

**SUCCESS STORIES**  
**AICRP ON BCCP, KAU, THRISSUR**

**Popularization of Bio-intensive Integrated Pest Management  
(BIPM) in Kerala**

A project titled “Popularization of bio intensive integrated pest management (BIPM) in Kerala” was initiated at AICRP on BCCP, College of Horticulture, Vellanikkara in 2017-18 in order to ‘promote bio intensive integrated pest management (BIPM) in Kerala’.

Project activities included identification of Panchayats, developing/ identifying a team of trainers in BIPM in each district, promotion of *in situ* production of bio control agents and large scale validation of BIPM technology in each district.

**1. Training on low cost techniques for mass production of bioagents**

The selected participants were given hand on training in low cost mass production of the bioagents at AICRP on BCCP, College of Horticulture, Vellanikkara. A total of twelve training programmes were conducted over the project period, seven of which were at AICRP on BCCP, College of Horticulture, Vellanikkara and four at Palghat, in collaboration with at RATTC, Malampuzha.

Seven two day training programmes on “on farm production of biocontrol agents” were conducted. A total of 130 farmers belonging to thirty four panchayats in the five districts of Palakkad, Thrissur, Ernakulam, Kottayam and Alapuzha took part in the hands on training programmes. After the training, eight units have started the insitu production of biocontrol agents on large scale in Palakkad, Thrissur and Ernakulam districts. The details of training programmes conducted at Thrissur are given below.

**Details of training programmes**

<b>Sl. No</b>	<b>Date</b>	<b>District</b>	<b>Panchayats represented</b>	<b>Number of participants</b>
1	26 <sup>th</sup> &27 <sup>th</sup> September 2017	Thrissur	Anthikkad, Chazhoor, Thekkumkara	22
		Alapuzha	KCPM Moncombu	

2	20 <sup>th</sup> &21 <sup>st</sup> October 2017	Thrissur	Porathussery, Koratty	11
		Palakkad	Ottapalam	
3	3 <sup>rd</sup> &4 <sup>th</sup> January 2018	Palakkad	Mundur, Kollengode, Kottayi, Alathur	20
4	11 <sup>th</sup> &12 <sup>th</sup> January 2018	Ernakulam	Edathala, Varapuzha, Karukutty	16
		Palakkad	Ambalapara	
5	13 <sup>th</sup> &14 <sup>th</sup> March 2018	Thrissur	Annamanad, Pazhayannur, Chelakkara	23
		Ernakulam	Thiruvankulam, Alangad, Mookannur	
6	13 <sup>th</sup> &14 <sup>th</sup> February 2019	Thrissur	Vadanapally, Vellangallur, Chalakkudy, Mattathur, Kolazhy	25
7	6 <sup>th</sup> &7 <sup>th</sup> March 2019	Ernakulam	Chottanikkara, Puthencruz, Nellikuzhy, Karumalloor, Kanjoor	14

### Promotion of *in situ* production of bio control agents

Eight groups that received training at AICRP on BCCP have started units for production of bioagents till date. Among these, the *Trichogramma* mass production unit at Irinjalakkuda, with support from the funds of ADA, Irinjalakkuda, is into the second year and has already produced and distributed nearly 500 cc egg cards. The details of the functional units are given below.

SL. NO	PRODUCTION UNIT	BIOAGENT
1	Kollengode, Palakkad	Trichoderma
2	Porathussery, Thrissur	VAM
3	Vaniyamkulam, Palakkad	VAM
4	Porathussery, Thrissur	Trichocard
5	Edathala, Ernakulam	VAM
6	Kottayi, Palakkad	Trichoderma
7	Karukutty, Ernakulam	VAM
8	Varapuzha, Ernakulam	VAM

## 2. Large scale validation of BIPM technology in each district

For large scale validation of BIPM technology, about five farmers were identified from the three districts of Palakkad, Thrissur and Ernakulam. Demonstration plots were established under BIPM for paddy (5 acres) as well as vegetables (25 cents). BIPM plots recorded greater yield as well as significant reduction in cost of cultivation than the conventional plots which used pesticides.

Demonstration plots for BIPM in paddy as well as vegetables were organized in the three districts of Thrissur, Palghat and Ernakulam. The details are given below.

No	District	Name and addresses of farmers	Crop	Area
1	Ernakulam	Sri. M. N. Prabhakaran Nair, Mechery, Karumaloor	Paddy	5 acres
2.	-do-	Sri. P. K. Shaji, Poyyaparambu House, Malikampeedika, Alangad	Vegetables	26 cent
3.	Thrissur	Sri Rajan, V.K. Anthikad, Thrissur	Vegetables	29 cent
4.	Palakkad	Sri. Muhammad Fuad, Kizhakeveedu, Vanur, Alathur	Paddy	5 acres
5.	-do-	Sri. M. Muraleedharan, Sree Bhavan, Kanakkenthuruthy P.O., Kuruvai, Vadakkenchery	Vegetables	50 cent

### Major outcomes of the project

The project has successfully met the objectives set forth in the approved technical programme. However, the most important outcome could be in unearthing the remarkable energy and enthusiasm the farming community has towards sustainable ecofriendly farming. This energy can and ought to be harnessed through a strategy followed in the project or through similar approaches. Intensive and extensive efforts along the above lines can help mitigate the problem of non-availability of quality bioagents to a great extent. The demonstration plots have convinced the local farming communities about the economic and ecological viability of BIPM approach paddy as well as in vegetable cultivation. The participants also showed great interest in initiating mass production of bioagents. As many as eight groups have started bioagent production units. The project has produced a few

outstanding success stories in BIPM as well as mass production of biocontrol agents. Some of the most noteworthy examples are presented below.

## SUCCESS STORIES

### 1. MASS PRODUCTION OF TRICHOCARD– Porathussery Krishibhavan

A group of 5 farmers from Porathussery Krishibhavan, namely Sasidharan. K, C.K.Rajan, Susidhambaran V.M, Prasannan M.G, Prabhakaran M.A, attended the training on “On farm Production of Biocontrol Agents” from 20<sup>th</sup> October 2017 to 21<sup>st</sup> October 2017 at BCCP, KAU, Vellanikkara. Subsequently they were provided with seed capital of Rs.30,000/- as well as other facilities including a room by the DOA officials. The host as well as parasitoid cultures were provided by AICRP on BCCP, Vellanikkara. The group produced about 200 cc in the first season (2017-18) and another 400 cc in the second year.



Plate 1. Mass production facility at Porathussery

### 2. MASS PRODUCTION OF TRICHODERMA –Kollengode Krishibhavan

Sikaner.N, Suresh Kumar.B, Sreejith.K(Field Assistant), Abdul Asiz, Zaid Muhammad. K, nominated by Kollengode krishibhavan attended the training on “On farm Production of Biocontrol Agents” from 3<sup>rd</sup> January 2018 to 4<sup>th</sup> January 2018 at BCCP, KAU, Vellanikkara. After the training, they received a fund of Rs.20,000/- from the Kollengode Krishibhavan for the mass production of *Trichoderma viridae*. They bought the culture from BCCP as well as from

Coir Board, Trivandrum. With that they have started the mass production unit of Trichoderma successfully in their Krishibhavan itself and have already sold about 600 kg of Trichoderma through their Plant Health Clinic.



Plate 2. Mass production of trichoderma – Kollengode

### 3. Large scale bio-intensive pest management on rice

Large scale validation of BIPM in rice was carried out in farmer's field at Alathur grama panchayat of Palghat district from Sept 2018 to February 2019. The results of the validation in terms of pest infestation, natural enemy population and yield are presented below.

Adoption of BIPM practices led to substantial reduction in infestation by major pests. The mean stem borer population in BIPM plots was 70 per cent lower as compared to non BIPM plots. Similarly, the dead heart as well as white ear head symptoms recorded 40 and 66 per cent reduction in IPM plots as compared to non BIPM plots. Similarly, leaf folder damage as well as rice bug populations were nearly 20 per cent of what was reported from conventionally managed plots.

The population of natural enemies too was higher in BIPM plots. While mean spider population in BIPM plots was 12.5/m<sup>2</sup>, the same for non BIPM plots was only 8.5/m<sup>2</sup>. The average population of *Ophionea* sp. at 9.3/m<sup>2</sup> likewise, was, higher in plots following BIPM practices. Greater parasitoid activity was again observed in BIPM plots.

The yield obtained from BIPM plots, at 8000 kg/ha was approximately 14.5 per cent more than that obtained from non BIPM plots (7000 kg/ha). The cost of cultivation also was nearly 8 per cent lower in the former. The increased yield as well as reduced cost resulted in an increase in profit by Rs 46,210/ha. The cost benefit ratio, at 2.24 for BIPM fields compared quite favorably with 1.90 for non BIPM fields.

### Comparison between BIPM and non BIPM plots at Alathur Panchayat

Sl. No.	Particulars	BIPM plot (Mean no/m <sup>2</sup> )	Non BIPM plot (mean no/m <sup>2</sup> )
1.	Army worm in nursery	25	26
2.	Thrips damage	37	48
3.	Bacterial leaf blight attack	10	35
4.	Dead hearts	4	6.5
5.	White ear heads	6	18
6.	Stem borer moths	2.5	8.5
7.	Leaf roller damage	3	14
8.	Rice bug	4	12
9.	Spiders	12.5	8.5
10.	<i>Ophionea</i> sp	20.2	9.3
11.	Water striders	17.8	12.4
12.	Dragon fly	20.7	10.5
13.	Parasitoids	18.0	9.5
14.	Yield (kg/ha)	8750 kg	7000 kg
15.	Returns per ha (@Rs. 23.5/kg)	Rs. 2, 05,625/-	Rs. 1,64,500
16.	Cost of cultivation (Rs/ha)	Rs. 63,415/-	Rs. 68,500/-
17.	Net return per ha	Rs. 1,42,210/-	Rs. 96,000/-
18.	Cost benefit ratio	2.24	1.40



Plate 3. A view of BIPM plots at Alathur, Palakkad



Plate 4. Training on low cost production of *Beauveria bassiana*



Plate 5. Training on production of VAM



Plate 6. Training on mass production of *Corcyra cephalonica*





Plate 7. Training on mass production of *Corcyra cephalonica*