PROJECT PROFILE

ON

BIO-PESTICIDES

Month & Year
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PREPARED BY

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BIO-PESTICIDES

INTRODUCTION

The pesticide formulation is a physical mixture of one or several biologically active ingredients which provide effective and economic control of pests. These varied types of formulations of pesticides are intended to serve diverse needs of agriculture and public health. These also have to be manufactured to suit different types of applications. So far only inorganic pesticides have been in use and as an alternative now organic pesticides have come to be used. Neem pesticide is one among them, based on neem extract.

PRODUCT SPECIFICATION & USES

Pesticides cover a wide range of heterogeneous products which help in controlling the loss of crops and vegetation from attack pests. Pesticides are also used in cleaning in drains, sewages, canals, ponds, from unwanted vegetable and animal origin growth. In public health programmes pesticides eradicate malaria, cholera etc.

The main groups of pesticides are

1. Insecticides – which kill insects
2. Herbicides or weedicides – which remove unwanted shrubs, weeds
3. Fungicides – Which kill fungi and related growth
4. Fumigants – which are in gaseous form which kill insects, weeds fungi.
5. Rodenticides – which destroy, prevent and kill rodents, rates, squirrels, mice etc.
6. Nematicides – which prevent and kill nematodes such as earthworms which attack roots of crops

Pesticide formulation is a physical mixture of one or several biologically active chemicals and inert ingredients. The Bureau of Indian standards BIS has prescribed the standards for the following

IS 8190 - Solid Pesticides
- Liquid pesticides
- House hold pesticides
- Fumigants

The main forms of formulation available are:

1. Power form (Dusts)
2. Weltable powders
3. Granulated preparations
4. Emulsive concentrates
5. Solutions in waters
6. Aero sols and fumigants
7. Other types of formulation such as soaps, paints, pastes, waxes.

MARKET POTENTIAL

Agriculture is the largest and most important sector of the Indian economy with 70% of the people depending on it. Production from various agricultural sources contributes 40% of national income. The introduction of high yielding varieties of crops and modern crop production techniques have contributed to the increasing pest problems.

Pest problem is one of the major constraints for achieving higher production in agriculture crops. India loses about 30% of its crops due to pests and diseases each year. The damage due to these is estimated to be Rs.60,000 crores annually. The use of pesticides in crop protection has certainly contributed for minimising yield losses. The pesticides which are needed to be applied carefully, only when the threshold limits of the pest population is exceeded. However, quite often the indiscriminate and unscientific use of pesticides has led to many problems, such as pests developing resistance, resurgence of once minor pest into a major problem besides environmental and food safety hazards.

The problem of insect-pest is acute in case of all the crops and especially so in case of commercial crops. The use of insecticides and pesticides have increased manifolds during the past 3 - 4 decades with the introduction of intensive cropping. The average consumption of pesticides in India is about 570 gms per ha. as compared to developed countries like Japan, Thailand and Germany where the consumption rate is 11 kg, 17 kg and 3 kg per ha, respectively. Though the average quantum of pesticides usage in India is low, the damage caused due to their indiscriminate usage and poor quality maintenance is alarming. Interms of value, much of the pesticide application is accounted for by a few crops. For example, cotton, paddy and vegetable crops account for 80% of the value of pesticides applied in India.

The chemical pesticides which are easily accessible to the farmers giving quick perceptible results were often used indiscriminately and unnecessarily leading to several hazards to man and environmental problems. Entomologists have been constantly evaluating alterative method of pest management.
Considering the necessity of using organic based pesticides there is a growing demand for alternative pesticides.

TECHNICAL ASPECTS

INSTALLED CAPACITY

The installed capacity proposed is 30,000 litres of neem-based pesticide in liquid per annum. This is based on a production capacity of 100 litres per day.

PLANT & MACHINERY

The unit does not require any sophisticated machinery. The following machinery items are suggested

Mixing vessel with stirrer stainless steel 100 ltr.
Capacity (1 No.) Rs.50,000
Testing instruments & laboratory, Moisture Balance, Rs.40,000

Water testing, Ph meter, Turbidity metre,	
Vessels, Plastic Buckets etc.	Rs.45,000
Total	**Rs.135,000**

MANUFACTURING PROCESS

Various ingredients / chemicals are weighed and taken out from stores according to pre fixed formula. Ingredients are thoroughly mixed in mixing vessels. After uniform blending the mixture is taken out and packed in HDPE containers.

The manufacturing of pesticides requires licence from Tamilnadu Agriculture Department and Central Insecticides Bureau Faridabad.

RAW MATERIALS

Calculation for one litre pest

	Qty.	**Rate(ltr./gm)**	**Total value**
Azadiractin 0.15% WW m	1.5 ml.	Rs.58.00 per gm.	Rs.87.00
Associated neem kernal ingredients 1.35%	13.5ml	Rs.19.00 per ltr.	Rs. 0.26
Proplyene Glycol 98.5%	985.0 ml	Rs.130.00 per ltr.	Rs.128.05
Total			**Rs.215.31**
Packing Material (4 bottle of 250 ml x Rs.6.00)			Rs. 24.00
Raw material cost for one litre of pesticide			Rs.239.31

Total material cost per annum

at 100% utilisation 30,000 x Rs.239.31 = Rs.71.79 lakhs

LAND & BUILDING

An area of 500 sqft is sufficient to install the equipment and providing storage space. This can be arranged on rental basis at the rate of Rs.10 per sq. ft. is considered. An advance of Rs.50,000 is considered.

UTILITIES

Power: A single phase connection is sufficient to operate the mixing vessel.

Water*:* Water is required for cleaning and washing process and for human consumption which is estimated 2000 litres per day.

Man power:

Category	**Nos**	**Monthly Salary**	**Total Salary p.m.**
Supervisor/chemist	1	8000	8000
Workers	2	4000	8000
Total			**16000**
Add : 20% benefits			3200
			19200
Total salary per annum (Rs. lakhs)			**Rs.2.30 lakhs**

IMPLEMENTATION SCHEDULE

As the equipments are available easily, if financing arrangements are made, the project can be implemented in a month's time.

COST OF PRODUCTION & PROFITABILITY

ASSUMPTIONS

Installed capacity	30,000 litres of neem pesticides per annum, which is based on 100 litres per day, the unit works for 300 days.
Capacity utilisation	Year-1 -60% Year -2 -70% Year-3 onwards- 80%
Selling price	Rs.300/- per litre, this works out to Rs.90.00 lakhs per annum at 100% capacity utilisation.
Raw materials	Rs.71.19 lakhs at 100% per annum which includes packing materials also.
Power	Rs.0.24 lakh per annum i.e Rs.2000/- per

	month.
Wages and salaries	Rs.2.30 lakhs per annum. as per the details given above with annual increase of 5%.
Repairs and Maintenance	Rs. 0.60 lakh per annum with annual increase of 5%.
Depreciation	Written down value method -15 % on machinery
Selling general and administrative expenses	Rs. 1.20 lakhs per annum Rs.10000 per month with annual increase of 5%.
Interest on Term loan	12% per annum
Interest on working capital	12 % per annum
Income tax	33.22 % on profits

LIST OF EQUIPMENT SUPPLIERS

1. They Royal Scientific Industries, R.S.74-A, Tiny Sector, SIDCO Industrial State, Ekkatuthangal, Chennai 600 097
2. Bhuvaneswari & Co., No.13, Old Truck Road, Pallavaram, Chennai 600 043.

LIST OF RAW MATERIAL SUPPLIERS

Neem Extract

1. Eid Parry India Ltd., Farm Input Division, No.234 NSC Bose Road, Chennai 600 001
2. Bio-Technology & Seeds Division, SPIC Ltd., Agro Industrial Complex Chennai 600 015.

Proplyene Glycol

1. Scientific Chemicals, No.2, Ayya Pillai Street, Chennai 600 003.
2. Lab Chemicals, No.28, Nyniappa Naickan Street, Chennai 600 003.

1. COST OF PROJECT

	[Rs.lakhs]
Land and Building (Advance)	0.50
Plant & Machinery	1.35
Other Misc. assets	0.20
Pre-Operative expenses	0.20
Margin for WC	2.77
	5.02

2. MEANS OF FINANCE

Capital	4.01
Term Loan	1.01
	5.02

3. COSTOF PRODUCTION & PROFITABILITY STATEMENTS

Years	1	2	3
Installed Capacity (Ltr.)	30000	30000	30000
Utilisation	60%	70%	80%
Production/Sales (Ltr.)	18000	21000	24000
Selling Price	Rs.300	per ltr.	
Sales Value	54.00	63.00	72.00
Raw Materials (including packing materials)	43.07	50.25	57.43
Power (Rs.2000 p.m.)	0.24	0.26	0.29
Wages & Salaries	2.30	2.42	2.54

Repairs & Maintenance	0.60	0.63	0.66
Depreciation	0.20	0.17	0.15
Cost of Production	46.41	53.73	61.07
Admin, & General expenses	1.20	1.26	1.32
Interest on Term Loan	0.12	0.11	0.08
Interest on Working Capital	0.97	0.97	0.97
Total	**48.70**	**56.07**	**63.44**
Profit Before Tax	5.30	6.93	8.56
Provision for tax	1.76	2.30	2.84
Profit After Tax	3.54	4.63	5.72
Add: Depreciation	0.20	0.17	0.15
Cash Accruals	3.74	4.80	5.87

4. WORKING CAPITAL:

	Months Consumptions	Values	%	Margin Amount	Bank Finance
Raw Materials	2.00	7.18	25%	1.80	5.38
Consumables	0.00	0.00	25%	0.00	0.00
Finished goods	0.25	0.97	25%	0.24	0.73
Debtors	0.50	2.25	10%	0.23	2.02
Expenses	1.00	0.50	100%	0.50	0.00
		10.90		2.77	8.13

Say --> Rs.8.10 lakhs

6. PROFITABILITY RATIOS BASED ON 80% UTILISATION

$$\frac{\text{Profit after Tax}}{\text{Sales}} = \frac{5.72}{72.00} = 8\%$$

Profit before Interest and Tax / Total Investment	9.61 / 13.12	73%
Profit after Tax / Promoters Capital	5.72 / 4.01	143%

7. BREAK EVEN LEVEL

Fixed Cost (FC):

	[Rs. lakhs]
Wages & Salaries	2.54
Repairs & Maintenance	0.66
Depreciation	0.15
Admin. & General expenses	1.32
Interest on TL	0.08
	4.75
Profit Before Tax (P)	8.56

$$BEL = \frac{FC \times 100}{FC + P} = \frac{4.75}{4.75 + 8.56} \times \frac{80}{100} \times 100$$

29% of installed capacity