

PROJECT PROFILE

ON

BIO-AGENTS

Month & Year
July 2010

**PREPARED BY
TANSTIA-FNF SERVICE CENTRE
B-22, INDUSTRIAL ESTATE
CHENNAI-600032**

Supported by

Friedrich Naumann
STIFTUNG **FÜR DIE FREIHEIT**

BIO-AGENTS

INTRODUCTION

Indian Farmers have traditionally been using chemical pesticides for the control of insects & pests. Research has shown that continuous use of chemical pesticides on plants results in insects developing immunity over a period of time thereby requiring more and more dosages of hazardous pesticides. High use of high potency pesticides also poses problems of biological degradation, slow poisoning of warm blooded foods and eatables. These problems can be overcome by use of bio-agents. Bio-agents are cost effective, eco-friendly, easy to apply, technologically simple to adopt by farmers and very effective.

PRODUCT

The report proposes to set up a facility for the production and multiplication of *Trichogramma chilonis* (TC) and under controlled conditions TC is a parasitic insect which feeds on the eggs of *Heliothis Ar-migera* (HA), *Arias Vittella insulana*, *Pectinophora gossypiella* and other similar insects which attack cotton, sugar canes, tomato, maize and citrus plants. The annual targeted production is 35,000 TC cards and 2000 bottles of *Chrysopa*.

MARKET POTENTIAL

TC can be used on a number of commercial crops such as cotton, sugarcane, tomato, maize and citrus plants. The strategy for market development of Bio-agents will be through field demonstration and method demonstration. The demand for the product can be created in due course of time when farmers come to realize the distinct advantages of Bio-agents over the conventional chemical insecticides.

The annual growth rate in usage of TC cards is expected to be about 30% on cotton and 10% to 15% on other crops.

At 100% capacity utilization the unit will produce 35000 cards and 2000 bottles of chrysopa. This will cover about 650 hectares of area under water. The total area under cotton cultivation in a single state (Say Maharashtra) is itself .27 million hectares. Hence, we can see that the demand for the product is likely to outstrip production once the farmers come to realize the distinct advantages of this technology over the traditional method of spraying with chemical insecticides.

TECHNICAL ASPECTS

INSTALLED CAPACITY

The installed capacity of the unit proposed is 2000 bottles of Chrysopa p.a.

PLANT AND MACHINERY

The equipments required for the unit are working tables, iron racks, boxes, plastic trays, Aluminium cups, hot air oven, refrigerators, coolers, exhaust fans and generators. These are estimated at Rs.9.20 lakhs.

MANUFACTURING PROCESS

The production process involves procuring eggs of Trichogramma Chiloni's (TC) from agricultural university and then multiplying them through the laboratory process. The eggs are hatched and car cyra moths are collected after 40 days. The hatched moths are collected and transferred to egg cages for 3 days. Eggs are then collected and exposed to ultra violet radiation for 45 minutes. Eggs are then exposed to TC species in the ratio of 1 female to 2 eggs. Various species are maintained. Eggs are produced by the moth.

These are stored at 10° C for 7 days and then exposed to mass production in the ratio of 1 female: 30 eggs. Eggs are collected/laid on sheets /cards which are then used in fields. The larvae of the TC come out and feed on the egg of nests like poll worm and thereby destroy the poll worm population.

RAW MATERIALS

Eggs of Trichogramma Chilonis (TC), for Rs.45.60 lakhs of production, materials cost is Rs.24.20 lakhs.

LAND & BUILDING

A land area of ½ acre may be taken on lease basis with a building of 1200 sqft Rent Rs. 12000 per month. An advance of Rs.1.20 lakh is provided.

UTILITIES

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

Water: Water requires about 1000 litres per day.

Man Power:

Category	Nos.	Monthly Salary	Total monthly Salary
Skilled workers	1	6000	6000
Unskilled workers	3	4000	12000
Manager	1	5000	5000
			23000
Add : Benefits	20%		4600
Total			27600
Total wages per annum [Rs.lakhs]			Rs.3.31

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 & PROFITABILITY

ASSUMPTIONS

Installed Capacity	2000 bottles of Chrysopherla per annum
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Capacity utilisation	Year-1 -60% Year -2 -70% Year-3 onwards- 80%
Selling price	Rs.2280 Per MT
Raw materials	Rs.24.20 lakhs at 100% utilisation.
Power	Rs.3.43 lakhs at 100% utilisation.
Wages and salaries	Rs. 3.31 lakhs for the first year and it will be increasing by 5% by every year.
Repairs and Maintenance	Rs.1.20 lakh per annum (Rs. 10000 per month) with annual increase of 5%.
Depreciation	Written down value method -15 % on machinery
Selling general and administrative expenses	Rs.2.40 lakh for the first year (Rs.20000 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

EQUIPMENT SUPPLIERS

Equipments used in this unit are locally available in the market.

RAW MATERIAL SUPPLIERS

1. Tamilnadu Agricultural University
Bharathiar University P.O.
Coimbatore 641 046.

2. Agricultural University
Parbhani,
Maharashtra.

FINANCIAL ASPECTS

1. COST OF PROJECT

	[Rs.lakhs]
Land & Building (Advance)	1.20
Plant & Machinery	9.20
Pre-Operative expenses	1.50
Margin for WC	2.22
	<u>14.12</u>

2. MEANS OF FINANCE

Capital	7.22
Term Loan	6.90
	<u>14.12</u>

Term loan is calculated at 75% on plant and machinery

3. COST OF PRODUCTION & PROFITABILITY STATEMENTS

	[Rs.lakhs]		
Years	1	2	3
Installed Capacity (No. of bottles)	2000	2000	2000
Utilisation	60%	70%	80%
Production/Sales (No. of bottles)	1200	1400	1600
Selling Price per MT.	Rs.2,280		
Sales Value (Rs.lakhs)	27.36	31.92	36.48
Raw Materials	14.52	16.94	19.36
Packing Materials	0.00	0.00	0.00
Power	2.06	2.40	2.74
Wages & Salaries	3.31	3.48	3.65
Other Mft. Expenses	1.20	1.32	1.45
Depreciation	1.38	1.17	1.00
Cost of Production	22.47	25.31	28.20
Selling, Admin, & General expenses	2.40	2.52	2.65
Interest on Term Loan	0.83	0.72	0.52
Interest on Working Capital	1.08	1.08	1.08
Total	26.78	29.63	32.45
Profit Before Tax	0.58	2.29	4.03

Provision for tax	0.00	0.76	1.34
Profit After Tax	0.58	1.53	2.69
Add: Depreciation	1.38	1.17	1.00
Cash Accruals	1.96	2.70	3.69

4. WORKING CAPITAL:

	Months Consumptions	Values	%	Margin Amount	Bank Finance
Stock-in-process	2.00	3.75	25%	0.94	2.81
Debtors	3.00	6.84	10%	0.68	6.16
Expenses	1.00	0.60	100%	0.60	0.00
		11.19		2.22	8.97

6. PROFITABILITY RATIOS BASED ON 80% UTILISATION

$$\frac{\text{Profit after Tax}}{\text{Sales}} = \frac{2.69}{36.48} = 7\%$$

$$\frac{\text{Profit before Interest and Tax}}{\text{Total Investment}} = \frac{5.63}{23.09} = 24\%$$

$$\frac{\text{Profit after Tax}}{\text{Promoters Capital}} = \frac{2.69}{7.22} = 37\%$$

7. BREAK EVEN LEVEL

Fixed Cost (FC):

	[Rs.lakhs]
Wages & Salaries	3.65
Other Mft. Expenses	1.45
Depreciation	1.00
Admin. & General expenses	2.65
Interest on TL	0.52
	<u>9.27</u>

Profit Before Tax (P) 4.03

$$\text{BEL} = \frac{\text{FC} \times 100}{\text{FC} + \text{P}} = \frac{9.27}{13.30} \times \frac{80}{100} \times 100$$

56% of installed capacity