RFD

Results - Framework Document

(2011 – 2012)

NATIONAL RESEARCH CENTRE FOR BANANA,

THOGAMALAI ROAD, THAYANUR P.O.,

TIRUCHIRAPALLI-620 102,

TAMIL NADU

Section 1: Vision, Mission, Objectives and Functions

Vision

1. To increase the production and productivity and to sustain the growth through technological innovations for the livelihood and nutritional security of the banana growers and consumers.

Mission:

1. Enhancing productivity and quality of banana through varietal improvement.
2. Production of quality planting material of banana
3. Resource based planning and crop management.
4. Effective and eco-friendly crop protection.
5. Improving storage methods and nutritional quality of banana based foods.

Objectives:

1. Collection, Conservation and evaluation of genetic resources/ germplasm for sustainable use
2. Increasing production and productivity of banana and value addition
3. Plant health management utilizing diagnosing, bio-intensive management of pests and diseases

Functions:

1. To plan, co-ordinate and monitor research for development at national level.
2. To serve as knowledge repository of Musa germplasm and establish national and international cooperation and visualize research needs as per changing scenario
3. To overview the implementation of programmes in relation to targets and needs.
4. To do mid-term corrections in the frame work of needs and objectives
5. To collaborate with relevant national and international agencies in achieving the targets

Section 2:

Inter se priorities among Key Objectives, Success Indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target/Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100 %	90 %	80%	70%	60 %
1). Collection,Conservation and evaluation of genetic resources/ germplasm for sustainable use	**25**	1) Enrichment of banana genetic resources	Number of germplasm collected, evaluated and conserved	No.	5	30	26	24	21	18
			Production and supply of germplasm and plant material	No.	5	50	45	40	35	30
			Morpho-taxonomic and molecular characterization	No.	5	4	3	2	1	0
		2) Development of new/ improved varieties and hybrids	Improvement of varieties through biotechnological approach	No.	5	5	4	3	2	1
			Development and evaluation of mutants and application of molecular markers	No.	5	5	4	3	2	1
2). Increasing production and productivity of banana and value addition	**35**	Development of production technology and value added products in banana	Production technologies through high density and organic manure for quality production and yield	No.	6	35	30	26	22	18
			Development of fertilizer adjustment equations for different varieties of banana	No.	7	4	3	2	1	0
			Identification of physiological traits for salt/ drought tolerance	Traits	7	12	10	8	6	4
			Identification of Nematode resistant compounds through HPLC	No.	5	10	8	6	4	2
			Technologies /Methodologies /Processes and value added products developed	No.	6	8	6	4	3	2
			Organizing training, demonstration, workshop, TV programmes	No.	4	15	12	10	8	6
3). Plant health management utilizing diagnosing, bio-intensive management of pests and diseases	**29**	Development of eco-friendly technology for effective management of biotic stress	Identification of effective control agents against banana aphids and weevils	No.	8	10	9	8	7	6
		Development of	Identification of nematode resistant	No.	5	8	7	6	5	4

	nematode resistant gene sources and effective management of biotic stress	gene sources and effective bio-agents for the suppression of nematodes							
	Genetic diversity analysis of Indian Foc isolates and M.Eumusae	Identification of group of strains among the Foc and *M. Eumusae* isolates of India.	No.	4	20	18	16	14	12
	Evaluation of Trichoderma spp. against Fusarium wilt and Sigatoka leaf spot diseases	Identification of effective microbes/ mutant for the management of fusarium wilt and Sigatoka leaf spot diseases of banana	No.	4	12	10	9	8	7
	Development of Virus resistant transgenic plants	Putative transgenic lines developed	No.	4	400	360	320	280	240
		No. of virus isolates characterized molecularly	No.	2	6	5	4	3	2
		Production of virus free healthy mother plants for important varieties	No.	2	600	540	480	420	360
4. Efficient functioning of the RFD system	Timely submission of RFD for 2011-12	On-time submission	Date	2%	June10, 2011	June 14, 2011	June 16, 2011	June 20, 2011	June 22, 2011
	Timely submission of Results for 2011-12	On-time submission	Date	1%	May 1 2011	May 3 2011	May 4 2011	May 5 2011	May 6 2011
	Finalize a Strategic Plan for RC	Finalize the Strategic Plan for next 5 years	Date	2%	Dec. 10 2011	Dec. 15 2011	Dec. 20 2011	Dec. 24 2011	Dec. 31 2011
	Identify potential areas of corruption related to organisation activities and develop an action plan to mitigate them	Finalize an action plan to mitigate potential areas of corruption.	Date	2%	Dec. 10 2011	Dec. 15 2011	Dec. 20 2011	Dec. 24 2011	Dec. 31 2011
	Implementation of Sevottam	Create a Sevottam compliant system to implement, monitor and review Citizen's Charter	Date	2%	Dec. 10 2011	Dec. 15 2011	Dec. 20 2011	Dec. 24 2011	Dec. 31 2011
		Create a Sevottam Compliant system to redress and monitor public Grievances	Date	2%	Dec. 10 2011	Dec. 15 2011	Dec. 20 2011	Dec. 24 2011	Dec. 31 2011

Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual value for FY 09/10	Actual value for FY 10/11	Target value for FY11/ 12	Projected value for FY 12/13	Projected value for FY 13/14
1). Collection, Conservation and evaluation of genetic resources/ germplasm for sustainable use	1) Enrichment of banana genetic resources	Number of germplasm collected, evaluated and conserved	No.	2	3	26	5	6
		Production and supply of germplasm and plant material	No.	15	20	45	30	35
		Morpho-taxonomic and molecular characterization	No.	1	2	3	4	5
	2) Development of new/ improved varieties and hybrids	Improvement of varieties through biotechnological approach	No.	1	2	4	4	5
		Development and evaluation of mutants and application of molecular markers	No.	2	2	4	5	5
2). Increasing production and productivity of banana and value addition	Development of production technology and value added products in banana	Production technologies through high density and organic manure for quality production and yield	No.	20	25	30	25	20
		Development of fertilizer adjustment equations for different varieties of banana	No.	20	25	3	25	20
		Identification of physiological traits for salt/ drought tolerance	Traits	2	3	10	4	5
		Identification of Nematode resistant compounds through HPLC	No.	4	4	8	6	8
		Technologies /Methodologies /Processes and value added products developed	No.	5	6	6	9	10
		Organizing training, demonstration, workshop, TV programme, video conferences	No.	10	12	12	12	14
3). Plant health management utilizing diagnosing, bio-intensive management of pests and diseases.	Development of eco-friendly technology for effective management of biotic stress.	Identification of effective control agents against banana aphids and weevils	No.	6	9	9	9	10
	Development of nematode resistant gene sources and effective management of biotic	Identification of nematode resistant gene sources and effective bio-agents for the suppression of nematodes	No.	5	7	7	8	8

	stress							
	Genetic diversity analysis of Indian Foc isolates and *M. eumusae*	Identification of group of strains among the Foc and *M. eumusae* isolates of India	No.	10	18	18	20	20
	Evaluation of Trichoderma spp. against Fusarium wilt and Sigatoka leaf spot diseases	Identification of effective microbes/ mutant for the management of fusarium wilt and Sigatoka leaf spot diseases of banana	No.	8	10	10	12	12
	Development of Virus resistant transgenic plants	Putative transgenic lines developed	No.	300	360	360	280	240
		No. of virus isolates characterized molecularly	No.	4	5	5	3	2
		Production of virus free healthy mother plants for important varieties	No.	5	540	540	550	555
Efficient functioning of the RFD system	Timely submission of RFD for 2011-12	On-time submission	Date			June 14, 2011		
	Timely submission of Results for 2011-12	On-time submission	Date			May 3 2011		
	Finalize a Strategic Plan for RC	Finalize the Strategic Plan for next 5 years	Date			Dec. 15 2011		
	Identify potential areas of corruption related to organization activities and develop an action plan to mitigate them	Finalize an action plan to mitigate potential areas of corruption.	Date			Dec. 15 2011		
	Implementation of Sevottam	Create a Sevottam compliant system to implement, monitor and review Citizen's Charter	Date			Dec. 15 2011		
		Create a Sevottam Compliant system to redress and monitor public Grievances	Date			Dec. 15 2011		

Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

1. **Objective 1:**.The objective aims at development of improved banana varieties for high yield and carrying resistance / tolerance to important biotic and abiotic stresses. This activity will be achieved by collection, conservation, evaluation and utilization of banana germplasm for breeding improved cultivars. Both conventional and non-conventional approaches will be used for germplasm management as well as breeding improved cultivars. The success of the task will be measured in terms of germplasm conserved and utilized and number of improved cultivars developed.

2. **Objective 2:** The realization of the full potential of a variety requires proper match between the resource requirement and the genotypic behaviour. There is lot of variability among genotypes with regard to efficiency of utilization of nutrients and water. Identification of efficient genotypes would enable developing package of practices according to resource availability. Identification of proper crop sequences/ inter-cropping systems would enable harnessing the available natural resources to the maximum as well as efficient use of inputs by exploiting the synergy between crops.

3. **Objective 3:** This objective envisages reduction of crop loss due to pest and diseases attack. Population dynamics and genotypic variability of pathogens will be studied for working out sensitive pathogen diagnostics and effective management strategies using bio-control agents. The success of the task will be measured in terms of number of isolates of different pathogens/bio control agents collected and characterized availability of specific and sensitive diagnostic tools for different pathogens.

Section 5:
Specific Performance Requirements from other Departments

1. With respect to survey, the assistance from State Agil. Universities, State Agril. / Hort. Departments and local bodies would be required. Capacity building training of manpower would depend upon assistance from different departments like Directorate of Extension, NHB, NHM, NABARD, State Departments of Hort./ Agriculture.

2. MOU are required for germplasm import and evaluation with International Banana Genebanks e.g., INIBAP

Section 6:

Outcome / Impact of activities of the organization

S. No	Outcome / Impact of organization /RCs	Jointly responsible for influencing this outcome / impact with the following organisation (s) / departments/ministry(ies)	Success Indicator (s)	Unit	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
1	High yielding varieties, production technologies in banana for enhanced productivity	State Agricultural Universities, Departments, KVKs	Number of varieties and other technologies	Number	4	5	6	7	8
2	Availability of technologies on value addition	State Agricultural Universities, Departments, KVKs, Private entrepreneurs, NGO's	Number of quality planting material (in lakhs)	Number	2	3	4	5	6
3	Transfer of technology to improve the adoption level of production and protection technologies	State Agricultural Departments, Universities, KVKs, NHM, NHB and NGO's	No of training/ demonstration/ workshops/ videoconference/ radio/TV programmes	Number	15	25	35	40	50