

BIOLOGICAL CONTROL LABORATORIES OF ANDHRA PRADESH

Introduction of Biocontrol Agents:

- Due to pests and diseases we are incurring a loss of 30-35% of crop production
- Indiscriminate use of fungicides and pesticides resulted a buildup of resistance in the diseases and pests
- Bio-control agents and Bio-pesticides have emerged as a viable alternatives

OBJECTIVES:-

- Mass production of microbial bio-pesticides viz., *Pseudomonas fluorescens*, *Trichoderma viridi*
- To monitor the pest and diseases incidence on major crops and popularize the concept of IPM
- To promote the bio control of crop pest by conservation and augmentation of bio-control agents
- To help farmers in promoting IPM Technology by supply of Bioagents through department under various farmers developmental subsidy schemes such as NFSM, Polambadi etc.,
- The bio pesticides that are being produced in 11 bio control labs in the state are *Pseudomonas fluorescens*, *Trichoderma viridi* and *Metarhizium anisopliae* with an aim to supply the bio pesticides under various farmers welfare developmental schemes.
 - The details of BC Labs are as follows:

S. No	Name of the District	Location of the B.C.Lab
1	Vizianagara m	Vizianagara m
2	Visakhapat nam	Visakhapat nam
3	Kakinada	Kakinada
4	East Godavari	Nidadavole
5	NTR	Ibrahimpnam
6	Guntur	Guntur
7	Prakasam	Ongole
8	Nellore	Nellore
9	Nandyal	Nandyal
10	Anantapuramu	Anatapuramu
11	YSR Kadapa	Kadapa

BC Lab - wise Annual production particulars for 2021- 22 are detailed below.

SL. No.	Name of the BCL	Total Quantity produced(MT)			
		Pseudomonos	Trichoderma	Metairhizium	Trichocards
1	BCL, Vizianagaram	17.56	8.281	0	0
2	BCL, Visakhapatnam	31.45	5.725	0	450
3	BCL, Kakinada, East Godavai	46.49	16.28	0	0
4	BCL, Nidadavole, East Godavari	21.42	5.622	0	0
5	BCL, IBM, Krishna	20.65	32.54	0	0
6	BC,Lam, Guntur	23.37	84.89	0	0
7	BCL, Prakasam	9.006	37.52	0	0
8	BC,Lam, Nellore	9.704	41.01	0.446	5415
9	BCL, Kadapa	12.84	28.3	0	50
10	BCL,Ananthapuramu	5	48	0	0
11	BCL, Nandyal	11.13	59.63	0	0
	Total	208.6	367.8	0.446	5915

- A total quantity of 367.8 MTs of Trichoderma viride, 208.6 MTs of pseudomonas fluorescense, 0.446 MTs of Metarhizium and 5915 Nos of Trichogramma cards were produced during 2021-22 in 11 BC Labs functioning in the state.

CONTROL AGAINST DISEASES:

1.Pseudomonas fluorescense:

It controls seed borne and soil borne diseases in crops like Paddy, Groundnut, Banana and Tobacco.

2.Trichoderma viride:

It controls the growth of fungal diseases on leaves, roots on crops such as Groundnut, Pulses, Vegetables, Cotton etc and acts as growth promoter. It is having antagonistic effect and produces antibiotics.

3. Tricho Card

It is an eco-friendly and non pathogenic product used in control of Eggs of Paddy stem borer, Leaf folder, cotton boll worm, Sugar cane early shoot borer, internode borer, Gram pod borer , leaf miner in Ground nut etc.

4. Metarhizium

Metarhizium is used mainly for control of Spodoptera in maize and pink bollworm in cotton, larval stages of Fall army worm (FAW) on crops like maize, rice, sorghum, bajra & cotton. It also control hoppers, aphids, Root grubs and Lepidopteran larvae.





BIOLOGICAL CONTROL LABORATORY NELLORE





Trichoderma viride



Microscopic observation of *T. viride*



Pseudomonas fluorescens



Microscopic observation of *P. fluorescens*



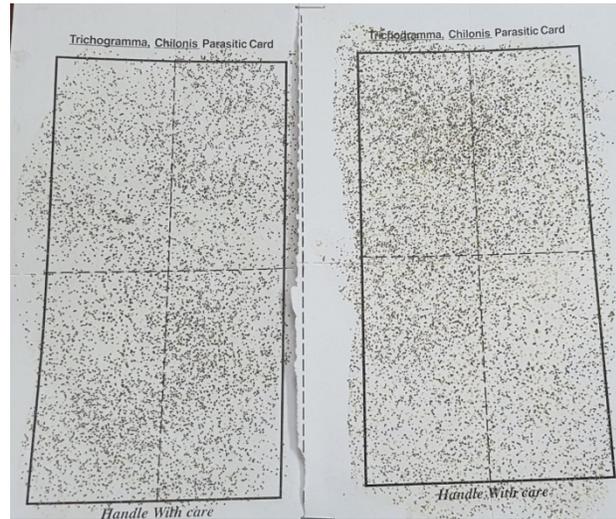
Metarhizium anisopliae



Microscopic observation of *M. anisopliae*



Trichogramma chilonis



Egg cards of *T.chilonis*

BIO FERTILIZER LABORATORY OF ANDHRA PRADESH

Introduction of Bio Fertilizers:

Bio-fertilizers are the substances that contain microbes, which help in promoting the growth of plants by increasing the supply of essential nutrients to the plants. It comprises living organisms which include mycorrhizal fungi, blue-green algae, and bacteria.

Types of Bio-fertilizers

Following are the important types of bio-fertilizers:

- 1) Nitrogen fixing Bacteria & Blue Green Algae
- 2) Phosphorus solubilizing bacteria
- 3) Potassium releasing bacteria

Symbiotic Nitrogen-Fixing Bacteria

Ex: Rhizobium

Loose Association of Nitrogen-Fixing Bacteria

Ex: Azospirillum

Symbiotic Nitrogen-Fixing Cyanobacteria

Ex: Blue-Green algae or Cyanobacteria

Free-Living Nitrogen-Fixing Bacteria

Ex: Azotobacter

Among all the types of bio-fertilizers, Rhizobium and Azospirillum are most widely used.

Importance of Bio-fertilizers:

- Bio-fertilizers improve soil texture and yield of plants.

- They do not allow pathogens to flourish.
- They are eco-friendly and cost-effective.
- Bio-fertilizers protect the environment from pollutants since they are natural fertilizers.
- They destroy many harmful substances present in the soil that can cause plant diseases.
- Bio-fertilizers are proved to be effective even under semi-arid conditions.
- Bio fertilizers are applied through Seedling root dip, seed treatment and Soil treatment methods.
- Bio fertilizers are cost effective when compared to traditional methods.
- Soil health is improved.
- Ultimately the consumer will get the good products without having the chemical residues.

One Bio fertilizer unit is established and run by the Department of Agriculture in Samalkot of Kakinada District in Andhra pradesh state with an annual production capacity of 100 MT carrier/ liquid. The unit is established with an objective of providing Bio fertilizers to the farmers at a reasonable cost.

BFL, Samalkot is producing both carrier and liquid formulations of bio fertilizers and distributing throughout the state to all departmental schemes and general sales.

Production of Bio-Fertilizers for 2021-22 at Biofertilizer lab, Samalkot, Kakinada District ,Andhra Pradesh (Qty in Kg/ Lts):

Name of the BFL	PSB	Rhizobium	Azotobacter	Azospirillum	Potassium releasing bacteria(KRB)	TOTAL (Qty in Kg/ Lts)
	Production (Qty in Kg/ Lts)					
BFL,Samalkot	58220	5080	1762	6920	2740	74722





