EMPRESA BRASILEIRA DE PESQUISA AGROPECUARIA - EMBRAPA
CENTRO DE PESQUISA AGROFLORESTAL DA AMAZONIA OCIDENTAL-CPAA

ANNUAL REPORT

PRESIDENT FIGUEIREDO PROJECT

EMBRAPA/UFAM/INPA JOINT PROJECT

FINANCED BY THE ROCKEFELLER FOUNDATION

UFAM - UNIVERSIDADE DO AMAZONAS
INPA - INSTITUTO DE PESQUISAS DA AMAZONIA

MANAUS - AMAZONAS - BRASIL

1995

PRESIDENTE FIGUEIREDO PROJECT

1995 ANNUAL REPORT

Title: On-farm testing of Agroforestry Alternatives to Slash and Burn Cultivation by Migrant Small Farmers at Presidente Figueiredo - Amazonas.

INTRODUCTION

The small scale farmers at the Amazon State face a dificult situation due to various factors that goes from the complexicity of the production systems they use to the precariousness of the available infrastructure they have at their disposal. In addition, the pressure on land for food production does increase the amount of land cleared every year without an increase in production or in improving welfare of these farmers.

A participatory research project developed by CPAA was motivated by concern that convencional quantitative and reducionist research methods tended to preserve social inequality due to the fact that results most of the time were not used by the resource poor farmers and also the recognition that in agricultural sciences a vast amount of technical knowledge has been accumulated in research institutions which have not been used by farmers. However for problems to be solved and opportunities exploited efficiently, the knowledge should be drawn upon both institutions and farmers understanding.

It was also of researchers understanding that the use of a participatory approach would be an educational process for researchers, farmers, the community and the extension agents who should be involved.

The other immediate interest in this research project lied in the realisation that resource poor farmers gain very little from the process of development and transfer of technology of governmental programs. Thus, the increase of production and life improvement for these farmers in a long run would require an understanding of the diverse and complex environments in which they operate. So the technological research results to be acceptable by farmers would have to be tailored to specific farmer needs and detailed understanding of their land use systems.

In this context a participatory research project was carried out in small-holders properties in a government settlement at Presidente Figueiredo municipality with the objectives: 1. to validate technologies suitables to small farmers land use systems; 2. to determine sustainable alternatives of land use

systems; 3. to develop thecnologies that could be incorporated to resource poor farmers production systems.

Two alternatives of land use systems were discussed with the farmers and then implemented in three farm areas at three diferent communities. The two agroforestry systems tested at farm sites in a spacial arrangement were formed by cupuaçu *(Theobroma grandiflorum)*, pupunha *(Bactris gasipaes)*, inga *(Inga edulis)*, as perennials components and banana *(Musa spp)*, as semi perennial component. The annual components of system I consisted of six cassava varieties which were evaluated in the space between these trees species. The varieties tested were EMBRAPA 8, IM-180, IM-065, IM-220, Mãe Joana and Pao. On the second year evaluation they were reduced to four varieties. Three rice varieties tolerants to low P and high soil acidity were tested between the trees and substituted subsequently by cowpeas and cassava in system II.

The systems were tested with three treatments: 1. with fertilizer; 2. without fertilizer and 3. with leguminous cover crop.

The fertilizer treatment consisted of a judicious amount of chemical fertilizer (22.5kg/ha of N, 17.68kg/ha of P and 33.37kg/ha of K) and organic matter (5l of chicken manure per plant). These were applied per plant and concentrated in a pit of 30cm x30cmx30cm. Peanuts was the cover crop on the first year, followed by cowpeas and then continuously *Mucuna sp.*

The choice of these two alternatives lied on the fact that the multidisciplinary team was able a priori, based on the information collected on diagnostic phase, to decide the components that should be introduced into the trial, to analise the interactions between them and to interpret the outcome, so that it could facililtate diffusion, incorporation of trials results into the scientific knowledge and also influence on-station research.

The studies that have been carried out in the trials consisted in characterization of the areas in relation to soil fertility, texture and density; weeds; quantification of above ground vegetation and evaluation of the agroforestry components. Besides, the economics data and the social aspects of the agroforestry systems have being accounted for.

The results presented in this annual report, October 1994 to December 1995 discuss some of the technical results, the economical and the social evaluations. Therefore enfase was given mainly to farmers point of view.

RESULTS

1. Technological Considerations.

One of the most important point the researchers considered and demanded was a strong farmer participation not only on the identification of farmers goals and problems but also in a partnership between researchers and farmers in conducting and in evaluating the trials in their fields.

The technical results discussed are mainly the trials evaluation by farmers. In general farmers evaluated the spacial arrangement of plant components in the agroforestry systems used as good way of planting since as they weed the staple food such as cassava, rice or beans they have already weeded the fruit trees as banana, cupuaçu and pupunha. The fertilizer application to the plants in the system was one of the most important results for them. Their evaluation was a very positive one since they recognized that it was impossible to harvest other staple crop, except cassava, in a land like that one the trial was set up. As they said a land cleared after two to three years secondary growth (capoeira) was abandoned because they could not produce a banana crop. As they said they could never produce corn, rice, or beans even in a newly burned secondary forest land. The yield was so little that was not worth planting.

The beans, as they evaluated, produced 45kg of grains in a small plot (18mx24m) with that little amount of fertilizer, band application, as in the other two plots double of the first one (18mx48m) where fertilizer was not applied they harvested only 6kg.

The cassava varieties recomended by research did not get a very successful evaluation by farmers. They considered that their variety with the same treatments would produce more than the ones in the trials. In reality this comparison should have been done but farmers did not plant, as it was planned, their own plot at the time the project was initiated. Another point that should be explained is the fact that farmers work in the field according to the working force available at the time is needed. Besides their cassava crop is harvested only one and a half year after it is planted, so time for harvesting of both trial and farmer plot was unrelated.

The farmers started planting their own parcel only after the trial was planted and they began to use some of the practices the researchers were recomending. One of them even prepared a pole at the size of the spacing recomended for the fruit trees to use in his own banana plot and also applied some chemical fertilizer he had aquired through a governmental credit program he had a couple of years before and had never used. This invalidated the possible comparisons.

Mention also should be given to the fact that another farmer as he was planting his plot with banana he collected all the residues (ashes, pieces of charcoal) resulting from the burning of the vegetation (trunk, branches and leaves) in his land and applied into the pit he was going to plant the banana seedlings. The use of organic matter was also one of the practices recomended for the research managed trial.

In view of this, a decision was taking by the researchers to include direct into the trial that farmers' cassava variety. In this way a comparison could be made between this and the others research recomended varieties in test. This procedure took place from the establishment of the second cassava crop.

Nevertherless from farmers point of view the cassava variety EMBRAPA 8 was considered the best among the recomended research materials tested, due to higher starch production and flour quality. In addition this variety had the highest root production either with 11 or 15 month harvest.

Regarding the banana fruit production farmers showed their great satisfaction in the first year harvesting with fertilizer treatment. In fact after 15 months of harvesting just one farmer was discouraged with banana, because the desease is taking over the plants and it needs to be substituted by another semi perennial crop. The multidisciplinary team is showing this particular farmer, that banana is a semi perennial component that should stay in the system while the perennial components were not producing, and he should consider the income generated in just a single plot with fertilizer treatment as the two plots without fertilizer there was any yield. On the other hand it was of his understanding that bananas were harvested every week during almost one year. The other two farmers however are very satisfied with their crop and are planning to have another same size plot planted with bananas in a similar arrangement but with others plants components.

For the researchers team the results arising from these trials showed not only the direction some on-station research priorities should be taken but also that the lack of information gathered by farmers are possibly the major causes of the low production and impediment of life improvement of those resource poor communities. Some of the priorities the researchers team is considering consist of the searching for alternatives to the farmers, such as fruits, varieties or even species that could be introduced in the farming systems used.

2. Economical Considerations.

The approach used in this project is dinamic and interative and it is desireable that results from one year trial would originate hyphotesis or elements to be used or incorporated or even modify the practices in the next year. It was

also a concern of the group that the results generated in these trials would influence and help to agregate other farmers of these communities or other communities in getting involved in the process of development this project is also searching for.

Informations about cost of production, yield and income generated with the agroforestry systems were collected over those two and half years period of the trials. The cost of labour and inputs for each one of the activity as land preparation, fertilizer and application, sowing, weeding, harvesting and so on, were always collected from the begin of the project for the diferent treatments. The yield of the crops in the systems and the income generated from the sale of the products were also collected. Evaluations then could be made by farmers as much as by researchers.

The results evaluated by farmers after 18 months of harvest favoured the fertilizer treatment.

The data from the researchers evaluation showed a significant difference between treatments. At the first crop of cowpeas the grain yield attained over 700kg/ha with the fertilizer application against approximately 100kg/ha without fertilizer. The cassava varieties yielded on fertilized plots almost twice as much as the yield of roots on unfertilized plots. However the variety EMBRAPA 8 reached the highest production (27t/ha of roots) in plots with fertilizer treatment while the lowest roots production were observed in all varieties growing in plots with no fertilizer.Nevertheless, cassava was the only crop which yield reached the state average root production of 10t/ha.

Results from banana production revealed a significant effect of fertilizer application. The yield of bananas with this treatment reached over 2000kg/ha unlike the unfertilized plot the production was approximately 60kg/ha, showing what farmers already knew the impossibility to produce certain food in soil with such low level of nutrients.

The total average cost of production of the total area rised up to US$651.00. From that the cost with the fertilizer treatment was US$267.00 and the income generated by just this treatment was US$500.00. It is of importance to mention the judicious amount of fertilizer that was applied and the results assembled are quite promising as the return cost comes already in the first year of harvest or in a second year after planting.

From these results a consideration was formulated over which it would be important to have available at the local market the products farmers could use to improve production of their crops.

These results brought to the farmers in the community the desire to adopt some practices of fertilizer use and wanting more informations about crop management.

3. Social Considerations.

The project is an interative process in which the farmers' needs is going to improve over time. However at first the concern was mainly over the technogical problems and not on politically participation. It was considered that at first the political and institutional conditions were exogenous to the process but at this point the researchers involved recognized the need for a greater farmers empowerment. They recognize a need for the involvement of other government institutions.

The prospects of sucess the researchers group have in view as results of this project will be enhanced by the adoption or even just single interest of other farmers and communities for the technologies and practices developed in those trials. This is happening as can be observed by the testimonies of the farmers involved. Evidence are shown in the amount of land planted with bananas in Presidente Figueiredo municipality today in areas where it was suposed to be for abandonment. Some of the income generated in the trials comes from the sale of bananas seedlings.

It is very important mention the latest testimony of "senhor Davi" one of the project farmers. He said that as he is at the farmers' market where he sells his products he almost have no time to work as others farmers come to get information from him in how he plants, what does he use and many other questions of interest to them. He also mention the fact his product is usually sold faster because the better quality they have. Mention also should be given to the fact that even farmers from areas considered of more fertile soils come to get information from him. They asked him how he could produce bananas with such quality in a land so dry like the one he had while in their land with soil of higher fertility they could produce just small size fruits. The researchers team believes that the crop and soil management senhor Davi is applying in his banana plot could be possibly the reasons for a better fruit production.

Senhor Miguel another farmer of the project said he wished he could have more labour to produce more as consumers in the farmers' market are asking for his products when there is a lack of one or so.

Our third farmer "senhora Cosma" told us how much farmers stopped at her land to ask for information and also some of the plant materials she has in the plots. She is very satisfyed with the project. She had never harvested so much in so little piece of land she says. Her husband wants to increase the area planted with an agroforestry system but using banana with others trees components.

In addition it is worth registering that two other communities have asked for a meeting with the research institution group. The meetings took place the day organized by the communities. The farmers placed their demands and needs for

learning more. They wish to have a similar project in their communities conducted by themselves because they require more informations in how to produce more and better. Farmers in all communities are demanding training programs in agricultural practices.

The data up to now obtained indicate to the researchers team that the systems in test are very promissing due to prospects of sustainability they oversee will occur in a long term. In addition to the return on the investiment, the possibility of food and cash production and saving in labour requirements with the systems like the ones in test, one farmer said if he knew he could live with three hectare planted he would never had cleared twenty as he did over time.

Another point worth mention is the testimony of "senhor Davi's youngest son": He told his father they should not plant cassava any more because they had planted all those years and they always havested so little just enough to survive. Then, at the father's argument that cassava was the food they eat he said: "then, we should plant like EMBRAPA is doing because from a piece of land like the one the trial was set up we did harvest enough to live on".

CONCLUSIONS

Taking all these facts into account the research multidisciplinary team recognizes by the results obtained the usefulness of the participatory approach as a mechanism for making technology development more relevante to farmers' needs. The dinamism of the methodological process shows a greater potential to generate user-demand for technology thus at the same time would demand from research institutions an increase in getting results that solve problems identified and would enforce strengthen the resource-poor farmers.

Another observation the research team could oversee was the fact that as soon as farmers became familiar with the technology used in the trials, they were likely to change other componentes of the trials in order to exploit the advantages it offers and also to fit in their pratical needs. For exemple, in the unfertilized treatment they wished they could change immediately that treatment to one with fertilizer. The cassava varieties they want to change to the ones worth planting. All farmers are planning in setting up new agroforestry systems with some other componentes they see the market is demanding. The plot size for a new crop usually is between one and three hectares. The average plot size farmers are used to work in this area is 2.3ha according to the data surveyed in the diagnostic phase.

From the results of this project several gaps in knowledge emerge which would require the development of new research addressed to the farmers new

situation. The teamwork is suggesting an increase on the development of research in soil fertility management and plant components arrangement to permit higher production per unit area.

The preliminary results obtained on the inoculation of *Rhizobium* in beans were very promissing and they indicate one of the research priorities as a measure to increase crop productivity.

Researchers nowadays recognize that the information which reaches the farmers and the communities is very limited being probably one of the major causes of farmers constraints.

DISSEMINATION AND TECHNOLOGY TRANSFER

The dinamic and interative process used in this project with farmers and researchers in closer interaction permits that dissemination of results relies primarily on word-of-mouth communication and it has generally been promoted by farmers instead the official extension service.

It is recognized that closer attention should de given to the role of extension in the participatory research project. It is a general understanding the importance of strengthening the official extension services to perform satisfactorily what is their hability of doing while research institutions need to generate technologies to address the opportunities or constraints the farmers are demanding for. The multiciplinary group agrees also that at the time being the involvement of the extension service in the project is a priority.

PUBLICATIONS

SOUSA, G.F. de; SOUSA, N.R. & NUNES, J.S. Sistemas integrados de produção de fruteiras para pequenos produtores no Estado do Amazonas. In: Resumos. XIII Congresso Brasileiro de Fruticultura, vol. 3. Salvador, 1994.

SOUSA, G.F. de; GUIMARÃES, R.R.; SOUSA, N.R.; NORMANDO, M.C.& NUNES, J.S. Agrossistemas alternativos a agricultura migratória no Estado do Amazonas, Brasil. Libro Resúmenes: III Congresso Latinoamericano de Ecologia. Merida, Venezuela. 1995.

INSTITUTIONS & PERSONNEL

EMBRAPA: Gladys Ferreira de Sousa - Agronomy/Soil Fertility
Rosângela dos Reis Guimarães - Farming Systems
Nelcimar Reis Sousa - Plant Breeding
Mirza Carla Normando - Farming Systems
João Carlos Matos - Microbiology
Jose Pereira Junior - Microbiology
Jasiel Sousa Nunes - Animal Production
João de Deus C. Lobato - Research Technician.
Edgard Siza Tribuzi - Graduate Student Plant Management

UNIVERSITY OF AMAZONAS: Jose Ferreira - Weed Science

INPA: Luis Antonio de Oliveira - Nitrogen Fixation

EMATER: Aldair Oliveira - Local Extension Agent.

PHOTO 1. Trial evaluation by researchers. Field measurements of yield parameters of cassava (roots and plant growth weight).

PHOTO 2. Senhor Miguel and his neighbour working on the trial evaluation by researchers, harvesting and preparing the roots to weight.

PHOTO 3. Trial evaluation by researchers. Data collection 15 months before harvesting cassava in System I.

PHOTO 4. The banana yield is evaluated by researchers. Senhor Miguel participates in measuring the weight of banana bunch from his plot.

System I: Cassava X Fruit trees with fertilizer 13 months after planting

PHOTO 5. Senhor Miguel showing the effect of mineral fertilizer application on the growth and productivity of banana and cupuacu 13 months after planting and three months second cassava crop.

System II: Rice x Cowpeas x Cassava X Fruit trees with P application on the second year 13 months after planting

PHOTO 6. Senhor Miguel showing the effect of minimal P application on the growth and productivity of banana and cupuacu 13 months after planting and three months second cassava crop.

PHOTO 7. Collaborating farmer Senhor Davi showing the effect of fertilizer application on the production of banana fruit and growth of pupunha and cupuacu.

PHOTO 8. Collaborating farmer Senhor Miguel and his neighbour showing the process of making cassava flour.

PHOTO 9 & 10. Collaborating farmer Senhora Cosma and her children participating on the implementation of the trials on her land with researchers coordination.

PHOTO 11 & 12. Researchers and farmers from a neighbour community in a meeting to discuss possibilities of setting up development projects.

PHOTO 13. Farmers from four communities attending a training course in agricultural practices.

PHOTO 14. Farmers from four communities attending a training course in agricultural practices. Course instructor showing farmers how to use the pesticides equipments.

REVOLVING FUNDS EXPENSES JANUARY 01 to DECEMBER 28, 1995.

Expenditure Items	**BR R$**	**US$**
Average Exchange Rate: US$ 0.895 BR$		
Field Accomodation		
. Meals	3.070,14	3,411.26
. House Supplies	269,23	299.14
Field Equipment & Supplies		
. Seedlings/Manure/Medication/Feeding	85,00	97.14
. Equipments/Supplies	3 201,00	3,556.66
Project Vehicle		
. Parts & Services	933,10	1,036.77
. Fuel	2,50	2.90
Labor		
. Field Labor	776,00	862.22
. Graduate University Scholar	2.520,00	2,800.00
Miscelaneous		
. Postage/Mail	41,86	46.51
. Slide/Film Processing	162,81	180.90
. Training/Travel expenses	3.414,27	3,793.63
. Training/Supplies	177,60	197.33
. Report/Supplies	101,74	113.04
Total	**14.755,25**	**16,397.50**

	RECEIVED		**PAYMENTS**	
. Amount Received	BR R$	US$	BR R$	US$
. .Balance (Credit)	7.977,24	9,612.08	14.755,25	16,397.50
Balance (Debit)	- 6.778,01	- 6,785,42		
Totals	**14.755,25**	**16,397.50**		

LIST OF RECEIPTS -January 01 to December 28, 1995
172 receipts

Items

Nº	*Date*	*Supplier*	*Amount*
Field Accomodation - 80 receipts			
. Meals - 65 receipts			
01.	05.01.95	Nilton de Andrade	9,50
02.	10.01.95	Francisco das Chagas e Silva	12,00
03.	12.01.95	Francisco das Chagas e Silva	13,00
04.	17.01.95	Vicente P. M. C. Pereira	35,00
05.	19.01.95	Walter L. Silveira	180,00
06.	27.01.95	Lanchonete e Restaurante Castro	4,00
07.	27.01.95	Walter L. Silveira	53,50
08.	02.02.95	Walter L. Silveira	60,00
09.	10.02.95	Walter L. Silveira	60,00
10.	07.03.95	Walter L. Silveira	42,00
11.	08.03.95	Silva & Maia Ltda	7,40
12.	15.03.95	Vicente P. M. C. Pereira	16,50
13.	16.03.95	Walter L. Silveira	126,00
14.	21.03.95	Vicente P.M.C.Pereira	15,00
15.	25.04.95	Walter L. Silveira	80,00
16.	26.04.95	Vicente P. M. C. Pereira	24,00
17.	26.04.95	Walter L. Silveira	25,50
18.	27.04.95	Walter L. Silveira	24,00
19.	29.04.95	Walter L. Silveira	66,00
20.	12.05.95	Walter L. Silveira	33,50
21.	16.05.95	Vicente P. M. C. Pereira	24,00
22.	18.05.95	Walter L. Silveira	112,00
23.	24.05.95	Marilza R. Castro	8,90
24.	25.05.95	Marilza R. Castro	10,00
25.	25.05.95	Walter L. Silveira	152,00
26.	08.06.95	Walter L. Silveira	36,00
27.	13.06.95	EMBRAPA	82,94
28.	15.06.95	Amélia Lúcia M. Amorim	40,00
29.	16.06.95	Walter L. Silveira	96,00
30.	20.06.95	Associação dos Pescadores	10,00
31.	20.06.95	Quitandas do Vô	7,20
32.	23.06.95	Marilza R. Castro	15,00
33.	24.06.95	Walter L. Silveira	128,00
34.	29.06.95	Marilza R. Castro	13,00
35.	08.07.95	Walter L. Silveira	152,00
36.	12.07.95	Marilza R. Castro	18,00
37.	12.07.95	Marilza R. Castro	10,00

38.	19.07.95	Walter L. Silveira		144,00
39.	26.07.95	Vicente P. M. C. Pereira		17,70
40.	27.07.95	Walter L. Silveira		112,00
41.	03.08.95	Walter L. Silveira		72,00
42.	16.08.95	Vicente P. M. C. Pereira		28,80
43.	17.08.95	Walter L. Silveira		157,00
44.	.	Walter L. Silveira		152,00
45.	15.09.95	Emerson J. Ferreira		88,00
46.	17.09.95	Mª. A. Nascimento		40,00
47.	17.09.95	Manoel Pontes Ribeiro		2,20
48.	19.09.95	Vicente P. M. C. Pereira		37,00
49.	20.09.95.	Walter L. Silveira		67,00
50.	28.09.95	Mercadinho Moura		12,00
51.	01.10.95	Emerson J. Ferreira		47,00
52.	11.10.95	Emerson J. Ferreira		60,00
53.	18.10.95	Restaurant El Gran Tejar	Bs 2240	13,25
54.	18.10.95	IGUANA	Bs 1705	10,09
55.	22.10.95	Ristorante Il Piatto	Bs 6681	33,40
56.	23.10.95	Cantina Del "Don Juan"	Bs 6028	30,14
57.		Cantina Del "Don Juan"	Bs 950	4,75
58.	24.10.95	Refúgio T. Mifafi Restaurant	Bs 3300	16,50
59.	25.10.95	Cantina Del "Don Juan"	Bs 2090	10,45
60.	26.10.95	Cantina Del "Don Juan"	Bs 1100	5,50
61.		Cantina Del "Don Juan"	Bs 1540	7,70
62.	26.10.95	Cantina Del "Don Juan"	Bs 5923	29,61
63.	27.10.95	Hotel Coliseo	Bs 4201,75	21,00
64.	27.10.95	Restaurant las Cancelas	Bs 2717	13,58
65.	27.10.95	Restaurant las Cancelas	Bs 7107	35,53

. House Supplies - 15 receipts

66.	16.01.95	Lojas Americanas	15,91
67.	18.01.95	Quitandas do Vô	9,25
68.	21.01.95	Lojas Americanas	37,73
69.	29.01.95	Lojas Americanas	24,27
70.	31.01.95	Lojas Americanas	7,59
71.	01.02.95	Quitandas do Vô	10,60
72.	14.02.95	Lojas Americanas	3,83
73.	15.03.95	Quitandas do Vô	8,00
74.	23.03.95	Quitandas do Vô	12,00
75.	03.07 95	Casa Roma Ltda.	14,80
76.	06.07.95	Francisco Pontes Lima	13,00
77.		Quitandas do Vô	24,15
78.	16.08.95	Quitandas do Vô	4,90
79.	14.09.95	Casa Roma	67,20
80.	19.09.95	G. Agro. Comercial	16,00

Field Equipments & Supplies - 10 receipts

. Seedlings/manure/medication - 3 receipts

81.		Teruyo Miyamoto	30,00
82.	26.01.95	Raimundo R. Reis	50,00
83.	06.02.95	Agroterra	5,00

. Equipments/Supplies - 7 receipts

84.	17.01.95	G. G. Mat. de Construção	6,00
85.	09.06.95	W. Saboia & Filho	10,00
86.	27.06.95	Difal	8,00
87.	18.08.95	Montreal Informática	679,00
88.	22.08.95	Techpoint	2484,00
89.	26.09.95	Exuda Dist. de Estivas	2,00
90.	12.11.95	Comercial Leão	12,00

Project Vehicle - 15 receipts

. Parts & Services - 14 receipts

91.	01.02.95	Guaporé Caminhões	123,00
92.	12.03.95	M. Correa de Sousa Belciclo	4,00
93.	18.03.95	Japurá Pneus Ltda.	20,00
94.	25.04.95	Loja dos Freios	35,00
95.	25.04.95	Maq. Peças Ltda.	4,00
96.	06.06.95	Auto Peças e Posto Molas	5,00
97.	07.06.95	Rei dos Parafusos	18,00
98.	09.06.95	Auto Peças Manaus	60,00
99.	30.06.95	Land Rover do Brasil	461,67
100.	30.06.95	Land Rover do Brasil	132,43
101.	19.07.95	Bed Auto Mecânica	40,00
102.	15.08.95	João Horácio A. C. Leite	15,00
103.	27.09.95	Francisco Silva Reis	5,00
104.	28.09.95	William Santos	10,00

. Fuel - 1 receipt

105.	16.03.95	Posto Figueiredo	2,50

Labor - 13 receipts

. Field labor - 11 receipts

106.		Edivaldo V. de Sousa	50,00
107.	.01.95	José da Silva Leite	20,00

108.	.01.95	Florencio A. Nascimento	70,00
109.	.01.95	Francisco R. Lima	30,00
110.	22.02.95	Sebastão Dias Sousa	105,00
111.	.03.95	Aladino O. da Costa	90,00
112.	25.05.95	Francisco Pereira Silva	136,00
113.	29.06.95	Sebastão D. de Souza	105,00
114.		William G. Santos	55,00
115.		William E. dos Santos	10,00
116		Jadilson S.Nunes	105,00

. University Graduate Scholar - 2 receipts

117.	14.07.95	Edgard Siza Tribuzy	1890,00
118.	14.09.95	Edgard Siza Tribuzy	630,00

Miscelaneous - 54 receipts

. Postage/Mail - 3 receipts

119.	25.07.95	E.B.C.T.	19,93
120.	21.08.95	E.B.C.T.	2,18
121.	19.09.95	E.B.C.T.	19,75

. Slide/Film processing - 9 receipts

122.	21.01.95	Sonora do Amazonas	22,40
123.	25.01.95	A. F. de Lima Neto	15,00
124.	02.03.95	Sonora do Amazonas	10,90
125.	13.03.95	Importadora E. Montreal	33,00
126.	18.03.95	Antonio Rodrigues & Cia. Ltda	28,26
127.	06.06.95	Antonio Rodrigues & Cia. Ltda	22,10
128.	19.08.95	Importadora Oliveira	13,65
129.	14.09.95	Montreal Importadora	13,00
130.	17.10.95	Importadora Oliveira	4,50

. Training/Travel expenses - 25 receipts

131.	26.06.95	TransBrasil	408,00
132.	26.06.95	TransBrasil	408,00
133.		Coopertaxi	12,60
134.	27.06.95	Coopertaxi	12,60
135.	27.06.95	Sindicato Taxistas	16,00
136.	27.06.95	Cooperativa Condutores	8,50
137.	27.06.95	Sindicato C. Autônomos	10,00
138.	27.06.95	Jim. Comerc. Alimentos Ltda.	4,45
139.	28.06.95	Sindicato N. Taxistas	17,00
140.	28.06.95	Coopertaxi	20,00

141.	28.06.95	Alvorada Hotel		139,48
142.	28.06.95	Alvorada Hotel		132,10
143.	28.06.95	Belas Artes		38,00
144.	28.06.95	Bar e Restaurante Eliz Ltda - ME		8,50
145.	09.10.95	Pará Amazonas Turismo Passagens aéreas (06)		1346,86
146.		COOPERTAXI		20,00
147	19.10.95	Hotel Coliseo	Bs16352	97,40
148.	19.10.95	Hotel Coliseo	Bs 9370,50	55,81
149.	19.10.95	Hotel Coliseo	Bs10350	61,65
150.		Coop. Transp. Astrala	Bs10000	58,82
151.	22.10.95	III Congres. L.Amer. Ecologia (03)	Bs51000	300,00
152.	26.10.95	Hotel "Don Juan"	Bs18850	94,25
153.	27.10.95	Hotel Coliseo	Bs18450	92,25
154.	29.10.95	Republica Venezuela Taxas Embarque (03)	Bs5400	32,00
155.		Radio Taxi		20,00

. Training/Suplies - 6 receipts

156.	03.04.95	Depex	40,00
157.	11.05.95	Depex	25,80
158.	27.06.95	IICA	72,00
159.	14.10.95	Cecil Concorde	31,50
160.	14.10.95	Cecil Concorde	3,50
161.	17.10.95	Cecil Concorde	4,80

. Report/Suplies - 11 receipts

162.	04.03.95	Depex	16,64
163.	23.07.95	Cecil Concorde	10,00
164.	07.08.95	Pedrosa Distribuidora	14,50
165.	19.09.95	Cecil Concorde	1,70
166.	22.09.95	Cecil Concorde	4,00
167.	25.09.95.	Reprox	3,10
168.	24.11.95	Cecil Concorde	12,00
169.	24.11.95	Cecil Concorde	6,00
170.	25.11.95.	Reprox	6,60
171.	25.11.95.	Reprox	24,00
172.	11.12.95	Reprox	3,20