



Results-Framework Document (RFD)

for

National Institute of Abiotic Stress Management (2014-2015)

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Section 1: Vision, Mission, Objectives and Functions

Vision

Management of abiotic stresses of crop plants, animals, fishes and micro-organisms through genetic, biotechnological and nano-technological tools and agronomic methods for enhanced sustainable productivity, food/feed quality and farm profitability adopting integrated interdisciplinary approaches.

Mission

To build sustainable livelihood in abiotically stressed agro-ecosystems by practicing climate resilient farming systems through a deep insight, adaptation techniques, mitigation strategies and acceptable policies.

Objectives

- Develop screening techniques, evolve stress tolerant genotypes/ breeding stocks and stress mitigation technologies.
- Develop database on abiotic stressors and their management

Functions

- To develop a Global Center of Excellence by establishing linkages and networking with national and international institutes/agencies.
- To act as repository of information on abiotic stresses and management.
- To act as the Centre of Academic Excellence.
- To coordinate network research on location specific problems of national importance, to achieve higher production and productivity.
- To promote human resource development and transfer of technology.

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	Very good	Good	Fair	Poor
							100%	90%	80%	70%	60%
1	Develop screening techniques, evolve stress tolerant genotypes/ breeding stocks and stress mitigation technologies	73	Development of infrastructure for research	Research farm facilities created	Date	11.0	January 31, 2015	February 15, 2015	February 28, 2015	March 15, 2015	March 31, 2015
				Controlled environmental facilities created	Date	8.0	January 31, 2015	February 15, 2015	February 28, 2015	March 15, 2015	March 31, 2015
				Lab equipment's procured	Number	9.0	11	9	7	5	3
			Screening genotypes /breeding stock/ strains of crops, horticulture, animals, fish and microorganism for stress tolerance	Germplasm of crops evaluated	Number	10.0	350	300	250	200	150
				Endophytes and rhizobia screened	Number	3.0	60	50	40	30	20
				Number of drought tolerant gene expression investigated	Number	2.0	5	4	3	2	1
				Animal breeds/fishes screened for drought stress responsive genes	Number	8.0	3	2	1	0	-
			Development of technologies for mitigation of drought, other and edaphic and	Resource conservation practices developed to increase input use efficiency	Number	12.0	4	3	2	1	0

			atmospheric stresses	Screening of silver-ion-exchanged zeolites for bactericidal and ammonia removal activities	Number	2.0	3	2	1	0	-
				Bio-regulators evaluated to mitigate stress	Number	8.0	8	6	4	2	0
2	Develop database on abiotic stressors and their management	7	Assessment and quantification of the effects of major abiotic stresses on agriculture and develop a repository of information on abiotic stress management	State-wise drought stress maps prepared	Number	7.0	January 31, 2015	February 15, 2015	February 28, 2015	March 15, 2015	March 31, 2015
*	Publication/Documentation	5	Publication of the research articles in the journals having the NAAS rating of 6.0 and above	Research articles published	No.	3.0	7	5	3	1	0
			Timely publication of the Institute Annual Report (2013-2014)	Annual Report published	Date	2.0	30.06.2014	02.07.2014	04.07.2014	07.07.2014	09.07.2014

*	Fiscal resource management	2	Utilization of released plan fund	Plan fund utilized	%	2.0	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	May 15, 2014	May 16, 2014	May 19, 2014	May 20, 2014	May 21, 2014
			Timely submission of Results for 2013-2014	On-time submission	Date	1.0	May 1 2014	May 2 2014	May 5 2014	May 6 2014	May 7 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	%	2.0	100	95	90	85	80
			Independent Audit of implementation of Grievance Redress Management (GRM) system	Degree of success in implementing GRM	%	1.0	100	95	90	85	80
*	Administrative Reforms	7	Update organizational strategy to align with revised priorities	Date	Date	2.0	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	%	1.0	100	90	80	70	60
			Implementation of agreed milestones for ISO 9001	% of implementation	%	2.0	100	95	90	85	80
			Implementation of milestones of approved Innovation Action Plans (IAPs)	% of implementation	%	2.0	100	90	80	70	60

Section 3: Trend Values of the Success Indicators

S. No.	Objective	Action	Success Indicator	Unit	Actual Value for FY 2012-2013	Actual Value for FY 2013-2014	Target Values for FY 2014-2015	Projected Values for FY 2015-2016	Projected Value for FY 2016-2017
1	Develop screening techniques, evolve stress tolerant genotypes/ breeding stocks and stress mitigation technologies	Development of infrastructure for research	Research farm facilities created	Date	-	4	February 15, 2015	February 15, 2016	February 15, 2017
			Controlled environmental facilities created	Date	-	1	February 15, 2015	February 15, 2016	February 15, 2017
			Lab equipment's procured	Number	-	10	9	10	6
		Screening genotypes /breeding stock/ strains of crops, horticulture, animals, fish and microorganism for stress tolerance	Germplasm of crops evaluated	Number	-	400	300	350	400
			Endophytes and rhizobia screened	Number	-	-	50	50	60
			Number of drought tolerant gene expression investigated		-	-	4	6	8
			Animal breeds/fishes screened for	Number	-	3	2	2	2

			drought stress responsive genes						
		Development of technologies for mitigation of drought, other edaphic and atmospheric stresses	Resource conservation practices developed to increase input use efficiency	Number	-	3	3	3	3
			Screening of silver-ion-exchanged zeolites for bactericidal and ammonia removal activities	Number	-	3	2	2	2
			Bio-regulators evaluated to mitigate stress	Number	-	6	6	7	8
2	Develop database on abiotic stressors and their management	Assessment and quantification of the effects of major abiotic stresses on agriculture and develop a repository of information on abiotic stress management	State-wise drought stress maps prepared	Number	-	-	February 15, 2015	February 15, 2016	February 15, 2017
*	Publication/Documentation	Publication of the research	Research articles	No.	3	4	5	8	9

		articles in the journals having the NAAS rating of 6.0 and above	published						
		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	%	100	100	96	96	96
*	Efficient Functioning of the RFD System	Timely submission of Draft RFD for 2014-2015 for Approval	On-time submission	Date	-	-	May 16, 2014	-	-
		Timely submission of Results for 2013-2014	On-time submission	Date	-	-	May 2, 2014	-	-
*	Enhanced Transparency / Improved Service delivery of Ministry/Department	Rating from Independent Audit of implementation of Citizens' / Clients' Charter (CCC)	Degree of implementation of commitments in CCC	%	-	-	95	-	-
		Independent Audit of implementation of Grievance Redress	Degree of success in implementing GRM	%	-	-	95	-	-

		Management (GRM) system							
*	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	CGIAR	Consultative Group on International Agricultural Research
2	SAU	State Agricultural University

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

SI. No.	Success Indicator	Description	Definition	Measurement	General Comments
1	Research farm facilities created	Development of experimental fields for screening germplasm for abiotic stress tolerance	Infrastructure development for mandated research in the farm fields	It is the number of field facilities for four different types of crop plants viz. 1. Cereals and pulses, 2. Forage crops, 3. Horticultural crops and 4. Tree crops	Priority is given to create farm facilities for conducting research
2	Controlled environmental facilities created	Creation of controlled conditions including phenomics platform	Facilities for screening under controlled conditions	Establishment of 1. Top green house and 2. Installation of instrument	Testing under controlled conditions are required for initial screening
3	Lab equipment's procured	Development of laboratory facilitated for research	Procurement of various equipment needed for testing the concepts	Development of laboratory facilities, including procurement of ten high end instruments that defines the success indicators individually	Emphasis is to create laboratory facilities for conducting research
4	Germplasm of crops evaluated	Source material for the improved varieties to be evaluated	Material generated from the basic germplasm	Number of germplasm of different crops evaluated	
5	Endophytes and rhizobia	Identification of	Endophytic bacterial	Number of isolates of	

	screened	endophytes/rhizobia imparting drought stress tolerance	isolates purified from sorghum and legumes	bacterial endophytes/rhizobia studies	
6	Number of drought tolerant gene expression investigated	Expression of genes contributing to drought tolerance	Gene expression is level of transcripts in responses to drought	It is the number of genes studied	
7	Animal breeds/fishes screened for drought stress responsive genes	Source material for the improved breeds to be evaluated	Material generated from the breeds	Number of breeds of animals and fishes tested	
8	Resource conservation practices developed to increase input use efficiency	Conservation of resources in agriculture aims to achieve sustainable and profitable agriculture and subsequently aims at improved livelihoods of farmers	Evolution of resource conservation methods through different approaches including water management, yield modeling, microbiological methods, brood stock management and designing of structures for heat stress management etc.	Number of resource conservation practices developed during the period	To ensure increased input efficiency through conservation measures
9	Screening of silver-ion-exchanged zeolites for bactericidal and ammonia removal activities	Zeolite is a source material for bioremediation in aquaculture	Material generated from natural zeolite for exchange reactions	Number of zeolites tested for bioremediation	Priorities to give zeolite with maximum exchange reaction with silver nitrate
10	Bio-regulators evaluated to mitigate stress	Evaluation of efficacy of bio-regulators in alleviating drought stress in crop plants	Minimization of yield losses by crop growth promoters	It is the number of such bio-regulators tested during the period under report	To enhance the crop water balance and yield under drought conditions
11	State-wise drought stress maps prepared	Repository of information on abiotic stresses at regional level is a pre-requisite	Drought is one of the major abiotic stresses causing substantial crop loss necessitating	Number of maps	It is a stepwise progression in mapping abiotic stresses at regional level

		for research and management	assessment and quantification of effects to develop a repository of information for drought management		
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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
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

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

S. No.	Outcome / Impact	Jointly responsible for influencing this outcome / impact with the following organization(s)/ departments/ministry(ies)	Success Indicator(s)	Unit	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
1	Reduction of crop loss	CGIAR institutes and SAUs	Enhancement in crop productivity under abiotic stressed conditions	%	-	2	2	3	3