DISCUSSION PAPER 88|3

DEPARTMENT OF AGRICULTURE AND LIVESTOCK

GROUP COFFEE DEVELOPMENT PROJECTS:

A PRELIMINARY SURVEY OF THE 20 HECTARE BLOCKS

By Christopher K. Gimbol

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GROUP COFFEE DEVELOPMENT PROJECTS OF PAPUA NEW GUINEA: A PRELIMINARY SURVEY

Christopher K. Gimbol*

1. INTRODUCTION

Coffee is the major cash crop of the Highlands Provinces which contain about one third of the total population of Papua New Guinea. It is the major export crop of PNG and accounts for about 36% in value of the total agricultural export earnings (1985). Apart from minerals it is still the largest export earner. The smallholder contribution varies between about 65-75 percent of the total coffee production of the country.

In the late 1970's the government of PNG encouraged smallholders through its lending policies to develop group projects. These projects, normally of about 20 hectares, were primarily aimed at assisting the smallholders through the provision of loan capital made available with the introduction of a system of management control and a novel method of loan security. However, very little was done until the early 1980's to make the 20 hectare projects fully operational.

In 1985, an intensive survey was conducted in the Eastern and Western Highlands Provinces, where, to date, all of the 20 hectare coffee development projects have been established. One major aim of the survey was to collect a summary of information of all the projects against which the progress of the projects could be subsequently related, and as a basis for more detailed project evaluations. In this paper bench mark survey is described and its findings are discussed. Firstly the methodology used in conducting the survey

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is described. The main areas where attention is focused in this discussion are: management companies involved, the credit sources, area under production, yields and labour utilization.

2. THE SURVEY

It was carried out in two phases. The first phase was from May to June 1985 and second from December to January 1986. The information sought in the first phase was basically about the general characteristics of the new development projects. These characteristic included (a) the extent of the area surveyed (b) the area which received funds (c) planting history and (d) loan approvals. For the purpose of this study, the "surveyed area" is the actual area approved for funding for coffee development.

From December to January 1986 the second phase of the survey was completed. Information on (a) actual and estimated production of coffee, (b) labour use and (c) area under production was collected. The information collected during the second phase would be useful to both the PNG Coffee Industry Board and the Department of Primary Industry to forecast future production of the crop.

As employment generation was a secondary objective of the new 20 hectare projects the later phase of the survey also looked at the aspect of labour employment both in its permanent and casual forms. The labour employment in the initial development stages, for instance in clearing land, providing drainage and in the construction of fences was not taken into account. These items of work were considered by the lending agencies to be part of the owners' equity contribution for which no payment was to be made, though in reality the situation sometimes differed from this ideal.

2.1 The Survey Method

In 1985 the Papua New Guinea Department of Primary Industry in conjunction with the Queensland Department of Primary Industries carried out the field work for the largeholder component of a major study of the PNG Export Tree Crops involving Coffee, Cocoa and Copra. That project is jointly founded by the PNG Government and the Australian Centre for International Agricultural Research (ACIAR). The project was scheduled to be of a three year duration intended for completion by the end of 1987. The objectives were to design cost effective methods for collecting key indicators for the Coffee, Cocoa and Copra Industries.

Questionnaire design for a mini survey of the 20 hectare projects was undertaken by Papua New Guinea DPI. A listing of the 20 hectare development blocks and the 5 hectare rehabilitation projects was provided by J. Harvey - Jones, DPI agronomist. This list was checked and then updated from information provided by the Banks, Management Agencies, Coffee Industry Board and Provincial DPI's. The list covered a total of 197 projects of which 177 were of approximately the 20 hectare scale and 22 were 5 hectare blocks. This entire list was used as a basis for the survey and was basically aimed at collecting information on the general characteristics of the new 20 hectare projects.

The name "20 hectare project" is given to this type of mini-estate to distinguish it from either full plantations or smallholdings. The area developed does not necessarily have to be 20 hectares is the norm.

The staff of the Economics Branch of DPI were engaged in collecting the information. The data on each individual project were kept totally confidential. Two members of the survey team visited the management agencies and went through the files of each individual project collecting information on area surveyed, area planted, planting history, loan approvals, etc. Where necessary, the Group Managers for each management agency were interviewed with respect to the projects in their charge. On average between three to four days were spent with each management agency.

The PNG Agriculture Bank (PNGAB), which funded most of the projects (over 95%), was also consulted and relevant information was collected. The Bank maintains detailed records of all the projects which are funded by them. The PNGAB's Field Appraisals Section makes field visits to the projects and keeps up-to-date records of performance and progress. The Banks data made a major contribution to the Departments survey. The survey team visited Mt Hagen, Goroka and Kainantu thereby covering all of the 20 hectare coffee projects in the country at the time.

3. DISCUSSION OF FINDINGS

3.1 Management

Production of good quality coffee depends to a great extent on the adequacy and timeliness of the management techniques that are applied. Low production (and in places) falling productivity, poor quality coffee, presence of high percentage of senile and unproductive trees, low returns and low labour inputs are all characteristics of poorly managed smallholdings. The use of selected good planting material, appropriate application of fertilizer, pest and disease control measures and good agronomic practices all contribute to improved yields and quality, and increased farm incomes.

Currently there are several deficiencies in both the accessibility and quality of the extension services provided by the Government so that it cannot effectively carry out the task of advising farmers on improving the farm husbandry of their village coffee. Therefore, management agencies were used to fill the extension gap as well as to manage and to provide technical advice on the newly established 20 hectare group coffee projects. The agencies administer the projects, the funds and the loan repayments for a fee. A well managed plantation produces on an average about 2 tonnes of coffee per hectare. Similar yields can be expected from 20 hectare blocks when in full production.

Currently the PNGAB's policy is that for a coffee project of this type to be funded by them the land must first be evaluated and then, if the land is satisfactory, a proposal should be submitted by a management company to the Agriculture Bank. On behalf of the business group the land is leased by the village owners to the government which than leases it back to the owners. The Bank holds a mortgage on the land. There are five management companies of which National Plantation Management Agency (NPMA) is the largest and is owned by the National Government. Other commercial organizations involved in the management of the 20 hectare projects are Angco Development (a subsidiary of the major coffee exporting company ANGCO), Gouna Development, O.U/Maltunal Pty Ltd, and Southern Highland Management Agency (SHMA), (a business arm of the Southern Highland Provincial Government). Apart from the above commercial organizations DPI is also involved in managing the rehabilitation projects. Various other agricultural management agencies exist but are not currently involved with these projects.

NPMA has its headquarters in Goroka with branches in Kainantu and Mt Hagen. Gouna is based in Goroka and manages projects in E.H.P only. Angcodev manages projects both in E.H.P and W.H.P and is based in Goroka. Maltunal and SHMA are operated in Western and Southern Highlands respectively.

At the time of the survey the National Plantation Management Agency managed the largest number of projects and accounts for about 50.6 per cent (Table 2 and Fig.5) of all projects aggregated and a total funded area of a little over 2 thousand hectares, which is about 56 per cent (table 2 and Fig. 5). O.U/Maltunal with 26 projects (13.2%) and funded area of 502 hectares (14%) ranks second highest. The share of projects managed by other agencies in the descending order are : Angcodev 19 projects (9.7%) with a funded area of 408 hectares (11%), Gouna 9 projects (4.6%) with a funded area of 173 hectares (4%) and others totalling to 10 projects (5.1%) with a funded area of 350 hectares (10%). The funded area for all projects, when aggregated, amounts to about 100 hectares in 1979. It increased substantially from that year to over 1000 hectares in 1984. As shown in Figure 2 a total of over 3500 hectares was developed under the new 20 hectare programme over the years from 1979 to mid June 1985.

TABLE 1. DISTRIBUTION OF PROJECT BY PROVINCE

Province	No. of Projects	Percent (%)	Funded Area	Percent (%)
E.H.P	122	61.9	2135	60
W.H.P	64	32.5	1425	40
S.H.P	11	5.6	NA	-
TOTAL	197	100	3560	100

TABLE 2. PROJECTS AND AREA MANAGED

Management Agency	Projects Managed	Percent (%)	Funded Area	Percent (%)
NPMA (G.H.K.)*	100	50.6	2013	56
O.U/Maltunal	26	13.2	502	14
Angcodev	19	9.7	408	11
Gouna	9	4.6	173	5
S.H.M.A	11	5.6	NA	-
Other	10	5.1	350	10
DPI	22	11.2	125	4
TOTAL	197	100.0	3571	100

* G= Goroka
H= Hagen
K= Kainantu

Table 1 depicts the distribution of projects and total funded area by province. About 62 percent of the projects were developed in the Eastern Highlands, mainly in the Asaro valley and Kainantu. In Western and Southern Highlands Provinces it accounts for 32 and 6 percent respectively. There is a close correlation between the number of projects and funded area (eg. 62% projects and 60% area funded in E.H.P).

Table 2 shows the names of management agencies, number of projects managed by each agency and the total funded area. There are five large agencies and others include those which are self managed or where advice has been provided to project owners by some large plantations.

3.2 Credit

The development of 20 hectare coffee is regarded by many as a reorganization of the smallholder sector through systematic grouping of smallholder owners. Smallholder owners invest very little capital resources in coffee improvement and maintenance. The success of the 20 hectare group coffee projects, therefore, depends on high levels of capital input and good management practices. The peasent farmers lack required capital inputs or technical know how.. they certainly could provide a substantial amount of labour input. The concept of the project is that, for example, nearly 20 per cent of the equity is provided by the owners in the form of clearing bushes, fencing, drainage, holing, nursery and planting.

As high as 80 per cent of the credit requirements of smallholders are intended to be met by the PNGAB. This credit is utilized under these projects for purchasing fertilizer, chemicals, tools, paying wages for hired labour, and for meeting management fees. The required funds for lending purposes by the PNGAB has been provided by the government through borrowings from international monetary institutions, notably the World Bank through its Agriculture credit pipeline.

Although there are a number of commercial banks from which growers could obtain credit, it was found that over 95 per cent of the projects obtain funds from PNGAB. An average fund requirement for the development of the project was about K3,330 per hectare. The total annual loan approvals increased from K250,000 for 1979 to over K3.4 million for 1984 (see Fig.1). By mid-1985 a total of over K11 million has been lent, thus enabling the funding of a total area of over 3,500 hectares during 1979 to 1985 period (see Fig.2) There were some projects which were self-financed and managed about which information has not been readily available. The loan amounts provided by banks per project range from as low as K20,000 to as high as K200,000 depending on various factors such as size of project, soil type, etc as budgeted for in project proposals prepared by management agencies.

The PNGAB branches are directly responsible for all the projects in their respective provinces both for monitoring and release of funds when approved. The bank employs field appraisers to assess the progress of the project once every two weeks. In this way the project is monitored by both the lending institution and the management agency. The bank ceased new lending from the beginning of 1984 till late 1985 owing to the unavailability of further funds for the purpose. Limited funds again become available following the signing of the Agriculture Credit III Understanding with the World Bank. This limited funding affected the late comers to the 20 hectare programme, especially those who have suitable land for coffee development in the Wahgi and Asaro valley.

Some commercial banks are quite keen in funding projects as long as they are convinced that the projects are feasible. The banks want a guarantee of repayment of the loans at the normal commercial bank interest rates which are usually higher than the interest rates charged by the PNGAB. (P.S. In 1987, following the outbreak of coffee leaf rust and its potentially serious impact particularly on smallholder production, new forms of group projects may be required to provide a new focus for rehabilitation of the industry, and particularly the smallholder sector. If this is so, and smallholder rehabilitation really proves not to be realistic, then the availability of further credit will be necessary. The adherence by international lending agencies, such as the World Bank to their guide-lines of non-lending for coffee could be a serious blow to the industry's future in P.N.G).

3.3 Area Under Production and the Yield

With the exception of the Southern Highlands, the total area developed and funded under the new scheme was a little over 3,500 hectares. Depending on factors such as climate, rainfall, altitude, and soil type coffee trees usually come into bearing in the fourth year. It is the seventh year that the trees reach their full production level. Therefore, most of the coffee stands in the projects could be expected to come into bearing by 1986. The expected yield as calculated for a 20 hectare block is as follows:

Year 4 - 14 tonnes (green bean)
Year 5 - 25 tonnes (green bean)
Year 6 - 38 tonnes (green bean)
Year 7 - 50 tonnes (green bean)

Source: PNGAB

* Note that these estimates assumes a production figure of 2.5 tonnes of green bean per hectare when in full production. Currently approximately 2 tonnes of green bean per hectare is being produced on average by plantations, therefore this calculation seems too high and should be accepted with caution.

In the 1983/4 coffee year, 391 hectares came into production. In the following coffee year (1984/5) about 559 hectares started producing. This is an increase of 42 per cent.

It was anticipated that in 1985/6 the yielding area could be expected to increase by 118 per cent from 1984/5 (see Table.3). This was the estimate of the management agencies based on the performance of projects managed. By the end of the decade all areas planted to coffee by 1984 will be at maximum producing capacity. that means 3,500 hectares is expected to give a total output of 7 thousand tonnes of green beans. In line with the plantation coffee, the 20 hectare expected yield is assumed at 2 tonnes per hectare. A total of 11.5 thousand bags (60 kg) of green beans were produced from the projects in 1983/4. It increased to 18.6 thousand bags in 1984/4, a rise of 61.6 per cent. The estimated production for 1985/6 is 21,300 bags. This is shown in table 3.

The total number of bags of green bean from the industry as a whole are given in the 6th column of table 3. In 1983/4 the 20 hectare blocks contributed only 1.5 per cent of the national coffee production. The percentage rose in 1984/5 to 2.3 per cent and was estimated to be 2.7 per cent in the 1985/6 coffee year.

TABLE 3. AREA PRODUCING AND YIELD

20 HECTARE PROJECTS					INDUSTRY	
Year	Area (ha)	Bags (60 kg)	Tonnes Equivalent	Bags/ha	Bags	Percent of Industry
1983/4	391	11487	689	29.4	752557	2.3
1984/5	559	18567	1114	33.2	807969	2.7
1985/6 *	853	21263	1276	25.0	800000	2.7
		(25600)	(1500)			(3.2)

* Note that bags/hectare appeared to decrease instead of increase as more area was producing. This is because one major management agency did not give its production estimates. If the production was assumed to remain at around 30 bags/ha the total production is given in brackets below. (NB: The total industry production figures are estimates prior to the appearance of coffee rust).

3.4 Labour Use

In August 1985 a pilot of separate survey was conducted by DPI Economics Section for a Rural Minimum Wages Survey (RMWS). It was aimed at providing data on the current level of wages, terms and conditions of emlpoyees working on the estates and mini-estates of the coffee, cocoa, and copra industries. It was intended that the RMWS would provide data from which insights may be gained into the viability of the various large holder systems under different wage/employment levels and help to estimate the supply of and demand for labour at different wage levels. A large component of the survey sample was to include 20 hectare blocks in East New Britain, Eastern and Western Highlands Provinces. As it was, the full survey was not undertaken though an extensive pilot was carried out, together with the collection of background data.

The information below is a summary of some of the basic data provided by **employee respondents**, interviewed on the project sites, on mini-plantations in the Western Highlands, Eastern Highlands and East New Britain Provinces. The information was collected during a random pilot survey and a subsequent non-random follow-up. The data cannot, therefore, be said to be a statistically valid representation of the industry, but the information given here is backed up by questions contained in the questionnaires on the earnings known by respondents to be prevailing in the region. It is also backed up by information gained from other interested parties, notably the management agencies, which follow contrasting approaches to project management in various respects.

Fortnightly Flat Rate Wages Paid on a Sample of 20 Hectare Projects

Western Highlands (Mt Hagen Area)			**Kina/Fortnight**
Management Agency (1)	- plantation	1	20.00
	- plantation	2	22.00
	- plantation	3	26.00
Management Agency (2)	plantation	1	34.10
Management Agency (3)	plantation	1	26.00
Eastern Highlands (Goroka Area)			
Management Agency (4)	plantation	1	22.50
	plantation	2	20.00
Management Agency (5)	plantation	1	32.50
	plantation	2	32.50
Management Agency (6)	plantation	1	32.50
EHP (Kainantu Area)			
Management Agency (1)	plantation	1	20.00
East New Britain Province (Rabaul Area)			
Extension support from DPI.	Plantation	1	34.00
	plantation	2	30.00
	plantation	3	33.00
	plantation	4	40.00
	plantation	5	52.00

3.5 Pay Levels

From this survey, and the associated questions, it seems that the wages paid on mini-plantations on average were about 70 percent of the Minimum Rural Wage but that particularly in the Eastern Highlands Province they were well below this level, with payments commonly falls within the K16-K25 mark (one project was reported to have been paying K10.00/fortnight, but had recently closed development with a labour dispute). In the Western Highlands the pay was rarely below K20.00 but from K20-K25/fortnight was standard pay on a good proportion of the projects.

All the projects were paying a piece rate on harvesting and this was often done by the spouses and dependents of the employees together with the person. In East New Britain, the wages seem to fall on or above the minimum wage, but although accommodation was usually provided by the projects, which it often was not on the Highlands projects, there appeared to be less opportunity for supplementing income notably through access to land. There is also doubt as to the accuracy of the replies. We received a number of comments from experienced persons to say our interviewees were scared to speak honestly. Less than RMW seemed to be often paid in East New Britain.

3.6 Management Approaches.

The management approaches varied on these mini-plantations. The policy on management, incorporated in the original concept of the 20 hectare projects, was that the owners of the "group-owned" block should also work on them and provide a level of **"sweet equity"** into the project during its earlier years, reducing the wage bills and gaining in the longer term from lower interest rates and earlier dividends. Some of the management agencies administering these projects had a **policy of not employing the owners** and even on those projects that stated that they did seek to employ them it was found that most of the employees were outsiders brought in from the less developed areas (e.g, Lufa district, Okapa and Simbu for the Asaro valley and Kainantu Projects, the Southern Highlands for the wahgi valley projects, the Highlands and Sepiks Provinces, particularly, for the locally managed-mini projects in the Gazelle Peninsula). These outsiders were largely being paid below the minimum rural wage and did not receive the same level of housing and other facilities as were provided on the large plantations.

The low levels of earnings in the Highlands were in part compensated by the provision of land for food gardening on many projects, but most of these projects had little spare land in excess, therefore, likely to be provided only when the cash crop was young. There was a feeling amongst both employees and management that, as supplementary food production became less available to employees, and as they saw the earnings being made by the project from crop sales, then the lower wage would be considered unacceptable by the employees and could not be sustained much below at least K25.00 per fortnight. If these projects are able to pay higher wages and/or are forced to do so, it might be suggested that this would provide less of an incentive for indigenous smallholder agricultural development in the employee's own district as the potential earnings back home would then be comparatively less attractive. It may, on the other hand, encourage the local population, including the project owners, to commence work on the plantations especially if they were led to believe that as a result of higher production costs, their forthcoming dividend gains were becoming less certain. In less developed areas, a number of responses might result: eg. urban migration as employment opportunities in developed rural areas are becoming limited; the development of new agricultural projects in less developed rural areas, if prices and transport/marketing conditions were satisfactory.

There is clearly a need for a much greater understanding of the grassroots motivations of rural employees, for example as to whether indeed low relative wages (but widespread employment) results in the development of indigenous cash crop/subsistence agriculture, or whether a high wage situation, but offering little employment gives a boost to indigenous alternative development (or merely, the "Todaro effect" involving large numbers remaining unemployed while awaiting the prospect of a lucrative potential job).

Many of the projects were technically operating outside the law and offering wages well below current RMW. This would probably be legally acceptable if it was payment for a shorter working day/week, or it affected solely the project owners who forfeit pay for subsequent dividend payments. Any relaxation of the legislation on those mini-projects would be unlikely to have much impact in terms of reducing wages, as the trend was at the time, towards an increase in pay as the projects come into production and were therefore able to provide less alternative income/subsistence provision. The persons working on these projects were mostly able to make small payments back to their families at home and to provide gifts to their families, but they were certainly not, however, able to indulge in a lifestyle that expands on much more than fish, rice, some tobacco, and travel home or occasionally to the local town.

In contrast, on the established plantations, employees are certainly able to indulge in a less frugal existence, and normally on these estates land is available for domestic use and housing provided as well as casual employment for family members. It is unlikely that the mini-plantations could remain too far out of step with these plantations, and it would not be possible for these large plantations to cut their pay significantly even if it were permitted, at least unless there was a major change in national wages and macro-economic strategy. On the large and even the smaller plantations although labour may provide nearly 40 percent of production cost in the two main industries (coffee and cocoa), **it does not provide the major constraint on industry expansion**; in coffee it is land availability, and lower wages might merely result in higher profit, but not greater reinvestment in plantation production. In cocoa plantation production is constrained particularly by the poor administration of land leases, while adequate returns can be gained with the present wage rate.

4. SUMMARY AND CONCLUSION

The new type of farm organization, namely 20 hectare projects commenced in the early 1980's. Finance for the development up until 1985 was mainly provided by the Agriculture Bank of Papua New Guinea (over 95 %) and only 3 to 4 per cent was provided by the commercial banks. There are some limitations for new groups in gaining finance to develop their land. The Agriculture Bank has had limited funds for projects since 1984. The Bank is faced with financial constraints and limited manpower resources. The experiences over the past few years with these projects have increased the banks and some of the management agencies' capabilities to appraise and administer the projects. Therefore, as many of the more suitable locations in the Asaro and Wahgi have already been developed, there is a need to carefully assess new applications on social, economic and environmental grounds.

By the mid-1980's more than half the total area planted came into production and contributed about 3.7 percent of total coffee produced in the country. It is anticipated that in the next five to ten years when all the area planted to coffee has started producing, the 20 hectare projects should have resulted in a significant increase in the total national production. However, with the current situation of decline in smallholder coffee, (apart from the subsequent outbreak of rust), this would be a trade off unless intensive rehabilitation has been undertaken to improve and maintain the existing smallholder blocks. A major rehabilitation programme has been designed to take place initially in the Eastern Highlands Province by provincial DPI with the National Department. Other provinces were to follow.

(This has now been dramatically modified and boosted by the urgent disease control and rehabilitation requirements imposed by coffee rust. A Coffee Development Agencies has been established to co-ordinate this extension programme for smallholders, while the management agencies continue to administer the projects).

It is argued that labourers working on the projects are normally members of the owning business group. This is intended to reduce the large amount of money spent on labourers wages during the investment stages by paying them less than rural minimum wage, therefore speeding up the repayment of the loan. On the contrary, it was found that most of the projects employed outside labourers, mainly from Simbu and Southern Highlands Provinces. They are still mostly paid below the rural minimum wage and if this continues in future, workers would likely move to the large plantations that offer wages at RMW if employment is available. This would be expected to impose an upward pressure on project wages and other benefits (such as food gardening land for labourers), but the limited and localized availability of alternative formal (and informal) employment can be expected to maintain some low wage labour markets particularly in some districts. Unless the project owners are prepared themselves to work initially for lower wage, some areas may experience serious problems of labour availability on the mini-estates. (Again coffee rust potentially debilitating impact on smallholder coffee production could result in at least short term major changes to the Highlands labour markets).

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FIG 1: "20 HA" GROUP COFFEE PROJECTS

FUNDED AREA & LOAN APPROVALS

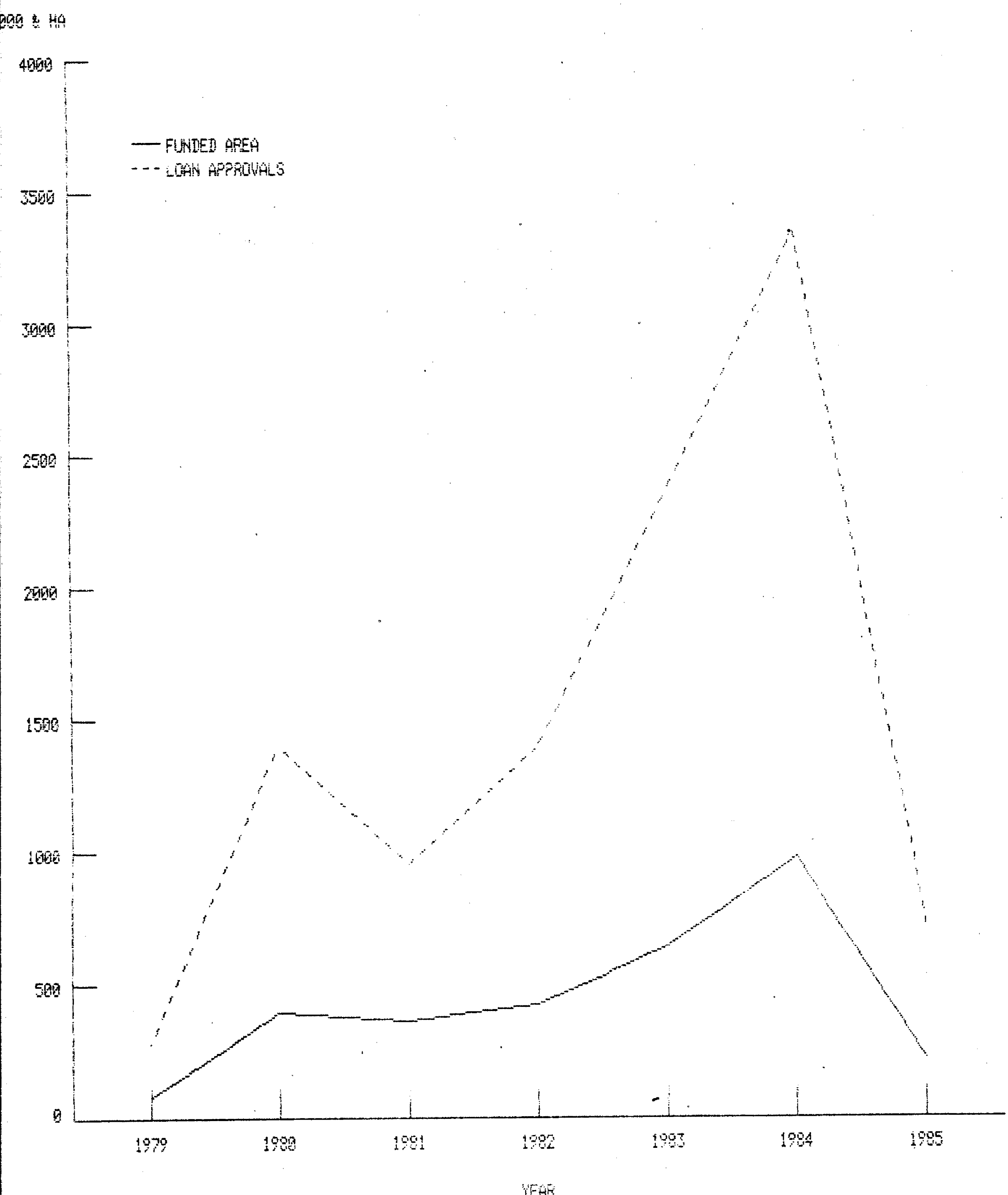


FIG.2:"20 HA" GROUP COFFEE PROJECTS

CUM. FUNDED AREA & LOAN APPROVALS

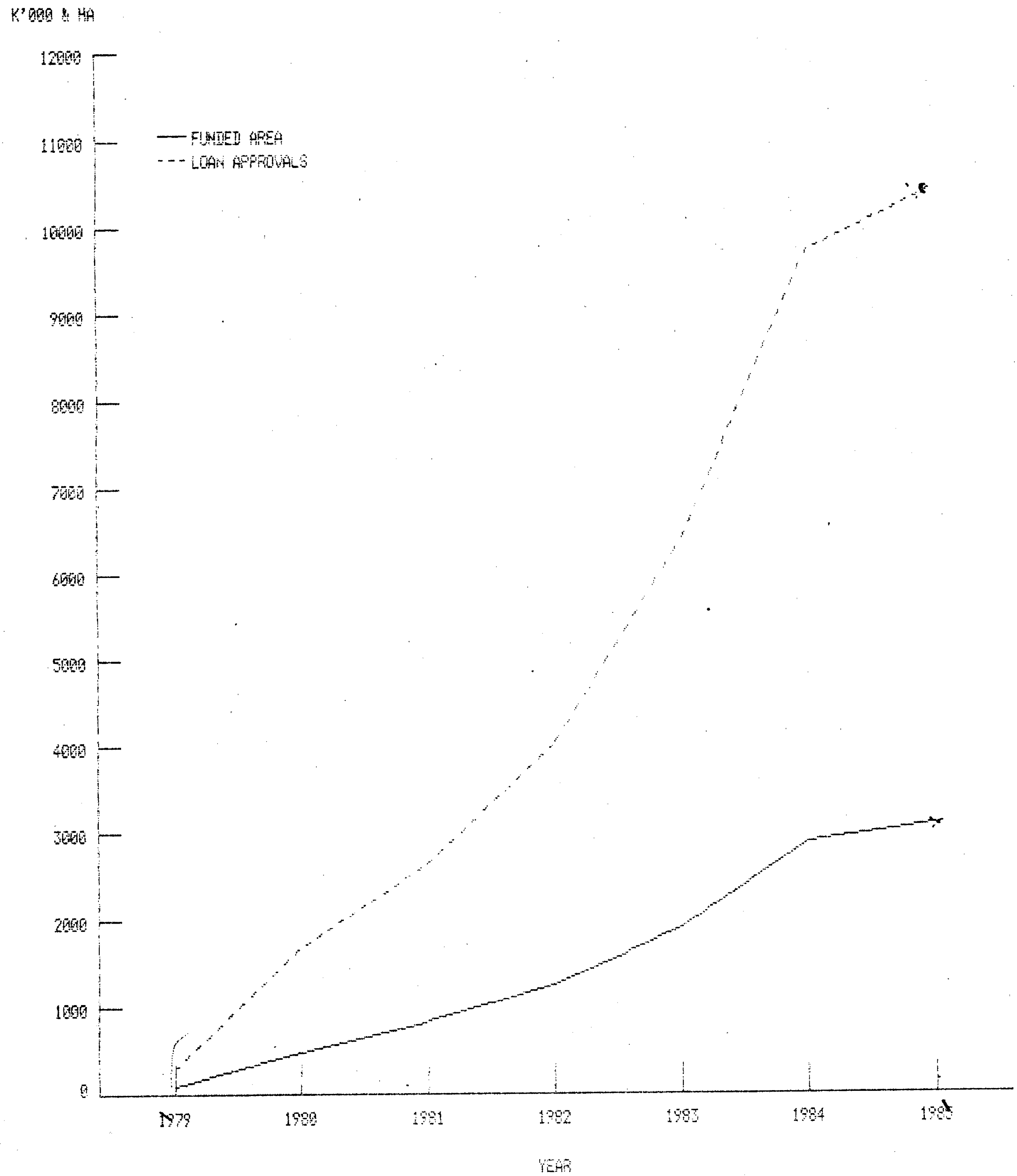


FIG 3: "20 HA" GROUP COFFEE PROJECTS

LOAN APPROVALS BY AGENCY (%)

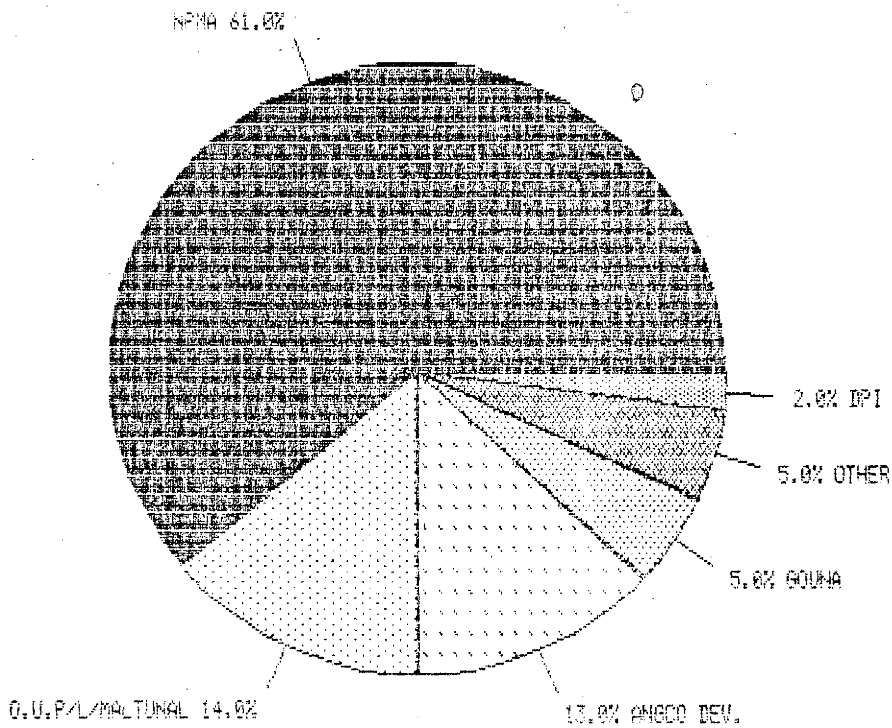


FIG.4: "20 HA" GROUP COFFEE PROJECTS

TOTAL AREA BY MANAGEMENT AGENCY (%)

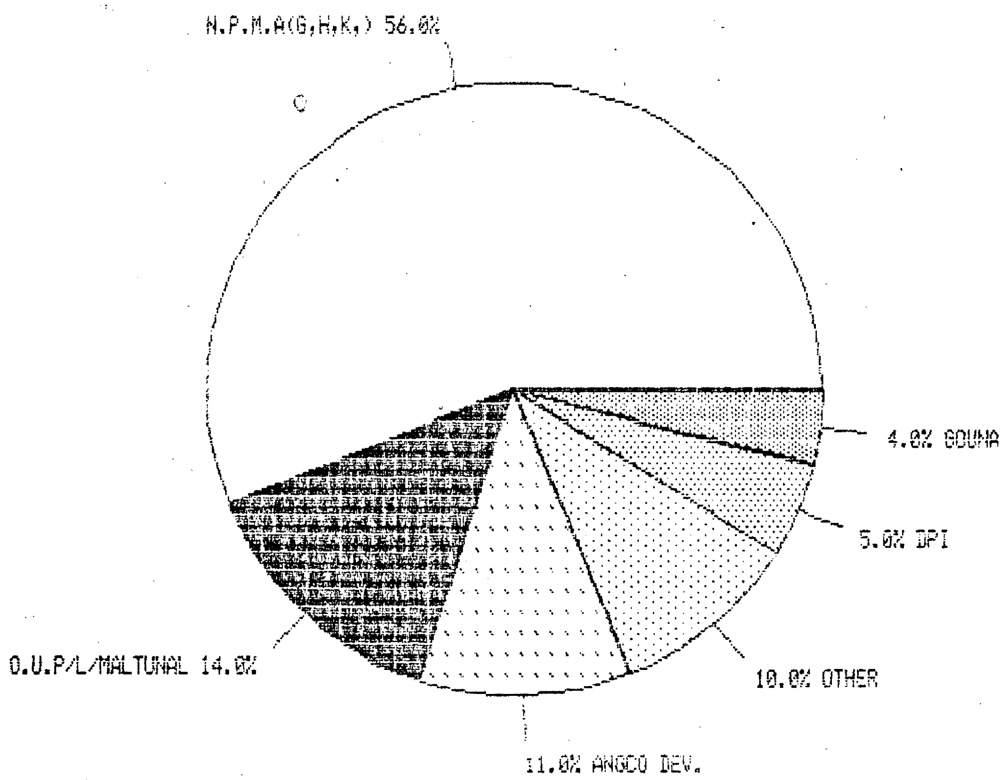


FIG.5: "20 HA" GROUP COFFEE PROJECTS

TOTAL PROJECTS MANAGED BY AGENCY (%)

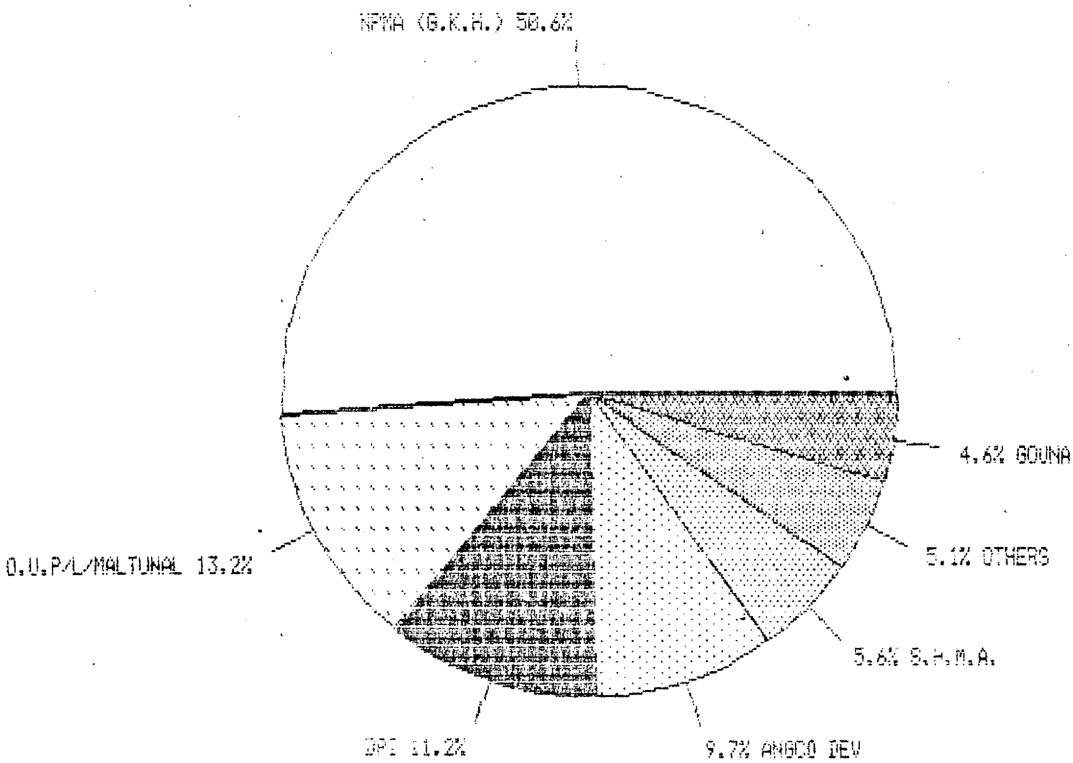


FIG 6: "20 HA" GROUP COFFEE PROJECTS

TOTAL AREA BY PROVINCE (%)

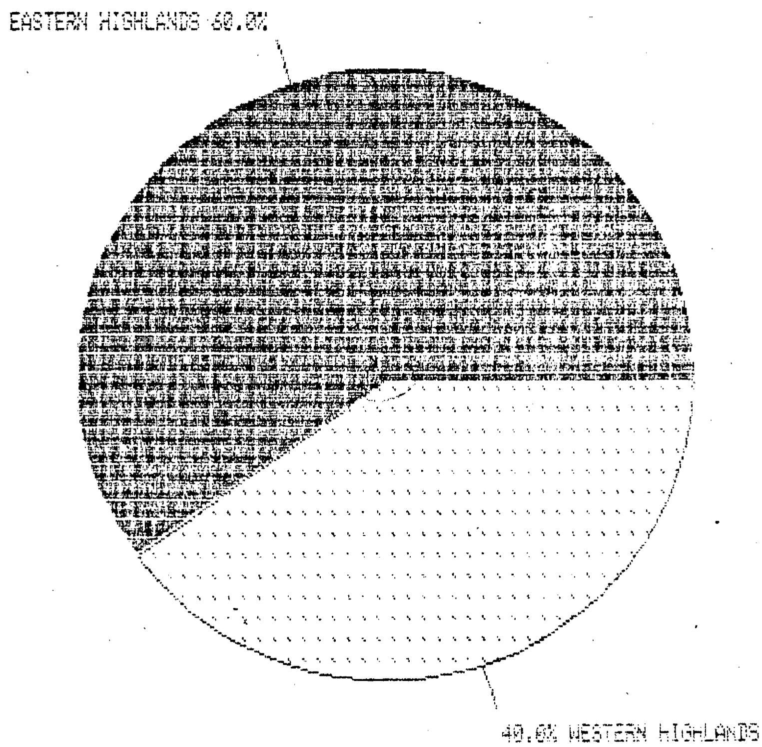
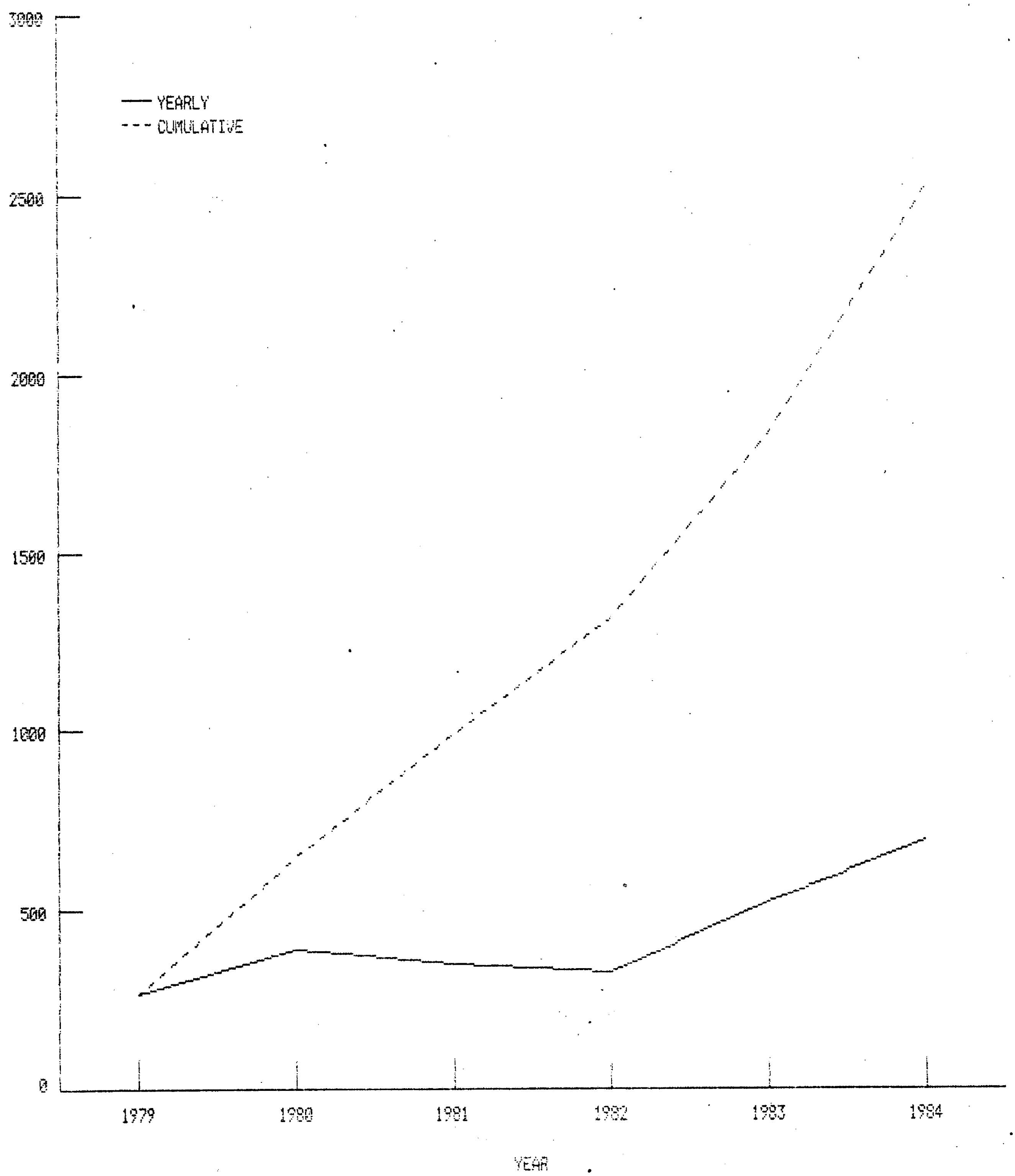


FIG 7: "20 HA" GROUP COFFEE PROJECTS

AREA PLANTED 1979-1984



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