Results Framework Document (RFD)

For

NATIONAL RESEARCH CENTRE FOR BANANA

(2012 – 2013)

Thogamalai Main Road, Thayanur Post,

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Tamil Nadu

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Section-1:

Vision:

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. Plant genetic resources management and crop improvement in banana
2. Production system management 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

Objectives	Weight	Actions	Success Indicators	Unit	Weight (%)	Target/Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100 %	90 %	80%	70%	60 %
1) Plant genetic resources management and crop improvement in banana	25	Collection and conservation of genetic resources	Number of germplasm collected, evaluated and conserved	No.	6	50	45	40	35	30
		Characterization and sustainable use of germplasm	Characterization of germplasm lines	No.	4	35	30	27	24	20
			Development of improved varieties including synthetic diploids, triploids and tetraploids	No.	3	5	4	3	2	1
		Creation of variation through mutation and MAS	Explant development, mutation, induction, screening and field testing	No.	7	28	25	20	17	15
			Gene identification and development of markers	No.	5	5	4	3	2	1
2) Production system management and value addition	35	Development of production technology and value added products in banana	Production technologies through high density planting and suitable organic manure for quality production for increasing productivity and profitability	t/ha	6	28	25	20	17	15
			Development of fertilizer adjustment equations for different varieties of banana	No.	7	4	3	2	1	0
			Characterization of drought/ salt tolerant traits and starch in banana	Traits	7	16	15	12	10	9
			Identification of biomarker for salt & nematode resistance	No.	5	10	8	6	4	2
			Technologies /Methodologies /Processes and value added products developed	No.	6	12	10	8	6	4
			Organizing training, demonstration, workshop, TV programme, video conferences	No.	4	15	12	10	8	6

3) Plant health management utilizing diagnosing, bio-intensive management of pests and diseases	**29**	Development of effective management of insect pests in banana	Identification of effective control agents against banana aphids and weevils	No.	7	40	30	22	15	10
		Development of effective integrated nematode management in banana	Field evaluation of effective bioagents for the suppression of nematodes in banana	No.	5	30	25	20	16	12
		Development of effective management of fungal and bacterial diseases in banana	Isolation, molecular characteri - zation, development of liquid formulation and evaluation of effective microbes	No.	8	20	15	12	9	6
		Development of effective management strategies of virus diseases of banana	No. of samples tested against viruses	No.	4	550	500	480	450	420
			No. of virus isolates characterized molecularly	No.	4	600	500	400	300	200
Efficient functioning of the RFD system		Timely submission of Results for 2012-13	On-time submission	Date	2	March 23 2012	March 26 2012	March 27 2012	March 28 2012	March 29 2012
Administrative reforms		Implement ISO 9001	Prepare ISO 9001 action plan	Date	1	June 4 2012	June 5 2012	June 6 2012	June 7 2012	June 8 2012
			Implementation of ISO 9001 action plan	Date	2	March 25 2013	March 26 2013	March 27 2013	March 28 2013	March 29 2013
		Implement mitigating strategies for reducing potential risk of corruption	% of implementation	%	2	100	95	90	85	80
Improving Internal Efficiency/responsiveness/service delivery of Ministry/ Department		Implementation of Sevottam	Independent Audit of Implementation of Citizen's Charter	%	2	100	95	90	85	80
			Independent Audit of implementation of public grievance redressal system	%	2	100	95	90	85	80

Section 3:
Trend Values of the Success Indicators

Objectives	Actions	Success Indicators	Unit	Actual value for FY 10/11	Actual value for FY 11/12	Target value for FY12/13	Projected value for FY 13/14	Projected value for FY 14/15
1. Plant genetic resources management and crop improvement in banana	Collection and conservation of genetic resources	Number of germplasm collected, evaluated and conserved	No.	4	5	45	3	2
	Characterization and sustainable use of germplasm	Characterization of germplasm lines	No.	35	30	30	20	15
		Development of improved varieties including synthetic diploids, triploids and tetraploids	No.	5	4	4	2	1
	Creation of variation through mutation and MAS	Explant development, mutation, induction, screening and field testing	No.	8	10	25	6	4
		Gene identification and development of markers	No.	3	4	4	2	1
2. Production system management and value addition	Development of production technology and value added products in banana	Production technologies through high density planting and suitable organic manure for quality production for increasing productivity and profitability	No.	3	5	25	2	1
		Development of fertilizer adjustment equations for different varieties of banana	No.	4	4	3	2	1
		Characterization of drought/ salt tolerant traits and Starch in banana	Traits	3	4	15	2	1
		Identification of biomarker for salt & nematode resistance	No.	4	3	8	2	2
		Technologies /Methodologies /Processes and value added products developed	No.	3	3	10	2	1
		Organizing training, demonstration, workshop, TV programme, video conferences	No.	6	6	12	5	4

3. Plant health management utilizing diagnosing, bio-intensive management of pests and diseases.	Development of effective management of insect pests in banana	Identification of effective control agents against banana aphids and weevils.	No.	5	5	30	3	2
	Development of effective integrated nematode management in banana	Field evaluation of effective bio-agents for the suppression of nematodes in banana	No.	3	3	25	1	1
	Development of effective management of fungal and bacterial diseases in banana	Isolation, molecular characterization, development of liquid formulation and evaluation of effective microbes.	No.	4	5	15	3	4
	Development of effective management strategies of virus diseases of banana	Samples tested against viruses	No.	500	500	500	400	350
		No. of virus isolates characterized molecularly	No.	600	500	500	300	200
Efficient functioning of the RFD system	Timely submission of RFD for 2012-13	On-time submission	Date	-	-	26/03/12	-	-
	Timely submission of results for 2012-13	On-time submission	Date	-	-	02/05/13	-	-
Administrative reforms	Implement ISO 9001	Prepare ISO 9001 action plan	Date	-	-	05/06/12	-	-
		Implementation of ISO 9001 action plan	Date	-	-	26/03/13	-	-
	Implement mitigating strategies for reducing potential risk of corruption	% of implementation	%	-	-	95	-	-
Improving internal efficiency / responsiveness/ service delivery of Ministry / Department	Implementation of Sevottam	Independent Audit of implementation of Citizen's Charter	%	-	-	95	-	-
		Independent Audit of implementation of public grievance redressal system	%	-	-	95	-	-

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. There is a need for safer and eco-friendly use on banana during storage at 14^{o}C in refrigerated stores and under non-refrigerated storages conditions. Efforts should also be made to develop banana based value added products with improved nutritional quality.

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

S. No	Outcome / Impact of organization /RCs	Jointly responsible for influencing this outcome / impact with the following organization (s) / departments/ministry(ies)	Success Indicator (s)	Unit	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
1	High yielding varieties, production technologies in banana for enhanced productivity	State Agricultural Universities, Departments, KVKs	Number of varieties and other technologies	No.	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)	No.	3	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	No.	15	25	35	40	50