



Results-Framework Document (RFD)

for

INDIAN INSTITUTE OF SUGARCANE RESEARCH
(2013- 2014)

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Section1: Vision, Mission, Objectives and Functions

Vision

An efficient, globally competitive and vibrant sugarcane agriculture

Mission

Enhancement of sugarcane productivity, profitability and sustainability to meet future sugar and energy requirement of India

Objectives

1. To develop efficient, eco-friendly sugarcane crop management practices/ tools to attain high sugarcane and sugar productivity.
2. To develop high yielding, high sugar, biotic and abiotic stress tolerant sugarcane and sugar beet varieties.
3. To provide training, consultancy and advisory services to stakeholders.

Functions

- i. Developing high yielding, disease resistant and pest tolerant, good ratooning, input responsive and climate resilient sugarcane varieties.
- ii. Designing and developing planting methods, planting geometry, biotic and abiotic stress management modules and integrated nutrient supply system for maximizing yield of plant and ratoon crops.
- iii. Utilization of diverse genetic resources in sugarcane system for sustainable cane and sugar yield, biotic and abiotic stress management.
- iv. Quality seed production, change in the shape, size and quantity of seed.
- v. Developing holistic pest and disease management modules.
- vi. Stepping up physiological efficiency of sugarcane for biomass, sugar and other bio-compounds.
- vii. Design, development and up-gradation of machines for sugarcane-based cropping system.
- viii. Augmenting soil nutrient availability dynamics through carbon sequestration, residue recycling, bio-remediation, soil amelioration through native and engineered microbial consortium.
- ix. Eco-friendly bio-molecules and metabolic engineering approaches to curb post- harvest sucrose losses.
- x. Harnessing the potential of genomics, biotechnology, bioinformatics, nanotechnology etc., in sugarcane.
- xi. Appropriate agro-technologies for sugarbeet and other sugar crops to meet the bio-fuel need and utilization of problem soils.
- xii. Sugarcane product diversification and value addition
- xiii. Providing training, consultancy and advisory services to farmers, industries and other stakeholders
- xiv. Providing requisite information to governments to frame suitable production, marketing and pricing policies on sugarcane and its related products
- xv. Transforming IISR into a “Sugar Crops Knowledge Hub” at global level involving research grids and sugar mills.

Section 2: *Inter se* priorities among Key objectives, Success indicators and Targets

Sl. No.	Objectives	Weight (%)	Actions	Success Indicators	Unit	Weight	Target/Criteria value				
							Exlt	VGd	Gd	Fr	Pr
							100%	90%	80%	70%	60%
1	To develop efficient, eco-friendly sugarcane crop management practices/ tools to attain high sugarcane and sugar productivity	41	Development and identification of efficient/appropriate crop production and protection practices.	Agro-techniques/ technologies/methods / formulations developed/ identified/tested	No.	30	10	5	3	2	1
			Development/improvement of equipment/ machinery for sugarcane cultivation	Prototypes designed/ fabricated and prototype feasibility tests carried out	No.	11	20	10	6	3	1
2	To develop high yielding, high sugar, biotic and abiotic stress tolerant sugarcane and sugar beet varieties	28	Evaluation of genetic material	Number of genotypes and elite clones evaluated for desirable traits	No.	9	220	200	100	50	25
			Development of improved varieties/cultivars	Entries contributed for AICRP multi location trial	No.	3	50	40	30	20	10
			New varieties identified for release	No.	10	4	3	2	1	0	
			Seed production programme	Truthfully labeled seed cane produced	Hundred quintals	6	12	9	6	4	2
3	To provide training, consultancy and advisory services to stakeholders	20	Capacity building/ training and demonstrations and new and existing technologies	Farmers'/extension officials training programmes organized	No.	8	10	8	6	4	2
				Demand based surveys conducted and advisory services provided to stakeholders/industry	No.	8	10	5	3	2	1
				Front line demonstrations conducted	No.	4	70	60	40	20	10
*	Efficient Functioning of the RFD System	3	Timely submission of Draft RFD (2013-14) for approval	On-time submission	Date	2.00	15/05 /2013	16/05 /2013	17/05 /2013	20/05/ 2013	21/05/2013
			Timely submission of Results for RFD (2012-13)	On-time submission	Date	1.00	01/05 /2013	02/05 /2013	05/05 /2013	06/05/ 2013	07/05/2013
*	Administrative Reforms	4	Implement ISO 9001 as per the approved action plan	% Implementation	%	2.00	100	95	90	85	80
			Prepare an action plan for Innovation	On- time submission	Date	2.00	30/07 /2013	10/08 /2013	20/08 /2013	30/08/ 2013	10/09/2013
*	Improving internal efficiency /responsiveness / service delivery of Ministry / Department	4	Implementation of Sevottam	Independent Audit of Implementation of Citizen's Charter	%	2.00	100	95	90	85	80
				Independent Audit of implementation of public grievance redressal system	%	2.00	100	95	90	85	80

Section 3: Trend Values of the success indicators

Sl. No.	Objectives	Actions	Success Indicators	Unit	Actual value for 11-12	Actual value for 12-13	Target value for Fy 13-14	Projected value for 14-15	Projected value for 15-16
1	To develop efficient, eco-friendly sugarcane crop management practices/ tools to attain high sugarcane and sugar productivity	Development and identification of efficient/appropriate crop production and protection practices.	Agro-techniques/technologies / methods/ formulations developed/ identified/tested	No.	3	4	5	6	7
		Development/improvement of equipment/ machinery for sugarcane cultivation	Prototypes designed/ fabricated and prototype feasibility tests carried out	No.	3	5	10	12	16
2	To develop high yielding, high sugar, biotic and abiotic stress tolerant sugarcane and sugar beet varieties	Evaluation of genetic material	Number of genotypes and elite clones evaluated for desirable traits	No.	200	150	200	200	205
		Development of improved varieties/cultivars	Entries contributed for AICRP multi location trial *	No.	56	48	40	45	50
		Seed production programme	New varieties identified for release *	No.	5	8	3	5	6
3	To provide training, consultancy and advisory services to stakeholders	Capacity building/ training and demonstrations and new and existing technologies	Truthfully labeled seed cane produced	Hundred Tonnes	8	8	9	9	10
			Farmers'/extension officials training programmes organized	No.	4	6	8	8	9
			Demand based surveys conducted and advisory services provided to stakeholders/industry	No.	4	5	5	6	7
* *	Efficient Functioning of the RFD System	Timely submission of Draft RFD (2013-14) for approval	On-time submission	Date			16/05/2013		
		Timely submission of Results for RFD (2012-13)	On-time submission	Date			02/05/2013		
	Administrative Reforms	Implement ISO 9001 as per the approved action plan	% Implementation	%			95		
* * *	Improving internal efficiency /responsiveness / service delivery of Ministry / Department	Implementation of Sevottam	On- time submission	Date			10/08/2013		
			Independent Audit of Implementation of Citizen's Charter	%			95		
			Independent Audit of implementation of public grievance redressal system	%			95		

* The variation in achievement is due to biological factors that affects the varietal evaluation process. Identification of varieties is based on rigorous selection criteria and therefore, number of varieties identified may vary from year to year. Even if, no variety is identified in a year, it may not be implied that efforts have not been done for the development of the variety.

Section 4: Acronyms

Sl.No	Acronym	Description
1.	AICRP (S)	All India Coordinated Research Project on Sugarcane
2.	NHG	National Hybridization Garden
3.	MOU	Memorandum of Understanding
4.	SAU	State Agricultural University
5.	SDF	Sugar Development Fund
6.	DAC	Department of Agriculture and Cooperation
7.	NGO	Non-Governmental Organization
8.	ATMA	Agricultural Technology Management Agency
9.	KVK	Krishi Vigyan Kendra
10.	DST	Department of Science and Technology
11.	DBT	Department of Bio Technology
12.	R&D	Research and Development
13.	IISR	Indian Institute of Sugarcane Research
14.	SBI	Sugarcane Breeding Institute, Coimbatore
15.	t/ha	tonnes / hectare
16.	INM	Integrated Nutrient Management
17.	UPCST	Uttar Pradesh Council of Science and Technology
18	UPCAR	Uttar Pradesh Council of Agricultural Research
19	FLD	Front Line Demonstration

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

Sl. No.	Success indicator	Description	Definition	Measurement	General Comments
1.	Agro techniques/technologies/methods/formulations developed/identified/tested	The Institute is mandated to develop new recommendations/INM packages/technologies/ method of cultivation/ any formulation developed/identified or tested for improving resource use efficiencies and bringing down the cost of cultivation per unit area by conducting experiments/trials	Improved agro techniques / methods shift the production frontier up	By numbers	
2.	Prototypes designed/ fabricated and prototype feasibility tests carried out	Development of need based farm equipment	R&D work on farm mechanization	Number	Sugarcane crop is highly labour intensive but least mechanized crop
3.	Number of genotypes and elite clones evaluated for desirable traits	Source material for the improved varieties to be evaluated	Material generated from the basic germplasm	Number of breeding lines/genotypes evaluated	The desirable traits may be tolerance for biotic or abiotic stresses
4.	Entries contributed for AICRP multi location trial	Best performing elite genotypes (varieties) produced by careful breeding and selection for desirable traits / characteristics at respective station trials are subjected to rigorous testing at different locations under AICRP (S)	Best performing entries identified in station trials are proposed for multi-location trials as a potential new variety	No. of entries proposed	Targets for varieties identified given in Section 2 and their respective trend values in Section 3 may vary as the identification of varieties depend upon the availability of superior material with respect to yield, biotic and abiotic resistance/tolerance over the existing varieties
5.	New varieties identified for release	Genotypes tested along with checks in multi-location trials through All India	Identified variety is an improved variety over the	No. of varieties	Variations in Targets (Section 2) and in

		Coordinated Research Project on Sugarcane and the best performing entries compared to checks are proposed for identification	existing varieties and is proposed for release and notification	proposed	their trend values (Section 3) are expected.
6.	Truthfully labeled seed cane produced	Disease free and healthy seedcane of improved varieties distributed to farmers helps in replacing low yielding and low sugar varieties.	Healthy seedcane production of newly released improved varieties replaces old rejected varieties	Weight in hundred tonnes	
7.	Farmers'/extension officials training programmes organized	Capacity building activities related to knowledge and skill improvement/development programmes conducted for farmers and extension personnel	Training is a process of acquisition of new skills, attitude and knowledge in the context of preparing for entry into a vocation or improving productivity in an organization or enterprise	Number of trainings organized	Skill enhancement of farmers and extension officials (stakeholders)
8.	Demand based surveys conducted and advisory services provided to stakeholders/industry	Stakeholders require assessment and feedback on some aspects in which the Institute has developed expertise. Surveys and advisory services particularly to sugarmills is necessary for providing immediate solution for controlling/diagnosing/ managing any outbreak of diseases and insect-pests	Surveys and rapid appraisals provide an insight into the problem to chalk out action plan to manage	Number of surveys / consultancies/ advisory services provided to stake holders	The number of such surveys and advisory services are demand based
9.	Front line demonstrations conducted	Trials and demonstrations conducted for technology testing and proving the potential of technology for production	On-farm trials aims at testing new technologies under farmers condition and management, by using farmers own practice as control. Frontline demonstration is the field demonstration conducted on farmers field under the close supervision of scientists	Number	More number of frontline demonstrations are conducted, if these are the part of some externally funded projects or sponsored by outside agency

Section 5: Specific Performance requirements from other departments

Location Type	State	Organisation Type	Organisation Name	Relevant Success Indicator	What is your requirement from this organisation	Justification for this requirement	Please quantify your requirement from this Organisation	What happens if your requirement is not met
Central/State Government	All state	Department/ Council	DST, DBT , State Cane Departments/ Councils	Agrotechniques/technologies/methods/ formulations developed/ identified/ tested	Funding of new research projects	Proposals are submitted	3 projects / year	Less no. of technologies may be produced
Private agency	All state	Business enterprise	Sugar-mills	Prototypes designed/ fabricated and prototype feasibility tests carried out	Testing of technologies	Field verification is necessary	10 – 15 sugarmills command areas	Testing/ verification will be affected
State/ Central Government/ SAUs/ AICRP (S) Centres	All State	Sugarcane research Network	AICRP (S)	Entries contributed for AICRP multi location trial	Entries to be proposed for testing	Multi-location testing is necessary before varietal identification	20 – 40 entries are expected every year	The number of entries for multi-location testing will be less
Private agency	All state	Business enterprise	Sugar-mills	Truthfully labeled seed cane produced	Timely indenting for seed cane	Improved seed cane is required by sugar mills for distribution to farmers	10 – 15 thousand Quintals	Seed programme will be affected

State Government / Agencies	All State	Department	State Cane Departments/ ATMA/ KVK	Farmers'/ officials' extension Training programmes organized	Sponsoring training programmes	Extension agencies in cane intensive areas are mandated to do so	5 – 10 programmes	Number of training programme organized will be less
Private agency	All state	Business enterprise/ Farmers	Sugarmills/ Government agencies/ NGO/ Farmers	Demand based surveys conducted and advisory services provided to stakeholders/industry	Signing MoUs / agreements/ issue advisories	Sugar mills need regular research backstopping	10 – 15 agreements	Progress will be limited
Central/ state Government	All state	Extension Department / agencies	DAC/other agencies	Frontline demonstrations conducted	Sponsoring FLDs	Financial assistance is required for input intensive sugarcane FLDs	50 – 75 FLDs	Progress will be limited

Section 6: Outcome/Impact of activities of organisation

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	2011-12	2012-13	2013-14	2014-15	2015-16
1	Enhanced sugarcane & sweeteners productivity	DAC, State cane departments & its research wings, SAUs, sugar mills	Cane productivity in India	t/ ha	68.9	71	72	74	75
			Cane productivity in subtropical region	t/ ha	58.2	59.4	60.6	62.0	62.4
2	Increase in mechanization of sugarcane cultivation	State cane departments, sugar mills, private manufacturers of implements	Number of IISR developed/promoted sugarcanes machineries sold and in operation in sugarcane.	No.	360	410	500	600	650
			Sugarcane Area planted with machines	Thousa nd ha.					
3	Knowledge development and dissemination on sugar crops	Journal Editorial Boards, Professional Societies	Papers published in research journals	No.	62	64	66	68	70