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UNIVERSITY OF DSCHANG
DEPARTMENT OF AGRICULTURAL ECONOMICS

Budgets for Selected crop and livestock Enterprises in Cameroon

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AUGUST 1993

Cameroon Agricultural Policy and Planning Project

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INTRODUCTION

A methodology for budgeting agricultural enterprises in Cameroon was recently developed by the Department of Agricultural Economics, of the University of Dschang. The study was funded by CAPP/USAID Project No 631-0059. This methodology was tested on three crop and one livestock enterprises using input/output data from several secondary sources. The enterprises were:

(1) Arabica coffee (sole and mixed cropped)

(2) Maize (sole and mixed cropped)

(3) Swamp and rain-fed rice in pure culture, and

(4) Weaned Pigs.

All the enterprises are located in the savannah highlands of Cameroon. The budgets were generated such that as new or up-dated data become available, they can easily be introduced into the budgets to obtain up-dated results.
The budgets presented in this report are based on primary data recently gathered from selected regions of the country by the research team as a continuation of the above project.

Data Sources

Most of the information used is primary data collected from seven locations in four provinces. The locations selected are:

i) Ndop in the North West province, selected principally for swamp rice and maize,

ii) Santa in the North West province, for Irish potato, Arabica coffee and maize,

iii) Foumbot in the West province, for Tomato and Green beans,

i v) Dschang in the West province, for Arabica coffee, Irish potato, and maize,

v) Santchou in the West province, for swamp rice,

vi) Mungo in the littoral province, for Robusta coffee, and

vii) Lekie in the Centre province , for Cocoa, and cassava.

In addition to the principal crops ear-marked for each zone, data were also collected for a few other crops and/or livestock enterprises of the zone.

Method of data collection

The panel method of interview was adopted for the collection of most of the input/output data.

Each panel consisted of at least five experienced farmers and village extension agents and/or technical field staff of parastatals located in the zone. The experienced farmers were selected with the aid of the extension agents and/or technical field staff from parastatals. The assembled panels were interviewed by two researchers who filled a specially designed questionnaire during their discussions with the panel. Questions involved all the production processes of each of the crop or livestock enterprises. Only one answer was registered for each question and the answer was obtained by consensus from the members of the panel. The data thus collected from each location was compared with data from other locations and with existing secondary data. Only what was considered most reliable by the research team was used in budgeting.

Presentation of results

The test budgets for the four enterprises mentioned above have been revised by substituting fresh input/output coefficients and sometimes including new variables when neccessary. New budgets have been designed for four additional enterprises covering a total of seven crops and one livestock. The crops and livestock enterprises are:

Arabica coffee,
Robusta coffee,
Maize,
Rice,
Cocoa,
Tomato,
Green beans and
Weaned pigs

The results are presented as follows:

Each budgetis presented in two tables. The first budget for example is presented in Tables 1(a) and 1(b). Input-output coefficients for each budget are presented in the a-tables and in the form they were entered in the computer spread sheet. The data are built into the spread sheets using various budgeting formulae such that when the values of any of the variables changes, adjustments are easily made to automatically up-date the various results.

The b-tables present the results as obtained from the computer printout. The results of interest in these tables include:

i) Installation costs,
ii) Establishment costs,
iii) Total operating costs,
iv) Total cost of production
v) Cost per unit product
vi) Gross margin per unit of production
vii) Annual net income

Calculations are on per hectare basis and in the case of livestock, on the basis a defined unit of production. Since the cost per unit product depends much on the annual yields, additional calulations are done for a selected set of possible yields. Where a budget involves mixed cropping, only returns per unit of production are presented and the percentage increase in yield that gives the break-even revenue has been estimated.

A diskett containing details on all the budgets is accompanies this report.

Some considerations and assumptions

1. The cost of land was not included in the cost calculation, so the estimated net revenues represent returns to land and management.
2. Unless otherwise stated, all calculations are economic as opposed to financial. All estimates of

costs per unit product are based on economic calculations. For cocoa and coffee, the economic prices used to determine annual revenues are the break-even prices estimated as the cost per unit product. The annual revenues are therefore break-even revenues. The input prices presented in the a-tables are economic prices. However, some items have the following financial prices:

Labour550 frs/person day
Coffee seedlings5 frs each
Fertilizer54 frs/kg
Cocoa seedlings5 frs each

Table 1(a):

Input-Output data for a hectare of Arabica Coffee in Santa, North West province

Tools & Materials	Life span	Max. no. of units	Cost per unit (FCFA) Economic	Cost per unit (FCFA) Financial
Cutlasses	25	1500	1500	
Hoes	26	800	800	
Spades	42	4500	4500	
Axes	72	2500	2500	
Pickaxes	52	2500	2500	
Secateurs	52	7000	7000	
Pushpush	52	50000	50000	
Sprayers	32	25000	25000	
Mats	25	2500	2500	
Baskets	16	1000	1000	
Trident	22	3500	3500	
Wheelbarrow	32	12500	12500	
Buckets	16	1000	1000	
Files	1	10 800	800	
Bags	1	20 200	200	
Store	11	250000	250000	

Other cost items	Units			
Tree felling and cutting	Person days	5	5000	5000
Initial land clearing	Person days	26	2000	550
Lining and pegging	Person days	6	1500	550
Hole digging	Person days	55	700	550
Planting and mulching	Person days	52	700	550
Clearing	Person days	28	700	550
Fertilizer application	Person days	6	700	550
Pest control	Person days	12	1500	550
Pruning coffee	Person days	30	1000	550
Harvesting coffee	Tins	105	50	50
Depulping	Tins	105	10	10
Fermenting and washing	Tins	105	60	60
Drying and bagging	Person days	15	700	550
Coffee seedlings	Seedlings	1100	10	5
Fertilizer	Bags	6	3450	2700
Pesticide	Sprays	20	300	0
Coffee yields	Kg.	870	350	250

Table 1(b)
Computer results for Arabica coffee, Santa NW province

ITEMS	VALUES (FCFA) Economic	Financial
Installation Cost	685700	
-Cost of tools	513800	
-Land prep. and planting	160900	
-Seedlings	11000	
Yr 1 Development costs	106740	
-Fertilizer & application	24900	
-Clearing and pruning	9800	
-Opty cost of capital	72040	
Year 2 Development costs	128194	
-Fertilizer& application	24900	
-Clearing and pruning	19600	
-Cost of capital	83694	
Year 3 Development costs	152013	
-Fertilizer & application	24900	
-Clearing and pruning	29600	
-Cost of capital	97513	
Total Development Cost	386947	
Establishment Cost	**1072647**	
Total Operating Cost	5588943	
Total Cost of Production	6661591	
Total Production in kg.	16240	
Revenue at peak production	356871	174000
Total annual cost	235255	192505
Cost/Kg.	**410**	
V.C. at peak production	121600	78850
G.M. at peak production	**235271**	**95150**
Profit at peak production	**121616**	**-18505**

BREAK-EVEN PRICES AT ALTERNATIVE YIELDS

'Yields in kg.	Break-even price
500	695
600	585
700	505
800	445
900	397
1000	359

Table 2(a):
Input-Output data for a hectare of Arabica Coffee in Dschang, West province

Tools & Materials	Units	Max. no. of units	Life span	Cost per unit (FCFA) Economic	Financial
Cutlasses2		4	2000	2000	
Hoes2		4	800	800	
Spades2		2	1500	1500	
Axes5		2	5000	5000	
Secateurs	10	2	5500	5500	
Push push5	1	50000	50000		
Sprayers5	1	25000	25000		
Mats 5		2	4000	4000	
Baskets		1	10	100	100
Trident3		2	1500	1500	
Wheelbarrow2	1	15000	15000		
Buckets5		3	1500	1500	
Depulper	10	1	60000	60000	
Files1		4	1000	1000	
Bags1	10	200	200		

Others cost items

Initiland clearing	Person days	45	800	550	
Lining and pegging	Person days	6	800	550	
Hole digging	Holes	1000	50	50	
Planting	Person days	10	800	550	
Clearing	Person days	28	800	550	
Fertilizer application	Person days	2	800	550	
Pest control	Person days	16	800	550	
Pruning coffee	Hectare	1	15000	15000	
Harvesting coffee	Bags	30	600	600	
Depulping	Person days	15	800	550	
Fermenting and washing	Person days	10	800	550	
Drying and bagging	Person days	15	800	550	
Coffee seedlings	Seedlings	1000	5	0	
Fertilizer	Bags 8	3450	2500		
Pesticide	Packets	30	200	0	

Yields

-Coffee	Kg.	870	350	250

Table 2(b)
Computer results for Arabica coffee in Dschang, West province

PARAMETERS	VALUES in FCFA Economic	Financial
Installation Cost	311500	
-Cost of tools	207700	
-Land prep. and planting	98800	
-Seedlings	5000	
Yr 1 Development costs	75590	
-Fertilizer & application	29200	
-Clearing and pruning	11200	
-Opty cost of capital	35190	
Year 2 Development costs	83149	
-Fertilizer& application	29200	
-Clearing and pruning	11200	
-Cost of capital	42749	
Year 3 Development costs	91464	
-Fertilizer & application	29200	
-Clearing and pruning	11200	
-Cost of capital	51064	
Total Development Cost	250203	
Total Establishment Cost	561703	
Total Operating Cost	4264410	
Total Cost of Production	4826113	
Total Production in kg.	15990	
Revenue at peak production	262584	174000
Total annual cost	188085	152985
Cost/Kg.	302	
V.C. at peak production	135400	100300
G.M. at peak production	127184	73705
Profit at peak production	74499	21015

BREAK-EVEN PRICES AT ALTERNATIVE MAXIMUM YIELDS

Yield	Breakeven price
500	478 600 402
700	347
800	305
900	273
1000	246

Table 3(a):
Input-Output data for a hectare of Arabica Coffee and maize in Dschang, West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA) Economic	Cost/unit (FCFA) Financial
Cutlasses	2	4	2000	2000
Hoes	2	4	800	800
Spades	2	2	1500	1500
Axes	5	2	5000	5000
Secateurs	10	2	5500	5500
Push push	5	1	50000	50000
Sprayers	5	1	25000	25000
Mats	5	2	4000	4000
Baskets	1	10	100	100
Trident 3	2	1500	1500	
Wheelbarrow	2	1	15000	15000
Buckets	5	3	1500	1500
Depulper	10	1	60000	60000
Files	1	4	1000	1000
Bags	1	10	200	200

Other cost items		Units		
Initial land clearing	Person days	45	800	550
Lining and pegging	Person days	6	800	550
Hole digging	Holes	1000	50	50
Ridging	Person days	25	1000	550
Planting coffee	Person days	10	800	550
Planting maize	Person days	3	800	550
Weeding	Person days	120	800	550
Fertilizer application	Person days	2	800	550
Pest control	Person days	16	800	550
Pruning coffee	Hectare	1	15000	15000
Harvesting coffee	Bags	30	600	600
Harvesting maize	Person days	14	800	550
Depulping	Person days	15	800	550
Dry and grain maize	Person days	16	800	550
Fermenting and washing	Person days	10	800	550
Drying and bagging	Person days	15	800	550
Coffee seedlings	Seedlings	1000	5	0
Maize seeds	Kg	20	150	150
Fertilizer	Bags	8	3450	2500
Pesticide	Packets	30	200	0

	Yields			
Coffee yields	Kg.	870	350	250
Maize	Kg.	1200	80	80

Table 3(b)
Computer results for Arabica/maize in Dschang

PARAMETERS	VALUES (FCFA) Economic	Financial
Installation Cost	**339500**	
-Cost of tools	207700	
-Land prep.& planting	123800	
-Seedlings and seeds	8000	
Yr 1 Development costs	188170	
-Fertilizer & applicatn	29200	
-Clearing and pruning	111000	
-Opty cost of capital	47970	
Year 2 Development costs	206987	
-Fertilizer& application	29200	
-Clearing and pruning	111000	
-Cost of capital	66787	
Year 3 Development costs	227686	
-Fertilizer & application	29200	
-Clearing and pruning	111000	
-Cost of capital	87486	
Total Development Cost	622843	
Establishment Cost	**962343**	
Revenue at peak production	358740	270000
Total annual cost	321117	254767
V.C. at peak production	248400	182050
G.M. at peak production	**110340**	**87950**
Profit at peak production	**37623**	**15233**

BREAK-EVEN REVENUE IS ATTAINED WHEN YIELDS DROPS BY ABOUT 38%

Table 4(a):
Input-Output data for a hectare of Arabica Coffee and maize in Santa, North West province

Tools/materials	Life span	Max. no. of units	Cost/unit (FCFA) Economic	Cost/unit (FCFA) Financial
Cutlasses	2	5	1500	1500
Hoes	2	4	800	800
Spades	2	2	4500	4500
Axes	7	2	2500	2500
Secateurs	5	2	7000	7000
Push push	5	2	50000	50000
Sprayers	5	2	25000	25000
Mats	2	5	2500	2500
Buckets	3	6	1000	1000
Trident	2	2	3500	3500
Wheelbarrow	3	2	12500	12500
Store	15	1	250000	250000
Files	0	5	800	800
Bags	1	20	200	200
Pickaxes	7	2	2500	2500

Other cost items		Units		
Ch, saw tree cutting	Person days	5	5000	5000
Initial land clearing	Person days	26	2000	2000
Lining and pegging	Person days	6	1500	550
Hole digging	Person days	55	700	550
Ridging	Person days	21	800	550
Planting coffee	Person days	22	700	550
Planting maize	Person days	7	700	550
Mulching	Person days	30	700	550
Weeding	Person days	50	700	550
Fertilizer application	Person days	6	700	550
Pest control	Person days	12	700	550
Pruning coffee	Person days	30	1000	1000
Harvesting coffee	Tins	105	50	50
Harvesting maize	Person days	14	700	550
Transporting maize	Bags	56	250	250
Depulping	Tins	105	10	10
Dry and grain maize	Person days	16	700	550
Fermenting and washing	Tins	105	60	60
Drying and bagging	Person days	15	700	550
Coffee seedlings	Seedlings	1100	10	0
Maize seeds	Kg	25	200	200
Fertilizer	Bags	6	3450	2500
Pesticide	Spray loas	20	300	0

Yields				
-Coffee yields	Kg.	870	350	250
-Maize	Kg.	1200	80	80

Table 4(b)
Computer results Arabica/maize in Santa

PARAMETERS	VALUES in FCFA Economic	Financial
Installation Cost	676500	
-Cost of tools	503800	
-Land prep. and planting	156700	
-Seedlings and seeds	16000	
Yr 1 Development costs	166540	
-Fertilizer & application	24900	
-Weeding and pruning	65000	
-Opty cost of capital	76640	
Year 2 Development costs	183194	
-Fertilizer& application	24900	
-Clearing and pruning	65000	
-Cost of capital	93294	
Year 3 Development costs	201513	
-Fertilizer & application	24900	
-Clearing and pruning	65000	
-Cost of capital	111613	
Total Development Cost	551247	
Establishment Cost	1227747	
Revenue at peak production	452700	270000
Total annual cost	316502	316502
V.C. at peak production	204300	204300
G.M. at peak production	248400	65700
Profit at peak production	136198	-46502

YIELDS HAVE TO DROP BY ABOUT 50% BEFORE BREAK_EVEN ANNUAL REVENUE IS ATTAINED

Table 5(a):
Input-Output data in for a hectare of Maize in Ndop, North West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA) Economic	Financial
Cutlasses	0.5	2	1500	1500
Hoes	1	2	1000	1000
Axes	5	2	3500	3500
Files	0.5	2	1500	1500
Bags	1	40	400	400
Pushpush	5	1	45000	45000
Buckets	1	2	1000	1000
Store	5	1	150000	150000
Other cost items		**Units**		
Tree felling & cutting	Person days	5	5000	5000
Clearing	Person days	25	500	550
Ridging	Person days	25	500	550
Planting	Person days	10	500	550
Weeding	Person days	20	500	550
Fertilizer application	Person days	6	500	550
Harvesting	Person days	7	500	550
Drying, shelling, baggin	Person days	35	500	550
Seeds	Kg.	30	200	200
Fertilizer	Bags	4	3750	2700
Yields				
-Maize	Kg.	4000	60	60

Table 5(b)
Computer results for maize in Ndop

PARAMETERS	VALUES (FCFA) Economic	Financial
INSTALLATION COST	**92400**	**94900**
-Cost of tools	42400	42400
-Initial land prep.	50000	52500
ESTABLISHMENT COST	**92400**	**94900**
COST OF PRODUCTION/yr	200880	203080
ANNUAL PRODUCTION	4000	
COST/kg	**50**	
ANNUAL REVENUE	240000	240000
Annual variable cost	85000	87200
GROSS MARGIN	**155000**	**152800**
ANNUAL PROFIT	**39120**	**36920**

Break-even prices at alternative maximum yields

Maximum Yield (kg)	Break-even price (FCFA)
10000	201
20000	100
30000	67
40000	50
50000	40

Table 6(a):
Input-Output data for a hectare of maize in Santa, North West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA) Economic	Financial
Cutlasses	2.0	5.0	1500.0	1500.0
Hoes	6.0	2.0	800.0	800.0
Axes	7.0	2.0	2500.0	2500.0
Files	0.3	5.0	800.0	800.0
Bags	1.0	20.0	200.0	200.0
Pushpush	5.0	1.0	50000.0	50000.0
Buckets	1.0	6.0	1000.0	1000.0
Store	15.0	1.0	250000.0	250000.0
Other cost items		**Units**		
Tree felling & cutting	Person days	5.0	5000.0	5000.0
Clearing	Person days	25.0	500.0	550.0
Ridging	Person days	21.0	700.0	550.0
Planting	Person days	10.0	700.0	550.0
Weeding	Person days	50.0	700.0	550.0
Fertilizer application	Person days	6.0	700.0	550.0
Harvesting	Person days	14.0	700.0	550.0
Transport from farm	Bags	56.0	250.0	250.0
Dry, shell & bag	Person days	26.0	700.0	550.0
Seeds	Kg.	25.0	200.0	200.0
Fertilizer	Bags	4.0	3750.0	2700.0
	Yields			
-Maize	Kg.	3000.0	79.0	79.0

Table 6(b)
Computer results for maize in Santa

PARAMETERS	VALUES in FCFA Economic	Financial
INSTALLATION COST	**422300.0**	**361100.0**
-Cost of tools	328100.0	328100.0
-Land prep.& Planting	94200.0	33000.0
ESTABLISHMENT COST	**422300.0**	**361100.0**
COST OF PRODUCTION/yr	250057.6	229957.6
ANNUAL PRODUCTION	3000.0	
COST/kg	**83.4**	
ANNUAL REVENUE	237000.0	237000.0
Annual variable cost	108200.0	88100.0
GROSS MARGIN	**128800.0**	**148900.0**
ANNUAL PROFIT	**-13057.6**	**7042.4**

Break-even prices at alternative maximum yields

Maximum Yield (kg)	Break-even price (FCFA)
10000	250
20000	125
30000	83
40000	63
50000	50

Table 7(a):
Input-Output data for a hectare of maize and beans in Santa, North West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA) Economic	Financial
Cutlasses	2.0	5.0	1500.0	1500.0
Hoes	6.0	2.0	800.0	800.0
Axes	7.0	2.0	2500.0	2500.0
Files	0.3	5.0	800.0	800.0
Bags	1.0	20.0	200.0	200.0
Pushpush	5.0	1.0	50000.0	50000.0
Buckets	1.0	6.0	1000.0	1000.0
Store	15.0	1.0	250000.0	250000.0
Other cost items		**Units**		
Tree felling & cutting	Person days	5.0	5000.0	5000.0
Clearing	Person days	25.0	500.0	550.0
Ridging	Person days	21.0	700.0	550.0
Planting maize/beans	Person days	20.0	700.0	550.0
Weeding	Person days	50.0	700.0	550.0
Fertilizer application	Person days	6.0	700.0	550.0
Harvesting maize/beans	Person days	23.0	700.0	550.0
Transport beans	Pushpush loads	10	300	300
Transport maize	Bags	56.0	250.0	250.0
Dry, shell, bag	Person days	33.0	700.0	550.0
Seeds (maize)	Kg.	25.0	200.0	200.0
Seeds (beans)	Kg	20	106	106
Fertilizer	Bags	4.0	3750.0	2700.0
	Yields			
-Maize	Kg.	3000.0	79.0	79.0
-Beans	Kg	500.0	100.0	100.0

Table 7(b)
Computer results fro maize and beans in Santa

PARAMETERS	VALUES in FCFA Economic	Financial
INSTALLATION COST	**429300.0**	**366600.0**
-Cost of tools	328100.0	328100.0
-Land prep.& Planting	101200.0	38500.0
ESTABLISHMENT COST	**429300.0**	**366600.0**
COST OF PRODUCTION/yr	274777.6	250777.6
ANNUAL REVENUE	287000.0	287000.0
Annual variable cost	131520.0	107520.0
GROSS MARGIN	**155480.0**	**179480.0**
ANNUAL PROFIT	**12222.4**	**36222.4**

BREAK-EVEN REVENUE IS ATTAINED WHEN YIELDS DROPS BY ABOUT 46%

Table 8(a):
Input-Output data for a hectare of maize and beans in Ndop, North West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA) Economic	Financial
Cutlasses	0.5	2.0	1500.0	1500.0
Hoes	1.0	2.0	1000.0	1000.0
Axes	5.0	2.0	3500.0	3500.0
Files	0.5	2.0	1500.0	1500.0
Bags	1.0	40.0	400.0	400.0
Pushpush	5.0	1.0	45000.0	45000.0
Buckets	1.0	2.0	1000.0	1000.0
Store	5.0	1.0	150000.0	150000.0
Other cost items		**Units**		
Tree felling & cutting	Person days	5.0	5000.0	5000.0
Clearing	Person days	25.0	500.0	550.0
Ridging	Person days	25.0	500.0	550.0
Planting	Person days	20.0	500.0	550.0
Weeding	Person days	20.0	500.0	550.0
Fertilizer application	Person days	6.0	500.0	550.0
Harvesting	Person days	17.0	500.0	550.0
Drg, shell & bag	Person days	35.0	500.0	550.0
Seeds	Kg.	25.0	200.0	200.0
Seeds (beans)	Kg	20.0	165.0	165.0
Fertilizer	Bags	4.0	3750.0	2700.0
Yields				
-Maize	Kg.	4000.0	60.0	60.0
-Beans	kg	500.0	100.0	100.0

Table 8(b)
Computer results for maize and beans in Ndop

PARAMETERS	**VALUES (FCFA)** Economic	Financial
TALLATION COST	**142400.0**	**146900.0**
-Cost of tools	72400.0	72400.0
-Initial land prep.	70000.0	74500.0
ESTABLISHMENT COST	**142400.0**	**146900.0**
COST OF PRODUCTION/yr	163180.0	162880.0
ANNUAL REVENUE	290000.0	290000.0
Annual variable cost	62300.0	62000.0
GROSS MARGIN	**227700.0**	**228000.0**
ANNUAL PROFIT	**126820.0**	**127120.0**

Break-even revenue is obtained when yields reduce by about 28%

Table 9(a):
Input-Output data for a hectare of maize in Dschang, West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA) Economic	Financial
Cutlasses	2.0	4.0	2000.0	2000.0
Hoes	2.0	4.0	800.0	800.0
Axes	5.0	2.0	5000.0	5000.0
Files	1.0	4.0	1000.0	1000.0
Bags	1.0	20.0	200.0	200.0
Pushpush	5.0	1.0	50000.0	50000.0
Buckets	5.0	3.0	1500.0	1500.0
Other cost items		**Units**		
Initial clearing	Person days	45.0	800.0	550.0
Ridging	Person days	25.0	1000.0	550.0
Planting	Person days	3.0	800.0	550.0
Weeding	Person days	120.0	800.0	550.0
Fertilizer application	Person days	2.0	800.0	550.0
Harvesting	Person days	14.0	800.0	550.0
Transport from farm	Bags	50.0	200.0	200.0
Drg, shell, bag	Person days	16.0	800.0	550.0
Seeds	Kg.	20.0	150.0	150.0
Fertilizer	Bags	4.0	3450.0	2500.0
Yields				
-Maize	Kg.	3000.0	79.0	79.0

Table 9(b)
Computer results for maize in Dschang

PARAMETERS	VALUES (FCFA) Economic	Financial
INSTALLATION COST	**147100.0**	**123850.0**
-Cost of tools	83700.0	83700.0
-Land prep.& Planting	63400.0	40150.0
ESTABLISHMENT COST	**147100.0**	**123850.0**
COST OF PRODUCTION/yr	206720.0	164170.0
ANNUAL PRODUCTION	3000.0	
COST/kg	**68.9**	
ANNUAL REVENUE	237000.0	237000.0
Annual variable cost	150800.0	108250.0
GROSS MARGIN	**86200.0**	**128750.0**
ANNUAL PROFIT	**30280.0**	**72830.0**

Break-even prices at alternative maximum yields

Maximum Yield (kg)	Break-even price (FCFA)
10000	207
20000	103
30000	69
40000	52
50000	41

Table10(a):
Input-Output data for a hectare of maize and beans in Dschang, West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA) Economic	Financial
Cutlasses	2.0	4.0	2000.0	2000.0
Hoes	2.0	4.0	800.0	800.0
Axes	5.0	2.0	5000.0	5000.0
Files	1.0	4.0	1000.0	1000.0
Bags	1.0	20.0	200.0	200.0
Pushpush	5.0	1.0	50000.0	50000.0
Buckets	5.0	3.0	1500.0	1500.0
Other cost items		**Units**		
Initial clearing	Person days	45.0	800.0	550.0
Ridging	Person days	25.0	1000.0	550.0
Planting maize	Person days	3.0	800.0	550.0
Planting beans	Person days	6	800	550
Weeding	Person days	120.0	800.0	550.0
Fertilizer application	Person days	2.0	800.0	550.0
Harvesting maize	Person days	14.0	800.0	550.0
Harvesting beans	person days	7.0	800.0	550.0
Transport maize from farm	Bags	50.0	200.0	200.0
Transport beans fron farm	Pushpush loads	20.0	300.0	300.0
Dry, shell, bag maize	Person days	26.0	800.0	550.0
Dry, shell and bag beans	Person days	7	800	550
Maize seeds	Kg	20.0	150.0	150.0
Bean seeds	Kg.	40	110	110
Fertilizer	Bags	4.0	3450.0	2500.0
Yields				
-Maize	Kg	3000.0	79.0	79.0
-Beans	Kg	500.0	100.0	100.0

Table 10(b)
Computer results for maize and beans in Dschang

PARAMETERS	VALUES (FCFA) Economic	Financial
INSTALLATION COST	**151900.0**	**127150.0**
-Cost of tools	83700.0	83700.0
-Land prep.& Planting	68200.0	43450.0
ESTABLISHMENT COST	**151900.0**	**127150.0**
COST OF PRODUCTION/yr	242080.0	192030.0
ANNUAL REVENUE	287000.0	237000.0
Annual variable cost	185200.0	135150.0
GROSS MARGIN	**101800.0**	**101850.0**
ANNUAL PROFIT	**44920.0**	**44970.0**

Break-even revenue is obtained when yields reduce by about 62%

Table 11(a):
Input-Output data for a hectare of Swamp Rice in Ndop, North West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit Economic	Cost/unit Financial
Spades	3.0	1.0	4000.0	4000.0
Hoes	2.0	2.0	1500.0	1500.0
Axes	5.0	2.0	3500.0	3500.0
Sickles	5.0	2.0	1500.0	1500.0
Pushpush	5.0	1.0	45000.0	45000.0
Wheelbarrow	2.0	1.0	12000.0	12000.0
Buckets	1.0	2.0	1000.0	1000.0
Tapolin	2.0	4.0	4000.0	4000.0
Store	5.0	1.0	150000.0	150000.0
Rainboots	2.0	3.0	4000.0	4000.0
Raincoats	2.0	3.0	3000.0	3000.0
Tape	10.0	1.0	7500.0	7500.0
Rope	1.0	3.0	1500.0	1500.0
Cutlasses	0.5	2.0	1500.0	1500.0
Files	0.5	2.0	1500.0	1500.0
Baskets	0.5	5.0	200.0	200.0
Other cost items		**Units**		
Clearing	P.d.	25.0	500.0	550.0
Tilling & levelling	P.d.	25.0	500.0	550.0
Planting	P.d.	25.0	600.0	550.0
Fertilizer application	P.d.	4.0	1000.0	550.0
Weed/irrigate/clear banks	P.d.	100.0	400.0	550.0
Bird scaring	Month	1.0	20000.0	20000.0
Harvest, thresh & bag	P.d.	50.0	600.0	550.0
Transporting	Bags	75.0	200.0	200.0
Seedlings	Hect,	1.0	5000.0	5000.0
Fertilizer	Bags	6.0	3750.0	2700.0
	Yields			
-Paddy rice	Kg	5000.0	40.5	40.5

Table 11(b)
Computer results for swamp rice in Ndop

PARAMETERS	VALUES inFCFA Economic	Financial
INSTALLATION COST	**322000.0**	**323250.0**
-Cost of tools & mate	282000.0	282000.0
-Land prep. & Plantin	40000.0	41250.0
ESTABLISHMENT COST	**322000.0**	**323250.0**
COST OF PRODUCTION/yr	330483.3	336383.3
ANNUAL PRODUCTION	5000.0	5000.0
Total variable cost	176500.0	182150.0
COST PER Kg	**66.1**	**67.3**
ANNUAL INCOME	202500.0	202500.0
GROSS MARGIN	**26000.0**	**20350.0**
ANNUAL FIXED COSTS	153983.3	154233.3
ANNUAL NET RETURNS	**-127983.3**	**-133883.3**

Break-even prices at alternative maximum yields

Maximum Yield (kg)	Break-even price (FCFA)
4000	83
6000	55
7000	47
8000	41
9000	37

Table 12(a):
Input-Output data for a hectare of Swamp Rice in Santchou, West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit Economic	Cost/unit Financial
Hoes	1	1	750	750
Sickles	10	2	1200	1200
Buckets	5	3	1000	1000
Tapolin	2	4	7500	7500
Rainboots	2	3	3500	3500
Raincoats	2	3	4500	4500
Tape	10	1	7500	7500
Rope	1	1	100	100
Cutlasses	1	1	1500	1500
Files	1	1	1200	1200
Other cost items		**Units**		
Clearing	P.d.	50	500	550
Tilling & levelling	P.d.	6	500	550
Transporting seedlings	Tasks	33	275	275
Planting	P.d.	40	400	550
Fertilizer application	P.d.	1	500	550
Weed,irrigate, clear banks	P.d	28	400	550
Bird scaring	P.d.	21	500	550
Harvesting	P.d.	41	400	550
Transporting	Tons	5	1000	1000
Rent threshing machine	Ha.	1	2400	2400
Seedlings	Hect.	1	6600	6600
Fertilizer (urea)	Kg	150	120	54
Fertilizer (Am. Sul.)	Kg	50	110	54
Insecticide	Litre	5	1200	1200
	Yields			
-Paddy rice	Kg	5000	68	68

Table 12(b)
Computer results for swamp rice in Santchou

PARAMETERS	VALUES in FCFA Economic	Financial
INSTALLATION COST	**85215**	**94015**
-Cost of tools & mate	32140	32140
-Land prep. & Plantin	53075	61875
ESTABLISHMENT COST	**85215**	**94015**
COST OF PRODUCTION/yr	184358	193668
ANNUAL PRODUCTION (kgPd)	5000	5000
Total variable cost	135175	142725
COST PER KG.	**36.8716**	**38.7336**
ANNUAL INCOME	340000	340000
GROSS MARGIN	**204825**	**197275**
ANNUAL FIXED COSTS	49183	50943
ANNUAL NET RETURNS	**155642**	**146332**

Break-even prices at alternative maximum yields

Maximum Yield (kg)	Break-even price (FCFA)
4000	46
6000	31
7000	26

Table 13(a):
Input-Output data for a hectare of Robusta coffee in the Mungo Division, Littoral

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA) Economic	Cost/unit (FCFA) Financial
Cutlasses	1.0	4.0	1500.0	1500.0
Axes	7.0	1.0	2500.0	2500.0
Push push	2.0	1.0	50000.0	50000.0
Sprayers	3.0	1.0	12000.0	12000.0
Baskets	1.0	10.0	200.0	200.0
Buckets	1.0	3.0	1000.0	1000.0
Files	1.0	4.0	1000.0	1000.0
Bags	1.0	30.0	200.0	200.0
Tapoline	2.0	4.0	7500.0	7500.0
Secateur	4.0	1.0	5000.0	5000.0
Other cost items	**Units**			
Tree felling and cutting	Person days	7.0	3000.0	3000.0
Initial land clearing	Person days	30.0	1000.0	550.0
Lining and pegging	Person days	10.0	1000.0	550.0
Hole digging	Person days	25.0	1000.0	550.0
Planting	Plants	1200.0	10.0	10.0
Rubusta seedlings	Seedlings	1200.0	15.0	15.0
Clearing	Plants	1200.0	10.0	10.0
Pest control	Person days	1.0	1000.0	0.0
Fertilizer application	Person days	6.0	100.0	550.0
Pruning	Plants	1200.0	20.0	20.0
Harvesting & transporting	Person days	30.0	1000.0	550.0
Drying	Person days	21.0	1000.0	550.0
Bagging and selling	Bags	50.0	300.0	300.0
Insecticide	Litres	2.0	3500.0	0.0
Fungicide	Packets	10.0	200.0	0.0
Fertilizer (NPK)	Bags	10.0	3500.0	2700.0
Robusta coffee yields	Kg	1400.0	250.0	200.0

Table 13(b)
Computer results for Robusta in Mungo

PARAMETERS	VALUES in FCFA
Installation Cost	**254500.0**
-Cost of tools	120500.0
-Land prep. and planting	116000.0
-Seedlings	18000.0
Yr 1 Development costs	65050.0
-Clearing and pruning	36000.0
-Fertilizer & application	35600.0
-Opty cost of capital	32610.0
Year 2 Development costs	114631.0
-Clearing and pruning	36000.0
-Fertilizer & application	35600.0
-Cost of capital	43031.0
Year 3 Development costs	126094.0
-Clearing and pruning	36000.0
-Fertilizer & application	35600.0
-Cost of capital	54494.0
Total Development Cost	344935.0
Establishment Cost	**599435.0**
Total Operating Cost	5431167.0
Total Cost of Production	6060603.0
Total Production in kg.	25554.0
Revenue at peak production	310256.0
Total annual cost	242929.0
Cost/Kg.	**237.2**
V.C. at peak production	147600.0
G.M. at peak production	**184436.0**
Profit at peak production	**89107.0**

Break-even prices at alternative maximum yields

Maximum Yield (kg)	Break-even price (FCFA)
1000	307
1200	260
1400	225
1500	210
1600	198
1800	177

Table 14(a):
Input-Output data for a weaned pigs production unit in Santa, North West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA)
Pig pen (10 compartments)	3.0	1.0	150000.0
Fork	4.0	1.0	2500.0
Water drums	5.0	1.0	5000.0
Nine sows one boar	2.0	10.0	40000.0
Hammar	10.0	1.0	2500.0
Buckets	1.0	2.0	1000.0
Spades	4.0	1.0	4500.0
Broom(coco)	1.0	1.0	1000.0
Wheel barrow	3.0	1.0	12500.0
Other production items		**Units**	
Number of sows		9.0	0.0
Number of boars		1.0	0.0
Avg. feedding rate/sow or boar	Kg	2.7	0.0
Avg. feeding rate /dy till weaned		0.3	0.0
Number of litters/yr		2.0	0.0
Number of piglets/litter		10.0	0.0
Feed for sows & boars	Kg.	9855.0	115.0
Feed for baby pigs till weaned	Kg	5346.0	115.0
Drugs for sows & boars/head			1000.0
Drugs for piglets/head			200.0
Piggery attendant	Months	12.0	15000.0
Marketing	Pigglets		100.0
Water/sow or boar/day	Litres	30.0	5.0
Water/piglet/dy till weaned	Litres	15.0	5.0
Water/day for cleaning	Litres	60.0	5.0
Yields			
-Weaned pigs/yr	Piglets (market price)	180.0	15000.0

Table 14(b)
Computer reults for weaned pigs in Santa

PARAMETERS	VALUES in FCFA
ESTABLISHMENT COST	**580000.0**
ANNUAL COST OF PRODUCTION	3982281.7
COST/WEANED PIG	**22123.8**
ANNUAL VARIABLE COST	3922115.0
ANNUAL REVENUE	2700000.0
ANNUAL GROSS MARGIN	**-1222115.0**
GROSS MARGIN/WEANED PIG	**-6789.5**
ANNUAL PROFIT	**-1282281.7**

Break-even prices at alternative rates/litre of water

Cost/litre of water (FCFA)	Break-even price/piglet (FCFA)
0.22	12181
1.00	13804
2.00	15884
3.00	17964
4.00	20044
5.00	22124

Table 15 (a)
Input-output data for one hectare of cocoa in Lekie division, Centre province

Tools/materials		Lifespan	Max. no. of units	Cost/unit (FCFA)
Cutlasses		1.0	1.0	1500.0
Axes	7.0	1.0	2500.0	
Push push		2.0	1.0	65000.0
Sprayers		3.0	10.0	24000.0
Baskets		1.0	2.0	300.0
Wheelbarrow		3.0	1.0	15000.0
Buckets		1.0	2.0	1000.0
Files		1.0	3.0	1200.0
Bags		1.0	15.0	200.0
Store		10.0	1.0	300000.0
Tapoline		10.0	1.0	160000.0

Other production items		Units	
Tree felling and cuttin	Person days	7.0	3000.0
Initial land clearing	Person days	30.0	1000.0
Lining and pegging	Person days	14.0	500.0
Hole digging	Person days	18.0	800.0
Planting	Person days	6.0	800.0
Cocoa seedlings	seedlings	1800.0	15.0
Clearing	Person days	22.0	800.0
Pest control	Person days	6.0	1500.0
Pruning	Person days	7.0	800.0
Harvesting	Person days	30.0	800.0
Transportation from far	One ha.	1.0	12000.0
Drying and bagging	Person days	21.0	1500.0
Loading	Person days	1.0	800.0
Insecticide	Litres	10.0	400.0
Fungicide	Sprays	6.0	150.0

Yields

Cocoa beansKg	1050.0	520.7
	(break-even price)	

Table 15 (b)
Computer results for cocoa in Lekie

PARAMETERS	VALUES in FCFA
Installation Cost	**897400.0**
-Cost of tools	793200.0
-Land prep. and plant	77200.0
-Seedlings	27000.0
Yr 1 Development costs	99420.0
-Clearing and pruning	8800.0
-Opty cost of capital	90620.0
Year 2 Development cost	119042.0
-Clearing and pruning	17600.0
-Cost of capital	101442.0
Year 3 Development cost	130946.2
-Clearing and pruning	17600.0
-Cost of capital	113346.2
Year 4 develoment costs	144040.8
-Clearing and pruning	17600.0
-Cost of capital	126440.8
Total Development Cost	**493449.0**
Establishment Cost	**1390849.0**
Total Operating Cost	8086200.9
Total Cost of Productio	9477049.9
Total Production in kg.	**18200.0**
Revenue at peak product	**546752.9**
Total annual cost	**349499.6**
Cost/Kg.	**520.7**
V.C. at peak production	105400.0
G.M. at peak production	**441352.9**
Profit at peak product	**197253.3**

BREAK-EVEN PRICES AT ALTERNATIVE MAXIMUM YIELDS

'Maximum yield	Break-even price
1000	546.2
1100	497.5
1200	456.7
1500	366.6
1800	306.2
2000	275.9
2200	251.0
2770	199.8

Table 16 (a)
Input-output data for one hectare of tomato in Foumbot, West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA)
Cutlasses	2.0	2.0	1800.0
Hoes	2.0	2.0	1300.0
Files	0.3	2.0	1500.0
Watering cans	3.0	2.0	5000.0
Pushpush	3.0	1.0	50000.0
Sprayers	2.0	2.0	22000.0
Rake	2.0	1.0	2500.0
Trident	5.0	1.0	3500.0
Other production items		**Units**	
Ch.saw cutting of yrees	Person days	5	5000
Initial clearing	Person days	20.0	1000.0
Ridging	Ridges	400.0	300.0
Nursery work	Person days	2.0	1000.0
Transplanting	Person days	17	1000
Weeding	Person days	40.0	1000.0
Fertilizer application	Person days	17.0	1000.0
Pest control	Preson days	137	1000
Harvesting	Person days	140.0	1000.0
Packaging and selling	Person days	60.0	1000.0
Seeds	Grams	300.0	25.0
Fertilizer	Bags	25.0	3450.0
Pesticides	Sprayer loads	2050.0	285.0
Yields			
Tomato fruits	Kg (market price)		50.0

Table 16 (b)
Computer results for tomato in Foumbot

PARAMETERS	VALUES in FCFA
INSTALLATION COST	**307700.0**
-Cost of tools	123700.0
-Land prep.& Planting	184000.0
ESTABLISHMENT COST	**307700.0**
COST OF PRODUCTION/yr	**1377490.0**
ANNUAL PRODUCTION in kg.	**20000.0**
COST/kg	68.9
ANNUAL REVENUE	**1000000.0**
Annual variable cost	1231000.0
GROSS MARGIN	**-231000.0**
ANNUAL PROFIT	**-377490.0**

BREAK-EVEN PRICES AT ALTERNATIVE MAXIMUM YIELDS

'Maximum yield (kg)	Break-even price
1500091.8	
2500055.1	
3000045.9	
3500039.4	
4000034.4	
4500030.6	

Table 17 (a)
Input-output data for one hectare of Green beans in Foumbot. West province

Tools/materials	Lifespan	Max. no. of units	Cost/unit (FCFA)
Cutlasses	2.0	2.0	1800.0
Hoes	2.0	2.0	1300.0
Axes	5.0	1.0	4500.0
Files	0.3	2.0	1500.0
Watering cans	3.0	2.0	5000.0
Pushpush	3.0	1.0	50000.0
Sprayers	2.0	2.0	22000.0
Rake	2.0	1.0	2500.0
Trident	5.0	1.0	3500.0
Buckets	2.0	30.0	1500.0

Other production items	Units		
Ch.saw cutting of yrees	Person days	8.0	5000.0
Initial clearing	Person days	20.0	1000.0
Ridging	Ridges	400.0	300.0
Planting	Person days	30.0	1000.0
Weeding	Person days	40.0	1000.0
Fertilizer application	Person days	5.0	1000.0
Pest control	Preson days	45.0	1000.0
Harvesting	Person days	400.0	1000.0
Seeds	Kg	60.0	1500.0
Pesticides	Sprayer loads	600.0	285.0
Packaging	Person days	200.0	1000.0

Yields		
Green beans	Kg (market price)	100.0

Table 16 (b)
Computer results for green beans in Foumbot

PARAMETERS	VALUES in FCFA
Installation cost	**378700.0**
Cost of tools	168700.0
-Land prep.& Planting	210000.0
ESTABLISHMENT COST	**378700.0**
COST OF PRODUCTION/yr	**1319190.0**
ANNUAL PRODUCTION	**6000.0**
COST/kg	**219.9**
ANNUAL REVENUE	**600000.0**
Annual variable cost	1121000.0
GROSS MARGIN	**-521000.0**
ANNUAL PROFIT	**-719190.0**

BREAK-EVEN PRICES AT ALTERNATIVE MAXIMUM YIELDS

'Maximum yield (kg)	Break-even price
3000439.7	
4000329.8	
5000263.8	
7000188.5	
10000131.9	

How to use the Budget Spreadsheets

The file names for the different budgets generated are listed in the diskette as Lotus or Quadropro files as follows:

Arabica1.Wk1 or Arabica1.WQ1 for Arabica Coffee in Santa,

Arabica2.Wk1 or Arabica2.WQ1 for Arabica coffee in Dschang,

Arabica3.Wk1 or Arabica3.WQ1 for Arabica coffee/maize in Santa,

Arabica4.Wk1 or Arabica4.WQ1 for Arabica coffee/maize in Ndop,

Robusta1.Wk1 or Robusta1.Wq1 for Robusta coffee in Mungo,

Pigs.Wk1 or Pigs.WQ1 for weaned piglets in Santa,

Maize1.Wk1 or Maize1.WQ1 for maize in Ndop,

Maize2.Wk1 or Maize2.WQ1 for maize in Santa,Irish potatoes,

Maize3.Wk1 or Maize3.WQ1 for maize/beans in Santa,

Maize4.Wk1 or Maize4.WQ1 for maize/beans in Ndop,

Maize5.Wk1 or Maize5.Wq1 for maize in Dschang,

Maize6.Wk1 or Maize6.Wq1 for maize/beans in Dschang,

Rice1.WK1 or Rice1.WQ1 for Swamp rice in Ndop,

Rice2.WK1 or Rice2.WQ1 for swamp rice in Santchou,

Cocoa.WK1 or Cocoa.WQ1 for Cocoa in Lekie division,

Tomato.Wk1 or Tomato.WQ1 for Tamato in Foumbot, and

Gbeans.WK1 or Gbeans.WQ1 for Green beans in Foumbot.

Lotus files are identified as Wk-files while quadropro files are identified as WQ-files. These files could be copied onto the hard disc using the appropriate program (Lotus or Quadropro) and could be retrieved for use either directly from the hard disc or from the floppy disc.

To use a file, call up the program you intend to use (Lotus or Quadropro) and retrieve the file you need from either the hard or floppy disc using the "File/Retrieve" commands. Select from the list of files the file you need. Make a copy of the file under another name using the "Save As" command and conserve the original file. Use the new file to make any desired modification(s) of variables. Once the magnitude of an input or output variable is changed, the affected results automatically change.

There is provision for including additional variables in the budgets. This is indicated on the spread sheets where one or more question signs are marked. There are formulae provided for such new variables and against them, zeros or blanks appear in place of the formulae. The zeros should change when data on the new variables are entered. Otherwise, copy the formula immediately above the zero or blank space concerned using the Copy command. It means that the zero did not represent a formula or that the "ERR" message would have been registered in the presence of the appropriate formula.