



Results Framework Document (R F D)
for
Directorate of Maize Research
(2012-2013)

Pusa Campus, New Delhi 110012

<http://www.maizeindia.org>

Section 1:

Vision, Mission, Objectives and Functions

Vision

Rapid growth in the food, feed and industrial application of maize and maize-based products, for generation of wealth and employment in farming and industrial sectors, and for all those who are directly or indirectly associated with maize cultivation and utilization.

Mission

Enhancing the productivity, profitability and competitiveness of maize and maize based farming system with economic and environmental sustainability.

Objectives

- Enhancement of germplasm and development of improved cultivars for increasing productivity and nutritional value of maize crop with economic and environmental sustainability through basic, strategic and applied research.
- Development and identification of appropriate varietal technologies for varied agro-climatic zones through multi-disciplinary and multi-location coordinated research.
- Development and dissemination of maize production and protection technologies.

Functions

- To collect germplasm, evaluation, maintenance and its enhancement
- To develop nutritionally improved single cross hybrids of normal and specialty corn
- To use tools of molecular biology in breeding program
- To coordinate multi-disciplinary and multi-location research to identify appropriate varietal technologies for varied agro-climatic zones
- To develop system based location specific production technologies
- To carry our research to reduce the biotic and abiotic stress in maize
- To accelerate adoption of research findings through information technologies, conduction of training, frontline demonstrations and on farm research, etc.
- To develop linkage with national and international and private organization for collaborative research program
- To provide consultancy service and undertake contractual research

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%
Enhancement of germplasm and development of improved cultivars for increasing productivity and nutritional value of maize crop with economic and environmental sustainability through basic, strategic and applied research	35	Collection of maize accessions	Procurement of germplasm	No.	5	250	200	150	100	50
		Evaluation of maize germplasm	Promising inbred lines	No.	10	1300	1200	1100	1000	900
		Selection of germplasm lines for desirable traits	Specific traits inbred lines	No.	5	400	350	300	250	200
		Hybrid development of normal and specialty maize	Hybrids entered in coordinated trial	No.	12	5	4	3	2	1
		Use of molecular markers for maize improvement	Markers with utility in trait improvement	No.	3	2	1	0	0	0
Development and identification of appropriate varietal technologies for varied agro-climatic zones through multi-disciplinary and multi-location coordinated research	15	Constitution of multi-disciplinary and multi-location trials	Trials constituted	No.	6	65	60	50	45	40
		Monitoring and evaluation of trials	Centres monitored and evaluated	No.	3	28	25	23	21	19
		Compilation, analysis and preparation of report for coordinated trials	Report preparation	No.	6	4	3	2	1	0
Development and dissemination of maize production and protection technologies	38	Experiments for management of biotic stresses.	Experiments conducted	No.	14	10	9	8	7	5
		Experiments for management of abiotic stresses	Experiments conducted	No.	3	2	1	0	0	0
		Training trainers and farmers	Trainings conducted	No.	4	6	5	4	3	1

		Organizing and monitoring of demonstrations	Demonstrations conducted and monitored	No.	4	100	75	50	25	0
		Organization of exhibitions	Exhibitions organized	No.	2	4	3	2	1	0
		Undertaking consultancy services/ contractual research	Consultancy provided/ Contractual research undertaken	No.	2	4	3	2	1	0
		Conservation agriculture in maize based cropping systems	Systems evaluated	No.	6	4	3	2	1	0
		Input and weed management	Experiments conducted	No.	3	5	4	3	2	1

Efficient Functioning of the RFD System	3	Timely submission of RFD for 2012-13	On-time submission	Date	2	23/03/12	26/03/12	27/03/12	28/03/12	29/03/12
		Timely submission of Results for 2012-13	Timely submission of results for 12-13	Date	1	01/05/13	02/05/13	03/05/13	06/05/13	07/05/13
Administrative reforms	5	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	25/03/13	26/03/13	27/03/13	28/03/13	29/03/13
		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	4	Implementation of Sevottam	Independent Audit of Implementation of citizen's charter	%	2	100	95	90	85	80
			Independent Audit of Implementation of public grievances redressal system	%	2	100	95	90	85	80

Section 3: Trend values of Success Indicators

Objective	Action	Success Indicator	Unit	Target / Criteria Value				
				Actual value for FY-10/11	Actual value for FY-11/12	Target value for FY-12/13	Projected value for FY-13/14	Projected value for FY-14/15
Enhancement of germplasm and development of improved cultivars for increasing productivity and nutritional value of maize crop with economic and environmental sustainability through basic, strategic and applied research	Collection of maize accessions	Procurement of germplasm	No.	635	2160	200	275	300
	Evaluation of maize germplasm	Promising inbred lines	No.	1561	4435	1200	1400	1500
	Selection of germplasm lines for desirable traits	Specific traits inbred lines	No.	450	305	350	125	125
	Hybrid development of normal and specialty maize	Hybrids entered in coordinated trial	No.	0	3	4	6	25
	Use of molecular markers for maize improvement	Markers with utility in trait improvement	No.	0	0	1	1	1
Development and identification of appropriate varietal technologies for varied agro-climatic zones through multi-disciplinary and multi-location coordinated research	Constitution of multi-disciplinary and multi-location trials	Trials constituted	No.	66	67	60	66	66
	Monitoring and evaluation of trials	Centres monitored and evaluated	No.	27	29	25	28	28
	Compilation, analysis and preparation of report for coordinated trials	Report preparation	No.	4	4	3	4	4

Development and dissemination of maize production and protection technologies	Experiments for management of biotic stresses	Experiments conducted	No.	9	13	9	11	11
	Experiments for management of abiotic stresses	Experiments conducted	No.	2	3	1	2	2
	Training trainers and farmers	Trainings conducted	No.	5	14	5	7	7
	Organizing and monitoring of demonstrations	Demonstrations conducted and monitored	No.	100	226	75	100	100
	Organization of exhibitions	Exhibitions organized	No.	4	7	3	4	4
	Undertaking consultancy services/contractual research	Consultancy provided/Contractual research undertaken	No.	3	3	3	2	3
	Conservation agriculture and crop diversification in maize based cropping systems	Systems evaluated	No.	2	6	3	4	4
	Input and weed management	Experiments conducted	No.	3	5	4	4	4

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	Timely submission of results for 12-13	Date			02/05/13		
Administrative reforms	Implement ISO 9001	Prepare ISO 9001 action plan	Date			02/05/12		
		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 grievances redressal system	%	100		95		

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

Objective 1: Enhancement of germplasm and development of improved cultivars for increasing productivity and nutritional value of maize crop with economic and environmental sustainability through basic, strategic and applied research

Genetic uniformity can lead to vulnerability to crop pathogens, insects and abiotic factors, thereby compromising food security. Breeding with exotic germplasm is done in order to introduce useful genetic diversity for minimizing risks to production, introducing unique traits, or improving trait performance. This is a long term process requiring coordinated effort and use of multiple, diverse testing environments to evaluate the materials for useful traits. The resulting germplasm derived by identification and incorporation of favourable traits from exotic sources is utilized in public breeding program and ultimately contribute to increased genetic diversity of maize. By reducing genetic vulnerability and providing genetic improvements that increase productivity or utilization for food, feed and industrial uses, the value of the crop to producers and end-users is enhanced and consumers ultimately benefit. This contributes to the food and nutritional security, sustainability of agriculture production and economic stability in the society. The success indicators are measured in terms of number of inbred lines developed promotion of hybrids to coordinated evaluation trials which culminate into release of cultivars.

Objective 2: Development and identification of appropriate varietal technologies for varied agro-climatic zones through multi-disciplinary and multi-location coordinated research

There are five agro-climatic zones in our country. The purpose of multi-location evaluation of germplasm is to find out the most appropriate cultivar for different agro-climatic zones. The success indicators can be measured in terms of number of successful trials conducted.

Objective 3: Development and dissemination of maize production and protection technologies

The maize production technologies are developed to realize the optimal genetic potential of different cultivars and maximize the input use efficiency. Further, to prevent crop losses in field, protection technology is developed. These technologies are disseminated through field demonstrations, publications, exhibitions, training, *Krishi Vigyan Mela*, etc. The success indicators are measurable in terms of number of technologies developed, quantity of breeders seed produced, etc.

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

Proactive role of NBPGR, CIMMYT and other agencies in supplying germplasm will determine our performance. Active performance of the AICRP centres of SAUs/ICAR is must for carrying out of allotted coordinated trials and product development; technology dissemination through state department of agriculture and extension. Cooperation from farmers, seed production agencies like National Seed Corporation, State Seed Farm, etc. is required to meet the seed demand.

Section 6: Outcome/Impact of activities of organization

Sl 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	2010-11	2011-12	2012-13	2013-14	2014-15
1	Increase maize production and productivity towards nutrition and food security of citizens and animals	ICAR Institutes, SAUs, DAC, DAHD, Ministry of Agriculture as well as Dept. Of Animal Health / Dairy of all States	Release of high yielding, biotic / abiotic stress tolerant hybrids	Number	0	5	5	5	5
			Increase in average yield in FLDs and number of FLDs	q/ha & Number	47.91 & 8420	47.20 & 11106	47.00 & 8500	47.10 & 8600	47.20 & 8700
2	Increased maize export	ICAR Institutes, SAUs, DAC, DAC, DAHD, Ministry of Agriculture as well as Dept. Of Animal Health / Dairy of all States	Increased export volume.	mMT	2.1	2.1	2.5	2.5	2.5