CROP BUDGETS OF A FEW POPULAR INTERCROPS GROWN IN COCONUT LANDS

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Among the present problems in the coconut industry, low returns generated by coconut monocrop cultivation is of signficant importance. One of the strategies to increase the income from these lands is to utilize them for intercropping, which provides the growers with an additonal income. A range of intercrops have been recommended by the Coconut Research Institute (CRI) for this purpose and presently over 30 different intercrops are grown in coconut lands. Intercropping, particularly with annuals and semi perennials, such as ginger, pineapple, banana and betel are high input cropping systems.

Coconut growers who are willing to intercrop their coconut lands by such intercrops are desirous to know the relative costs and benifits of different intercrops before undertaking these cropping systems. Often, this information is available purely in monetary terms, i.e., in Rupees and Cents. However, one disadvantage of presenting this information purely in monetary terms is that they frequently tend to be outdated with the rapidly changing factor and product prices. Hence, it is useful to have the information with regard to input use and output generation by different intercrops in physical terms. For instance, labour in mandays, fertilizer use in kilograms etc., do not vary over time unless technology is changed. Consequently, presenting this information in physical terms provides the opportunity to compute the relative profitability of growing different intercrops based on prevailing market prices in a given area. In addition, this information is also important to develop project proposals to obtain bank loans for intercropping.

Although crop budgets are of high practical value, published information in this regard is meagre. The objective of this paper is therefore to present crop budgets of a few popular intercrops grown in association with coconut, namely ginger, pineapple, banana, papaw and betel. Output generation and input requirement in each crop are given in Tables 1,3,5,7 and 9. Finally, calculation procedure of annual gross margins for each crop based on the December, 1995 factor and product prices is given in Tables 2,4,6,8 and 10. The data for preparation of these crop budgets were derived from a survey of 113 intercropping farmers, conducted in the three main coconut growing districts within the coconut triangle, viz., Gampaha, Puttalam and Kurunegala.

There are four agro-climatic zones falling within the above three districts, namely Wet Zone (WZ), Intermediate Wet Zone (IWZ), Intermediate Dry Zone (IDZ) and Dry Zone (DZ). Although there exist a limited range of particular intercrops suitable to the DZ and IDZ, the agronomic potential for intercropping is more favourable in the WZ and IWZ. Consequently, only the WZ and IWZ were selected for this survey.

A diversity was observed between these two agro-climatic zones in relation to various cultural practices of different inter-

crops. Few examples for such situations are:

(a) soil moisture conservation in ginger cultivation in the IWZ is mainly through the extensive use of fibre dust, whereas in the WZ the mulching material is straw or coconut leaves,

(b) extensive use of fibre dust in pineapple cultivation was observed in the IWZ while the use of fibre dust is relatively less or virtually zero in the WZ,

(c) watering requirement in betel is relatively higher in the IWZ compared to the WZ.

However, these climatic zone differences with regard to cultural practises were not considered in the preparation of crop budgets and basically represent only the IWZ.

Table 1 Crop budget for ginger cultivation under coconuts (per ac)

OUTPUT	
ginger (cwt)	47
INPUTS	
Labour use (md)	
land clearing	6
land preparation	10.5
dipping of seed ginger in chemicals	0.5
planting	8
fertiliser application	5.5
mulching	8
weeding	10
harvesting	22
application of insecticides	4.5
processing	30
Total labour use (md)	105
Materials	
seed ginger (cwt)	8
fibre dust - number of 4WT loads	50
inorganic fertiliser (kg)	450
Dimethoate 40 (ml)	400
TMTD (Thiram) (kg)	2
Transport	
fibre dust - number of 4WT loads	50
PM - number of 2WT loads	1
fertiliser - number of 2WT loads	1
Machinery	
land preparation (Rs)	2000 *

Notes: 1 cwt = 112 pounds (50 kg), md - man-days, PM - planting materials.
4WT - four-wheel tractor trailer, 2WT - two-wheel tractor trailer.
* - land preparation is usually done by a four-wheel tractor on contract basis. So, this activity has to be presented in monetary terms.

Source: Farmer survey, 1995.

Table 2 Gross margin (Rs/ac) of ginger cultivation under coconuts

OUTPUT	
ginger (cwt/ac)	47
average price (Rs/cwt)	2 000
income from ginger (Rs/ac)	94 000
GROSS RETURN (Rs/ac)	94 000
INPUTS	
Labour use (md/ac)	
land clearing	6
land preparation	10.5
dipping of seed ginger in chemicals	0.5
planting	8
fertiliser application	5.5
mulching	8
weeding	10
harvesting	22
application of insecticide	4.5
processing	30
Total labour use (md/ac)	105
wage rate (Rs/md)	125
labour cost (Rs/ac)	13 125
Materials	
seed ginger (cwt/ac)	8
price of seed ginger (Rs/cwt)	2 400
seed ginger cost (Rs/ac)	19 200
fibre dust - number of 4WT per ac	50
price per 4WT (Rs)	175
cost of fibre dust (Rs/ac)	8 750
inorganic fertiliser (Kg/ac)	450
average price (Rs/kg)	10.50
cost of inorganic fertiliser (Rs/ac)	4 725
Dimethoate 40 (ml)	400
price (Rs/400 ml)	240
cost for Dimethoate 40 (Rs)	240
TMTD (Thiram) (kg)	2
price (Rs/kg)	800
cost for TMTD (Thiram)	1 600
Total materials cost (Rs/ac)	34 515
Transport	
fibre dust - number of 4WT loads	50
average cost for transport one 4WT (Rs)	225
fibre dust transport cost (Rs/ac)	11 250
planting materials transport cost (Rs)	200
fertiliser transport cost (Rs/ac)	200
Total transport cost (Rs/ac)	11 650
Machinery	
land preparation (Rs/ac)	2 000
Total variable costs (Rs/ac)	61 290
GROSS MARGIN (Rs/ac)	32 710

Notes: 1cwt = 112 pounds (50 kg), md - man-days.
4WT - four-wheel tractor trailer.
Source: Farmer survey, 1995.

Table 3 Crop budget for papaw cultivation under coconuts (per ac)*

	Years			
OUTPUT	**1**	**2**	**3**	**4**
Number of fruits	3000	6300	4800	3000
INPUTS				
Labour use (md)				
land clearing	6			
cutting pits (2x2 ft)	12			
application of cow dung into pits	3			
planting	2			
first weeding and turning of soils round the plant	10			
first round of fertiliser application - 1 st year	8			
second round of fertiliser application - 1 st year	6			
fertiliser application		16	16	16
second round of weeding	4			
application of urea (after flowering)	1			
application of urea		2		
harvesting	2	4	4	3
weeding	16	12	12	12
removal of excessive fruits		1	1	
Total labour use (md)	70	35	33	31
Materials				
number of plants	325			
cow dung (number of baskets[c]/plant)	1			
first round of inorganic fertiliser application (kg/plant)	0.5			
second round of inorganic fertiliser application (kg/plant)	1			
application of urea after flowering (kg/ac)	100	100	100	50
last round of fertiliser application in the first year (kg/plant)	1			
application of fertiliser in subsequent years (kg/plant/round)		1	1	1
number of rounds		2	2	1
Transport				
transportation of PM - number of 2WTs	1			
transportation of fertiliser - number of 2WTs	1	1	1	1
transportation of cow dung (number of lorry loads)	1			

Notes: * - 325 plants per ac.
c - a basket contains 6-7 kg of dried cow dung, md - man-days, 2WT - two-wheel tractor trailer, PM - planting materials.
Source: Farmer survey, 1995.

Table 4 Gross margin (Rs/ac*) of pineapple cultivation under coconuts

	Year				
OUTPUT	**1**	**2**	**3**	**4**	**5**
number of fruits	-	7111	10322	10075	6065
average price (Rs/fruit)	-	13	9	6	4.50
income form fruits (Rs/ac)	-	92 443	92 898	60 450	27 292
number of suckers	-	1997	4928	3385	3676
average price (Rs/sucker)	-	3	3	3	3
income from suckers (Rs/ac)	-	5 991	14 784	10 155	11 028
GROSS RETURN (Rs/ac)	-	98 434	107 682	70 605	38 320
INPUTS					
Labour use (md)					
land clearing	6				
land preparation	13				
dipping of suckers in chemicals	2				
planting	12				
fertiliser application	7	5	5	5	4.5
weeding	10	12.5	12	9	7
fibre dust mulching	17				
earthing up of fibre dust	6.5				
application of insecticide	2	2	2	1	1
application of hormones	2	2.5	3	4	2.5
fruit protection		8	10		
harvesting		4	5	6	5
removal of suckers		3	4	4	4
removal of leaves		5	5		
Total labour use (md)	77.5	42	46	29	24
wage rate (Rs/md)	125	125	125	125	125
Total labour cost (Rs)	9 687	5 250	5 750	3 625	3 000
Materials					
number of suckers	4000				
average price (Rs/sucker)	3				
cost of suckers (Rs/ac)	12 000				
fibre dust - number of 4WT loads	60				
price (Rs/4WT)	175				
cost of fibre dust (Rs/ac)	10 500				
inorganic fertiliser (kg/ac)	832	843	706	671	642
average price of fertiliser (Rs/kg)	10.50	10.50	10.50	10.50	10.50
cost of fertiliser (Rs/ac)	8 736	8 851	7 413	7 045	6 741
Dimethoate 40 (ml)	400	400	400		
price (Rs/400 ml)	240	240	240		
Dimethoate 40 cost (Rs/ac)	240	240	240		
Ethral (ml)	400	400	800	800	800
price of Ethral (Rs/400 ml)	275	275	275	275	275
Ethral cost (Rs)	275	275	550	550	550
weedicide (ml)	400	1000	1000	800	
price of weedicide (Rs/400 ml)	280	280	280	280	
cost of weedicide (Rs)	280	700	700	560	
Total material cost (Rs/ac)	32 031	10 066	8 903	8 155	7 291
Transport					
number of 4WTs of fibre dusts	60				
cost for transport one load of 4WT	225				
fibre dust transport cost (Rs/ac)	13 500				
planting material transport cost (Rs/ac)	200				
fertiliser transport cost (Rs)	200	200	200	200	200
Total transport cost (Rs/ac)	13 900	200	200	200	200
Machinery					
land preparation (Rs/ac)	2 000				
Total machinery cost (Rs/ac)	2 000				
Total variable cost (Rs/ac)	57 618	15 516	14 853	11 980	10 491
GROSS MARGIN (Rs/ac)	-57 618	82 918	92 829	58 625	27 829

Notes: Errors in sums are due to rounding.
* - 4000 plants per ac.
md - man-days, 4WT - four-wheel tractor trailer.
Source: Farmer survey, 1995.

Table 5 Crop budget for banana cultivation under coconuts (per ac)*

	Years				
OUTPUT	**1**	**2**	**3**	**4**	**5**
bunches	193	285	280	239	231
suckers	150	475	370	429	554
INPUTS					
Labour use (md)					
land clearing	6				
land preparation	5				
cutting pits	7				
dipping of suckers in chemicals	1				
planting	3				
fertiliser application	4	4	4	4	4
fibre dust mulching	4				
weeding	6	6	5	5	6.5
removal of suckers	2	4	4	5.5	11
application of insecticides	1				
removal of old banana logs		3	1	1	
harvesting	2	2	2	3.5	6
Total labour use (md)	41	19	16	19	27.5
Materials					
number of suckers	250				
fibre dust (number of 4WT loads)	35				
inorganic fertiliser (kg/ac)	334	350	354	378	353
Dimethoate 40 (ml)	400				
Mancozeb (kg)	0.5	2.5			
Carbofuran (kg)		2			
Transport					
number of 4WTs of fibre dust	35				
planting materials-number of 4WT loads	1				
fertiliser - number of 2WT loads	1	1	1	1	1
Machinery					
land preparation (Rs/ac)	2 000				

Notes: * - 158 plants per ac.
md - man-days, 4WT - four-wheel tractor trailer.
Source: Farmer survey, 1995.

Table 6 Gross margin (Rs/ ac*) of banana cultivation under coconuts

	Years				
OUTPUT	**1**	**2**	**3**	**4**	**5**
bunches/ac	193	285	280	239	231
average price (Rs/bunch)	200	175	150	125	85
income from bunches (Rs/ac)	38 600	49 875	42 000	29 875	19 635
suckers	150	475	370	429	554
average price (Rs/sucker)	18	18	18	18	18
income from suckers (Rs/ac)	2 700	8 550	6 660	7 722	9 972
GROSS RETURN (Rs)	41 300	58 425	48 660	37 597	29 607
INPUTS					
Labour use (md/ac)					
land clearing	6				
land preparation	5				
cutting pits	7				
dipping of suckers in chemicals	1				
planting	3				
fertiliser application	4	4	4	4	4
fibre dust mulching	4				
weeding	6	6	5	5	6.5
removal of suckers	2	4	4	5.5	11
application of insecticide	1				
removal of old banana logs		3	1	1	
harvesting	2	2	2	3.5	6
Total labour use (md/ac)	41	19	16	19	27.5
wage rate (Rs/md)	125	125	125	125	125
Total labour cost (Rs/ac)	5 125	2 375	2 000	2 375	3 437
Materials					
number of suckers	250				
average price (Rs/sucker)	18				
cost of suckers (Rs/ac)	4 500				
fibre dust (number of 4WT loads)	35				
price per 4WT (Rs)	175				
cost of fibre dust (Rs/ac)	6 125				
inorganic fertiliser (kg/ac)	334	350	354	378	353
average price (Rs/kg)	10.5	10.5	10.5	10.5	10.5
inorganic fertiliser cost (Rs/ac)	3 507	3 675	3 717	3 969	3 706
Dimethoate 40 (ml)	400				
price (Rs/400 ml)	240				
Dimethoate 40 cost (Rs)	240				
Mancozeb (kg)	0.5	2.5			
price (Rs/kg)	400	400			
Mancozeb cost (Rs)	200	1 000			
Carbofuran (kg)		2			
price (Rs/kg)		75			
Carbofuran cost (Rs)		150			
Total material cost (Rs/ac)	14 572	4 825	3 717	3 969	3 706
Transport					
number of 4WTs of fibre dust	35				
average cost for transport/one load of 4WT s	225				
fibre dust transport cost (Rs/ac)	7 875				
PM - number of 4WT loads	1				
planting materials transport cost (Rs/ac)	200				
fertiliser transport cost (Rs/ac)	200	200	200	200	200
Total transport cost (Rs/ac)	8 275	200	200	200	200
Machinery					
land preparation (Rs/ac)	2 000				
Total machinery cost (Rs/ac)	2 000				
Total variable cost (Rs/ac)	29 972	7 400	5 917	6 544	7 343
GROSS MARGIN (Rs/ac)	11 328	51 025	42 743	31 053	22 264

Notes: Errors in sums are due to rounding.
* - 250 plants per ac.
md - man-days, 4WT - four-wheel tractor trailer, PM - planting materials.
Source: Farmer survey, 1995.

Table 7 Crop budget for betel cultivation under coconuts (per 1000 sticks)

	Year				
	1	2	3	4[a]	5[b]
OUTPUT					
number of leaves	132984	217460	511052	610000	610000
INPUTS					
Labour use (man-days)					
land clearing	3				
ploughing (by mammoty)	6.5				
pegging	2.5				
bed preparation	6				
planting	3				
shading	0.5				
planting of sticks	3				
organic fertiliser application	7.5	6	7	6	6
inorganic fertiliser application	13.5	14	13	13	13
training of young vines	3				
preparation of wooden supports ("pandalama")	7				
installing wooden supports ("pandalama")	8				
weeding	8	9	8	2.5	2.5
making earthen drains	12.5				
watering *	35	35	35	35	35
harvesting and stacking leaves	75	80	89	120	120
cleaning of drains		5	4	4	
planting of sticks ("kowls")	6		2		
Total labour use (man-days/1000 sticks)	200	149	158	180.5	176.5
Materials					
number of sticks	1000				
organic fertiliser (number of baskets[c])	88	75	68	64	64
inorganic fertiliser (kg)	422	442	522	860	860
number of shoots	2000				
binding wire (kg)	4.5				
number of arecanut trees	2				
number of sticks ("kowls")	100				
number of coir twines	50				
Transport					
sticks - number of 2WT loads	1				
transport of leaves to the fair (trips/year)	14	50	50	50	50
fertiliser transport - number of bullock carts	1	1	1	1	1
transport of arecanut trees - number of trips	1		1		
transport of sticks ("kowls") - number of 2WT loads	1		1		
Machinery					
pump hiring cost for watering (Rs/watering/1000 sticks)	25	25	25	25	25
number of days watering practised per year **	140	140	140	140	140

Notes: c - a basket contains 6-7 kg of dried cow dung, md - man-days, 2WT - two-wheel tractor trailer.
a and b - Although it is commonly held that the economic life span of a betel cultivation is about five years, in practice, most farmers can maintain a betel cultivation only for about three years period due to practical problems such as disease, wind damage etc. However, the crop budget of betel was computed for five year period for completion sake.

* and ** - about 140 waterings per year (at the rate of one watering per day) has to be done. However, one watering with a water pump requires only about 2 hrs of the manual work of a man (to hold the hose etc.). One man day consists of 8 hrs, and therefore 4 waterings are required to make up one man day.

Source: Farmer survey, 1995.

Table 8 Gross margin (Rs/ac*) calculation for papaw cultivation under coconuts

	Years			
OUTPUT	**1**	**2**	**3**	**4**
number of fruits	3000	6300	4800	3000
average price (Rs/fruit)	8	8	7	7
GROSS RETURN (Rs)	24 000	50 400	33 600	21 000
INPUTS				
Labour use (md)				
land clearing	6			
cutting pits (2x2 ft)	12			
application of cow dung into pits	3			
planting	2			
first weeding and turning of soils round the plant	10			
first round of fertiliser application - 1 st year	8			
second round of fertiliser application - 1 st year	6			
fertiliser application		16	16	16
second round of weeding	4			
application of urea (after flowering)	1			
application of urea		2		
harvesting	2	4	4	3
weeding	16	12	12	12
removal of excessive fruits		1	1	
Total labour use (md)	70	35	33	31
Wager rate (Rs/man day)	125	125	125	125
Total labour cost (Rs)	8 750	4 375	4 125	3 875
Materials				
cow dung (number of baskets[c])	325			
price per basket[c] (Rs)	40			
number of plants	325			
price per plant (Rs)	10			
first round of inorganic fertiliser application (kg/plant)	0.5			
number of plants	325			
price per kg of fertiliser	10.50			
second round of inorganic fertiliser application (kg/plant)	1			
number of plants	325			
price per kg of fertiliser	10.50			
application of urea after flowering (kg/ac)	100	100	100	100
price (Rs/kg)	6.5	6.5	6.5	6.5
last round of fertiliser application in the first year (kg/plant)	1			
number of plants	325			
price (Rs/kg)	10.50			
application of fertiliser in subsequent years (kg/plant/round)		1	1	1
number of rounds		2	2	1
number of plants		325	325	325
price (Rs/kg)		10.5	10.5	10.5
Total materials cost	25 430	7 475	7 475	4 062
Transport				
transportation of PMs (number of 2WT loads)	1			
transport cost (Rs/2WT)	200			
transportation of fertiliser (number of 2WT loads)	1	1	1	1
transport cost (Rs/2WT)	200	200	200	200
transport cost of cow dung	4800			
Total cost of transportation	5 200	200	200	200
Total variable cost (Rs/ac)	39 380	12 050	11 800	8 137
GROSS MARGIN (Rs/ac)	15 380	38 350	21 800	12 863

Notes: Errors in sums are due to rounding.
* - 158 plants per ac.
c - a basket contains 6-7 kg of dried cow dung, md - man-days, 4WT - four-wheel tractor trailer.
Source: Farmer survey, 1995.

Table 3 Crop budget for pineapple cultivation under coconuts (per ac*)

	Year				
OUTPUT	**1**	**2**	**3**	**4**	**5**
number of fruits	-	7111	10322	10075	6065
number of suckers	-	1997	4928	3385	3676
INPUTS					
Labour use (md)					
land clearing	6				
land preparation	13				
dipping of suckers in chemicals	2				
planting	12				
fertiliser application	7	5	5	5	4.5
weeding	10	12.5	12	9	7
fibre dust mulching	17				
earthing up of fibre dust	6.5				
application of insecticide	2	2	2	1	1
application of hormones	2	2.5	3	4	2.5
fruit protection		8	10		
harvesting		4	5	6	5
removal of suckers		3	4	4	4
removal of leaves		5	5		
Total labour use (md)	77.5	42	46	29	24
Materials					
number of suckers	4000				
fibre dust - number of 4WT loads	60				
inorganic fertiliser (kg/ac)	832	843	706	671	642
Dimethoate 40 (ml)	400	400	400		
Ethral (ml)	400	400	800	800	800
weedicide (Diuron) ml))	400	1000	1000	800	
Transport					
number of 4WTs of fibre dusts	60				
PM - number of 4WT loads	1				
fertiliser - number of 2WT loads	1	1	1	1	1
Machinery					
land preparation (Rs/ac)	2000				

Notes: * - 4000 plants per ac.
md - man-days, 4WT- four-wheel tractor trailer, 2WT - two-wheel tractor trailer.
Source: Farmer survey, 1995.

Table 10 Gross margin (Rs/ 1000 sticks) of betel cultivation under coconuts

	Year				
OUTPUT	**1**	**2**	**3**	**4[a]**	**5[b]**
number of leaves	132984	217460	511052	610000	610000
average price (Rs/leave) *	0.38	0.34	0.17	0.12	0.1
income form leaves (Rs/1000 sticks)	50 534	73 936	86 879	73 200	61 000
GROSS RETURN (Rs/1000 sticks)	50 534	73 936	86 879	73 200	61 000
INPUTS					
Labour use (man-days)					
land clearing	3				
ploughing (by mammoty)	6.5				
pegging	2.5				
bed preparation	6				
planting	3				
shading	0.5				
planting of sticks	3				
organic fertiliser application	7.5	6	7	6	6
inorganic fertiliser application	13.5	14	13	13	13
training of young vines	3				
preparation of wooden supports ("pandalama")	7				
installing wooden supports ("pandalama")	8				
weeding	8	9	8	2.5	2.5
making earthen drains	12.5				
watering *	35	35	35	35	35
harvesting and stacking leaves	75	80	89	120	120
cleaning of drains		5	4	4	
planting of sticks ("kowls")	6		2		
Total labour use (man-days/1000 sticks)	200	149	158	180.5	176.5
wage rate (Rs/md)	125	125	125	125	125
Total labour cost (Rs)	25 000	18 625	19 750	22 562	22 062
Materials					
number of sticks	1000				
average price (Rs/stick)	2				
cost of sticks (Rs/1000 sticks)	2000				
number of organic fertiliser baskets[c]	88	75	68	64	64
price (Rs/basket)	40	40	40	40	40
cost of organic fertiliser (Rs)	3 520	3 000	2 720	2 560	2 560
inorganic fertiliser (kg)	422	442	522	860	860
price (Rs/kg)	12	12	12	12	12
Inorganic fertiliser cost (Rs/1000 sticks)	5064	5304	6264	10320	10320
number of shoots	2000				
price (Rs/shoot)	0.75				
cost of shoots (Rs)	1 500				
binding wire (kg)	4.5				
price (Rs/kg)	110				
cost of binding wire (Rs)	495				
number of arecanut trees	2				
price per tree	200				
cost of arecanut trees (Rs)	400				
number of "kowls"	100				
price per one "kowl"	3.50				
cost of "kowls"	350				
number of twines	50				
price of a twine	10				
cost of twines	500				
cost of material for wooden supports ("pandalama" (Rs))			375		
Total material cost (Rs)	13 829	8 304	9 359	12 880	12 880
Transport					
transport cost of sticks (Rs)	200				
transport cost of leaves to the fair (Rs/trip)	175	175	175	175	175
number of trips per year	14	50	50	50	50
transport cost of leaves to the fair (Rs/year)	2 450	8 750	8 750	8 750	8 750
fertiliser transport cost (Rs)	150	150	150	150	150
transport cost of arecanut trees (Rs)	200		200		
transport cost of sticks ("kowls" (Rs))	200		200		
Total transport cost (Rs)	3 000	8 900	9 300	8 900	8 900
Machinery					
pump hiring cost for watering (Rs/watering/1000 sticks)	25	25	25	25	25
number of days watering practised per year	140	140	140	140	140
cost for pump hire (Rs)	3500	3500	3500	3500	3500
Total machinery cost (Rs)	3500	3500	3500	3500	3500
Total variable cost (Rs/1000 sticks)	45 329	39 329	41 909	47 842	47 342
GROSS MARGIN (Rs/1000 sticks)	5 205	34 607	44 970	25 358	13 658

Notes: Errors in sums are due to rounding.

a and b - Although it is commonly held that the economic life span of a betel cultivation is about five years, in practice, most farmers can maintain a betel cultivation only for about three years period due to practical problems such as disease, wind damage etc. However, the crop budget of betel was computed for five year period for completion sake.

* - current prices may be higher than these prices.

c - a basket contains 6-7 kg of dried cow dung, md - man-days, 2WT - two-wheel tractor trailer.