

LOAN AMORTISATION TABLE

Enter Values	
Loan Amount	P 228,916.98
Annual Interest Rate	7.50 %
Loan Period in Years	10
Number of Payments Per Year	1
Start Date of Loan	1/1/10
Optional Extra Payments	

Loan Summary	
Scheduled Payment	P 33,349.98
Scheduled Number of Payments	10
Actual Number of Payments	10
Total Early Payments	P
Total Interest	P 104,582.85

Lender Name: CEDDA

Pmt No.	Payment Date	Beginning Balance	Scheduled Payment	Extra Payment	Total Payment	Principal	Interest	Ending Balance
1	1/1/11	P 228,916.98	P 33,349.98	-	P 33,349.98	P 16,181.21	P 17,168.77	P 212,735.77
2	1/1/12	212,735.77	33,349.98	-	33,349.98	17,394.80	15,955.18	195,340.97
3	1/1/13	195,340.97	33,349.98	-	33,349.98	18,699.41	14,650.57	176,641.56
4	1/1/14	176,641.56	33,349.98	-	33,349.98	20,101.87	13,248.12	156,539.70
5	1/1/15	156,539.70	33,349.98	-	33,349.98	21,609.51	11,740.48	134,930.19
6	1/1/16	134,930.19	33,349.98	-	33,349.98	23,230.22	10,119.76	111,699.97
7	1/1/17	111,699.97	33,349.98	-	33,349.98	24,972.48	8,377.50	86,727.49
8	1/1/18	86,727.49	33,349.98	-	33,349.98	26,845.42	6,504.56	59,882.07
9	1/1/19	59,882.07	33,349.98	-	33,349.98	28,858.83	4,491.16	31,023.24
10	1/1/20	31,023.24	33,349.98	-	31,023.24	28,696.50	2,326.74	0.00

TECHNICAL GUIDELINES FOR BEEKEEPING PROJECT

INTRODUCTION

The beekeeping industry plays a major role in rural socio-economic development and environmental conservation of natural ecosystems. It is a source of food, (honey, pollen, royal jelly and brood), raw materials for various industries (beeswax candles, cosmetics, and textiles lubricants) and medicine (honey, propolis and bee venom). It is one such strategic initiative that diversifies the crop sub-sector in Agriculture for employment, poverty alleviation, and income generation.

Currently the national honey annual demand is 40 tonnes and the local honey production is only 5 and hence the high importation of natural honey. In the long run, the balance could be met through the establishment of more beekeeping projects locally, and there after the development of a local manufacturing industry that uses bee products as raw materials.

PREREQUISITES FOR ESTABLISHING A BEEKEEPING PROJECT

The pre-requisites for establishing a beekeeping project are as follows:

Minimum land required

The farmer should have a piece of land of at least 1ha and should be noise free with little or no continuous movement of animals, people or vehicles.

The project site should be assessed and certified by a beekeeping specialist. It can either be owned by the prospective farmer or leased to him/her. An apiary establishment should have a 3 km radius or more from other apiaries to facilitate foraging.

A beekeeping project could also be integrated within another agricultural project or a conservation programme. If the project is integrated with another agricultural undertaking such as an arable or horticultural field, there is no need for the farmer to seek a second land right from land authority for this purpose. In case of a conservation site such as community woodlot/plantation or sand dune stabilization, a copy of lease agreement shall be acquired.

Even under an integrating endeavour; the site should also be assessed by a beekeeping specialist to determine its carrying capacity (stock rate), suitability and project size.

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
178,886.40	196,775.04	216,452.54	238,097.80	261,907.58	288,098.34	316,908.17	348,598.99
154,485.80	203,972.38	420,424.92	658,522.72	920,430.30	1,208,528.64	1,525,436.81	1,874,035.79
50,917.41	56,009.15	61,610.06	67,771.07	74,548.17	82,002.99	90,203.29	99,223.62
13,248.12	11,740.48	10,119.76	8,377.50	6,504.56	4,491.16	2,326.74	
114,720.88	129,025.42	144,722.72	161,949.23	180,854.84	201,604.19	224,378.14	249,375.37
23,434.68	23,434.68	23,434.68	23,434.68	23,434.68	23,434.68	23,434.68	23,434.68
91,286.20	105,590.74	121,288.04	138,514.56	157,420.17	178,169.51	200,943.46	225,940.69
13,248.12	11,740.48	10,119.76	8,377.50	6,504.56	4,491.16	2,326.74	0.00
78,038.08	93,850.26	111,168.28	130,137.06	150,915.60	173,678.36	198,616.72	225,940.69
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78,038.08	93,850.26	111,168.28	130,137.06	150,915.60	173,678.36	198,616.72	225,940.69

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
178,886.40	196,775.04	216,452.54	238,097.80	261,907.58	288,098.34	316,908.17	348,598.99
50,917.41	56,009.15	61,610.06	67,771.07	74,548.17	82,002.99	90,203.29	99,223.62
127,969.00	140,765.89	154,842.48	170,326.73	187,359.41	206,095.35	226,704.88	249,375.37
33,349.98	33,349.98	33,349.98	33,349.98	33,349.98	33,349.98	33,349.98	31,023.24
94,619.01	107,415.91	121,492.50	136,976.75	154,009.42	172,745.36	193,354.90	218,352.13

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
151,732.43	158,505.22	175,112.51	191,420.74	203,213.57	221,191.46	250,721.97	267,713.34
70.54	77.60	85.36	93.89	103.28	113.61	124.97	137.47
2,150.92	2,042.66	2,051.53	2,038.72	1,967.56	1,946.93	2,006.24	1,947.45
107.55	102.13	102.58	101.94	98.38	97.35	100.31	97.37

FINANCIAL PROJECTIONS (CONTINUED)

Summary of Profit and Loss

	Unit	Quantity	Unit Price	Year 0	Year 1	Year 2
Returns (Sales)				134,400.00	147,840.00	162,624.00
Cummulative Benefits				134,400.00	70,980.00	109,498.00
Operational (variable costs)				38,255.00	42,080.50	46,288.55
Loan Repayment Principal				16,181.21	17,394.80	14,650.57
Gross Benefits (PBDIT)				79,963.79	88,364.70	101,684.88
Depreciation				0.00	23,434.68	23,434.68
Gross Benefits (PBIT)				79,963.79	64,930.02	78,250.20
Loan Repayment Interest				17,168.77	15,955.18	14,650.57
Gross Benefits (PBT)				62,795.02	48,974.84	63,599.63
Taxation (15% of PBT)				0.00	0.00	0.00
Net Benefit Flow (PADIT)				62,795.02	48,974.84	63,599.63

Summary of Cashflow

	Year 0	Year 1	Year 2
Total cash inflow	363,316.98	147,840.00	162,624.00
Total cash outflow	228,916.98	42,080.50	46,288.55
Net cashflow	134,400.00	105,759.50	116,335.45
Loan repayment	0.00	33,349.98	33,349.98
Cummulative cashflow	134,400.00	72,409.52	82,985.47

Summary of Breakeven

	Year 0	Year 1	Year 2
Total cost	228,916.98	124,915.18	135,063.23
Average price per comb honey	53.00	58.30	64.13
Breakeven comb per year	4,319.19	2,142.63	2,106.08
Breakeven colony size	215.96	107.13	105.30

Average breakeven

honey 2,040.07 kg / yr
colony size 102.00 colony size

Skills required

Success in beekeeping is in direct proportion to the understanding of bee behavior and practical behaviour of bees and their management. Therefore it is recommended that the business promoter should have knowledge in apiary enterprise or alternatively, she/he should hire an experienced and knowledgeable farm manager. Knowledge could be acquired through beekeeping training courses or a sound experience in beekeeping production.

Market

It is highly advisable for a farmer to carry out market survey before venturing into this business. These will provide some basic information regarding the impact of environmental change on the market. The information gathered becomes useful input in deciding as to whether the project ideas needs pursuing or should be abandoned.

Labour: Intensive labour will be needed during stocking activity and honey harvesting period.

Water required and recommended sources

Water is essential for brood rearing and for controlling the hive temperature. There should be a source of water within 500m of the bee hives.

PRODUCTION CYCLE

A worker bee requires **three weeks** to fully develop (from egg to adult) to undertake the fieldwork activity of collecting nectar and pollen. But a newly captured swarm of about 10000

worker bees needs **6 to 9 months** to multiply its workforce to 60 000 worker bees. It is a colony of this magnitude that can be industrious and productive to produce **20kg of comb honey** when all factors of production are adequately stable and conducive.

Due to unpredictable climatic conditions of Botswana, a gestation period of 9 months is feasible and an additional 3 months for a colony to adjust to management practices is considerably appropriate. It is therefore expected that after a 12 months period, a bee colony could be under full production. The dry spell period (July-August) is a season when most of the flowering bee plants do not secrete nectar and pollen as it is dry in most parts of Botswana during this time. The build up period is when bee colonies are rearing brood for propagation and getting ready for the honey flow period.

MANAGEMENT PRACTICES

Factors that can improve/boost beekeeping production

Planting of melliferous bee plant species around the apiary

Production could be increased through improvement of bee pastures. These could be through planting of both seasonal and perennial melliferous forage, e.g. fruit trees, eucalyptus, shrubs, and other ornamental flowers.

Dequeening & requeening with young mated queens every two years

It is necessary that beekeepers rear queen-right colonies, that is, young industrious mated queens should head bee

Annual Depreciation							
Year3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
2,175.00	2,175.00	2,175.00	2,175.00	2,175.00	2,175.00	2,175.00	2,175.00
1,044.00	1,044.00	1,044.00	1,044.00	1,044.00	1,044.00	1,044.00	1,044.00
6,120.00	6,120.00	6,120.00	6,120.00	6,120.00	6,120.00	6,120.00	6,120.00
2,448.00	2,448.00	2,448.00	2,448.00	2,448.00	2,448.00	2,448.00	2,448.00
1,812.50	1,812.50	1,812.50	1,812.50	1,812.50	1,812.50	1,812.50	1,812.50
4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00
324.00	324.00	324.00	324.00	324.00	324.00	324.00	324.00
526.68	526.68	526.68	526.68	526.68	526.68	526.68	526.68
1,928.00	1,928.00	1,928.00	1,928.00	1,928.00	1,928.00	1,928.00	1,928.00
1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00
270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00
449.46	449.46	449.46	449.46	449.46	449.46	449.46	449.46
537.04	537.04	537.04	537.04	537.04	537.04	537.04	537.04
23,434.68	23,434.68	23,434.68	23,434.68	23,434.68	23,434.68	23,434.68	23,434.68

532.40	0.00	0.00	440.00	0.00	0.00	943.18	0.00
2,449.04	0.00	0.00	2,024.00	0.00	0.00	4,338.62	0.00
638.88	0.00	0.00	528.00	0.00	0.00	1,131.81	0.00
0.00	0.00	966.31	0.00	0.00	0.00	0.00	1,556.25
266.20	0.00	0.00	220.00	0.00	0.00	471.59	0.00
1,370.93	0.00	0.00	1,133.00	0.00	0.00	2,428.69	0.00
0.00	0.00	1,932.61	0.00	0.00	0.00	0.00	3,112.49
0.00	0.00	201.31	0.00	0.00	0.00	0.00	324.22
248.90	0.00	0.00	205.70	0.00	0.00	440.94	0.00
23,958	26,354	28,989	31,888	35,077	38,585	42,443	46,687
47,916.00	52,707.60	57,978.36	63,776.20	70,153.82	77,169.20	84,886.12	93,374.73
100,815.03	102,496.08	113,502.45	123,649.67	128,665.40	139,188.47	160,518.68	168,489.73

15,972.00	17,569.20	19,326.12	21,258.73	23,384.61	25,723.07	28,295.37	31,124.91
1,996.50	2,196.15	2,415.77	2,657.34	2,923.08	3,215.38	3,536.92	3,890.61
14,641.00	16,105.10	17,715.61	19,487.17	21,435.89	23,579.48	25,937.42	28,531.17
339.41	373.35	410.68	451.75	496.92	546.62	601.28	661.40
1,597.20	1,756.92	1,932.61	2,125.87	2,338.46	2,572.31	2,829.54	3,112.49
6,588.45	7,247.30	7,972.02	8,769.23	9,646.15	10,610.76	11,671.84	12,839.03
1,597.20	1,756.92	1,932.61	2,125.87	2,338.46	2,572.31	2,829.54	3,112.49
1,996.50	2,196.15	2,415.77	2,657.34	2,923.08	3,215.38	3,536.92	3,890.61
3,993.00	4,392.30	4,831.53	5,314.68	5,846.15	6,430.77	7,073.84	7,781.23
598.95	658.85	724.73	797.20	876.92	964.61	1,061.08	1,167.18
1,331.00	1,464.10	1,610.51	1,771.56	1,948.72	2,143.59	2,357.95	2,593.74
266.20	292.82	322.10	354.31	389.74	428.72	471.59	518.75
50,917.41	56,009.15	61,610.06	67,771.07	74,548.17	82,002.99	90,203.29	99,223.62
151,732.43	158,505.22	175,112.51	191,420.74	203,213.57	221,191.46	250,721.97	267,713.34

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
107,012.40	117,713.64	129,485.00	142,433.50	156,676.85	172,344.54	189,578.99	208,536.89
39,930.00	43,923.00	48,315.30	53,146.83	58,461.51	64,307.66	70,738.43	77,812.27
3,993.00	4,392.30	4,831.53	5,314.68	5,846.15	6,430.77	7,073.84	7,781.23
27,951.00	30,746.10	33,820.71	37,202.78	40,923.06	45,015.37	49,516.90	54,468.59
178,886.40	196,775.04	216,452.54	238,097.80	261,907.58	288,098.34	316,908.17	348,598.99

FINANCIAL PROJECTIONS

Capital Investment/ Fixed costs

Item	Unit	Quantity	Unit Price	Year 0	Year 1	Year 2
TTB Hives		30	375.00	11,250.00	2,175.00	2,175.00
TTB Hivestands		30	180.00	5,400.00	1,044.00	1,044.00
langstroth hives		70	450.00	31,500.00	6,120.00	6,120.00
langstroth hives		70	180.00	12,600.00	2,448.00	2,448.00
traps hives		15	250.00	3,750.00	1,812.50	1,812.50
vehicle		1	40,000.00	4,000.00	4,000.00	4,000.00
honey press		1	3,600.00	3,600.00	324.00	324.00
double honey seive		4	693.00	2,772.00	526.68	526.68
100m*100m Apiary Fence	m	1	50.00	20,000.00	1,928.00	1,928.00
Storage house(3.5*6m)	m ²	1	952.38	19,999.98	1,800.00	1,800.00
Water tank	10000 L	1	3,000.00	3,000.00	270.00	270.00
Honey extractor		4	2,497.00	9,988.00	449.46	449.46
Solar wax extractor		5	548.00	2,740.00	537.04	537.04
depreciation				0.00	23,434.68	23,434.68
hive tool		8	50.00	400.00	0.00	0.00
bee veil		8	230.00	1,840.00	0.00	0.00
stainlesssteel bucket		8	60.00	480.00	0.00	0.00
kitchen scale		4	150.00	600.00	0.00	0.00
kitchen knife		8	25.00	200.00	0.00	0.00
uncapping knife		10	103.00	1,030.00	0.00	0.00
stainless steel tray		10	120.00	1,200.00	0.00	0.00
cadac stove		1	125.00	125.00	0.00	0.00
pot		1	187.00	187.00	0.00	0.00
manager		1	1,500.00	18,000.00	19,800	21,780
laboures		5	600.00	36,000.00	39,600.00	43,560.00
total fixed costs				190,661.98	82,834.68	88,774.68
operational/variable costs						
pack of 24 take away trays		200	60.00	12,000.00	13,200.00	14,520.00
12.5 kg of white sugar		20	75.00	1,500.00	1,650.00	1,815.00
rolls of wrapping plastic		3	85	255.00	280.50	308.55
bee brush		15	80.00	1,200.00	1,320.00	1,452.00
smoker		15	330.00	4,950.00	5,445.00	5,989.50
repairs and maintainance			1200.00	1,200.00	1,320.00	1,452.00
packaging and labeling			3000.00	3,000.00	3,300.00	3,630.00
pests control			450.00	450.00	495.00	544.50
miscellaneous costs			1000.00	1,000.00	1,100.00	1,210.00
Bee plant seedlings		40	5.00	200.00	220.00	242.00
total variable costs				38,255.00	42,080.50	46,288.55
TOTAL COSTS				228,916.98	124,915.18	135,063.23
Revenue				Year 0	Year 1	Year 2
liquid honey (Litres)		1,340	60.00	80,400.00	88,440.00	97,284.00
comb honey (kg)		600	50.00	30,000.00	33,000.00	36,300.00
beeswax (kg)		60	50.00	3,000.00	3,300.00	3,630.00
nuclei colonies		60	350.00	21,000.00	23,100.00	25,410.00
Total		2,060.00		134,400.00	147,840.00	162,624.00

colonies. De-queening is the removal of an old queen bee from the colony and re-queening is introducing a young queen into a colony. De-queening and re-queening of bee colonies after every two years is recommended. However, some queens with strong traits can go for three years. Close monitoring of the brooding patterns of a colony during regular inspections would guide.

Factors that can affect/deter beekeeping production

Untimely honey harvest of bee colonies

When strong colonies are not timely harvested they would divide themselves. The surplus honey could be lost through swarming. Swarming is triggered by plenty of food stores and no working space in the hive, and therefore the old bees decide to live the young ones. The prime swarm with the skilled old queen and experienced worker bees leaves first and is normally a big swarm. Surplus honey would be taken as food store for the bees on transit.

Bee pests and diseases

Bee pests like ants, bee pirate and hive beetles can cause a bee colony to abscond from a beehive. Bee pest control measures are to be applied daily to protect the colony from these intruders. Common bee diseases are chalk brood, chilly brood, and African foul. These diseases are no threat to beekeepers in Botswana because our climatic conditions do not favour their occurrence.

Poor bee management practices

Inadequate bee management practices such as excessive harvesting, too much smoke during inspections and exposure of beehives to unfavorable conditions can cause the colonies to abscond.

Prolonged drought and veld fires

Prolonged drought has a negative impact on the flowering bee plants hence less forage. Drought conditions also have a high prevalence of veld fires which destroy the range resources.

PROJECT SIZE

The project sizes differ depending on different factors such as the financial capability of the farmer, the knowledge and skills acquired, the carrying capacity of project site as assessed by the beekeeping specialist and the environmental factors prevailing in each particular location.

These guidelines focus on the models below:

- 30 Bee colonies
- 60 Bee colonies
- 100 Bee colonies

INFRASTRUCTURE

Electricity: Although not directly used in production, the facility would be required by large scale farmers for processing bee products such as bee wax.

DEMENSIONS & QUANTITY OF STRUCTURE

	length	width	quantity	perimeter
apiary fence	100	100	1	400 m
delta hut	6	3.5	1	21 m ²

PRODUCTION

1 beecolony/yr	20 kg of comb honey
100 bee colony	2000 kg of comb honey/annum
60kg comb honey processed	=19kg liquid honey+1kg beeswax
comb honey	600 kg/annum would be sold
liquid honey	1340 kg/annum would be sold
beeswax	60 kg/annum
liquid honey/kg	60.00
comb honey/kg	50.00
beeswax/kg	50.00
Labour months/yr	12
labour months/ yr(manager)	12
average price/comb honey	53.00

DEPRECIATION(STRAIGHT LINE METHOD)

items	salvage value	years
TTB Hives	375.00	5
TTB Hivestands	180.00	5
Langstrongth hives	900.00	5
Langstrongth hives	360.00	5
trap hives	125.00	2
hive tool	20.00	1
cadac stove	14.37	1
bee veil	56.00	1
vehicle	4000.00	10
honey press	360.00	10
double honey sieve	138.60	5
apiary fence	720.00	10
storage house	2000.00	10
water tank	300.00	10
honey extractor	449.46	5
kitchen scale	30.00	1
stainless steel bucket	25.00	1
kitchen knife	5.00	1
uncapping knife	20.62	1
stainless steel tray	48.00	1
solar wax extractor	54.80	5
pot(black)	18.70	1

LOAN

price inflation	1.10 %
institution	CEDA
interest rate	5 %
repayment period	10 years
loan amount	228,916.98
taxation	0.15

APPENDIX III (100 BEE COLONIES)

Summary of key assumptions of production costs

<u>Item</u>	<u>Quantity</u>	<u>Unit price</u>
TTB Hives	30	375.00
TTB Hivestand	30	180.00
Langstroth hives	70	450.00
Langstroth hives	70	180.00
trap Hives	15	250.00
Nuclei Colonies	60	350.00
Hive Tool	8	50.00
Bee Veil	8	230.00
vehicle	1	40000.00
honey press	1	3600.00
double honey sieve	4	693.00
100m*100m Apiary Fence	1	50.00 /m
Storage house (3.5m * 6m)	1	952.38 /m ²
Water Tank	1	3000.00
honey extractor	4	2497.00
Kitchen scale	4	150.00
Stainless steel buckets	8	60.00
Kitchen knife	8	25.00
Uncapping knife	10	103.00
Stainless steel tray	10	120.00
solar wax extractor	5	548.00
Pot (black)	1	187.00
cadac stove	1	125.00
manager	1	1500.00
laboures	5	600.00

<u>OPERATIONAL COSTS</u>	<u>PF Quantity</u>	<u>Unit price</u>
pack of 24 take away trays	200	60.00
12.5kg of white sugar	20	75.00
Pack of 24kg Honey jars (500g)	200	55.00
rolls of wrapping plastic	3	85.00
Bee brush	15	80.00
Smoker	15	330.00
repairs and maintainance		1200.00
marketing cost and levies		1500.00
Packaging and labeling		3000.00
Pest control		450.00
miscellaneous costs		1000.00
bee plant seedlings	40	5.00
aprons	10	35.00

Roads: Accessibility to roads is necessary because roads would enable the farmer to transport the farm produce to customers and reach the market outlets earlier with everything still in good condition.

Telephones: Telephones are important for running any business. It is necessary for locating a beekeeping project near such facilities to enhance its efficiency and effectiveness.

FIXED ASSETS

Structures

A ventilated storage house is required for handling and packaging bee products. Shading shelters (both movable and non-movable), are needed to protect bees from intense sunlight heat and rain. Natural materials like grass, termite resistant poles may be used for such structures to reduce costs.

Machinery (vehicles)

A farm vehicle is necessary for marketing purposes and shall be a pre-requisite in the medium to large scale apiary models for transporting beehives, bee products and other items such as input materials.

INPUTS

Inputs needed in bee production are bee hives, hive stands, smokers, bee veil, Honey jars, Bee brush, Aprons, uncapping knife and hive tool.

Capital Required

Establishing and running a project requires finances from owners and/or various financial institution and government programs. This guideline has assumed acquisition of loan from Citizen Entrepreneurial Development Agency (CEDA) at 7.5% interest rate payable over a period of 10 for each of the 3 models. The guideline also assumes availability of land as owner's contribution.

The beekeeping financial projections is an outline of the project key assumptions, a budget of all the projects requirement, summary of profit & loss, cash-flow and breakeven.

The key assumptions of production could vary from one project to another due to location, project size, production level, costs, price and loan amount. The key assumptions are also the basis of the financial projections in appendix I, II & III

The summary of Profit and Loss statement and cash-flow indicate that the project will be able to repay the loan after 2,3,4 years for 30,60,100 beehive respectively. The financial analysis of the project is based on 30,60,100 beehive and would breakeven at an average of 29.73, 77.43, 102 colony size producing a total of 594.67, 1549.65 and 2 040.07 kg per year respectively.

APPENDIX III SUMMARY ASSUMPTIONS

LOAN AMORTISATION TABLE

Enter Values	
Loan Amount	P 152,036.98
Annual Interest Rate	7.50 %
Loan Period in Years	10
Number of Payments Per Year	1
Start Date of Loan	1/1/10
Optional Extra Payments	

Loan Summary	
Scheduled Payment	P 22,149.65
Scheduled Number of Payments	10
Actual Number of Payments	10
Total Early Payments	P
Total Interest	P 69,459.50

Lender Name: CEDA

Pmt No.	Payment Date	Beginning Balance	Scheduled Payment	Extra Payment	Total Payment	Principal	Interest	Ending Balance
1	1/1/11	P 152,036.98	P 22,149.65	-	P 22,149.65	10,746.87	P 11,402.77	P 141,290.11
2	1/1/12	141,290.11	22,149.65	-	22,149.65	11,552.89	10,596.76	129,737.21
3	1/1/13	129,737.21	22,149.65	-	22,149.65	12,419.36	9,730.29	117,317.86
4	1/1/14	117,317.86	22,149.65	-	22,149.65	13,350.81	8,798.84	103,967.05
5	1/1/15	103,967.05	22,149.65	-	22,149.65	14,352.12	7,797.53	89,614.93
6	1/1/16	89,614.93	22,149.65	-	22,149.65	15,428.53	6,721.12	74,186.40
7	1/1/17	74,186.40	22,149.65	-	22,149.65	16,585.67	5,563.98	57,600.73
8	1/1/18	57,600.73	22,149.65	-	22,149.65	17,829.59	4,320.05	39,771.14
9	1/1/19	39,771.14	22,149.65	-	22,149.65	19,166.81	2,982.84	20,604.32
10	1/1/20	20,604.32	22,149.65	-	20,604.32	19,059.00	1,545.32	0.00

GLOSSARY

Abscond

- *When a colony abandons a hive because of unfavorable conditions.*

Apiary

- *A place where honeybees are kept*

Bee colony

- *The whole family of bees/ honeybee community with combs and brood living in a hive*

Bee swarms

- *Cluster or flying mass of honeybees including workers, queen, and drones.*

Dequeening

- *Removal of the queen from the colony by the beekeeper.*

Foraging

- *Bees seeking water or food (nectar and pollen)*

Melliferous bee plant

- *A plant that supplies supplies bees with a nectar or pollen or propolis*

Propolis

- *Sticky sealing material manufactured by the bees mainly out of plant gums and old wax*

Requeening

- *Replacing the queen in a colony, usually an old with a young.*

APPENDIX I (30 BEE COLONIES)

Summary of key assumptions of production costs

Item	Quantity	Unit price
TTB Hives	10	375.00
TTB Hivestand	10	180.00
Langstroth hives	20	450.00
Langstroth hives trap Hives	20	180.00
trap Hives	5	250.00
Nuclei Colonies	30	350.00
Hive Tool	4	50.00
Bee Veil	4	230.00
honey press	1	3600.00
double honey sieve	2	693.00
40m*40m Apiary Fence	1	50.00 /m
Storage house (3.5m * 6m)	1	952.38 /m ²
Water Tank	1	3000.00
honey extractor	1	2497.00
Kitchen scale	2	150.00
Stainless steel buckets	4	60.00
Kitchen knife	2	25.00
Uncapping knife	2	103.00
Stainless steel tray	4	120.00
solar wax extractor	1	548.00
Pot (black)	1	187.00
cadac stove	1	125.00
manager	1	1500.00
laboures	2	700.00

OPERATIONAL COSTS	PF Quantity	Unit price
pack of 24 take away trays	10	60.00
12.5kg of white sugar	5	75.00
Pack of 24kg Honey jars (500g)	100	55.00
rolls of wrapping plastic	1	85.00
Bee brush	3	80.00
Smoker	6	330.00
repairs and maintainance	1	750.00
marketing cost and levies	1	500.00
Packaging and labeling	1	2000.00
Pest control	1	150.00
bee plant seedlings	20	5.00

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
100,756.70	110,832.37	121,915.61	134,107.17	147,517.88	162,269.67	178,496.64	196,346.30
154,485.80	203,972.38	325,887.99	459,995.15	607,513.04	769,782.71	948,279.35	1,144,625.66
32,795.84	36,075.42	39,682.97	43,651.26	48,016.39	52,818.03	58,099.83	63,909.81
8,798.84	7,797.53	6,721.12	5,563.98	4,320.05	2,982.84	1,545.32	
59,162.02	66,959.42	75,511.52	84,891.92	95,181.44	106,468.81	118,851.48	132,436.49
15,381.28	15,381.28	15,381.28	15,381.28	15,381.28	15,381.28	15,381.28	15,381.28
43,780.74	51,578.14	60,130.24	69,510.65	79,800.16	91,087.53	103,470.21	117,055.21
8,798.84	7,797.53	6,721.12	5,563.98	4,320.05	2,982.84	1,545.32	0.00
34,981.90	43,780.61	53,409.12	63,946.67	75,480.11	88,104.70	101,924.88	117,055.21
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34,981.90	43,780.61	53,409.12	63,946.67	75,480.11	88,104.70	101,924.88	117,055.21

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
100,756.70	110,832.37	121,915.61	134,107.17	147,517.88	162,269.67	178,496.64	196,346.30
32,795.84	36,075.42	39,682.97	43,651.26	48,016.39	52,818.03	58,099.83	63,909.81
67,960.86	74,756.95	82,232.64	90,455.90	99,501.50	109,451.64	120,396.81	132,436.49
22,149.65	22,149.65	22,149.65	22,149.65	22,149.65	22,149.65	22,149.65	20,604.32
45,811.21	52,607.30	60,082.99	68,306.26	77,351.85	87,302.00	98,247.16	111,832.17

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
106,581.40	109,435.06	121,071.00	134,846.50	140,566.87	153,085.42	176,883.12	185,595.63
70.54	77.60	85.36	93.89	103.28	113.61	124.97	137.47
1,510.87	1,410.29	1,418.41	1,436.18	1,361.00	1,347.46	1,415.39	1,350.10
75.54	70.51	70.92	71.81	68.05	67.37	70.77	67.50

FINANCIAL PROJECTIONS (CONTINUED)

Summary of Profit and Loss

	Unit	Quantity	Unit Price	Year 0	Year 1	Year 2
Returns (Sales)						
Cummulative Benefits				75,700.00	83,270.00	91,597.00
Operational (variable costs)				75,700.00	70,980.00	109,498.00
Loan Repayment Principal				24,640.00	27,104.00	29,814.40
Gross Benefits (PBDIT)				10,746.87	11,552.89	9,730.29
Depreciation				40,313.13	44,613.11	52,052.31
Gross Benefits (PBIT)				0.00	15,381.28	15,381.28
Loan Repayment Interest				40,313.13	29,231.83	36,671.03
Gross Benefits (PBT)				11,402.77	10,596.76	9,730.29
Taxation (15% of PBT)				28,910.35	18,635.07	26,940.74
Net Benefit Flow (PADIT)				0.00	0.00	0.00
				28,910.35	18,635.07	26,940.74

Summary of Cashflow

	Year 0	Year 1	Year 2
Total cash inflow			
Total cash outflow	227,736.98	83,270.00	91,597.00
Net cashflow	152,036.98	27,104.00	29,814.40
Loan repayment	75,700.00	56,166.00	61,782.60
Cummulative cashflow	0.00	22,149.65	22,149.65
	75,700.00	34,016.35	39,632.95

Summary of Breakeven

	Year 0	Year 1	Year 2
Total cost			
Average price per comb honey	152,036.98	86,045.28	93,111.68
Breakeven comb per year	53.00	58.30	64.13
Breakeven colony size	2,868.62	1,475.91	1,451.92
	143.43	73.80	72.60

Average breakeven

honey	1,549.65 kg / yr
colony size	77.48 colony size

DEMENSIONS & QUANTITY OF STRUCTURE

	length	width	quantity	parameter
apiary fence	40	40	1	160 m
delta hut	6	3.5	1	21 m ²

PRODUCTION

1 beecolony/yr	20 kg of comb honey
30 bee colony	600.00 kg of comb honey/annum
20kg comb honey processed	=19kg liquid honey+1kg beeswax
comb honey	200.00 kg/annum would be sold
liquid honey	380 kg/annum would be sold
beeswax	20 kg/annum
liquid honey/kg	60.00
comb honey/kg	50.00
beeswax/kg	50.00
Labour months/yr	3
labour months/ yr(manager)	12
average price/comb honey	53.00

DEPRECIATION(STRAIGHT LINE METHOD)

Items	salvage value	years
TTB Hives	375.00	5
TTB Hivestands	180.00	5
Langstrongth hives	900.00	5
Langstrongth hives	360.00	5
trap hives	125.00	2
hive tool	20.00	1
cadac stove	14.37	1
bee veil	56.00	1
honey press	360.00	10
double honey sieve	138.60	5
apiary fence	720.00	10
storage house	2000.00	10
water tank	300.00	10
honey extractor	449.46	5
kitchen scale	30.00	1
stainless steel bucket	25.00	1
kitchen knife	5.00	1
uncapping knife	20.62	1
stainless steel tray	48.00	1
solar wax extractor	54.80	5
pot(black)	18.70	1

LOAN

price inflation	1.10
institution	CEDA
interest rate	5 %
repayment period	10 years
loan amount	86,758.98
taxation	0.15

FINANCIAL PROJECTIONS

Capital Investment/ Fixed costs

Item	Unit	Quantity	Unit Price	Year 0	Year 1	Year 2
TTB Hives		10	375	3,750	675	675
TTB Hivestands		10	180	1,800	324	324
langstroth hives		20	450	9,000	1,620	1,620
langstroth hives		20	180	3,600	648	648
traps hives		5	250	1,250	563	563
honey press		1	3,600	3,600	324	324
double honey seive		2	693	1,386	249	249
100m*100m Apiary Fence	m	1	50	8,000	728	728
Storage house(3.5*6m)	m ²	1	952	20,000	1,800	1,800
Water tank	10000 L	1	3,000	3,000	270	270
Honey extractor		1	2,497	2,497	449	449
Solar wax extractor		1	548	548	99	99
depreciation				0	7,749	7,749

hive tool		2	50	100	0	0
bee veil		2	230	460	0	0
stainlesssteel bucket		4	60	240	0	0
kitchen scale		2	150	300	0	0
kitchen knife		2	25	50	0	0
uncapping knife		2	103	206	0	0
stainless steel tray		4	120	480	0	0
cadac stove		1	125	125	0	0
pot		1	187	187	0	0
Bee plant seedlings		20	5	100	0	0
manager		1	900	10,800	11,880	13,068
laboures		2	600	3,600	3,960	4,356
total fixed costs				75,079	23,589	25,173

operational/variable costs

pack of 24 take away trays		10	60	600	660	726
12.5 kg of white sugar		5	75	375	413	454
pack of 24 honey jars(500g)		100	55	5,500	6,050	6,655
rolls of wrapping plastic		1	85	85	94	103
bee brush		3	80	240	264	290
smoker		6	330	1,980	2,178	2,396
repairs and maintainance			750	750	825	908
packaging and labeling			2,000	2,000	2,200	2,420
pest control			150	150	165	182
total variable costs				11,680	12,848	14,133
TOTAL COSTS				86,759	36,437	39,306

Revenue			Year 0	Year 1	Year 2	
liquid honey (Litres)		380	60	22,800	25,080	27,588
comb honey (kg)		200	50	10,000	11,000	12,100
beeswax (kg)		20	50	1,000	1,100	1,210
nuclei colonies		15	350	5,250	5,775	6,353
Total			39,050	42,955	40,898	

Annual Depreciation

Year3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1,425.00	1,425.00	1,425.00	1,425.00	1,425.00	1,425.00	1,425.00	1,425.00
684.00	684.00	684.00	684.00	684.00	684.00	684.00	684.00
3,420.00	3,420.00	3,420.00	3,420.00	3,420.00	3,420.00	3,420.00	3,420.00
1,368.00	1,368.00	1,368.00	1,368.00	1,368.00	1,368.00	1,368.00	1,368.00
1,187.50	1,187.50	1,187.50	1,187.50	1,187.50	1,187.50	1,187.50	1,187.50
4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00
324.00	324.00	324.00	324.00	324.00	324.00	324.00	324.00
526.68	526.68	526.68	526.68	526.68	526.68	526.68	526.68
728.00	728.00	728.00	728.00	728.00	728.00	728.00	728.00
900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00
270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00
449.46	449.46	449.46	449.46	449.46	449.46	449.46	449.46
98.64	98.64	98.64	98.64	98.64	98.64	98.64	98.64
15,381.28	15,381.28	15,381.28	15,381.28	15,381.28	15,381.28	15,381.28	15,381.28

399.30	0.00	0.00	531.47	0.00	0.00	941.53	0.00
1,836.78	0.00	0.00	2,444.75	0.00	0.00	4,331.03	0.00
479.16	0.00	0.00	637.76	0.00	0.00	1,129.83	0.00
0.00	0.00	483.15	0.00	0.00	0.00	0.00	778.12
199.65	0.00	0.00	265.73	0.00	0.00	470.76	0.00
822.56	0.00	0.00	1,094.82	0.00	0.00	1,939.55	0.00
1,277.76	0.00	1,546.09	0.00	0.00	0.00	0.00	2,489.99
166.38	0.00	201.31	0.00	0.00	0.00	0.00	324.22
248.90	0.00	0.00	331.28	0.00	0.00	586.89	0.00
266.20	0.00	0.00	354.31	0.00	0.00	627.69	0.00
14,375	15,812	17,394	19,133	21,046	23,151	25,466	28,012
38,332.80	42,166.08	46,382.69	51,020.96	56,123.05	61,735.36	67,908.89	74,699.78
73,785.56	73,359.64	81,388.03	91,195.23	92,550.48	100,267.40	118,783.29	121,685.81

11,979.00	13,176.90	14,494.59	15,944.05	17,538.45	19,292.30	21,221.53	23,343.68
1,497.38	1,647.11	1,811.82	1,993.01	2,192.31	2,411.54	2,652.69	2,917.96
10,980.75	12,078.83	13,286.71	14,615.38	16,076.92	17,684.61	19,453.07	21,398.38
113.14	124.45	136.89	150.58	165.64	182.21	200.43	220.47
851.84	937.02	1,030.73	1,133.80	1,247.18	1,371.90	1,509.09	1,660.00
3,513.84	3,865.22	4,251.75	4,676.92	5,144.61	5,659.07	6,224.98	6,847.48
998.25	1,098.08	1,207.88	1,328.67	1,461.54	1,607.69	1,768.46	1,945.31
2,662.00	2,928.20	3,221.02	3,543.12	3,897.43	4,287.18	4,715.90	5,187.48
199.65	219.62	241.58	265.73	292.31	321.54	353.69	389.06
32,795.84	36,075.42	39,682.97	43,651.26	48,016.39	52,818.03	58,099.83	63,909.81
106,581.40	109,435.06	121,071.00	134,846.50	140,566.87	153,085.42	176,883.12	185,595.63

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
57,499.20	63,249.12	69,574.03	76,531.44	84,184.58	92,603.04	101,863.34	112,049.67
26,620.00	29,282.00	32,210.20	35,431.22	38,974.34	42,871.78	47,158.95	51,874.85
2,662.00	2,928.20	3,221.02	3,543.12	3,897.43	4,287.18	4,715.90	5,187.48
13,975.50	15,373.05	16,910.36	18,601.39	20,461.53	22,507.68	24,758.45	27,234.30
100,756.70	110,832.37	121,915.61	134,107.17	147,517.88	162,269.67	178,496.64	196,346.30

FINANCIAL PROJECTIONS

Capital Investment/ Fixed costs

Item	Unit	Quantity	Unit Price	Year 0	Year 1	Year 2
TTB Hives		20	375.00	7,500.00	1,425.00	1,425.00
TTB Hivestands		20	180.00	3,600.00	684.00	684.00
langstroth hives		40	450.00	18,000.00	3,420.00	3,420.00
langstroth hives		40	180.00	7,200.00	1,368.00	1,368.00
traps hives		10	250.00	2,500.00	1,187.50	1,187.50
vehicle		1	40,000.00	4,000.00	4,000.00	4,000.00
honey press		1	3,600.00	3,600.00	324.00	324.00
double honey seive		4	693.00	2,772.00	526.68	526.68
100m*100m Apiary Fence	m	1	50.00	8,000.00	728.00	728.00
Storage house(3.5*6m)	m ²	1	952.38	19,999.98	900.00	900.00
Water tank	10000 L	1	3,000.00	3,000.00	270.00	270.00
Honey extractor		1	2,497.00	2,497.00	449.46	449.46
Solar wax extractor		1	548.00	548.00	98.64	98.64
depreciation				0.00	15,381.28	15,381.28

hive tool		6	50.00	300.00	0.00	0.00
bee veil		6	230.00	1,380.00	0.00	0.00
stainlesssteel bucket		6	60.00	360.00	0.00	0.00
kitchen scale		2	150.00	300.00	0.00	0.00
kitchen knife		6	25.00	150.00	0.00	0.00
uncapping knife		6	103.00	618.00	0.00	0.00
stainless steel tray		8	120.00	960.00	0.00	0.00
cadac stove		1	125.00	125.00	0.00	0.00
pot		1	187.00	187.00	0.00	0.00
Bee plant seedlings		40	5.00	200.00	0.00	0.00
manager		1	900.00	10,800.00	11,880	13,068
laboures		2	600.00	28,800.00	31,680.00	34,848.00
total fixed costs				127,396.98	58,941.28	63,297.28

operational/variable costs

pack of 24 take away trays		150	60.00	9,000.00	9,900.00	10,890.00
12.5 kg of white sugar		15	75.00	1,125.00	1,237.50	1,361.25
pack of 24 honey jars(500g)		150	55.00	8,250.00	9,075.00	9,982.50
rolls of wrapping plastic		1	85	85.00	93.50	102.85
bee brush		8	80.00	640.00	704.00	774.40
smoker		8	330.00	2,640.00	2,904.00	3,194.40
repairs and maintainance			750.00	750.00	825.00	907.50
packaging and labeling			2000.00	2,000.00	2,200.00	2,420.00
pest control			150.00	150.00	165.00	181.50
total variable costs				24,640.00	27,104.00	29,814.40
TOTAL COSTS				152,036.98	86,045.28	93,111.68

Revenue	Unit	Quantity	Unit Price	Year 0	Year 1	Year 2
liquid honey (Litres)		720	60.00	43,200.00	47,520.00	52,272.00
comb honey (kg)		400	50.00	20,000.00	22,000.00	24,200.00
beeswax (kg)		40	50.00	2,000.00	2,200.00	2,420.00
nuclei colonies		30	350.00	10,500.00	11,550.00	12,705.00
Total				75,700.00	83,270.00	91,597.00

Annual Depreciation							
Year3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
675	675	675	675	675	675	675	675
324	324	324	324	324	324	324	324
1,620	1,620	1,620	1,620	1,620	1,620	1,620	1,620
648	648	648	648	648	648	648	648
563	563	563	563	563	563	563	563
324	324	324	324	324	324	324	324
249	249	249	249	249	249	249	249
728	728	728	728	728	728	728	728
1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
270	270	270	270	270	270	270	270
449	449	449	449	449	449	449	449
99	99	99	99	99	99	99	99
7,749	7,749	7,749	7,749	7,749	7,749	7,749	7,749

133	0	0	177	0	0	236	0
612	0	0	815	896	986	1,085	0
319	0	0	425	0	0	566	0
0	0	483	0	0	0	0	778
67	0	0	89	0	0	118	0
274	0	0	365	0	0	486	0
0	0	773	0	0	0	0	324
0	0	201	0	0	0	0	1,245
249	0	0	331	0	0	441	0
133	0	0	177	0	0	236	0
14,375	15,812	17,394	19,133	21,046	23,151	25,466	28,012
4,792	5,271	5,798	6,378	7,015	7,717	8,489	9,337
28,703	28,832	32,398	35,639	36,707	39,603	44,870	47,446

799	878	966	1,063	1,169	1,286	1,415	1,556
499	549	604	664	731	804	884	973
7,321	8,053	8,858	9,744	10,718	11,790	12,969	14,266
113	124	137	151	166	182	200	220
319	351	387	425	468	514	566	622
2,635	2,899	3,189	3,508	3,858	4,244	4,669	5,136
998	1,098	1,208	1,329	1,462	1,608	1,768	1,945
2,662	2,928	3,221	3,543	3,897	4,287	4,716	5,187
200	220	242	266	292	322	354	389
15,546	17,101	18,811	20,692	22,761	25,037	27,541	30,295
44,249	45,933	51,209	56,331	59,468	64,640	72,411	77,741

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
30,347	33,381	36,720	40,392	44,431	48,874	53,761	59,137
13,310	14,641	16,105	17,716	19,487	21,436	23,579	25,937
1,331	1,464	1,611	1,772	1,949	2,144	2,358	2,594
6,988	7,687	8,455	9,301	10,231	11,254	12,379	13,617
44,988	49,487	54,435	59,879	65,867	72,453	79,699	87,668

FINANCIAL PROJECTIONS (CONTINUED)

Summary of Profit and Loss

	Unit	Quantity	Unit Price	Year 0	Year 1	Year 2
Returns (Sales)				39,050	42,955	40,898
Cummulative Benefits				39,050	70,980	109,498
Operational (variable costs)				11,680	12,848	14,133
Loan Repayment Principal				6,133	6,593	5,553
Gross Benefits (PBDIT)				21,237	23,514	21,213
Depreciation				0	7,749	7,749
Gross Benefits (PBIT)				21,237	15,765	13,464
Loan Repayment Interest				6,507	6,047	5,553
Gross Benefits (PBT)				14,730	9,718	7,911
Taxation (15% of PBT)				0	0	0
Net Benefit Flow (PADIT)				14,730	9,718	7,911

Summary of Cashflow

	Year 0	Year 1	Year 2
Total cash inflow	125,809	42,955	40,898
Total cash outflow	86,759	12,848	14,133
Net cashflow	39,050	30,107	26,765
Loan repayment	0	12,640	12,640
Cummulative cashflow	39,050	17,467	14,126

Summary of Breakeven

	Year 0	Year 1	Year 2
Total cost	86,759	36,437	39,306
Average price per comb honey	53	58	64
Breakeven comb per year	1,637	625	613
Breakeven colony size	82	31	31

Average breakeven

honey 594.67 kg / yr
colony size 29.73 colony size

DEMENSIONS & QUANTITY OF STRUCTURE

	length	width	quantity	perimeter
apiary fence	60	60	1	160 m
delta hut	6	3.5	1	21 m ²

PRODUCTION

1 beecolony/yr	20 kg of comb honey
60 bee colony	1200 kg of comb honey/annum
20kg comb honey processed	=19kg liquid honey+1kg beeswax
comb honey	400 kg/annum would be sold
liquid honey	720 kg/annum would be sold
beeswax	40 kg/annum
liquid honey/kg	60.00
comb honey/kg	50.00
beeswax/kg	50.00
Labour months/yr	12
labour months/ yr(manager)	12
average price/comb honey	53.00

DEPRECIATION(STRAIGHT LINE METHOD)

items	salvage value	years
TTB Hives	375.00	5
TTB Hivestands	180.00	5
Langstrongth hives	900.00	5
Langstrongth hives	360.00	5
trap hives	125.00	2
hive tool	20.00	3
cadac stove	14.37	5
bee veil	56.00	3
vehicle	4000.00	10
honey press	360.00	10
double honey sieve	138.60	5
apiary fence	720.00	10
storage house	2000.00	20
water tank	300.00	10
honey extractor	449.46	5
kitchen scale	30.00	5
stainless steel bucket	25.00	3
kitchen knife	5.00	3
uncapping knife	20.62	3
stainless steel tray	48.00	5
solar wax extractor	54.80	5
pot(black)	18.70	3

LOAN

price inflation	1.10 %
institution	CEDA
interest rate	5 %
repayment period	10 years
loan amount	152,036.98
taxation	0.15

APPENDIX II (60 BEE COLONIES)

Summary of key assumptions of production costs

Item	Quantity	Unit price
TTB Hives	20	375.00
TTB Hivestand	20	180.00
Langstroth hives	40	450.00
Langstroth hives	40	180.00
trap Hives	10	250.00
Nuclei Colonies	30	350.00
Hive Tool	6	50.00
Bee Veil	6	230.00
vehicle	1	40000.00
honey press	1	3600.00
double honey sieve	4	693.00
60m*60m Apiary Fence	1	50.00 /m
Storage house (3.5m * 6m)	1	952.38 /m ²
Water Tank	1	3000.00
honey exrtractor	1	2497.00
Kitchen scale	2	150.00
Stainless steel buckets	6	60.00
Kitchen knife	6	25.00
Uncapping knife	6	103.00
Stainless steel tray	8	120.00
solar wax extractor	1	548.00
Pot (black)	1	187.00
cadac stove	1	125.00
manager	1	900.00
laboures	4	600.00

OPERATIONAL COSTS	PF Quantity	Unit price
pack of 24 take away trays	150	60.00
12.5kg of white sugar	15	75.00
Pack of 24kg Honey jars (500g)	150	55.00
rolls of wrapping plastic	1	85.00
Bee brush	8	80.00
Smoker	8	330.00
repairs and maintainance		750.00
marketing cost and levies		500.00
Packaging and labeling		2000.00
Pest control		150.00
miscellaneous costs		500.00
bee plant seedlings	40	5.00
aprons	8	35.00

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
44,988	49,487	54,435	59,879	65,867	72,453	79,699	87,668
154,486	203,972	258,408	318,286	384,153	456,606	536,305	623,973
15,546	17,101	18,811	20,692	22,761	25,037	27,541	30,295
5,021	4,450	3,835	3,175	2,465	1,702	882	
24,421	27,936	31,789	36,012	40,640	45,714	51,276	57,374
7,749	7,749	7,749	7,749	7,749	7,749	7,749	7,749
16,672	20,187	24,040	28,263	32,891	37,965	43,527	49,625
5,021	4,450	3,835	3,175	2,465	1,702	882	0
11,651	15,738	20,205	25,088	30,426	36,263	42,645	49,625
0	0	0	0	0	0	0	0
11,651	15,738	20,205	25,088	30,426	36,263	42,645	49,625

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
44,988	49,487	54,435	59,879	65,867	72,453	79,699	87,668
15,546	17,101	18,811	20,692	22,761	25,037	27,541	30,295
29,442	32,386	35,624	39,187	43,106	47,416	52,158	57,374
12,640	12,640	12,640	12,640	12,640	12,640	12,640	11,758
16,802	19,746	22,985	26,547	30,466	34,777	39,518	45,616

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
44,249	45,933	51,209	56,331	59,468	64,640	72,411	77,741
71	78	85	94	103	114	125	137
627	592	600	600	576	569	579	566
31	30	30	30	29	28	29	28

LOAN AMORTISATION TABLE

Enter Values	
Loan Amount	P 86,758.98
Annual Interest Rate	7.50 %
Loan Period in Years	10
Number of Payments Per Year	1
Start Date of Loan	1/1/10
Optional Extra Payments	

Lender Name: CEDA

Loan Summary	
Scheduled Payment	P 12,639.56
Scheduled Number of Payments	10
Actual Number of Payments	10
Total Early Payments	P
Total Interest	P 39,636.64

Pmt No.	Payment Date	Beginning Balance	Scheduled Payment	Extra Payment	Total Payment	Principal	Interest	Ending Balance
1	1/1/11	P 86,758.98	P 12,639.56	-	P 12,639.56	P 6,132.64	P 6,506.92	P 80,626.34
2	1/1/12	80,626.34	12,639.56	-	12,639.56	6,592.59	6,046.98	74,033.75
3	1/1/13	74,033.75	12,639.56	-	12,639.56	7,087.03	5,552.53	66,946.72
4	1/1/14	66,946.72	12,639.56	-	12,639.56	7,618.56	5,021.00	59,328.17
5	1/1/15	59,328.17	12,639.56	-	12,639.56	8,189.95	4,449.61	51,138.21
6	1/1/16	51,138.21	12,639.56	-	12,639.56	8,804.20	3,835.37	42,334.02
7	1/1/17	42,334.02	12,639.56	-	12,639.56	9,464.51	3,175.05	32,869.51
8	1/1/18	32,869.51	12,639.56	-	12,639.56	10,174.35	2,465.21	22,695.16
9	1/1/19	22,695.16	12,639.56	-	12,639.56	10,937.43	1,702.14	11,757.73
10	1/1/20	11,757.73	12,639.56	-	11,757.73	10,875.90	881.83	0.00

APPENDIX II SUMMARY ASSUMPTIONS