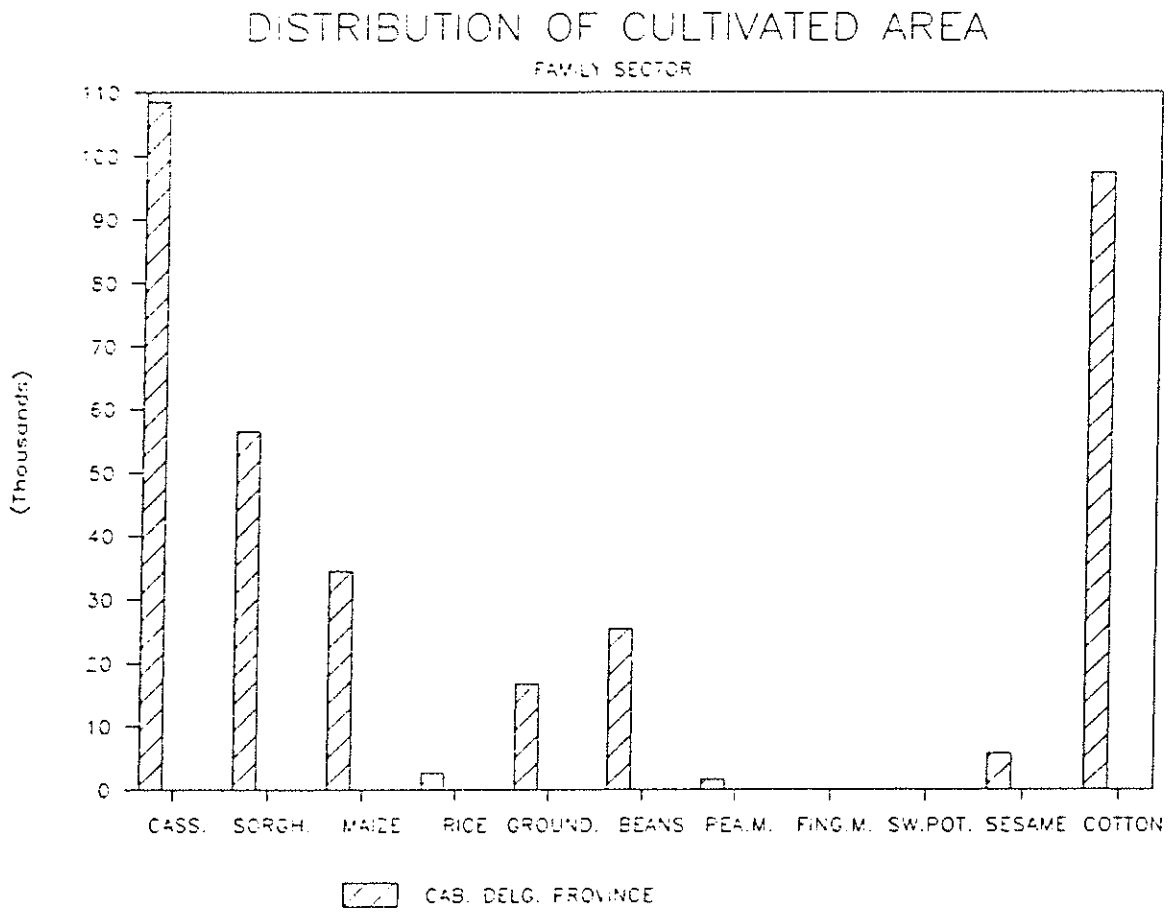

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
110
100
90
80
70
60
50
40
30
20
10
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
CAB. DELG. PROVINCE

Figure 5

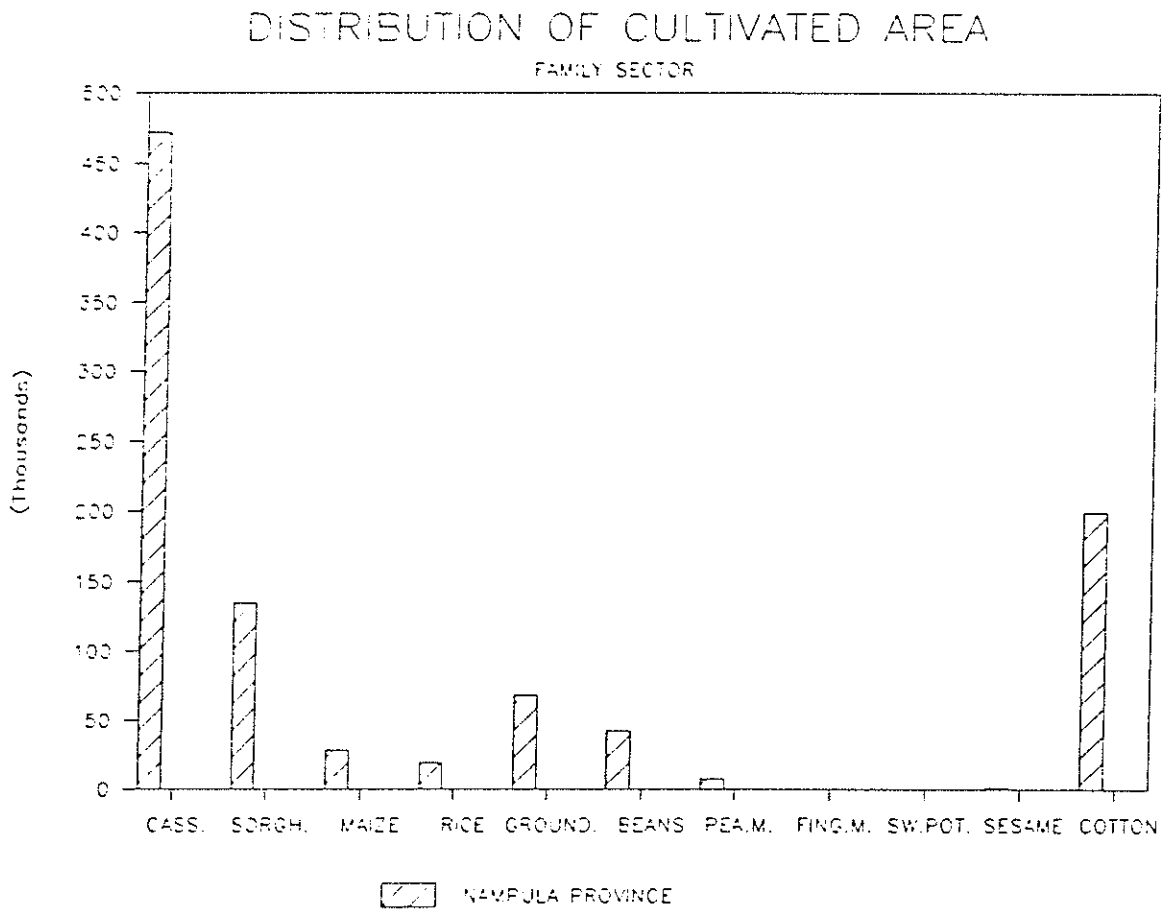

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
500
450
400
350
300
250
200
150
100
50
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
NAMPULA PROVINCE

Figure 6

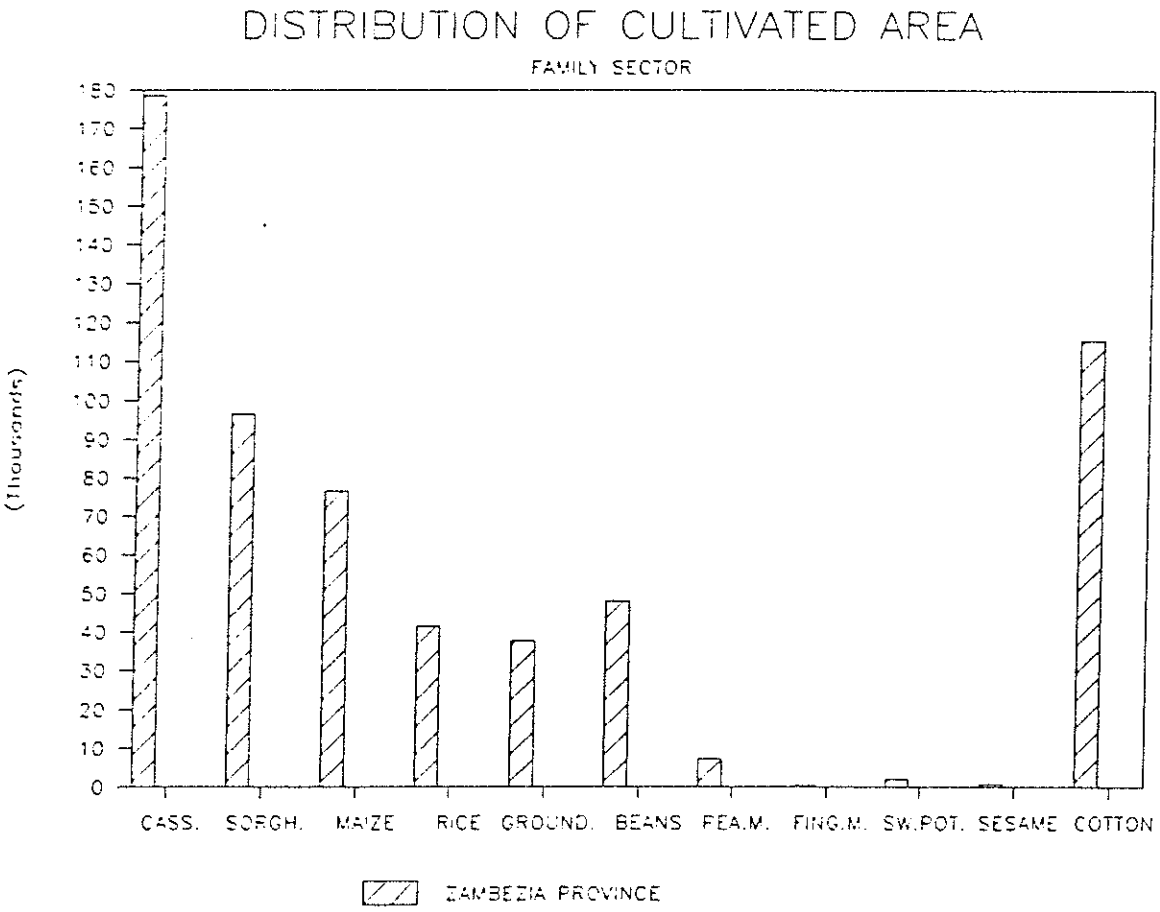

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
PING.M.
SW.POT.
SESAME
COTTON
ZAMBEZIA PROVINCE

Figure 7

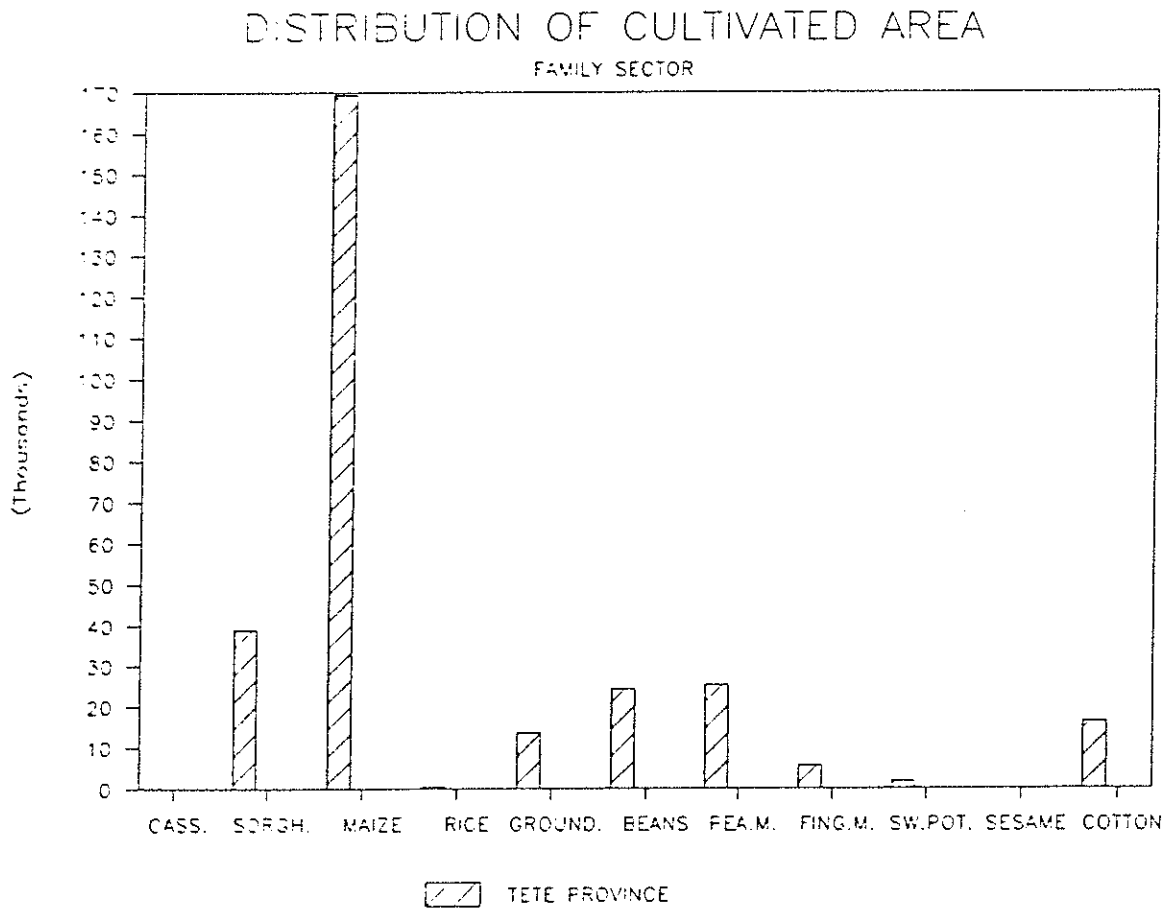

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
TETE PROVINCE

Figure 8

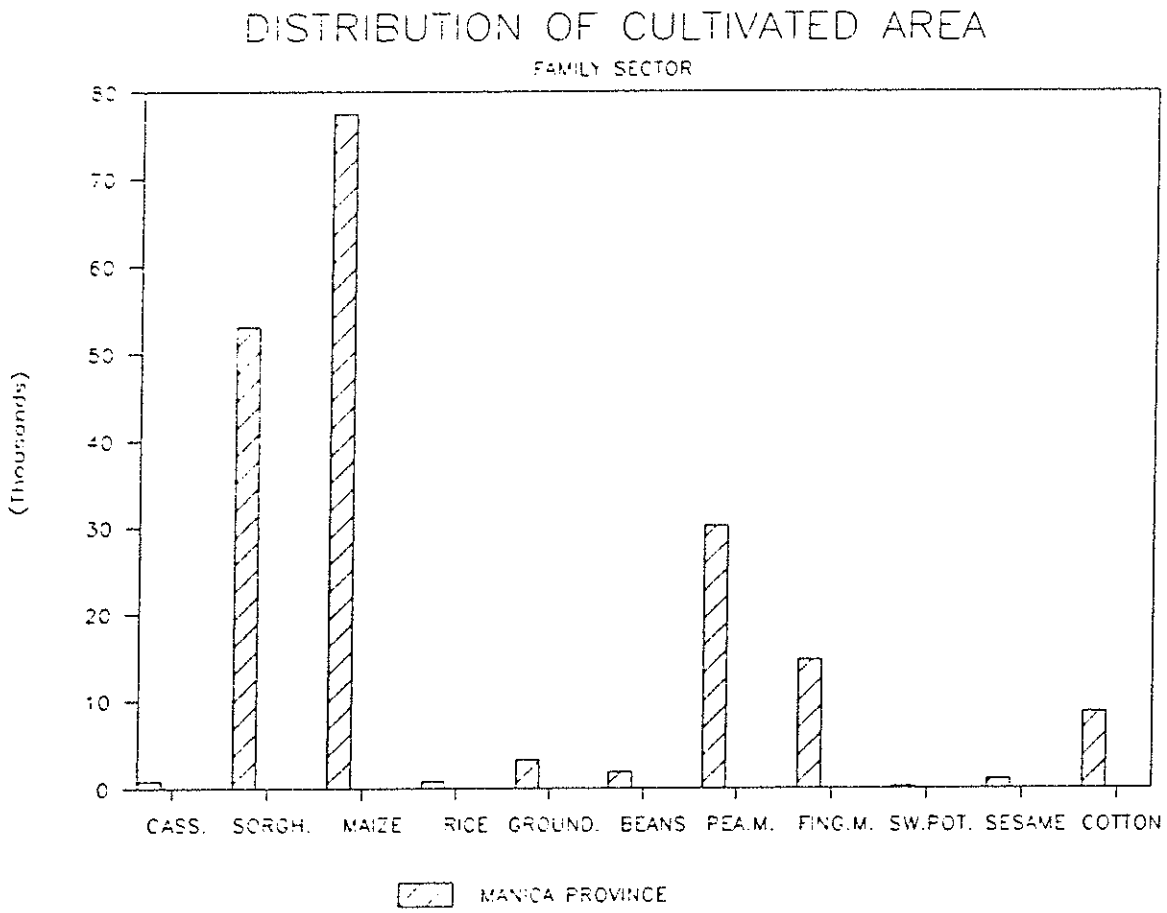

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
80
70
60
50
40
30
20
10
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
MANICA PROVINCE

Figure 9

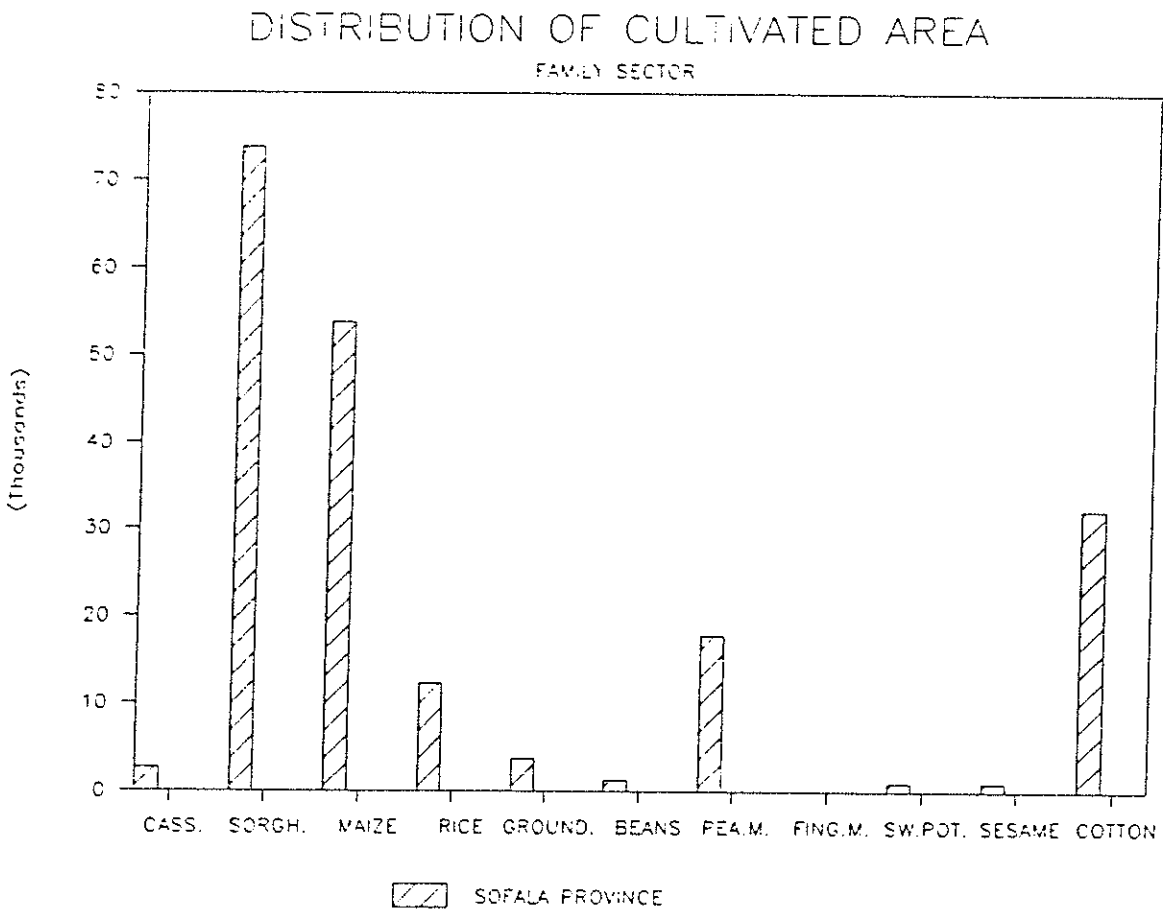

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(thousands)
80
70
60
50
40
30
20
10
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
SOFALA PROVINCE

Figure 10

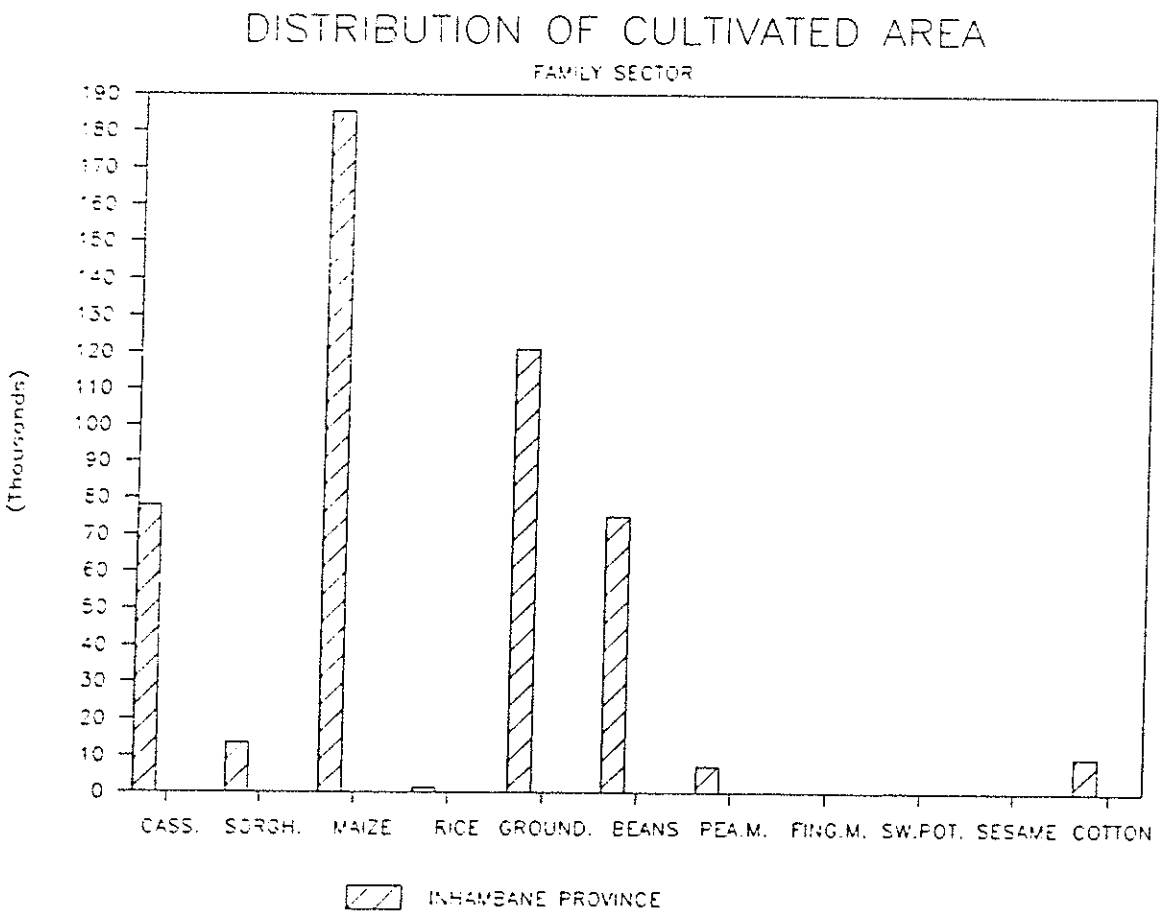

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(thousands)
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
INHAMBANE PROVINCE

Figure 11

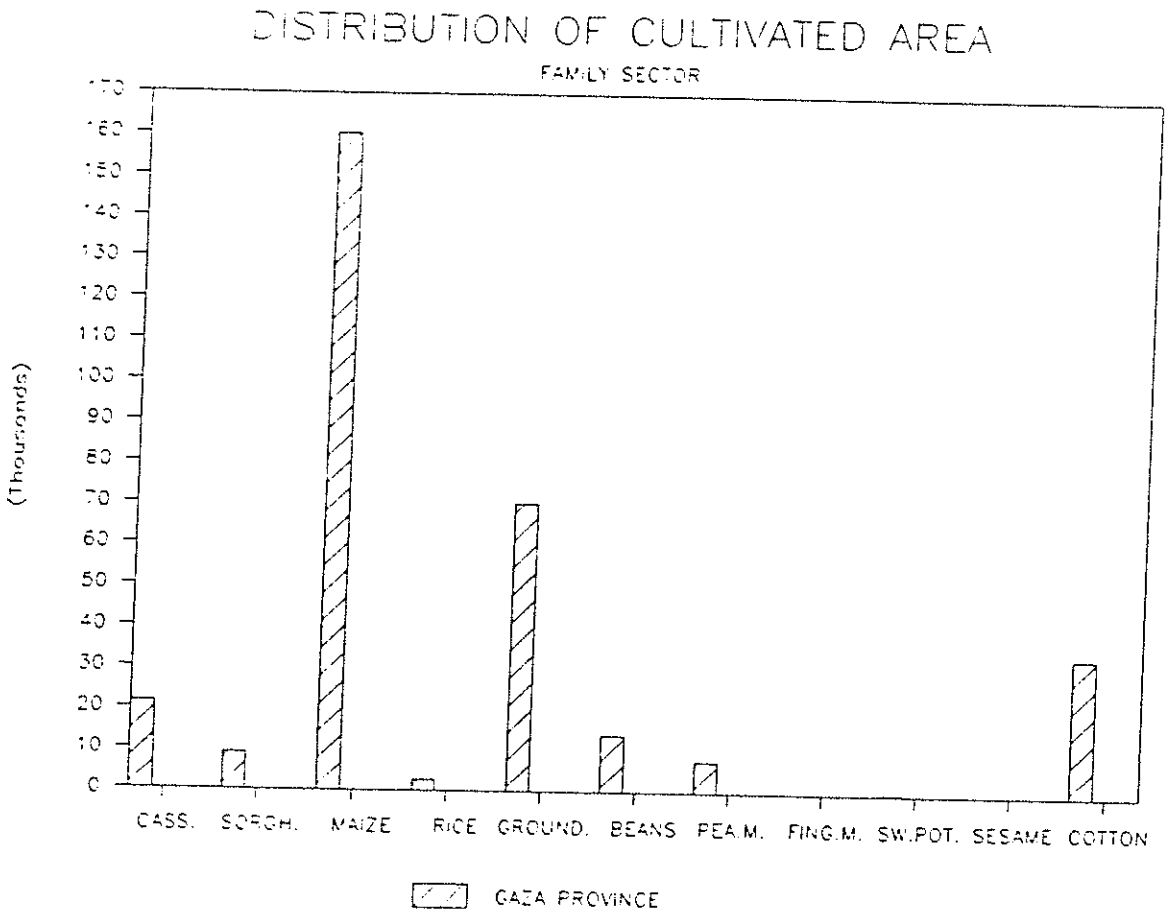

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
GAZA PROVINCE

Figure 12

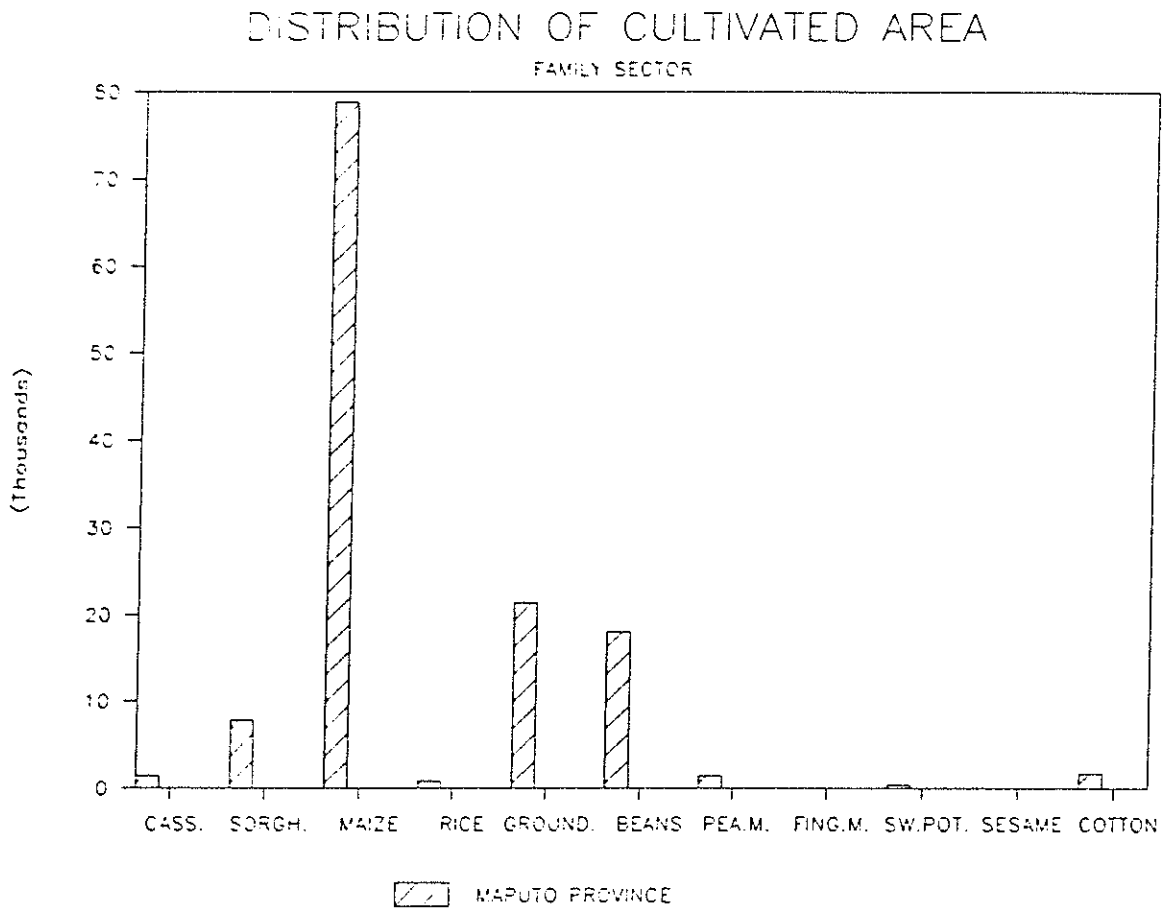

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
80
70
60
50
40
30
20
10
0
CASS.
SORGH.
MAIZE
RICE
GROUND.
BEANS
PEA.M.
FING.M.
SW.POT.
SESAME
COTTON
MAPUTO PROVINCE

Figure 13

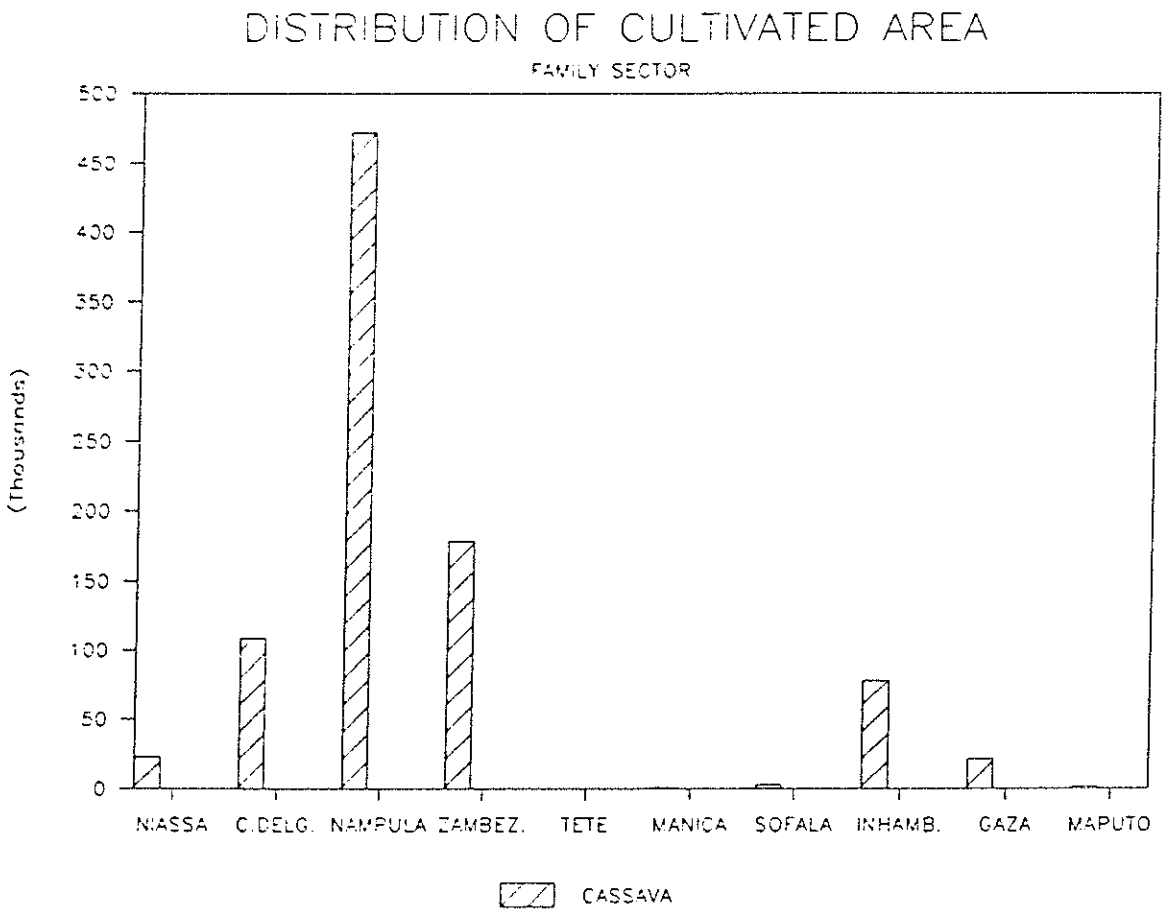

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
500
450
400
350
300
250
200
150
100
50
0
NIASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
CASSAVA

Figure 14

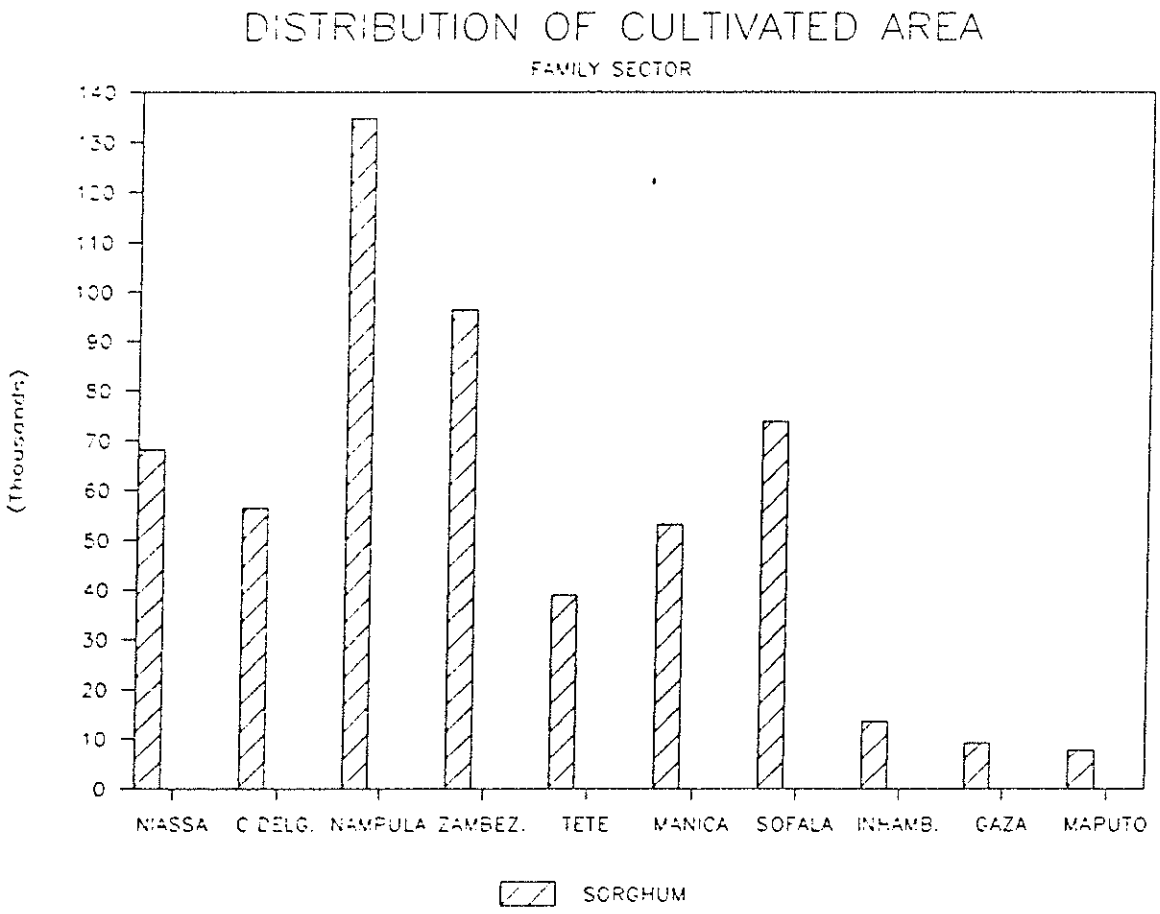

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
NIASSA
C DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
SORGHUM

Figure 15

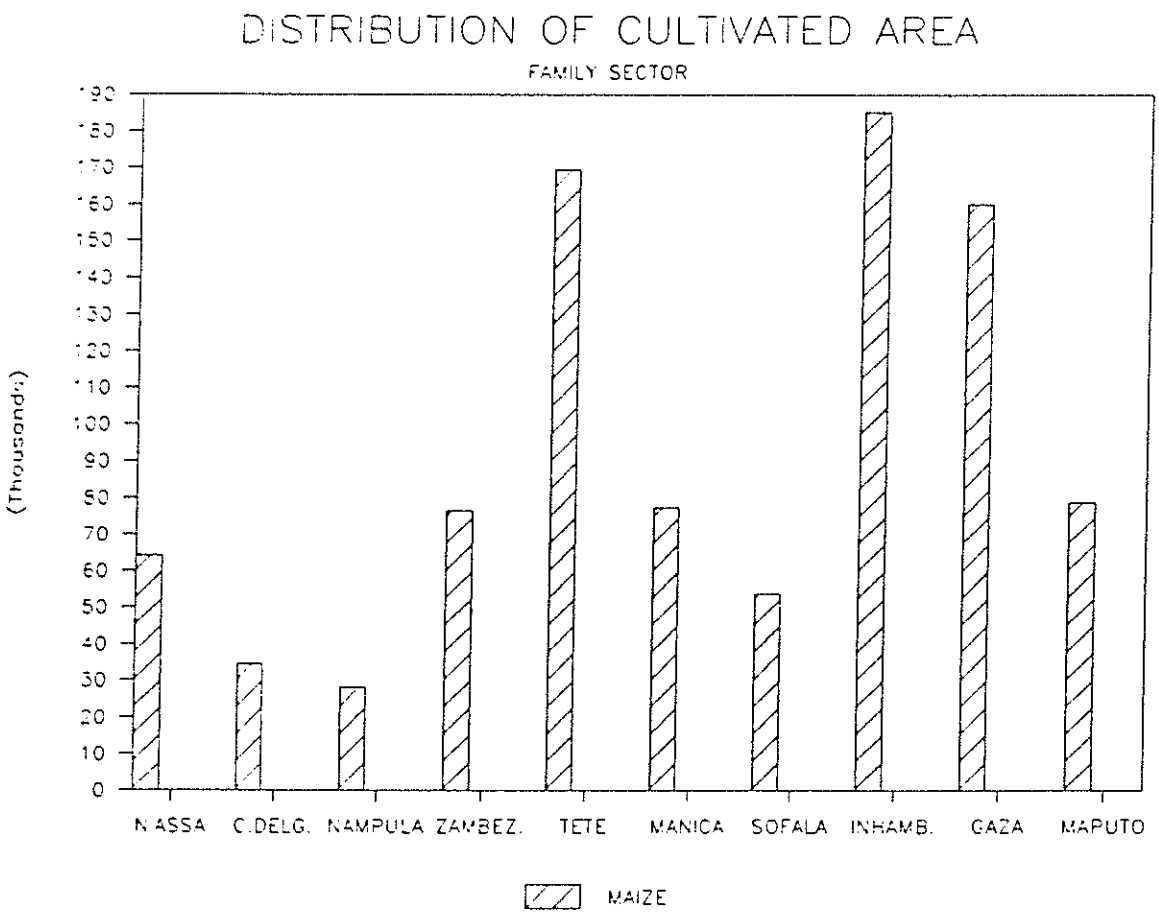

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
N.ASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
MAIZE

Figure 16

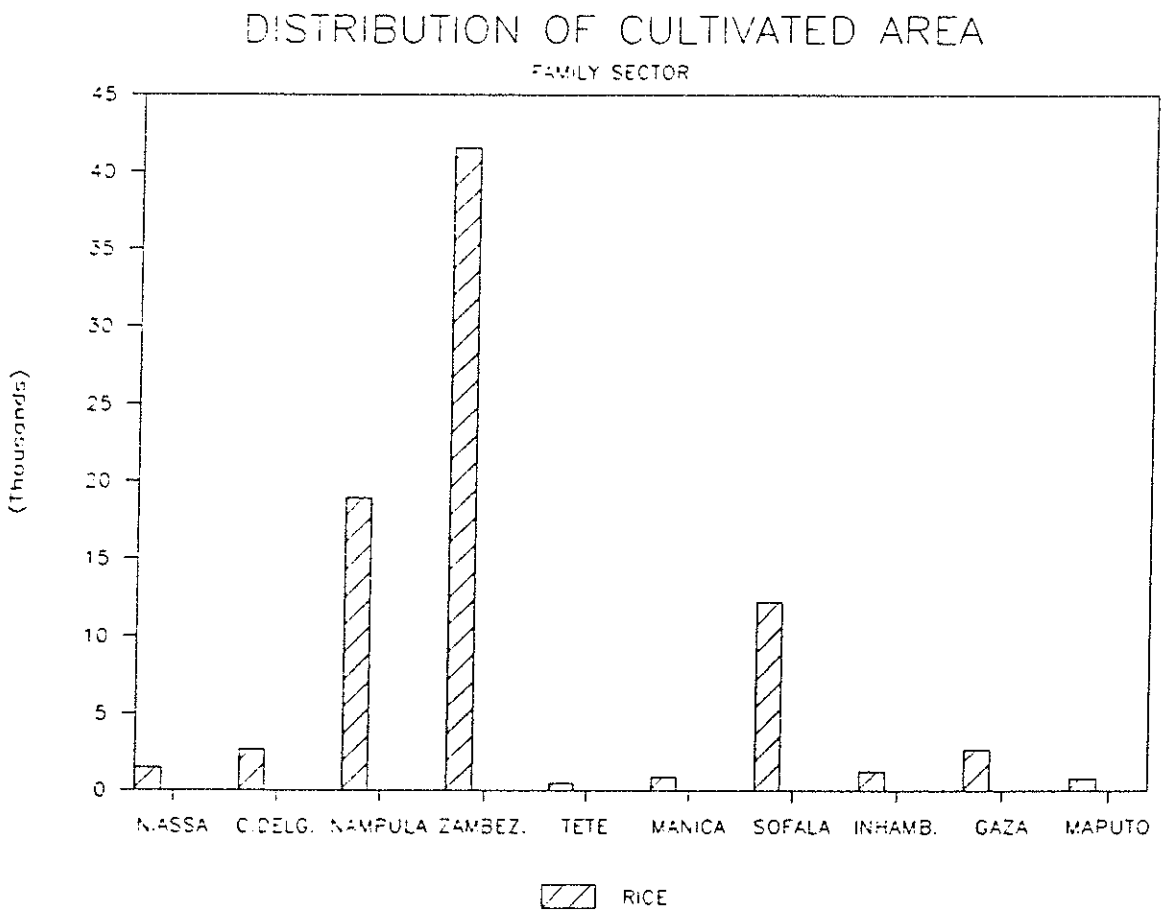

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
45
40
35
30
25
20
15
10
5
0
N.ASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
RICE

Figure 17

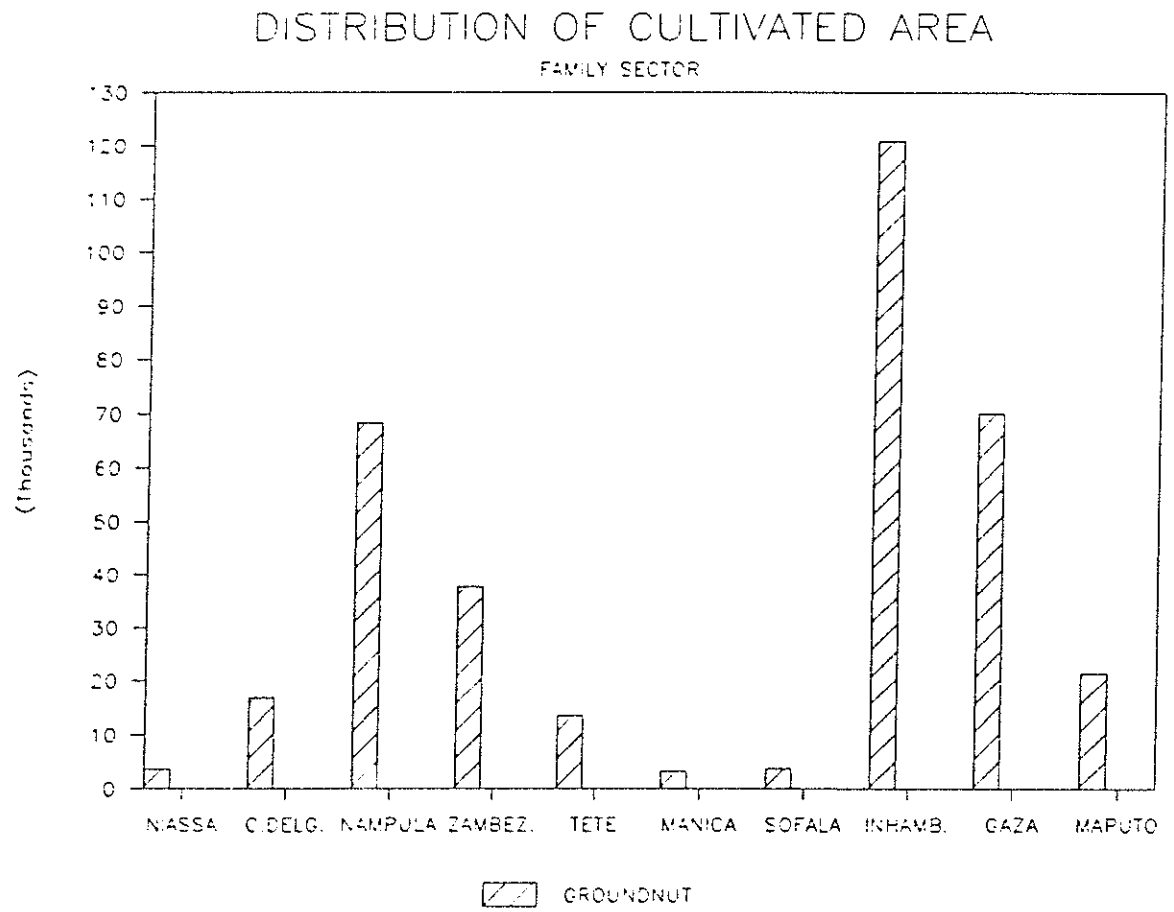

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(thousands)
130
120
110
100
90
80
70
60
50
40
30
20
10
0
NIASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
GROUNDNUT

Figure 18

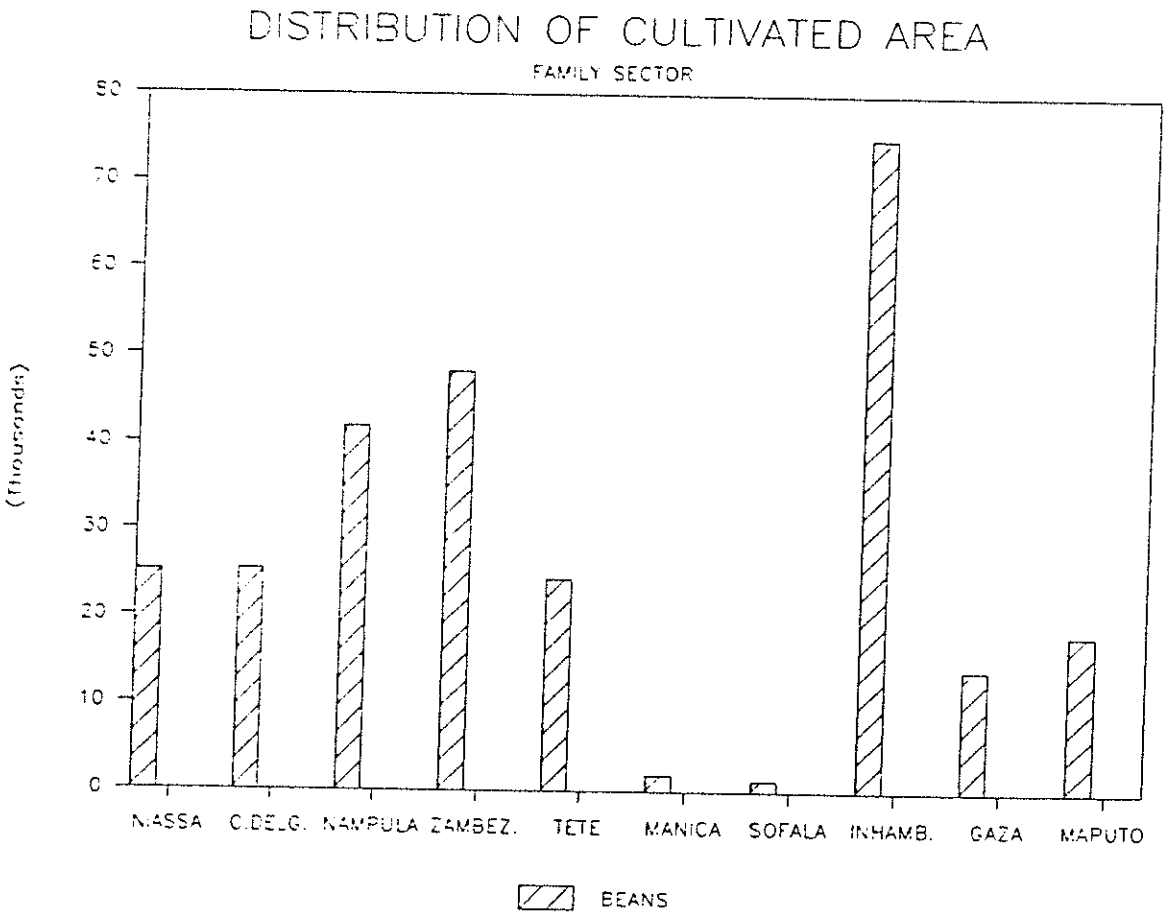

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
80
70
60
50
40
30
20
10
0
NASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
BEANS

Figure 19

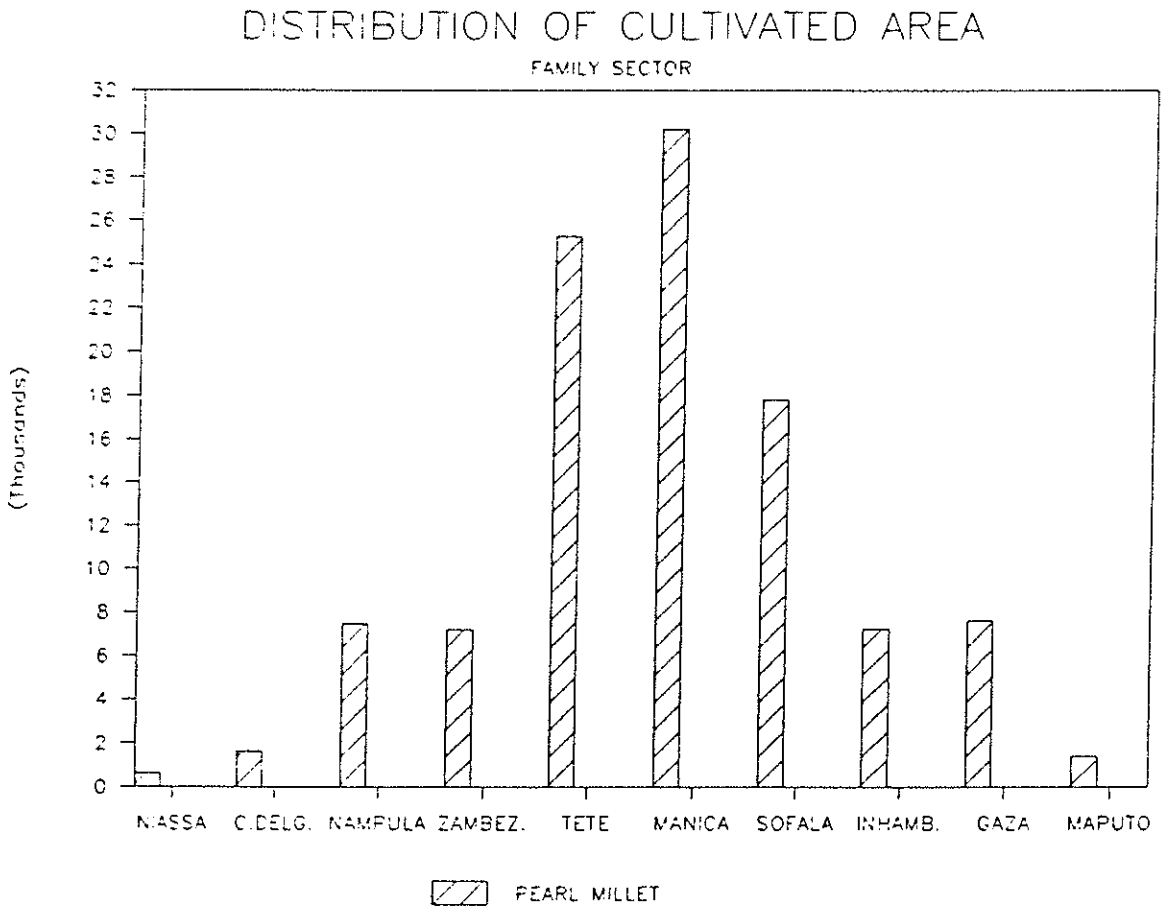

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
N.ASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
PEARL MILLET

Figure 20

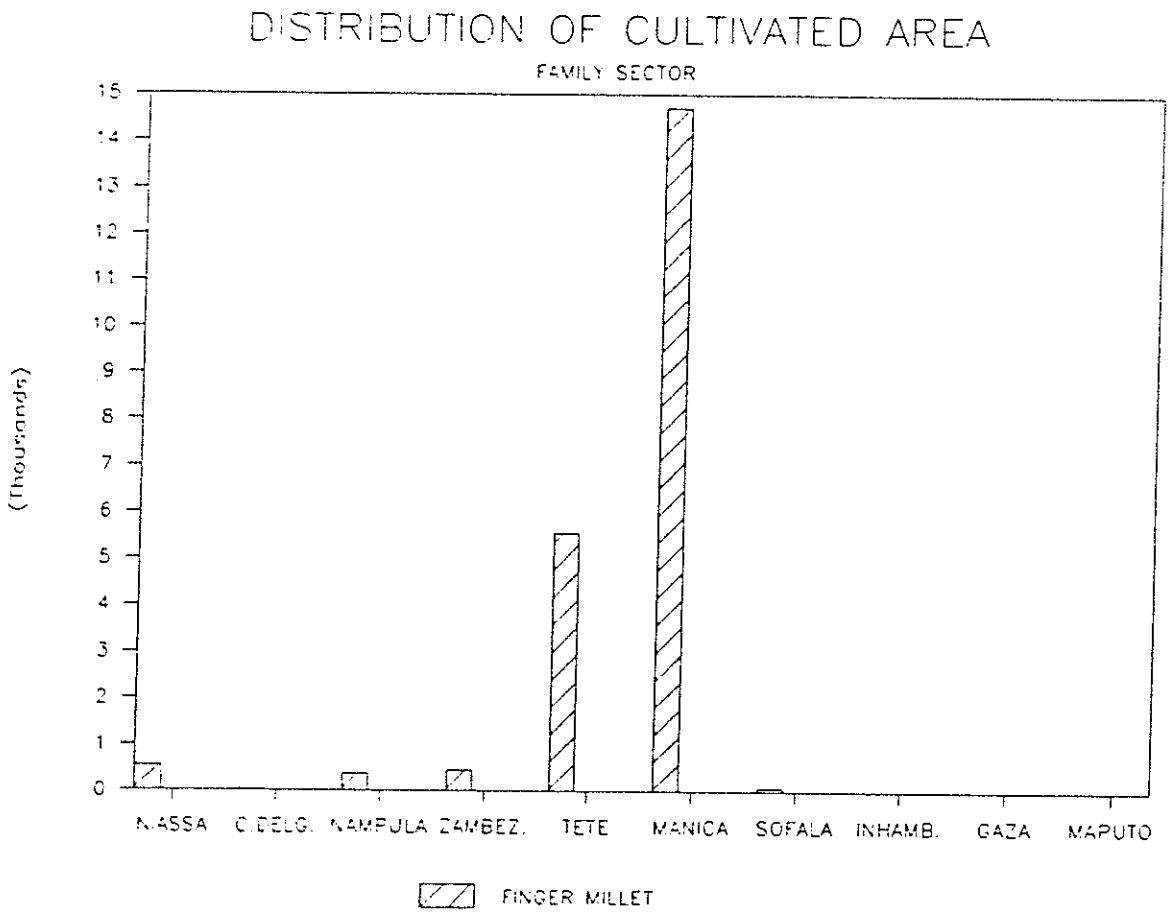

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
N.ASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
FINGER MILLET

Figure 21

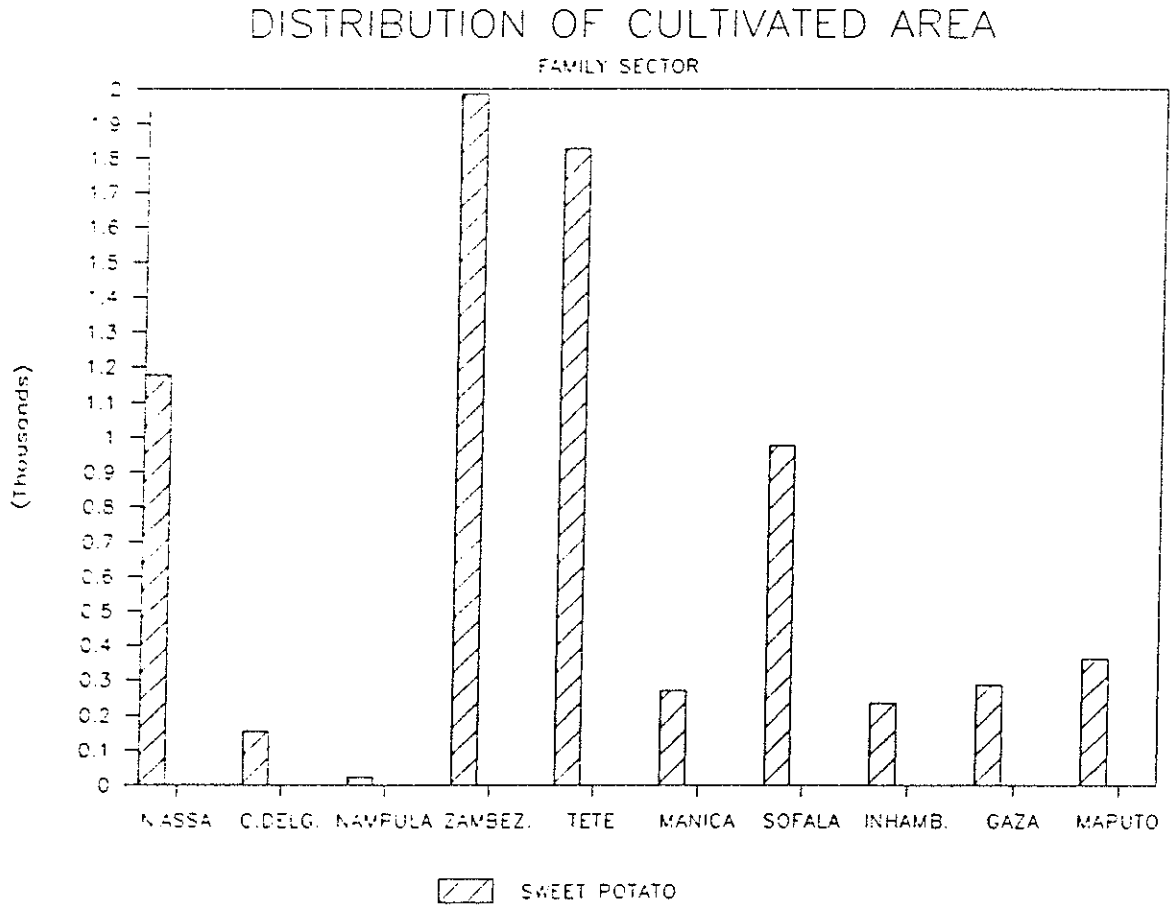

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(thousands)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2
N.ASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
SWEET POTATO

Figure 22

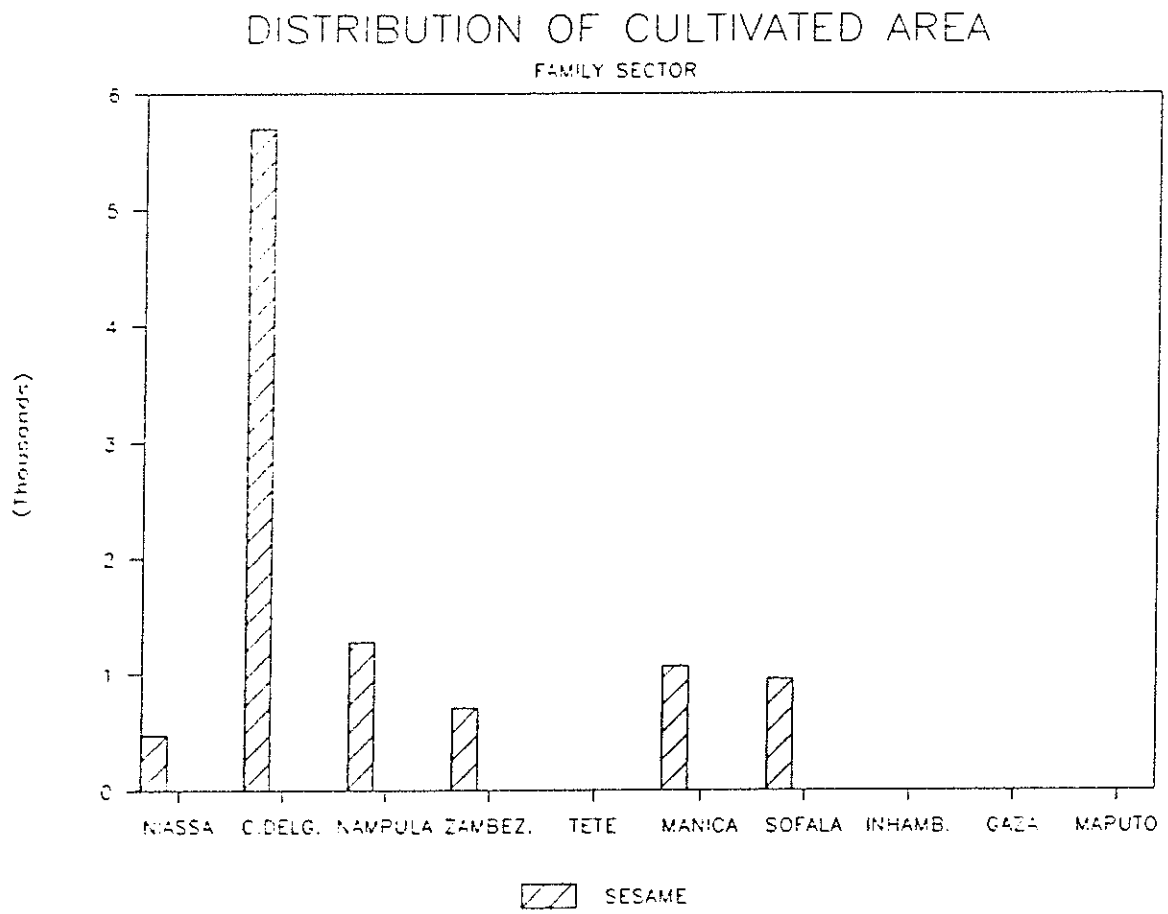

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(Thousands)
0
1
2
3
4
5
6
NIASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
SESAME

Figure 23

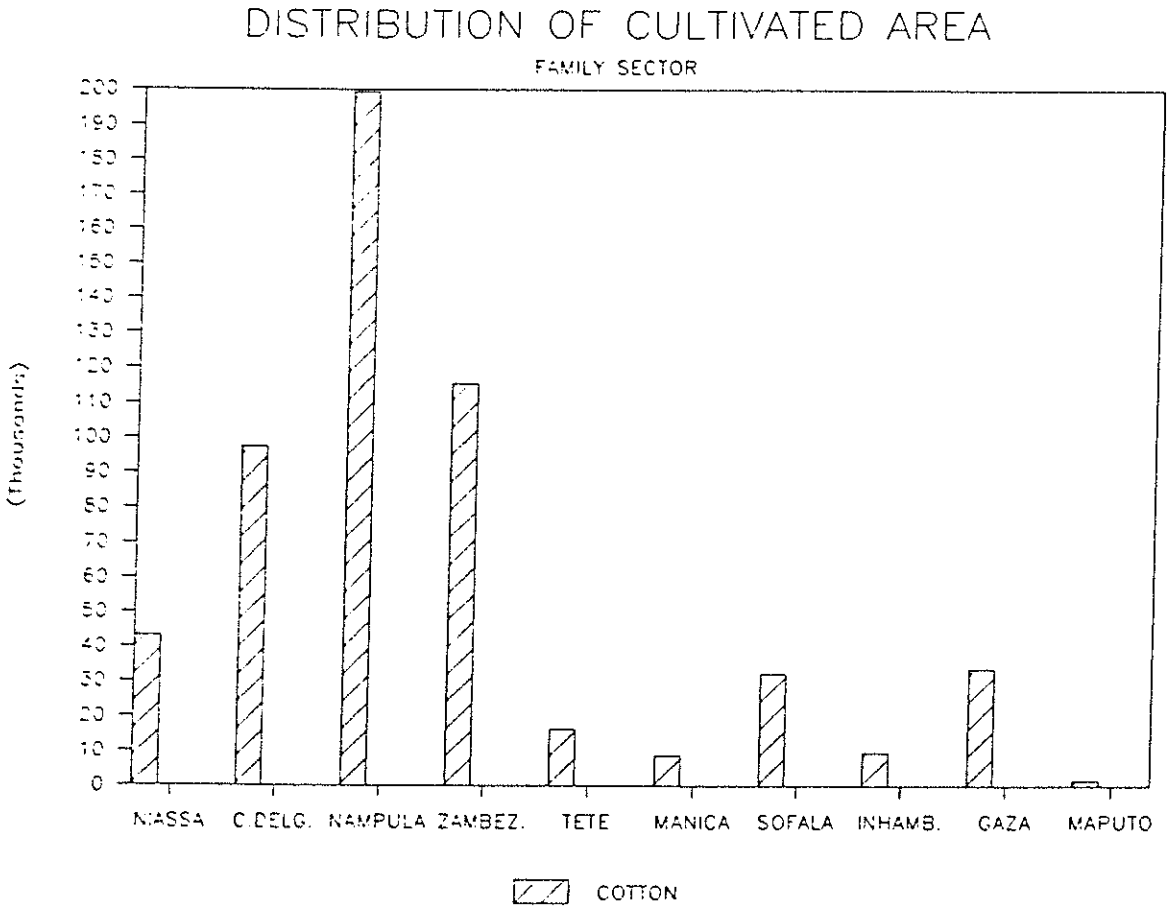

DISTRIBUTION OF CULTIVATED AREA
FAMILY SECTOR
(thousands)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
NIASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
COTTON

Figure 24

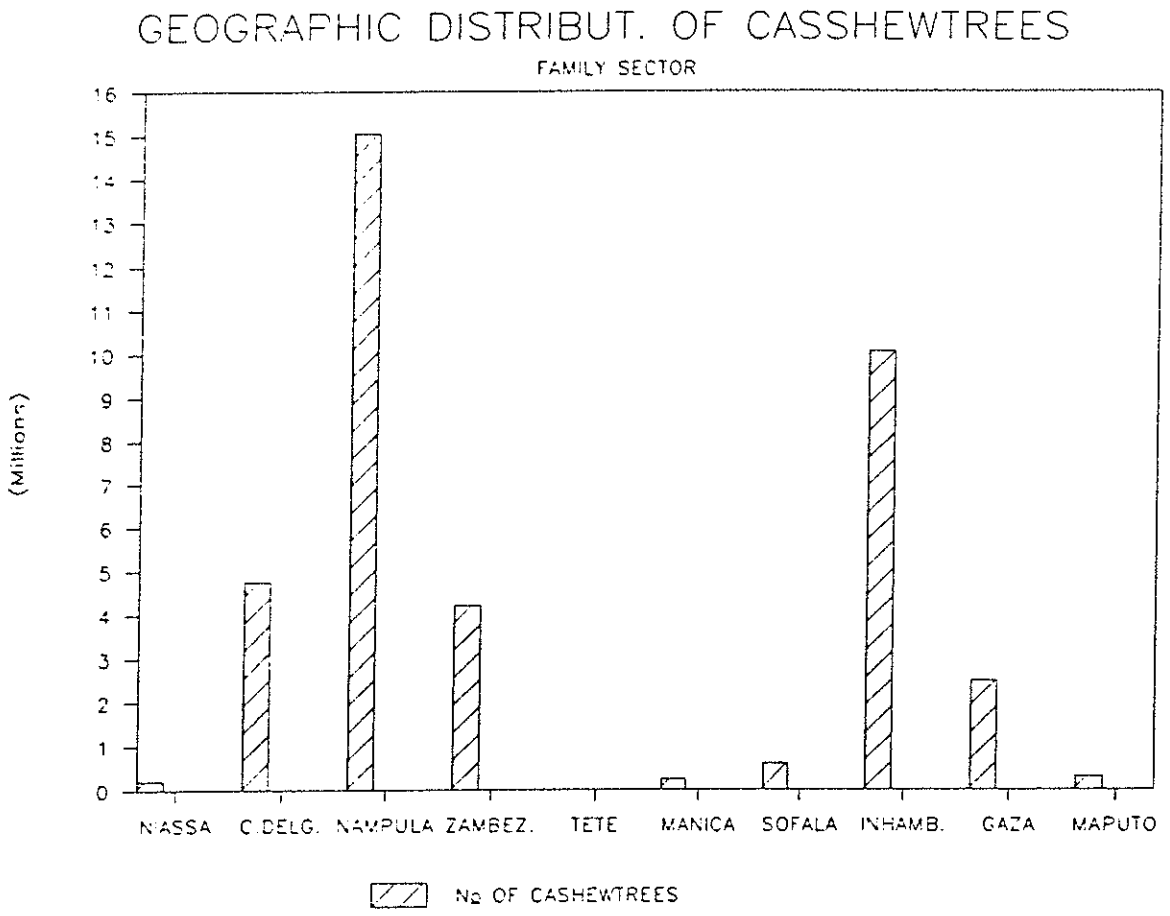
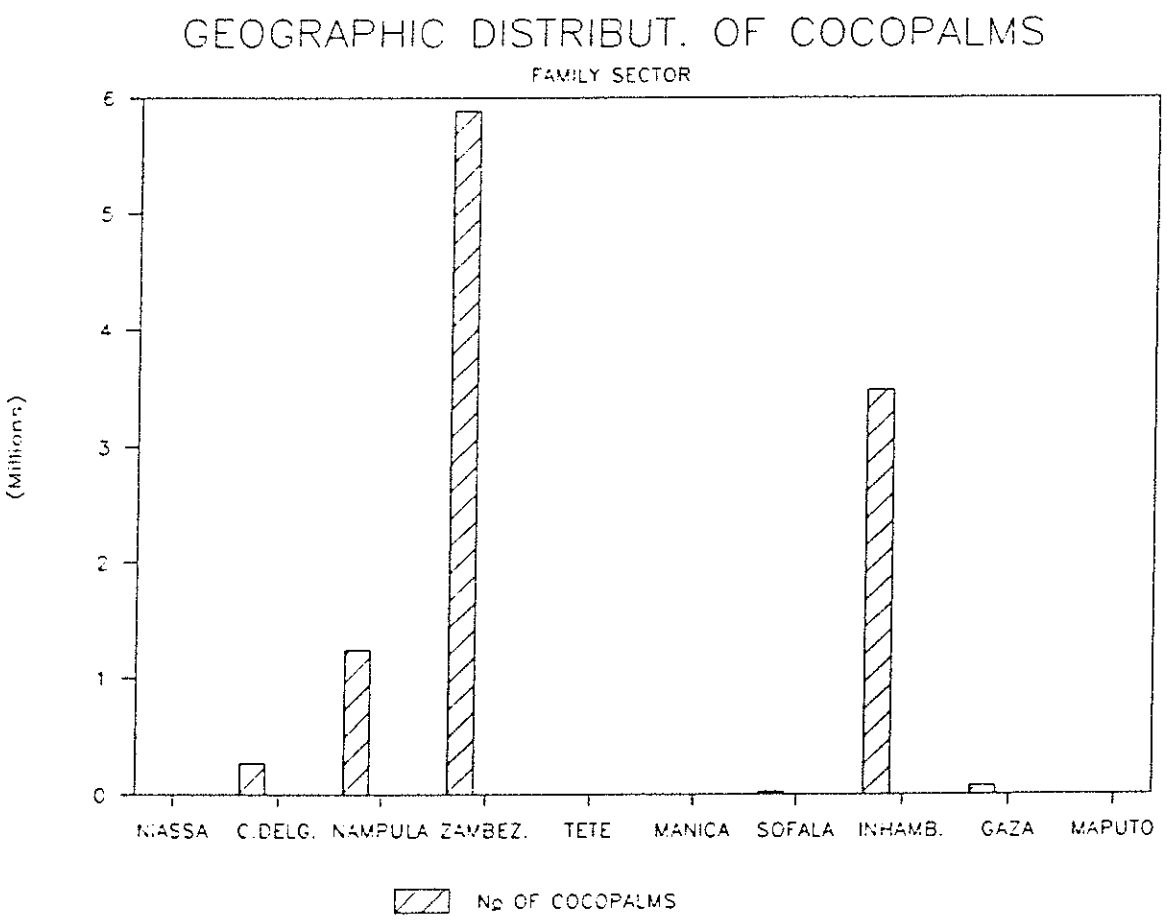

GEOGRAPHIC DISTRIBUT. OF CASSHEWTREES
FAMILY SECTOR
(Millions)
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
NIASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
Nº OF CASHEWTREES

Figure 25


GEOGRAPHIC DISTRIBUT. OF COCOPALMS
FAMILY SECTOR
(Millions)
6
5
4
3
2
1
0
NIASSA
C.DELG.
NAMPULA
ZAMBEZ.
TETE
MANICA
SOFALA
INHAMB.
GAZA
MAPUTO
Nº OF COCOPALMS

Annex 3: National Summary by District

PROVINCIA/DISTRITO		SUPERFICIE (km2)	POPULACAO RESIDENTE 1980 (no)	DENSIDADE POPULACIONAL 1980 (no/km2)	DENSIDADE POPULACIONAL est. 1987 (no/km2)	POPULACAO ECONOMIC. ACTIVA 1980 (no)	POPULACAO ECON.ACT. SEC.AGRA. 1980 (no)	AGREGADOS FAMILIARES 1980 (no)	TOTAL AGRICULTORES est. 1980 (no)	REGIAO AGRICOLA	AREA CULTIV. POR AGRICULT. (ha./ag.)	AREA TOTAL CULTIVADA 1980 (ha.)	AREA TOTAL CULTIVADA est. 1987 (ha.)
C. Lichinga		137	39004	284.7	340.7	17309	11606	9867	0		0.0000	0	0
Anarauba		8764	84068	9.6	11.5	39267	35394	22335	20132		1.5518	31241	37390
Lago		6635	37401	5.6	6.7	17955	17015	9278	8792		0.8223	7230	8653
Lichinga		4748	51657	10.9	13.0	26404	25703	14142	13767		2.0643	28418	34012
Majune		10424	24331	2.3	2.8	9633	9283	5384	5188		1.0311	5350	6402
Mandimba		8654	63304	7.3	8.8	32788	31243	17486	16662		1.1311	18847	22556
Marrupa		17515	30811	1.8	2.1	15165	14495	7949	7598		1.3071	9931	11886
Maua		12002	58641	4.9	5.8	27873	26728	15574	14934		1.4370	21461	25685
Mavago		14872	21701	1.5	1.7	10312	9803	5635	5357		1.8355	9833	11768
Mecanhelas		6673	70688	10.6	12.7	33466	31643	17458	16507		1.1321	18688	22366
Mecula		21626	7090	0.3	0.4	3401	3260	1748	1676		1.7151	2874	3439
Sanga		12479	23167	1.9	2.2	11565	10565	5896	5386		1.3779	7422	8883
NIASSA	SUB-TOTAL	124529	511863	4.1	4.9	245138	226738	132752	115999		1.3905	161294	193041
C. Pemba		207	41166	198.9	238.0	17311	8618	9773	0		0.0000	0	0
Ancuabe		3667	43991	12.0	14.4	22818	21802	10663	10188		1.2478	12713	15216
Chiure		3226	109030	33.8	40.4	53612	51621	27156	26148		1.2466	32596	39012
Ibo		48	5870	122.3	146.4	3002	2437	1652	1341		0.6220	834	998
Macomia		3801	54598	14.4	17.2	31399	29838	12559	12315		0.8082	9953	11912
Mecufi		1356	34592	25.5	30.5	17351	16444	8334	7898		1.1822	9337	11175
Meluco		5756	20181	3.5	4.2	10283	9844	4233	4052		1.1700	4741	5674
Mocimboa da Praia		3583	48059	13.4	16.1	26127	23931	10510	9627		0.6943	6684	7999
Montepuez		10058	140502	14.0	16.7	72275	68006	37086	34895		1.2195	42555	50932
Mueda		27717	132503	4.8	5.7	70953	69410	24210	23684		0.9433	22341	26738
Nauno		11326	154565	13.6	16.3	77236	74814	39843	38594		1.2193	47056	56318
Palma		6087	63115	10.4	12.4	33567	32454	12254	11848		0.9532	11293	13516
Pemba		1854	25849	13.9	16.7	14637	13348	6320	5763		0.8659	4990	5973
Quissanga		2006	26683	13.3	15.9	14788	13753	6731	6260		0.8773	5492	6573
CABO DELGADO	SUB-TOTAL	80692	900704	11.2	13.4	465359	436320	211724	192612		1.0933	210585	252034
C.Mapula		272	145722	535.7	641.2	63022	37222	37717	0		0.0000	0	0
C.Macala		350	75038	214.4	256.6	36211	22437	20119	0		0.0000	0	0
Angoche		2629	178302	67.8	81.2	95176	83634	51006	44821		1.0467	46916	56150
Erati		8514	273924	32.2	38.5	138748	135558	76756	74989		1.3780	103335	123674
Ilha de Moc.		226	30152	133.4	159.7	15192	10595	8631	6019		0.6107	3676	4399
Malema/Maiaia		605	19270	31.9	38.1	10942	10015	6067	5553		1.0721	5953	7125
Malema		6992	86169	12.3	14.7	39251	36169	21626	19928		0.9565	19061	22812
Meconta		3799	81399	21.4	25.6	45976	43456	25366	23977		1.3224	31708	37948
Mecuburi		7257	81208	11.2	13.4	37925	36334	20538	19676		2.0205	39756	47580
Memba		10758	148818	13.8	16.6	76256	72491	39857	37889		0.9637	36512	43699
Mogovolas		4602	192153	41.8	50.0	112519	109333	58172	56525		1.5381	86939	104051
Moma		5394	167222	31.0	37.1	88270	83651	46049	43639		0.9386	40960	49022
Monapo		3696	182202	49.3	59.0	88665	81484	49669	45646		1.3213	60312	72183
Mogincual		4209	89043	21.2	25.3	47509	46000	25196	24396		1.0320	25177	30132

Mossuril		2551	67407	26.4	31.6	37666	33626	20233	18063	0.6207	11212	13419
Muecate		3912	83327	13.4	16.0	26186	25097	13967	13386	1.3218	17694	21176
Murrupula		2935	84897	28.9	34.6	42308	40749	22280	21459	1.0151	21783	26070
Nacala		885	74574	84.3	100.8	40756	37510	22983	21153	1.0246	21673	25939
Nampula		3678	83110	22.6	27.0	46750	45156	24280	23452	1.5226	35709	42737
Ribaue		10846	128808	11.9	14.2	59655	56428	31099	29417	1.2946	38084	45580
NAMPULA	SUB-TOTAL	84110	2241745	26.7	31.9	1148979	1046945	621609	529989	1.2198	646458	773699
C. de Quelimane		117	60151	514.1	615.3	24815	11133	13198	0	0.0000	0	0
Alto Molocue		6702	143390	21.4	25.6	64422	59730	32128	29788	0.9741	29018	34729
Chinde		3332	136597	41.0	49.1	68062	53269	31536	24682	0.2589	6390	7647
Gile		9308	93411	10.0	12.0	43280	40580	21742	20386	0.9522	19411	23231
Gurue		6822	166265	24.4	29.2	79816	71687	37728	33886	0.9155	31023	37129
Ile		6467	253787	39.2	47.0	114912	107360	54497	50915	0.9232	47003	56255
Lugela		6136	103018	16.8	20.1	47742	44197	26014	24082	0.8734	21032	25172
Maganja da Costa		7330	205561	28.0	33.6	98467	93896	50976	48610	0.5190	25230	30196
Milange		10370	291445	28.1	33.6	155849	151900	69433	67674	1.2326	83411	99829
Mocuba		8286	146511	17.7	21.2	66659	56878	33124	28264	0.9072	25640	30687
Mopeia		7936	64351	8.1	9.7	33014	30104	14811	13505	0.6989	9439	11297
Morrumbala		13162	197554	15.0	18.0	100820	97841	44730	43408	1.1074	48068	57530
Namacurra		3463	163128	47.1	56.4	76926	69422	42225	38106	0.3472	13231	15836
Namarroi		3161	96939	30.0	35.9	46415	42921	23646	22851	0.9928	22685	27151
Pebane		10224	117022	11.4	13.7	56829	53667	29017	27402	0.7644	20946	25069
Quelimane		2888	181721	62.9	75.3	83807	74656	45351	40399	0.1674	6763	8094
ZAMBEZIA	SUB-TOTAL	105704	2418851	22.9	27.4	1159835	1059241	570756	513958	0.7964	409291	489850
C. de Tete		345	45119	130.8	156.5	15864	7608	11186	0	0.0000	0	0
Angonia		7105	220085	31.0	37.1	118031	113838	55018	52970	1.2988	68800	82341
Cahora-Bassa		6617	47679	7.1	8.5	21476	18622	10644	9229	1.7268	15937	19074
Changara		12588	86493	6.9	8.2	37478	35248	18638	17529	1.8988	33285	39836
Chiuta		11255	39532	3.5	4.2	19788	19085	9716	9371	1.6735	15682	18769
Macanga		12389	37162	3.0	3.6	18508	17945	9095	8818	1.4565	12844	15372
Magoe		4173	9915	2.4	2.8	4088	3919	2282	2188	1.7501	3829	4582
Maravia		15763	33214	2.1	2.5	17293	16846	8022	7815	1.9592	15310	18324
Moatize		8673	98101	11.3	13.5	47978	42033	24304	21292	1.6662	35478	42461
Mutarara		6344	131215	20.7	24.8	65439	62317	26455	25193	0.7931	19980	23913
Zumbo		13214	31566	2.4	2.9	16674	16385	7016	6894	1.9960	13761	16470
TETE	SUB-TOTAL	98526	780081	7.9	9.5	382617	353646	182376	161300	1.4563	234906	281142
C.Chinoio		226	68125	301.4	360.8	27322	10586	15885	0	0.0000	0	0
Barue		16725	69786	4.2	5.0	30990	29294	11395	10771	1.7157	18481	22118
Chimoio		7573	145902	19.3	23.1	68533	60398	25605	22566	1.5804	35663	42682
Guro		6297	50886	8.1	9.7	23695	22828	9411	9067	1.5994	14501	17355
Manica		2384	53167	22.3	26.7	23485	20625	10564	9278	1.1364	10543	12618
Mossurize		18353	124421	6.8	8.1	64772	62433	20266	19534	2.5044	48922	58551
Sussundenga		7691	48873	6.4	7.6	21855	20131	8514	7842	1.8836	14772	17679
Tambara		3632	26185	7.2	8.6	12101	11491	5823	5529	1.9197	10615	12704
MANICA	SUB-TOTAL	62881	587345	9.3	11.2	272753	237786	107463	84587	1.8146	153496	183708
C.Beira		1154	214613	186.0	222.6	84887	25489	53304	0	0.0000	0	0
Buzi		7928	144265	18.2	21.8	70241	55755	27410	21757	1.1894	25878	30971
Caia		3578	81169	22.7	27.2	38119	34755	16976	15478	1.4141	21887	26195

Chemba		5868	70078	11.9	14.3	34356	32791	10132	9670	1.6006	15479	18525
Cheringoma		14158	65071	4.6	5.6	30337	25607	13503	11398	0.7338	8363	10010
Chibabava		11121	112980	10.2	12.2	56329	49225	21726	18986	1.0929	20750	24835
Dondo		5862	120562	20.6	24.6	49785	32090	27287	17588	0.8833	15536	18594
Gorongosa		12011	106079	8.8	10.6	50664	48538	17445	16713	1.4748	24668	29500
Marromeu		5713	75914	13.3	15.9	38777	26282	17082	11578	0.6431	7446	8911
SOFALA	SUB-TOTAL	67393	590731	14.7	17.6	453495	330532	204866	123168	1.1366	139987	167541
C.Inhambane		257	56439	219.6	262.8	23955	13718	14923	0	0.0000	0	0
Govuro		19947	84465	4.2	5.1	45055	41110	15091	13770	1.3219	18202	21784
Homoine		3285	95237	29.0	34.7	50707	45834	24231	21902	2.8169	61696	73839
Inhambane		2819	90764	32.2	38.5	46422	42301	21818	19881	2.0502	40759	48782
Inharrime		2371	64725	27.3	32.7	32366	29792	14687	13519	2.2613	30570	36587
Massinga		18745	220329	11.8	14.1	113411	103862	44951	41166	2.0331	83697	100171
Morrumbene		2533	106621	42.1	50.4	55707	48879	25945	22765	2.3852	54299	64986
Panda		8274	56131	6.8	8.1	30729	28233	12402	11395	2.2011	25081	30018
Vilanculos		10732	152892	14.2	17.1	80031	74429	28838	26819	1.9411	52059	62306
Zavala		1671	96296	57.6	69.0	47071	42768	20404	18539	1.9623	36378	43538
INHAMBANE	SUB-TOTAL	70634	1023879	14.5	17.3	525454	470926	223290	189756	2.1224	402741	482011
C.Xai-Xai		135	43794	324.4	388.3	18740	9522	9849	0	0.0000	0	0
C.Chokwe		31	10871	350.7	419.7	3752	1532	2402	0	0.0000	0	0
Bilene		1550	109643	70.7	84.7	55759	46316	22848	18978	0.9420	17877	21395
Canicado		7309	69346	9.5	11.4	34731	29734	12242	10481	1.9521	20459	24486
Chibuto		6581	230815	35.1	42.0	114757	97263	45358	38443	1.4621	56208	67271
Chicualacuala		46809	80947	1.7	2.1	42924	39936	12195	11346	2.3263	26395	31590
Gaza		1932	120488	62.4	74.6	59801	49984	26971	22543	1.2656	28531	34147
Limpopo		2576	106257	41.2	49.4	48465	39106	21255	17150	1.5700	26927	32227
Mabjacaze		3766	180632	48.0	57.4	84932	70517	37636	31248	1.7482	54627	65379
Massingir		5794	29810	5.1	6.2	14819	12747	5602	4819	2.1532	10376	12418
GAZA	SUB-TOTAL	76483	982603	12.8	15.4	478680	396656	196358	155005	1.5573	241400	288914
Boane		799	39296	49.2	58.9	17347	12901	9968	7413	0.7	5212	6238
Magude		7087	104011	14.7	17.6	47531	38342	19697	15889	2.4	37831	45277
Manhica		2451	139400	56.8	67.9	58406	41797	31095	22252	0.9	19494	23330
Marracuene		735	45147	61.4	73.5	19910	14583	10044	7357	0.8	8196	7415
Matutuine		5531	57509	10.4	12.4	24597	21166	11385	9797	1.0	9791	11718
Moamba		5039	90456	18.0	21.6	39698	29782	16582	12440	2.1	26051	31203
Namaacha		2199	24673	11.2	13.4	11078	8817	6159	4106	1.4	5635	6744
PROVINCIA DE MAPUTO	SUB-TOTAL	23881	500892	21.0	25.1	218587	167388	103930	79254	1.4	110230	131927
CIDADE DE MAPUTO	SUB-TOTAL	602	739077	1227.7	1469.3	225587	28653	157316	0	0.0000	0	0
PAIS	TOTAL	755435	11677771	14.7	17.6	5576464	4754831	2712439	2145633	1.2632	2710388	3243866

PROVINCIA/DISTRITO		AREA TOTAL CULTIVADA	MANDIOCA		MAPIRA		MILHO		ARROZ		AMENDOIM	
		(ha.)	ha.	%	ha.	%	ha.	%	ha.	%	ha.	%
C. Lichinga		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Auasamba		37390	6459	17.3	23900	63.9	3258	8.7	129	0.3	358	1.0
Lago		8653	1406	16.2	591	6.8	4507	52.1	161	1.9	127	1.5
Lichinga		34012	238	0.7	0	0.0	21733	63.9	68	0.2	476	1.4
Majune		6402	231	3.6	1821	28.4	3424	53.5	13	0.2	63	1.0
Mandimba		22556	1111	4.9	6393	28.3	11133	49.4	76	0.3	232	1.0
Marrupa		11886	1116	9.4	7813	65.7	1572	13.2	152	1.3	155	1.3
Maua		25685	8418	32.8	11448	44.6	1780	6.9	413	1.6	1142	4.4
Mavago		11768	193	1.6	2123	18.0	6236	53.0	39	0.3	128	1.1
Mecanhelas		22366	3410	15.2	11120	49.7	4603	20.6	249	1.1	778	3.5
Mecula		3439	173	5.0	2704	78.6	345	10.0	38	1.1	10	0.3
Sanga		8883	123	1.4	231	2.6	5622	63.3	142	1.6	118	1.3
NIASSA	SUB-TOTAL	193041	22879	11.9	68143	35.3	64213	33.3	1479	0.8	3587	1.9
C. Pemba		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ancuabe		15216	6421	42.2	3180	20.9	2237	14.7	61	0.4	1050	6.9
Chiure		39012	16463	42.2	8153	20.9	5735	14.7	156	0.4	2692	6.9
Ibo		998	859	86.0	20	2.0	18	1.8	26	2.6	21	2.1
Macomia		11912	7132	59.9	616	5.2	2164	18.2	311	2.6	611	5.1
Mecufi		11175	7969	71.3	666	6.0	576	5.2	47	0.4	1069	9.6
Meluco		5674	1994	35.1	1449	25.5	1033	18.2	98	1.7	331	5.8
Mocimboa da Praia		7999	5532	69.2	228	2.9	1188	14.8	243	3.0	349	4.4
Montepuez		50932	17703	34.8	16508	32.4	4604	9.0	269	0.5	3838	7.5
Mueda		26738	9811	36.7	4598	17.2	7802	29.2	619	2.3	1712	6.4
Nauuno		56318	19479	34.6	18403	32.7	5017	8.9	299	0.5	4252	7.6
Palma		13516	7905	58.5	1897	14.0	2696	19.9	318	2.4	407	3.0
Pemba		5973	3489	58.4	348	5.8	528	8.8	90	1.5	154	2.6
Quissanga		6573	3828	58.2	438	6.7	906	13.8	125	1.9	275	4.2
CABO DELGADO	SUB-TOTAL	252034	108584	43.1	56505	22.4	34503	13.7	2661	1.1	16762	6.7
C.Maepula		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
C.Macala		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Angoche		56150	44509	79.3	878	1.6	988	1.8	1486	2.6	6752	12.0
Erati		123674	71405	57.7	26796	21.7	3717	3.0	3994	3.2	11965	9.7
Ilha de Moc.		4399	3783	86.0	114	2.6	79	1.8	114	2.6	92	2.1
Malema/Mainia		7125	3762	52.8	1169	16.4	1689	23.7	164	2.3	228	3.2
Malema		22812	6114	26.8	10555	46.3	2398	10.5	246	1.1	242	1.1
Meconta		37948	22617	59.6	7058	18.6	1252	3.3	1252	3.3	3985	10.5
Mecuburi		47580	20840	43.8	21221	44.6	381	0.8	1285	2.7	1665	3.5
Memba		43699	28956	66.3	2627	6.0	1798	4.1	450	1.0	2334	5.3
Mogovolas		104051	79128	76.0	4548	4.4	899	0.9	1548	1.5	14282	13.7
Moma		49022	31262	63.8	1482	3.0	3978	8.1	735	1.5	4667	9.5
Monapo		72183	43021	59.6	13426	18.6	2382	3.3	2382	3.3	7579	10.5
Nogincual		30132	21887	72.6	2730	9.1	735	2.4	731	2.4	2827	9.4

Mossuril		13419	11541	86.0	349	2.6	242	1.8	349	2.6	282	2.1
Muecate		21178	12621	59.6	3939	18.6	699	3.3	699	3.3	2223	10.5
Murrupula		26070	11745	45.1	5706	21.9	1880	7.2	1082	4.2	2656	10.2
Nacala		25939	19147	73.8	1397	5.4	1189	4.6	205	0.8	2152	8.3
Naepula		42737	22894	53.6	12190	28.5	1003	2.3	1312	3.1	3346	7.8
Ribaue		45580	16935	37.2	18544	40.7	2851	6.3	907	2.0	1034	2.3
NAMPULA	SUB-TOTAL	773699	472167	61.0	134729	17.4	28158	3.6	18942	2.4	68311	8.8
C. de Quelimane		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Alto Molocue		34729	13251	38.2	9821	28.3	3235	9.3	1060	3.1	2101	6.0
Chinde		7647	782	10.2	50	0.7	1279	16.7	4190	54.8	7	0.1
Gile		23231	11092	47.7	3253	14.0	1661	7.1	1274	5.5	3340	14.4
Gurue		37129	10352	27.9	16532	44.5	3903	10.5	430	1.2	414	1.1
Ile		56255	26078	46.4	9085	16.1	4002	7.1	3020	5.4	7729	13.7
Lugela		25172	11836	47.0	3605	14.3	1904	7.6	1463	5.8	3666	14.6
Maganja da Costa		30196	15602	51.7	765	2.5	2361	7.8	5359	17.7	2334	7.7
Milange		99829	24351	24.4	26293	26.3	28134	28.2	6541	6.6	3976	4.0
Mocuba		30687	16503	53.8	2329	7.6	2845	9.3	966	3.1	3308	10.8
Mopeia		11297	2601	23.1	2055	18.2	3277	29.0	1211	10.7	328	2.9
Morrumbala		57530	12396	21.5	16081	28.0	18761	32.6	934	1.6	3217	5.6
Namacurra		15836	6379	40.3	283	1.8	756	4.8	6076	38.4	895	5.7
Namarroi		27151	11609	42.8	5361	19.7	2198	8.1	1396	5.1	3782	13.9
Pebane		25069	15131	60.4	892	3.6	2067	8.2	476	1.9	2582	10.3
Quelimane		8094	585	7.2	0	0.0	108	1.3	7185	88.8	0	0.0
ZAMBEZIA	SUB-TOTAL	489850	178564	36.5	96404	19.7	76492	15.6	41581	8.5	31677	7.7
C. de Tete		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Angonia		82341	160	0.2	0	0.0	56090	68.1	0	0.0	2418	2.9
Cahora-Bassa		19074	0	0.0	5897	30.9	11243	58.9	7	0.0	964	5.1
Changara		39836	0	0.0	11903	29.9	3353	8.4	0	0.0	2833	7.1
Chiuta		18769	0	0.0	830	4.4	16177	86.2	14	0.1	1429	7.6
Macanga		15372	14	0.1	271	1.8	12012	78.1	7	0.0	837	5.4
Magoe		4582	0	0.0	3505	76.5	1008	22.0	0	0.0	69	1.5
Maravia		18324	0	0.0	189	1.0	16205	88.4	5	0.0	1388	7.6
Moatize		42461	0	0.0	9677	22.8	26986	63.6	2	0.0	2401	5.7
Mutarara		23913	13	0.1	2436	10.2	15424	64.5	446	1.9	195	0.8
Zumbo		16470	0	0.0	4154	25.2	11008	66.8	0	0.0	909	5.5
TETE	SUB-TOTAL	281142	187	0.1	38862	13.8	169508	60.3	481	0.2	13443	4.8
C.Chinoio		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Barue		22118	19	0.1	9896	44.7	10488	47.4	86	0.4	170	0.8
Chimoio		42682	218	0.5	18137	42.5	20886	48.9	253	0.6	584	1.4
Guro		17355	0	0.0	6291	36.2	1319	7.6	0	0.0	1089	6.3
Manica		12618	0	0.0	0	0.0	3659	29.0	391	3.1	0	0.0
Mossurize		58551	119	0.2	11049	18.9	29794	50.9	56	0.1	398	0.7
Sussundenga		17679	437	2.5	3563	20.2	10298	58.2	74	0.4	124	0.7
Tambara		12704	0	0.0	4144	32.6	1038	8.2	0	0.0	895	7.0
MANICA	SUB-TOTAL	183708	793	0.4	53080	28.9	77482	42.2	860	0.5	3260	1.8
C.Beira		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Buzi		30971	171	0.6	12491	40.3	12968	41.9	2616	8.4	1048	3.4
Caia		26195	0	0.0	13885	53.0	3785	14.4	897	3.4	774	3.0

Chemba		18525	0	0.0	7749	41.8	2683	14.5	0	0.0	924	5.0
Cheringoma		10010	1137	11.4	3189	31.9	3056	30.5	866	8.7	6	0.1
Chibavava		24835	0	0.0	10818	43.6	11261	45.3	2019	8.1	405	1.6
Dondo		18594	1178	6.3	6835	36.8	7242	38.9	2296	12.3	176	0.9
Gorongosa		29500	17	0.1	16294	55.2	10189	34.5	51	0.2	365	1.2
Marromeu		8911	208	2.3	2483	27.9	2631	29.5	3486	39.1	9	0.1
SOFALA	SUB-TOTAL	167541	2711	1.6	73743	44.0	53814	32.1	12231	7.3	3708	2.2
C.Inhambane		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Govuro		21784	821	3.8	3814	17.5	7156	32.8	563	2.6	1444	6.6
Homoine		73839	9925	13.4	10	0.0	26410	35.8	4	0.0	25289	34.2
Inhambane		48782	13649	28.0	23	0.0	15993	32.8	24	0.0	14600	29.9
Inharrime		36587	11163	30.5	0	0.0	12947	35.4	171	0.5	10466	28.6
Massinga		100171	9043	9.0	5327	5.3	46673	46.6	0	0.0	15885	15.9
Morrumbene		64986	12981	20.0	1005	1.5	21899	33.7	0	0.0	18832	29.0
Panda		30018	6073	20.2	202	0.7	10925	36.4	276	0.9	8291	27.6
Vilanculos		62306	5605	9.0	3111	5.0	27123	43.5	0	0.0	9168	14.7
Zavala		43538	8768	20.1	0	0.0	16134	37.1	225	0.5	16941	38.9
INHAMBANE	SUB-TOTAL	482011	78027	16.2	13493	2.8	185259	38.4	1263	0.3	120916	25.1
C.Xai-Xai		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
C.Chokwe		0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bilene		21395	401	1.9	7	0.0	14950	69.9	358	1.7	4747	22.2
Canicado		24486	0	0.0	732	3.0	17237	70.4	0	0.0	4503	18.4
Chibuto		67271	3778	5.6	23	0.0	44450	66.1	724	1.1	14576	21.7
Chicualacuala		31590	0	0.0	6186	19.6	14994	47.5	0	0.0	890	2.8
Gaza		34147	4197	12.3	24	0.1	19427	56.9	440	1.3	6984	20.5
Limpopo		32227	131	0.4	0	0.0	24557	76.2	67	0.2	6035	18.7
Manjacaze		65379	12950	19.8	0	0.0	17132	26.2	1092	1.7	31137	47.6
Massingir		12418	6	0.1	2239	18.0	7470	60.2	0	0.0	1253	10.1
GAZA	SUB-TOTAL	288914	21464	7.4	9211	3.2	160215	55.5	2681	0.9	70125	24.3
Boane		6238	48	0.8	281	4.5	2446	39.2	12	0.2	1581	25.3
Magude		45277	11	0.0	1944	4.3	33332	73.6	0	0.0	4776	10.5
Manhica		23330	765	3.3	249	1.1	12020	51.5	162	0.7	4902	21.0
Marracuene		7415	101	1.4	0	0.0	3478	46.9	28	0.4	2002	27.0
Matutuine		11718	366	3.1	135	1.2	5489	46.8	588	5.0	2303	19.7
Moamba		31203	82	0.3	4336	13.9	18401	59.0	0	0.0	4836	15.5
Namaacha		6744	51	0.8	866	12.8	3675	54.5	0	0.0	991	14.7
PROVINCIA DE MAPUTO	SUB-TOTAL	131927	1424	1.1	7812	5.9	78838	59.8	790	0.6	21392	16.2
CIDADE DE MAPUTO	SUB-TOTAL	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
PAIS	TOTAL	3243866	886799	27.3	551982	17.0	928481	28.6	82968	2.6	359181	11.1

FEIJAO		MELOEIRA		MACHEMIN		BATATA D.		GERGELIM		ALGODAO		CAJUEIROS		COQUEIROS	
ha.	%	ha.	%	ha.	%	ha.	%	ha.	%	Area/ Agric. (ha)	Area Total (ha)	No Arvores/ Agric.	Arvores Total (no)	No Arvores/ Agric.	Arvores Total (no)
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
2720	7.3	202	0.5	296	0.8	16	0.0	23	0.1	0.3855	9288	1.1	25911	0.0	0
1356	15.7	5	0.1	72	0.8	74	0.9	3	0.0	0.0834	877	0.0	0	0.0	0
8503	25.0	0	0.0	0	0.0	476	1.4	0	0.0	0.0000	0	0.0	0	0.0	0
672	10.5	17	0.3	13	0.2	40	0.6	2	0.0	0.3960	2459	0.0	151	0.0	0
2835	12.6	70	0.3	30	0.1	148	0.7	17	0.1	0.3964	7905	0.1	1575	0.0	0
702	5.9	86	0.7	16	0.1	73	0.6	200	1.7	0.3209	2918	1.2	10604	0.0	0
2176	8.5	119	0.5	0	0.0	11	0.0	168	0.7	0.6005	10734	9.6	170801	0.0	0
2251	19.1	3	0.0	3	0.0	158	1.3	0	0.0	0.0912	585	0.0	0	0.0	0
2021	9.0	109	0.5	0	0.0	31	0.1	41	0.2	0.4005	7912	0.3	5926	0.0	0
96	2.8	13	0.4	3	0.1	45	1.3	13	0.4	0.0801	161	0.0	0	0.0	0
1879	21.2	2	0.0	117	1.3	106	1.2	0	0.0	0.0540	348	0.0	0	0.0	0
25208	13.1	627	0.3	548	0.3	1177	0.6	473	0.2	0.3111	43187	1.5	214969	0.0	0
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
1750	11.5	46	0.3	0	0.0	15	0.1	456	3.0	0.6082	7416	10.4	126928	0.0	0
4486	11.5	117	0.3	0	0.0	39	0.1	1170	3.0	0.6076	19013	10.4	325437	0.0	0
38	3.8	11	1.1	0	0.0	0	0.0	0	0.0	0.0000	0	45.3	72708	8.9	14285
739	6.2	48	0.4	0	0.0	9	0.1	263	2.2	0.0978	1441	35.8	527492	4.2	62146
819	7.3	20	0.2	0	0.0	0	0.0	9	0.1	0.2200	2080	49.3	466031	2.7	25694
526	9.3	11	0.2	0	0.0	4	0.1	227	4.0	0.5368	2603	10.6	51508	0.0	0
295	3.7	56	0.7	0	0.0	9	0.1	90	1.1	0.0099	114	44.1	508549	6.3	72736
6602	13.0	315	0.6	0	0.0	19	0.0	1074	2.1	0.6803	28411	11.2	466562	0.0	0
1090	4.1	12	0.0	22	0.1	39	0.1	988	3.7	0.1100	3118	27.5	778634	0.0	0
7319	13.0	352	0.6	0	0.0	20	0.0	1177	2.1	0.6821	31507	11.2	516962	0.0	0
245	1.8	25	0.2	0	0.0	0	0.0	11	0.1	0.0000	0	27.1	384948	2.3	33136
824	13.8	452	7.6	0	0.0	0	0.0	84	1.4	0.0832	574	40.5	279416	4.4	30157
668	10.2	176	2.7	0	0.0	0	0.0	150	2.3	0.1503	1126	31.8	238014	3.7	27742
25401	10.1	1640	0.7	22	0.0	152	0.1	5701	2.3	0.4225	97404	20.6	4743191	1.2	265896
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
1263	2.2	220	0.4	0	0.0	0	0.0	55	0.1	0.2747	14738	28.4	1525352	7.6	409186
5209	4.2	342	0.3	0	0.0	0	0.0	233	0.2	0.3694	33157	21.3	1914098	0.0	0
167	3.8	48	1.1	0	0.0	0	0.0	0	0.0	0.0000	0	44.5	320406	8.7	62959
100	1.4	0	0.0	0	0.0	0	0.0	7	0.1	0.0000	0	20.7	137598	0.0	0
2793	12.2	226	1.0	176	0.8	0	0.0	45	0.2	0.2856	6812	1.4	33072	0.0	0
1594	4.2	114	0.3	0	0.0	0	0.0	76	0.2	0.3596	10320	21.9	628695	0.0	0
2046	4.3	48	0.1	0	0.0	0	0.0	48	0.1	0.4834	11384	14.8	348471	0.0	0
4947	11.3	2478	5.7	0	0.0	0	0.0	109	0.2	0.1005	4558	47.8	2165553	4.4	201434
2339	2.2	1110	1.1	0	0.0	0	0.0	196	0.2	0.3968	26846	21.1	1429518	0.4	23708
5082	10.4	1497	3.1	0	0.0	23	0.0	26	0.1	0.4282	22364	16.6	866956	2.4	124586
3032	4.2	217	0.3	0	0.0	0	0.0	144	0.2	0.3593	19631	21.9	1195858	0.0	0
1032	3.4	152	0.5	0	0.0	0	0.0	37	0.1	0.2202	6430	32.0	935359	3.9	113063

510	3.8	148	1.1	0	0.0	0	0.0	0	0.0	0.0000	0	45.2	977329	8.9	192014
889	4.2	64	0.3	0	0.0	0	0.0	42	0.2	0.3595	6759	21.9	350826	0.0	0
2613	10.0	277	1.1	43	0.2	0	0.0	74	0.3	0.2863	7352	9.9	253178	0.0	0
1744	6.7	87	0.3	0	0.0	0	0.0	18	0.1	0.1582	4006	48.2	1219241	4.5	112686
1811	4.2	96	0.2	0	0.0	0	0.0	69	0.2	0.3951	11089	19.9	557273	0.0	0
4663	10.2	365	0.8	144	0.3	0	0.0	91	0.2	0.4251	14966	5.5	191922	0.0	0
41835	5.4	7485	1.0	363	0.0	23	0.0	1270	0.2	0.3144	199413	23.7	15050704	2.0	1239626
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
4575	13.2	453	1.3	118	0.3	0	0.0	104	0.3	0.3358	11972	7.4	264887	0.0	0
387	5.1	738	9.7	2	0.0	208	2.7	0	0.0	0.0039	115	1.1	33040	34.1	1001539
2234	9.6	323	1.4	3	0.0	0	0.0	65	0.3	0.2631	6419	10.4	256727	0.0	0
4724	12.7	391	1.1	271	0.7	0	0.0	79	0.2	0.2156	8742	11.1	448452	0.0	0
5463	9.7	719	1.3	29	0.1	0	0.0	163	0.3	0.2158	13150	11.7	714800	0.0	0
2330	9.3	315	1.3	0	0.0	0	0.0	71	0.3	0.1950	5620	10.2	292819	0.0	0
2544	8.4	826	2.7	0	0.0	204	0.7	3	0.0	0.1628	9470	8.0	463268	20.8	1207544
10008	10.0	51	0.1	12	0.0	422	0.4	3	0.0	0.1359	11004	0.7	54548	0.0	0
3675	12.0	887	2.9	0	0.0	10	0.0	44	0.1	0.3821	12924	12.5	421655	1.3	42542
913	8.1	638	5.6	2	0.0	256	2.3	0	0.0	0.1016	1643	3.5	56299	9.0	145897
5024	8.7	332	0.6	0	0.0	585	1.0	97	0.2	0.2956	15357	4.2	218788	0.5	28199
886	5.6	299	1.9	0	0.0	183	1.2	0	0.0	0.0686	3128	4.2	192457	30.1	1371087
2485	9.2	261	1.0	9	0.0	0	0.0	70	0.3	0.1749	4782	10.8	296403	0.0	0
2708	10.8	963	3.8	0	0.0	21	0.1	4	0.0	0.3380	11085	13.9	454701	2.9	94319
120	1.5	0	0.0	0	0.0	96	1.2	0	0.0	0.0000	0	0.8	40654	41.1	1989533
48077	9.8	7196	1.5	447	0.1	1985	0.4	702	0.1	0.1876	115412	6.8	4207499	9.6	5886660
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
17622	21.4	0	0.0	4717	5.7	967	1.2	0	0.0	0.0000	0	0.0	0	0.0	0
19	0.1	875	4.6	0	0.0	43	0.2	0	0.0	0.0758	835	0.0	0	0.0	0
404	1.0	21303	53.5	0	0.0	0	0.0	0	0.0	0.1543	3237	0.0	0	0.0	0
79	0.6	36	0.2	0	0.0	98	0.5	0	0.0	0.1031	1156	0.0	0	0.0	0
1607	10.5	0	0.0	422	2.7	131	0.9	0	0.0	0.0487	514	0.0	0	0.0	0
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
186	1.0	0	0.0	0	0.0	69	0.4	0	0.0	0.1508	1410	0.0	0	0.0	0
381	0.9	2312	5.6	68	0.2	137	0.3	0	0.0	0.0852	2171	0.0	0	0.0	0
3919	16.4	762	3.2	347	1.4	350	1.5	0	0.0	0.1996	6019	0.0	643	0.0	0
144	0.9	0	0.0	0	0.0	33	0.2	0	0.0	0.1117	922	0.0	0	0.0	0
24360	8.7	25288	9.0	5554	2.0	1827	0.6	0	0.0	0.0843	16265	0.0	643	0.0	0
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
364	1.6	0	0.0	1032	4.7	63	0.3	0	0.0	0.0759	979	0.0	0	0.0	0
486	1.1	0	0.0	1371	3.2	97	0.2	588	1.4	0.0413	1116	0.4	10222	0.0	0
138	0.8	8493	48.9	0	0.0	8	0.0	0	0.0	0.2953	3206	0.0	0	0.0	0
13	0.1	0	0.0	8555	67.8	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
625	1.1	15126	25.8	1099	1.9	39	0.1	233	0.4	0.0086	200	9.4	218631	0.0	0
231	1.3	0	0.0	2659	15.0	50	0.3	244	1.4	0.0044	41	0.7	6533	0.0	0
6	0.0	6598	51.9	0	0.0	12	0.1	0	0.0	0.4803	3179	0.0	0	0.0	0
1862	1.0	30217	16.4	14716	8.0	269	0.1	1065	0.6	0.0861	8718	2.3	235386	0.0	0
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	35.0	0	1.0	0
157	0.5	1373	4.4	0	0.0	83	0.3	61	0.2	0.1655	4308	7.9	205869	0.1	2251
33	0.1	6697	25.6	0	0.0	98	0.4	0	0.0	0.5529	10242	0.0	0	0.0	0

185	1.0	6673	36.0	6	0.0	84	0.5	197	1.1	0.5425	6279	0.0	0	0.0	0
36	0.4	1456	14.6	12	0.1	238	2.4	8	0.1	0.0000	0	9.2	126166	0.0	0
158	0.6	33	0.1	0	0.0	0	0.0	20	0.1	0.1208	2746	7.4	167862	1.0	22927
218	1.2	0	0.0	0	0.0	262	1.4	377	2.0	0.0000	0	1.6	34857	0.0	0
507	1.7	1536	5.2	43	0.1	176	0.6	299	1.0	0.4299	8599	0.0	0	0.0	0
9	0.1	43	0.5	5	0.1	36	0.4	0	0.0	0.0016	20	4.4	61230	0.0	0
1302	0.8	17812	10.6	67	0.0	977	0.6	953	0.6	0.2184	32195	4.0	595785	0.2	25178
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
3040	14.0	4786	22.0	0	0.0	0	0.0	0	0.0	0.0143	236	20.7	340942	0.8	12799
12178	16.5	0	0.0	0	0.0	10	0.0	0	0.0	0.0188	492	70.1	1836828	22.7	595251
1840	9.1	0	0.0	0	0.0	23	0.0	0	0.0	0.0931	2216	52.3	1244689	45.4	1079689
1840	5.0	0	0.0	0	0.0	0	0.0	0	0.0	0.1574	2547	34.0	549940	25.4	410638
21373	21.3	1682	1.7	0	0.0	13	0.0	0	0.0	0.0097	479	42.3	2086113	2.6	127632
10044	15.5	27	0.0	0	0.0	84	0.1	0	0.0	0.0516	1405	57.6	1569543	38.2	1041570
4250	14.2	0	0.0	0	0.0	0	0.0	0	0.0	0.0566	772	39.9	544713	2.6	34993
16478	26.4	747	1.2	0	0.0	8	0.0	0	0.0	0.0116	373	37.3	1198053	1.2	39333
1376	3.2	0	0.0	0	0.0	96	0.2	0	0.0	0.0488	1083	31.4	695998	6.4	142179
75019	15.6	7241	1.5	0	0.0	234	0.0	0	0.0	0.0423	9603	44.3	10066820	15.3	3484084
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
455	2.1	0	0.0	0	0.0	53	0.2	0	0.0	0.0791	1797	14.5	329425	0.0	0
2013	8.2	0	0.0	0	0.0	1	0.0	0	0.0	0.3306	4147	0.5	6857	0.0	0
2707	4.0	0	0.0	0	0.0	9	0.0	0	0.0	0.2597	11951	12.7	585430	0.0	0
2462	7.8	7057	22.3	0	0.0	0	0.0	0	0.0	0.0634	861	1.1	14808	0.0	0
1163	3.4	0	0.0	0	0.0	138	0.4	0	0.0	0.1546	4172	15.6	417782	0.7	20198
1310	4.1	0	0.0	0	0.0	26	0.1	0	0.0	0.4360	8949	3.6	74025	0.0	0
3006	4.6	0	0.0	0	0.0	59	0.1	0	0.0	0.0036	136	28.2	1054507	1.4	51891
873	7.0	563	4.5	0	0.0	1	0.0	0	0.0	0.2958	1706	0.1	533	0.0	0
13389	4.8	7621	2.6	0	0.0	286	0.1	0	0.0	0.1817	33718	13.4	2483367	0.4	72089
1852	29.7	0	0.0	0	0.0	16	0.3	0	0.0	0.0000	0	3.4	30433	0.0	0
3371	7.4	492	1.1	0	0.0	95	0.2	0	0.0	0.0864	1644	0.5	9162	0.0	0
4711	20.2	0	0.0	0	0.0	91	0.4	0	0.0	0.0001	1	6.2	164175	0.0	0
1663	22.4	0	0.0	0	0.0	35	0.5	0	0.0	0.0000	0	7.5	66426	0.0	0
2438	20.8	236	2.0	0	0.0	105	0.9	0	0.0	0.0000	0	1.7	19858	0.0	0
2815	9.0	648	2.1	0	0.0	9	0.0	0	0.0	0.0056	84	0.1	1698	0.0	0
1139	16.9	0	0.0	0	0.0	10	0.1	0	0.0	0.0000	0	0.2	997	0.0	0
17989	13.6	1376	1.0	0	0.0	361	0.3	0	0.0	0.0182	1729	3.1	292749	0.0	0
0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0000	0	0.0	0	0.0	0
275042	8.5	106502	3.3	21717	0.7	7291	0.2	10164	0.3	0.2172	557644	14.8	37891112	4.3	10973532

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