

PROJECT PROFILE

ON

BIO-FERTILIZERS

Month & Year
July 2010

**PREPARED BY
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Supported by

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STIFTUNG **FÜR DIE FREIHEIT**

BIO-FERTILIZERS

INTRODUCTION

The Bio waste can be converted into useful bio-fertilizers. Vermicompost can be used as bio-fertilizer.

Vermiculture of Earthworm biotechnology can greatly improve soil productivity. Earthworms process soil and organic residues through their gut-clay and organic matter is intimately mixed and coated with organic stabilizing gums and lime secreted from a special gland within the digestive tract. The result is that the worm cast consists of just the type and size of waters table soil aggregate which is needed to hold water while allowing the crop root hairs which penetrate to obtain sufficient air and fully exploit the nutrient and moisture reserves contained with.

Advantages of Vermicompost

No.	CHEMICAL FERTILIZER	VERMICOMPOST
1	Expensive	Very Cheap
2.	Continuous use depletes the fertility of the soil	Increases the soil fertility
3.	Chemicals pollute the environment	Environmental friendly
4.	More water required for irrigation	Not much water required
5.	Pesticides required after use	Comparatively much less use of pesticide.
6.	Test difference notice in crops	The natural taste is preserved.

MARKET POTENTIAL

There is good market potential for bio-fertilizers in the fields, nurseries, gardens, etc. The users are to be educated on benefits derived out of bio-fertilizer which

condition the soil for fertility removing adverse effects of chemical fertilizers. There are a few famous brands in the market like Tata's Ralli Gold. The product also finds very good export potential.

Out of the total requirement of fertilizer in the country, about 10-15% can be estimated to be the demand for bio-fertilizer at present which can increase gradually with increase of awareness among the users. The users, using the bio-fertilizer, will gradually switchover to bio-fertilizer discounting the usage of chemical fertilisers to protect the fertility of the soil.

TECHNICAL ASPECTS

INSTALLED CAPACITY

The installed capacity of the unit proposed is 300 tons of Vermicompost p.a. on single shift basis and 300 working days p.a.

PLANT AND MACHINERY

The equipments required for the unit are:

S. NO	MACHINERY DESCRIPTION	QTY	VALUE
1.	Overhead water tank	1	172500
2.	Kutch sheds over the beds of 45 sqft.	20	23000
3.	Power driven straw cutter		23000
4.	Push carts and agriculture implements		17250
5.	Packing shed	1	69000
6.	Weighing machines	2	11500
7.	Vehicles		57500
	TOTAL		373750

MANUFACTURING PROCESS

Pits are dug according to the specification and all organic waste is put inside the pit and mixed well with the soil. Then water is sprayed over the waste to dampen the

soil and make the environment conducive for the earthworms to convert the waste to compost. The worms feed on this and vermicasting an effective bio-fertilizer produced by the worms is used.

A vermicompost plant can process about 20 tonnes of city waste per day with treatment of 20,000 earthworms.

RAW MATERIALS

Organic Waste (Solid Municipal waste) ---- Rs.39,600 at 100% for 300 MT.

LAND & BUILDING

A land area of 1 acre may be taken on lease basis, and 20 kutcha sheds of 45 sqft is required. An advance of Rs.1.00 lakh is provided.

UTILITIES

Power: About 10 H.P. power load is required for the operation of the unit.

Water: Water requires about 4 kilolitres p.a.

Man Power:

Category	Nos.	Monthly Salary	Total monthly Salary
Skilled workers	1	6000	6000
Unskilled workers	3	4000	12000
Manager	1	5000	5000
Supervisor			0
			23000
Add : Benefits	0%		0
Total			23000
Total wages per annum [Rs.lakhs]			Rs.2.76

IMPLEMENTATION SCHEDULE

The machines are available from local supplier within two weeks period. The project can be implemented within one month period.

COST OF PRODUCTION AND PROFITABILITY

Installed Capacity	300 MTs of Vermicompost per annum
Capacity utilisation	Year-1 -60% Year -2 -70% Year-3 onwards- 80%
Selling price	Rs.3200 Per MT
Raw materials	Rs.0.40 lakh at 100% utilisation.
Packing Material	Rs. 165.00 Per KG
Power	Rs.0.58 lakh at 100% utilisation.
Wages and salaries	Rs. 2.76 lakhs for the first year and it will be increasing by 5% by every year.
Repairs and Maintenance	Rs.0.12 lakh per annum (Rs. 1000 per month) with annual increase of 10%.
Depreciation	Written down value method -15 % on machinery
Selling general and administrative expenses	Rs.0.90 lakh for the first year (Rs.7500 per month) with an increase by 5% on every year
Interest on Term loan	12% per annum
Interest on working capital	12 % per annum
Income tax	33.22 % on profits

RAW MATERIAL SUPPLIERS

Raw materials used in this unit are locally available in the market.

KNOW-HOW SUPPLIERS

1. Tamilnadu Agricultural University, Coimbatore 641 003. Phone: 0422-6611233.
2. Shri Uday Bhawalkar, Bhawalkar Earthworm Research Institute,

Kalyan, Pune Satara Road, Pune – 411 037.

3. Rudset Institute, Airport Road, Perungudi, Madurai 625022. Phone: 0452-2690038/2690609.

FINANCIAL ASPECTS

1. COST OF PROJECT

	[Rs.lakhs]
Land & Building (Advance)	1.00
Plant & Machinery	3.74
Other Misc. assets	0.00
Pre-Operative expenses	0.20
Margin for WC	0.50
	<u>5.44</u>

2. MEANS OF FINANCE

Capital	2.64
Term Loan	2.81
	<u>5.44</u>

3. COST OF PRODUCTION & PROFITABILITY STATEMENTS

	[Rs.lakhs]		
Years	1	2	3
Installed Capacity (MT)	300	300	300
Utilisation	60%	70%	80%
Production/Sales (MT)	180	210	240
Selling Price per MT.	Rs.3,200		
Sales Value (Rs.lakhs)	5.76	6.72	7.68
Raw Materials	0.24	0.28	0.32
Packing Materials	0.30	0.35	0.40
Power	0.35	0.41	0.46
Wages & Salaries	2.76	2.90	3.05
Repairs & Maintenance	0.12	0.13	0.14
Depreciation	0.56	0.48	0.41
Cost of Production	4.33	4.55	4.78
Selling, Admin, & General expenses	0.90	0.95	1.00
Interest on Term Loan	0.34	0.29	0.21
Interest on Working Capital	0.00	0.00	0.00
Total	5.57	5.79	5.99

Profit Before Tax	0.19	0.93	1.69
Provision for tax	0.00	0.00	0.56
Profit After Tax	0.19	0.93	1.13
Add: Depreciation	0.56	0.48	0.41
Cash Accruals	0.75	1.41	1.54
Term Loan repayment	0.00	0.70	0.70

4. WORKING CAPITAL:

	Months	Values	%	Margin	Bank
	Consumptions			Amount	Finance
Raw Materials	1.00	0.02	100%	0.02	0.00
Expenses	1.00	0.48	100%	0.48	0.00
		0.50		0.50	0.00

6. PROFITABILITY RATIOS BASED ON 80% UTILISATION

<u>Profit after Tax</u>	=	<u>1.13</u>	15%
Sales		7.68	
 <u>Profit before Interest and Tax</u>	=	<u>1.90</u>	35%
Total Investment		5.44	
 <u>Profit after Tax</u>	=	<u>1.13</u>	43%
Promoters Capital		2.64	

7. BREAK EVEN LEVEL

Fixed Cost (FC):

	[Rs.lakhs]
Wages & Salaries	3.05
Repairs & Maintenance	0.14
Depreciation	0.41
Admin. & General expenses	1.00
Interest on TL	0.21
	<u>4.81</u>

Profit Before Tax (P) 1.69

$$\text{BEL} = \frac{\text{FC} \times 100}{\text{FC} + \text{P}} = \frac{4.81}{6.50} \times \frac{80}{100} \times 100$$

59% of installed capacity

