

**PROFORMA FOR COLLECTION OF DATA OF RESEARCH PROGRAMME IN  
SERICULTURE**

**PART I: GENERAL INFORMATION**

1.	Name of the Institute / University / Organization submitting the Project Proposal	:	<b>Central Sericultural Research &amp; Training Institute</b> , Central Silk Board, Ministry of Textiles: Govt. of India, Berhampore – 742 101, Murshidabad, West Bengal, India
2.	Status of the Institute(s)	:	NA
3.	Name(s) and designation of the Executive Authority of the Institute / University forwarding the application	:	<b>Dr. Kanika Trivedy</b> Director,
4.	Project Title	:	<b>BPI(P)025: Maintenance of Mulberry Germplasm Bank at CSR&amp;TI, Berhampore (West Bengal)</b>
5.	Category of the Project	:	Basic
6.	Specific Area	:	P – Plant M–Maintenance G- Germplasm
7.	Duration	:	2016-2020 (initially for 5 years and continuous in nature)
8.	Total cost:	:	<b>Rs. 3.86 Lakhs</b>
9.	Is the Project is single institutional or multi-institutional	:	Single
10.	If the Project is multi-institutional, please furnish the following: Name, Designation and Address of the Project Co-ordinator	:	-

**11a. PROJECT SUMMARY:**

Plant genetic diversity is increasingly being recognized as a basic key component for sustainable development. The need for diversity is continuous because of fast changing of environment. The scarcity of land and water will be major constraints for mulberry cultivation in future and development of varieties suitable for different agro-climatic conditions are of utmost importance for sustainable development of sericulture in India. Keeping this in view, CSGRC, Hosur was established to collect, characterize and conserve the mulberry germplasm to promote greater utilization of diverse gene pool by breeders.

As a premier Institute covering mostly Eastern & North-Eastern regions of India, a handsome size of mulberry breeding materials are being maintained since inception of this Research station. We are having a total of more than 300 accessions comprising **159** Germplasm varieties, **33** triploid, **29** tetraploids and **80** elite lines. These are being maintained and mostly used in different breeding programme.

**11b. AIMS AND OBJECTIVES:**

Maintenance of mulberry Germplasm bank at a premier Institute in Eastern India.

**PART II : PARTICULARS OF INVESTIGATORS**

<b>12</b>	a) Name	<b>Mr. Suresh K</b>
	Date of Birth	13.07.1988
	Sex	M
	Indicate whether Principal Investigator/ Co-investigator	<b>PI</b>
	Designation	Scientist-B
	Department	MBG
	Institute/University: Address	CSR&TI, Berhampore, West Bengal
	b) Name	<b>DR M K GHOSH (UP TO 31-03-2016) DR RITA BANERJEE (FROM 01-04-2016)</b>
	Date of Birth	05-04-1961
	Sex	F
	Indicate whether Principal Investigator/ Co-investigator	<b>CI-1</b>
	Designation	Scientist - D
	Department	MBG
	Institute/University: Address	CSR&TI, Berhampore, West Bengal
	c) Name	<b>MR DEBAJIT DAS</b>
Date of Birth	20-09-1963	
Sex	M	
Indicate whether Principal Investigator/ Co-investigator	<b>CI-2</b>	
Designation	Scientist-D	
Department	Sericulture Division	
Institute/University: Address	CSR&TI, Berhampore, West Bengal	
d) Name	<b>DR S K DUTTA</b>	
Date of Birth	20-04-1957	
Sex	M	
Indicate whether Principal Investigator/ Co-investigator	<b>CI-3</b>	
Designation	Scientist D	
Institute/University: Address	CSR&TI, Berhampore, West Bengal	
e) Name	<b>Dr. S. NIRMAL KUMAR</b>	
Indicate whether Principal Investigator/ Co-investigator	Executive authority	
Designation	Director	
Institute/University: Address		
<b>13</b>	No. of Projects being handled by each investigator at present	
a	DR M K GHOSH	PROJECTS: 3
b	Mr. Suresh K	PROJECTS: 3
c	Dr R Banerjee	PROJECTS: 3
d	Dr. S K Dutta	PROJECTS: 2
e	Mr Debojit Das	PROJECTS: 4

**14. PROPOSED RESEARCH FELLOWS: NIL**

## **PART III: TECHNICAL DETAILS OF PROJECT**

### **15. INTRODUCTION:**

Mulberry genetic resources are the backbone of crop improvement. Collection, introduction and exchange can enrich existing gene pool and provide breeders greater scope for further improvement. The documentation acts as sources of information to assist in the setting of the priorities, planning and operation of germplasm management. For effective information management of PGR, a complete inventory of the mulberry genetic resources of the nation with their Passport has to be developed. The information can be useful, meaningful and economical when it is properly analysed and logically organised to make it user friendly, easily available and retrievable.

#### **15.1: DEFINITION OF THE PROBLEM**

The mandate of CSR&TI, Berhampore is mulberry improvement and since 50 years a handsome number of improved mulberry varieties have been developed by this Institute. During this journey the productivity level reached from 14-15 mt/ha/year of Bombai local to 54-56 mt/ha/year of C-2038. In addition, the Institute has also developed improved mulberry varieties as per need of the problematic regions like acidic soils, flood and drought prone areas. By utilizing the genetic resources available at Berhampore we achieved the goal. Breeders are utilizing the genetic resources for breeding programme.

#### **15 a. ORIGIN OF THE PROGRAMME**

For maintenance of the genetic resources we are incurring expenditure towards cost of manures, fertilizers, time to time cleaning, digging pruning and irrigation during dry spells. Therefore in the proposed programme the maintenance cost of the genetic resources to be calculated and to be shown in the Institute's budget.

#### **15 b. EXPECTED OUTCOME**

Development of improve mulberry utilizing the genetic resources

## **15.2: ORIGIN OF THE PROPOSAL/ RATIONALE OF THE STUDY**

Previously the maintenance cost of the Mulberry Genetic Resources was shared from other projects. But according to recent concept everything is accountable, so the maintenance cost of the same to be calculated and to be included in the Institute's budget.

## **15.3: RELEVANCE TO THE CURRENT ISSUES AND EXPECTED OUTCOME**

The study is very much relevant to the current financial condition of the industry where everything is accountable.

## **15.4 OBJECTIVE**

Maintenance of mulberry Germplasm bank at a premier Institute in Eastern India.

## **16. REVIEW OF STATUS OF RESEARCH AND DEVELOPMENT OF THE SUBJECT**

### **16.1 INTERNATIONAL STATUS**

NA

### **16.2 NATIONAL STATUS**

NA.

### **16.3 IMPORTANCE OF THE PROPOSED PROJECT IN THE CONTEXT OF CURRENT STATUS**

Identification of mulberry variety with high yield and quality for the eastern regions will result in its commercial exploitation by sericulturists of this region. It is expected that mulberry variety with high yield and quality will be very useful for improving the economic conditions of the farmers of the eastern region.

### **16.4 ANTICIPATED PRODUCTS, PROCESSES/TECHNOLOGY, PACKAGES/ INFORMATION OR OTHER OUTCOME FROM THE PROJECT AND THEIR EXPECTED UTILITY**

The expected outcome of the programme will be useful to develop and update the unit maintenance cost of the GPB accessions.

### **16.5 EXPERTISE AVAILABLE WITH PROPOSED INVESTIGATION GROUP / INSTITUTION ON THE SUBJECT OF THE PROJECT:**

Expertise is available within the investigating group and all the investigators having sufficient experience in mulberry research.

## 17 WORK PLAN

### 17.1 Methodology:

The Programme is having following activities.

1. Maintenance of Germplasm accessions with proper agronomic practices (Rangaswami et al.1976)
2. Recording of disease incidence in the mulberry genetic resources i.e., Bacterial leaf spot, *Myrothecium* leaf spot, *Pseudocercospora* leaf spot and Powdery mildew.
3. Recording of pest incidence in the mulberry genetic resources i.e., Population of thrips, Population of white fly, Tukra and Bihar hairy caterpillar.

### 17.2: ORGANISATION OF WORK ELEMENTS

Sl. No.	Name of the scientist	Designation	Time (%)	Organization of work elements
1.	Mr. Suresh K	Scientist-B	50	Maintenance of Germplasm plots with proper agronomic practices
2.	Dr. Rita Benerjee	Scientist-D	10	Maintenance of Germplasm plots with proper agronomic practices
3.	Dr. S.K. Dutta	Scientist-D	20	Recording of disease incidence of the mulberry genetic resources
4.	Sri Debojit Das	Scientist-D	20	Recording of pest incidence of the mulberry genetic resources

**17.3 PROPRIETARY / PATENTED ITEMS, IF ANY, EXPECTED TO BE USED FOR THIS PROJECT:** Not applicable

### 17.4 SUGGESTED PLAN OF ACTION FOR UTILIZATION OF THE EXPECTED OUTCOME FROM THE PROJECT:

Identified suitable genetic material(s) will be utilized in targeted breeding programme for mulberry improvement.

### 17.5. TIME SCHEDULE OF ACTIVITIES GIVING MILESTONES

Sl. No.	Milestone / Activity	Expected Date of		Expected Outcome / visible/ measurable indicator
		Starting	Completion	
1	Pruning, Weeding, digging and Fertilizer application.	July of every year	Will be completed in one month	Proper management of GPB plots
2	Recording of disease incidence of the mulberry genetic resources	Every month	Will be taken month basis on 20th	Disease incidence of the GPB accessions
3	Recording of pest incidence of the mulberry genetic resources	Every month	Will be taken month basis on 20th	Pest incidence of the GPB accessions

#### 17.6. PROJECT IMPLEMENTING AGENCY/ AGENCIES :

Name of the Agency	Address of the Agency	Proposed Research Aspects	Proposed Amount	Cost Sharing %
CSB	CSB, Bangalore			100 %

#### PART VI: REFERENCES

Dandin, S.B. and Giridhar, K.(2010). In: Handbook of sericulture technologies. Central Silk Board, Bangalore, India, pp 157-158.

Ghosh M K and Bondroo BB(2011).Mulberry Breeding. Published by Director,Central Sericultural Research & Training Institute, Berhampore, WB

Ghosh M K, S K Dutta, Shiv Nath, Ghosh PK and Bondroo BB(2012).Nature and Science 10(12):23-32.

Ghosh M K., Das N K., Shiv Nath, Ghosh PK., Ghosh A. and Bajpai A K. (2009). *Journal of Crop and Weed* 5(1):11-18

Govindaiah, Gupta VP,Sharma DD, Rajadurai S,Naik VN.(2005).In:Sampath J(ed.), Central Silk Board,pp 145-177.

Rangaswami G, Narasimhana M N, Kasiviswanathan K, Sastry C R And Jolly M(1976). In: Manual on Sericulture.Mulberry cultivation.Agriculture Service Bulletin:1(15).

## PART IV: BUDGET PARTICULARS

### BUDGET (in Rupees): Rs. 3.86 Lakhs

[In case of multi-institutional projects, the budget details should be provided separately for each of the institute]

<b>A. Non-Recurring</b> (e.g. equipments, accessories, etc.) [Rupees in Lakh]:							
Sl.No.	Item	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr	4 <sup>th</sup> Yr	5 <sup>th</sup> Yr	Total
		-	-	-	-	-	-
		-	-	-	-	-	-
		-	-	-	-	-	-

### **B. Recurring:**

#### **B1. Manpower: -**

Sl. No.	Position	Nos.	Consolidated Emoluments	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr	4 <sup>th</sup> Yr	5 <sup>th</sup> Yr	Total
	JRF/SRF/RA	NA	-	-		-		-	-
	HRA	NA	-	-		-		-	-
	CCA	NA	-	-		-		-	-
<b>Sub-total B1:</b>		-	-	-		-		-	-

Sl. No.	Item	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr	4 <sup>th</sup> Yr	5 <sup>th</sup> Yr	Total
1.	Stationeries/ Office Contingencies.	0.10	0.10	0.10	0.10	0.10	0.50
2.	Research Operations (FYM, Fertilizers) .	0.65	0.66	0.67	0.68	0.70	3.36
<b>Sub-total B2:</b>		<b>0.75</b>	<b>0.76</b>	<b>0.77</b>	<b>0.78</b>	<b>0.80</b>	<b>3.86</b>

Sl.No.	Item	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr	4 <sup>th</sup> Yr	5 <sup>th</sup> Yr	Total
<b>B3</b>	Travel						
<b>B4</b>	Contingency (planting material supply)						
<b>B5</b>	Overhead charges						
<b>Sub-total (B1+B2+B3+B4+B5):</b>		<b>0.75</b>	<b>0.76</b>	<b>0.77</b>	<b>0.78</b>	<b>0.80</b>	<b>3.86</b>