Results-Framework Document (RFD)

for

National Research Centre for Banana

(2014- 2015)

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Section 1: Vision, Mission, Objectives and Functions

Vision To become the global leader in production, productivity and export of banana

Mission To increase the production and productivity of quality bananas through technological interventions

Objectives

1. Enhancing the productivity and quality of bananas and plantains
2. Post harvest technologies/value addition and technology dissemination

Functions

1. Developing improved production and protection technologies to enhance the productivity in banana
2. To undertake basic, strategic research to address specific biotic and abiotic production constraint
3. Developing technologies to reduce the post harvest losses and to increase the profitability through value addition in banana and nutritional security of stakeholders

Section-2: inter se priorities among Key Objectives, Success Indicators and Targets

S. No.	Objectives	Weight	Actions	Success Indicators	Unit	Weight	Target/Criteria Value				
							Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
1	Enhancing productivity and quality of bananas and plantains	50	Sustainable use of genetic resources and improvement of banana	Germplasm collected/characterized/ evaluated/utilized and improved progenies/clones/markers/ products developed	No.	20	28	23	18	14	11
			Development of improved production technologies	Improved production technologies developed	No.	15	5	4	3	2	1
			Development of improved protection technologies	IPM components/ technologies/ processes/diagnostics/concepts developed	No.	15	7	5	4	3	2
2	Post harvest technologies/ value addition and technology dissemination	30	Development of post harvest technologies/value added products	Post harvest technologies/value added products developed/refined	No.	6	5	4	3	2	1
			Providing services/quality certification	Tissue culture plants certified	No. (million)	8	12	10	8	6	4
				Micro nutrient mixture supplied	Kg.	4	4000	3000	2000	1000	500
				Quality planting materials supplied	No.	4	10000	8000	6000	4000	2000
			Dissemination of technologies through trainings/demonstrations	Trainings/demonstrations/ other extension activities/ consultancy services provided	No.	8	10	8	6	4	2
	Publication/ Documentation	5	Publication of the research articles in the journals having the NAAS rating of 6.0 and above	Research articles published	No.	3	12	10	8	6	4
			Timely publication of the Institute Annual Report (2013-2014)	Annual Report published	Date	2	30.06.14	02.07.2014	04.07.2014	07.07.2014	09.07.2014
	Fiscal resource management	2	Utilization of released plan fund	Plan fund utilized	%	2	98	96	94	92	90
	Efficient functioning of the RFD system	3	Timely submission of draft RFD for 2014-2015 for approval	On-time submission	Date	2.0	15/05/14	16/05/2014	19/05/2014	20/05/2014	21/05/2014
			Timely submission of results for RFD 2013-2014	On-time submission	Date	1.0	01/05/14	02/05/2014	05/05/2014	06/05/2014	07/05/2014
	Enhanced Transparency/ Improved Service delivery of Ministry/ Department	3	Rating from Independent Audit of implementation of Citizens'/Clients' Charter (CCC)	Degree of implementation of commitments in CCC	%	2	100	95	90	85	80
			Independent Audit of implementation of Grievance Redress Management (GRM) system	Degree of success in implementing GRM	%	1	100	95	90	85	80

	Administrative Reforms	7	Update organizational strategy to align with revised priorities	Date	Date	2	Nov. 1 2014	Nov. 2 2014	Nov. 3 2014	Nov. 4 2014	Nov. 5 2014
			Implementation of agreed milestones of approved Mitigating Strategies for Reduction of potential risk of corruption (MSC)	% of implementation	%	1	100	90	80	70	60
			Implementation of agreed milestones for ISO 9001	% of implementation	%	2	100	95	90	85	80
			Implementation of milestones of approved Innovation Action Plans (IAPs)	% of implementation	%	2	100	90	80	70	60

Section 3: Trend Values of the Success Indicators

S. No.	Objectives	Action	Success Indicators	Unit	*Actual value for 2012-2013	Actual value for 2013-2014	**Target value for 2014-2015	*Projected value for 2015-2016	*Projected value for 2016-2017
1	Enhancing productivity and quality of bananas and plantains	Sustainable use of genetic resources and improvement of banana	Germplasm collected/characterized/ evaluated/utilized and improved progenies/clones/markers/ products developed	No.	28	23	18	14	11
		Development of improved production technologies	Improved production technologies developed	No.	5	4	3	2	1
		Development of improved protection technologies	IPM components/ technologies/ processes/diagnostics/concepts developed	No.	7	5	4	3	2
2	Post harvest technologies/ value addition and technology dissemination	Development of post harvest technologies/value added products	Post harvest technologies/value added products developed/ refined	No.	5	4	3	2	1
		Providing services/quality certification	Tissue culture plants certified	No. (million)	12	10	8	6	4
			Micro nutrient mixture supplied	Kg.	4000	3000	2000	1000	500
			Quality planting materials supplied	No.	10000	8000	6000	4000	2000
		Dissemination of technologies through trainings/demonstrations	Trainings/demonstrations/ other extension activities/ consultancy services provided	No.	10	8	6	4	2
	Publication/ Documentation	Publication of the research articles in the journals having the NAAS rating of 6.0 and above	Research articles published	No.	12	7	10	12	15
		Timely publication of the Institute Annual Report (2013-2014)	Annual Report published	Date	-	-	02.07.2014	-	-
	Fiscal resource management	Utilization of released plan fund	Plan fund utilized	%	-	-	96	-	-
	Efficient functioning of the RFD system	Timely submission of draft RFD for 2014-2015 for approval	On-time submission	Date	-	-	16/05/2014	-	-
		Timely submission of results for RFD for 2013-2014	On-time submission	Date	-	-	02/05/2014	-	-
	Enhanced Transparency/ Improved Service delivery of	Rating from Independent Audit of implementation of Citizens' / Clients' Charter (CCC)	Degree of implementation of commitments in CCC	%	-	-	95	-	-

	Ministry/ Department	Independent Audit of implementation of Grievance Redress Management (GRM) system	Degree of success in implementing GRM	%	-	-	95	-	-
	Administrative Reforms	Update organizational strategy to align with revised priorities	Date	Date	-	-	Nov. 2 2014	-	-
		Implementation of agreed milestones of approved Mitigating Strategies for Reduction of potential risk of corruption (MSC)	% of implementation	%	-	-	90	-	-
		Implementation of agreed milestones for ISO 9001	% of implementation	%	-	-	95	-	-
		Implementation of milestones of approved Innovation Action Plans (IAPs)	% of implementation	%	-	-	90	-	-

Section 4(a): Acronyms

S. No.	Acronym	Description
1.	BBrMV	Banana Bract Mosaic Virus
2.	BBTV	Banana Bunchy Top Virus
3.	BSMYV	Banana Streak Mysore Virus
4.	CMV	Cucumber Mosaic Virus
5.	DAC	Department of Agriculture and Co-operation
6.	DBT	Department of Biotechnology
7.	IPM	Integrated Pest Management
8.	KVK	Krishi Vigyan Kendra
9.	NGOs	Non Governmental Organizations
10.	NHB	National Horticulture Board
11.	NHM	National Horticulture Mission
12.	NRCB	National Research Centre for Banana
13.	SAU's	State Agricultural Universities
14.	R&D	Research & development

Section 4(b): Description and definition of success indicators and proposed measurement methodology

S. No.	Success Indicator	Description	Definition	Measurement	General comments
1.	Germplasm collected/characterized/ evaluated/utilized and improved progenies/ clones/ markers/products developed	Germplasm collection, characterization and evaluation are very much essential for their direct utilization or for their use in the development of improved progenies.	Collection includes collection from primary and secondary sources. Characterization includes both morpho-taxonomic and molecular characterization. Conservation includes field and *in vitro* gene banks. Improved progenies are hybridization products which are superior in terms of yield, quality and/or resistance to biotic and abiotic stresses. Elite cultivars/clones are those developed through conventional breeding/ biotechnological approaches.	Number	Morpho-molecular characterization of germplasm and analyses of their diversity and relationships will help us to exploit the available genetic resources in the most valuable way. Germplasm collected have to be conserved for the purpose of understanding their taxonomy, origin and evolution of a crop species of interest. The germplasm conserved and elite clones collected should be utilized either directly or indirectly in future improvement programmes.
2.	Improved production technologies developed	Developing improved crop production technologies to effectively utilize the natural resources of land and sun light and enhance input use efficiency and in turn increase the productivity of quality bananas and reduce the cost of cultivation and thereby increasing the profitability of the banana growers	Input use efficiency refers to judicious use of agricultural inputs such as water, nutrients etc., to increase the production per unit of input used.	Number	Enhancing the water, nutrient and other inputs use efficiency which is the most important factor to reduce the cost of production.
3.	IPM components/ technologies/ processes/ diagnostics/concepts developed	IPM components include semio-chemicals/beneficial bio-control agents of fungal and bacterial nature /botanicals/ molecular markers/ diagnostic techniques/ storage and delivery system for bio-control agents for the detection/diagnosis and management of insect pests, nematodes and diseases	Integration of cultural, chemical and biological components of management practices for the effective management of pests and diseases of banana	Number	IPM is essential for the effective management of insect pests, nematodes and diseases which in turn reduces the yield and quality losses in banana.
4.	Post harvest technologies/value added products developed/ refined	Post harvest handling of fruits/leaves to enhance the shelf life and reduce the losses in the fields and also during various stages of marketing/transport/ storage Value added products include all types of value addition in banana inclusive of edible and non-edible including fibre based products from bananas and plantains. Refinement can be even a	Post harvest technologies include proper handling and storage techniques to reduce the post harvest losses of bananas Value added products is preparation of both edible food products as well as non-edible banana fibre based products from different parts of the banana plant in order to enhance the profitability of the farmers.	Number	A good post harvest handling and storage technique reduces the losses due to mechanical injuries/ microbial spoilages. Technology on value addition of bananas and plantains could be commercialized.

		small improvement that enhances the quality and value of the final product.			
5.	Tissue culture plants certified	Certification means issue of quality labels to tissue culture plants of various DBT certified labs after virus indexing and genetic fidelity testing	Virus free planting material means the tissue cultured bananas free from BBTV, BBrMV, BSMYV and CMV diseases Genetic fidelity means testing for the true to type nature of the variety produced through tissue culture technology	Number (million)	Certification of tissue culture plants ensures supply of virus free, true to type quality planting material to the farmers for enhanced production and productivity
6.	Micro nutrient mixture supplied	NRCB has developed a micronutrient mixture for banana called 'Banana Shakti' which contains five important micro nutrients essential for better growth, high yield and better fruit quality	'Banana Shakti', a micronutrient mixture meant for enhancing plant growth, yield fruit quality of bananas and plantain	Kg.	Banana Shakti is very popular among the banana growers in all the four southern states and efforts are being taken to popularize the product in other banana growing states in the country
7.	Quality planting materials supplied	Quality planting material refers to pest and disease free, healthy, high yielding and true to type tissue cultured plants and suckers.	Tissue culture plant production is method of vegetative propagation through which new individuals arise without production of seeds or spores	Number	Quality planting materials of Udhayam and Hill Banana as well as other bananas were supplied to the farmers on demand and were satisfied with the performance
8.	Trainings/demonstrations/ other extension activities/ consultancy services provided	Capacity building activities for improving the knowledge and skills of the farmers, rural youth and extension personnel and providing consultancies to the stakeholders	Training is a process of imparting of new skills, attitude and knowledge through hands on training/ demonstrations etc.,	Number	Transfer of technologies is aimed to benefit banana growers, extension officials and private entrepreneurs in production and processing of bananas and plantain

Section 5: Specific performance requirements from other departments that are critical for delivering agreed results

Location Type	State	Organization Type	Organization Name	Relevant Success Indicator	What is your requirement from this organization	Justification for this requirement	Please quantify your requirement from this organization	What happens if your requirement is not met
-	-	-	-	-	-	-	-	-

Section 6: Outcome/Impact of activities of the Department/Ministry

S. No.	Outcome / Impact	Jointly responsible for influencing this outcome / impact with the following organization(s) / department(s)/ ministry (ies)	Success Indicator(s)	Unit	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
1.	Increased productivity of quality bananas and plantain	Departments of State Agriculture/ Horticulture, SAUs, DAC, KVKs, NGOs, Ministry of Food Processing, Govt. of India, NHB/NHM and Private entrepreneurs	Increase in productivity of banana	%	2%	2%	2%	2%	2%
			Increase in number of training participants	No.	287	200	745	800	900

Supplementary Information for RFD 2014-15 for NRCB, Trichy

Table 1: Past Achievements of the Success Indicators

S. No.	Success indicator(s)	Past Achievements of the Success Indicators						Mean of the Achievements	Projected Value for 2014-2015
		nth year	V 2009-2010	IV 2010-2011	III 2011-2012	II 2012-2013	I 2013-2014		
1.	Germplasm collected/characterized/ evaluated/utilized and improved progenies/clones/markers/products developed	-	76	28	25	30	33	29.0	28
2.	Improved production technologies developed	-	2	3	4	3	4	3.2	0
3.	IPM components/technologies/ processes/diagnostics/concepts developed	-	5	5	6	6	6	5.6	7
4.	Post harvest technologies/value added products developed/ refined	-	3	3	4	6	6	4.4	5
5.	Tissue culture plants certified	-	0	0	0	0	0	Nil	0
6.	Micro nutrient mixture supplied	-	0	0	0	0	0	Nil	0
7.	Quality planting materials supplied	-	1900	1950	1000	6500	8000	7250.0	8000
8.	Trainings/demonstrations/other extension activities/consultancy services provided	-	5	5	6	20	10	6.5	7

Table 2: Classification of Success Indicators according to its Category

S. No.	Success Indicator(s)	Input	Activity	Internal Output	External Output	Outcome	Measures Qualitative Aspects
1.	Germplasm collected/ characterized/ evaluated/ utilized and improved progenies/clones/markers/ products developed	False	True	False	False	False	False
2.	Improved production technologies developed	False	False	True	False	False	True
3.	IPM components/ technologies/ processes/diagnostics/concepts developed	False	False	True	False	False	False
4.	Post harvest technologies/value added products developed/ refined	False	False	True	False	False	False
5.	Tissue culture plants certified	False	False	False	True	False	True
6.	Micro nutrient mixture supplied	False	False	False	True	False	False
7.	Quality planting materials supplied	False	False	False	True	False	False
8.	Trainings/demonstrations/ other extension activities/ consultancy services provided	False	True	False	False	False	True