



Government of India

R F D

(Results-Framework Document)
for

Department of Agricultural Research and
Education

(2013-2014)

Section 1: Vision, Mission, Objectives and Functions

Vision

Harnessing science to ensure comprehensive and sustained physical, economic and ecological access to food and livelihood security to all Indians, through generation, assessment, refinement and adoption of appropriate technologies.

Mission

Sustainability and growth of Indian agriculture by interfacing agricultural research, higher education and front-line extension initiatives complemented with institutional, infrastructural and policy support that will create efficient and effective science-harnessing tool.

Objectives

- 1 Utilizing frontier research in identified areas / programs for better genetic exploitation
- 2 Improving natural resource management and input use efficiency
- 3 Development and strengthening of higher agricultural education
- 4 Frontline agricultural extension through technology assessment, refinement & demonstration
- 5 IP management and commercialization of technologies
- 6 Development of diagnostics and vaccines
- 7 Knowledge management in agriculture
- 8 Farm mechanization, post-harvest management and value addition
- 9 Assessment and monitoring of fishery resources
- 10 To develop and sustain excellence in basic and strategic research for providing knowledge support in the NARS for technology solution

Functions

- 1 To develop Public-Private-Partnerships in developing seeds, planting materials, vaccines, feed formulations, value added products, agricultural machinery etc.
- 2 To serve as a repository in agriculture sector and develop linkages with national and international organizations as per the needs and current trends.
- 3 To plan, coordinate and monitor research for enhancing production and productivity of agriculture sector.
- 4 To enhance quality of higher education in agriculture sector.

Section 1: Vision, Mission, Objectives and Functions

- 5 Technology generation, commercialization and transfer to end users.
- 6 Human resource development and capacity building.

Section 2: Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
[1] Utilizing frontier research in identified areas / programs for better genetic exploitation	15.00	[1.1] Collection, characterization and conservation of genetic resources	[1.1.1] Germplasm conserved under long term storage (other crops)	Number	1.35	6000	5000	4000	3500	3000
			[1.1.2] Germplasm collected (horticultural crops)	Number	1.35	410	400	350	325	250
		[1.2] Evaluation of genetic resources / improved varieties for suitable crop husbandry practices	[1.2.1] Germplasm / breeding lines evaluated	Number	1.35	37000	35000	33000	30000	27500
		[1.3] Development of improved varieties suited to diverse agro-ecologies	[1.3.1] Varieties identified by AICRP Varietal Identification Committees (food, fodder and cash crops)	Number	1.35	40	35	30	25	22
			[1.3.2] Varieties identified by AICRP Varietal Identification Committees (oilseeds & pulses)	Number	1.35	18	15	13	12	10
			[1.3.3] Varieties identified by AICRP Varietal Identification Committees (fruits, vegetables, flowers and	Number	1.35	20	18	15	13	10

Section 2: Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value			
						Excellent	Very Good	Good	Fair
						100%	90%	80%	70%
		[1.4] Production of breeder seed, other seeds and planting materials	spices)						
			[1.4.1] Quantity of breeder seed produced (other crops)	Quintals	1.50	95000	85000	80000	75000
			[1.4.2] Quantity of breeder seed produced (horticultural crops)	Quintals	1.35	37000	36000	32000	30000
			[1.4.3] Planting materials produced annually	Number (in lakhs)	1.35	42	41	35	30
		[1.5] Production of piglets (8-12 weeks of age)	Provisioning of piglets to farmers and development agencies	Number	1.35	2100	1950	1800	1650
		[1.6] Production of day old as well as 6 weeks old chicks	Provisioning of day old / 6 weeks old chicks to farmers and development agencies	Number (in lakhs)	1.35	6.5	6	5.5	5
[2] Improving natural resource management and input use efficiency	15.00	[2.1] Soil resource characterization and mapping	[2.1.1] Soil resource maps including thematic maps developed at different scales	Number	2.25	22	19	16	14
		[2.2] Integrated nutrient management (INM)	[2.2.1] Technologies for improving soil health and nutrient use efficiencies	Number	2.55	10	8	6	4
									2

Section 2: Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
						16	14	12	11	10
			[2.2.2] Developing INM packages for different agro-eco regions of the country	Number	2.55					
			[2.3.1] Technologies for enhancing water / irrigation use efficiencies	Number	1.65	4	3	2	1	0
			[2.3.2] Technologies for water harvesting storage and groundwater recharge	Number	1.65	4	3	2	1	0
		[2.4] Climate resilient agriculture	[2.4.1] Awareness building amongst stake holders through trainings / demonstrations	Number	1.05	100	90	80	70	60
			[2.4.2] Programs organized for developing trained manpower in research and technology dissemination	Number	1.05	28	25	20	15	10
[3] Development and strengthening of higher agricultural education	15.00	[3.1] Accreditation / Extension of accreditation of agricultural universities	[2.4.3] Testing crop varieties / breeds for climate resilience at different locations	Number	2.25	9	8	7	6	5
			[3.1.1] Universities granted accreditation / extension of	Number	1.50	8	6	5	4	3

Section 2: Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
			accreditation							
		[3.2] Grant of ICAR International fellowships to Indian and foreign students	[3.2.1] Fellowships awarded (subject to availability of competent candidates)	Number	2.25	15	14	13	12	11
		[3.3] Grant of JRF and SRF to students	[3.3.1] Fellowships granted every year (subject to availability of competent candidates)	Number	3.00	645	640	630	625	620
		[3.4] Establishment of experiential learning units	[3.4.1] Establishment of experiential learning units	Number	1.50	24	22	20	18	16
		[3.5] Financial support and monitoring of progress	[3.5.1] Amount released as per BE	Rupees (In crores)	3.00	650	600	550	500	450
		[3.6] Capacity building and faculty up-gradation	[3.6.1] Faculty trained	Number	2.25	1870	1850	1830	1810	1790
		[3.7] Creation / continuation of the centres under Niche Area of Excellence (NAE)	[3.7.1] Continued support for the existing centres and establishment of new centres of NAE	Number	1.50	25	22	20	18	16
[4] Frontline agricultural extension through technology assessment, refinement & demonstration	8.00	[4.1] Capacity building for technology application	[4.1.1] On-farm trials and frontline demonstrations conducted	Number	4.00	100000	95000	90000	85000	80000

Section 2: Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value			
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%
						100%	90%	80%	60%
[5] IP management and commercialization of technologies	7.00		[4.1.2] Trainings organized (farmers, rural youth, women and in-service extension personnel)	Number	4.00	50000	45000	40000	30000
		[5.1] Patents and other IPR titles	[5.1.1] Applications filed	Number	3.50	75	60	50	40
		[5.2] Partnership development including licensing of ICAR technologies	[5.2.1] Partners identified	Number	3.50	155	150	130	120
									100
[6] Development of diagnostics and vaccines	6.00	[6.1] Development of diagnostic kits	[6.1.1] Diagnostic kits developed	Number	3.60	3	2	1	0
		[6.2] Development of vaccines against important animal diseases	[6.2.1] Vaccines developed	Number	2.40	3	2	1	0
[7] Knowledge management in agriculture	5.00	[7.1] Knowledge dissemination	[7.1.1] Print and electronic publication / products brought out	Number	5.00	250	238	226	214
[8] Farm mechanization, post-harvest management and value addition	5.00	[8.1] Develop / refine equipment for crop production and processing	[8.1.1] Equipment developed / refined	Number	1.25	21	20	18	16
		[8.2] Testing of commercial prototypes / technologies	[8.2.1] Commercial test reports	Number	1.25	13	12	11	10
		[8.3] Process protocols for product development, storage, safety and	[8.3.1] Process protocols developed	Number	1.25	14	12	10	9
									8

Section 2: Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
		improved quality								
		[8.4] Development / refinement of agro-products	[8.4.1] Value-added products	Number	1.25	16	14	12	11	10
[9] Assessment and monitoring of fishery resources	5.00	[9.1] Fish resources assessment and eco-system monitoring	[9.1.1] Number of explorations / surveys carried out	Number	5.00	125	120	115	110	100
[10] To develop and sustain excellence in basic and strategic research for providing knowledge support in the NARS for technology solution	4.00	[10.1] To create awareness of the need and nature of basic / strategic research in agriculture	[10.1.1] Success rate of concept notes submitted	Percent	1.20	20	18	16	14	12
			[10.1.2] Success rate of full proposals finally selected	Percent	1.20	85	67	60	53	46
		[10.2] Outcome of research done in the projects	[10.2.1] Technologies / methodologies developed	Number	1.60	5	4	3	2	1
* Efficient Functioning of the RFD System	3.00	Timely submission of Draft RFD 2014-15 for Approval	On-time submission	Date	2.0	05/03/2014	06/03/2014	07/03/2014	08/03/2014	11/03/2014
		Timely submission of Results for 2012-13	On-time submission	Date	1.0	01/05/2013	02/05/2013	03/05/2013	06/05/2013	07/05/2013
* Transparency/Service delivery Ministry/Department	3.00	Independent Audit of implementation of Citizens'/Clients' Charter (CCC)	% of implementation	%	2.0	100	95	90	85	80
		Independent Audit of implementation of Public Grievance Redressal System	% of implementation	%	1.0	100	95	90	85	80
* Administrative Reforms	6.00	Implement mitigating strategies for reducing	% of implementation	%	1.0	100	95	90	85	80

* Mandatory Objective(s)

Section 2: Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
* Improving Internal Efficiency/Responsiveness.		potential risk of corruption								
		Implement ISO 9001 as per the approved action plan	% of implementation	%	2.0	100	95	90	85	80
		Implement Innovation Action Plan (IAP)	% of milestones achieved	%	2.0	100	95	90	85	80
		Identification of core and non-core activities of the Ministry/Department as per 2nd ARC recommendations	Timely submission	Date	1.0	27/01/2014	28/01/2014	29/01/2014	30/01/2014	31/01/2014
* Ensuring compliance to the Financial Accountability Framework	2.00	Update departmental strategy to align with 12th Plan priorities	Timely updation of the strategy	Date	2.0	10/09/2013	17/09/2013	24/09/2013	01/10/2013	08/10/2013
* Mandatory Objective(s)	1.00	Timely submission of ATNs on Audit paras of C&AG	Percentage of ATNs submitted within due date (4 months) from date of presentation of Report to Parliament by CAG .during the year.	%	0.25	100	90	80	70	60
		Timely submission of ATRs to the PAC Sectt. on PAC Reports.	Percentage of ATRs submitted within due date (6 months) from date of presentation of Report to Parliament by PAC .during the year.	%	0.25	100	90	80	70	60
		Early disposal of pending ATNs on Audit Paras of C&AG Reports presented to Parliament before 31.3.2012.	Percentage of outstanding ATNs disposed off during the year.	%	0.25	100	90	80	70	60
		Early disposal of pending ATRs on PAC Reports presented to Parliament	Percentage of outstanding ATRs disposed off during the	%	0.25	100	90	80	70	60

Section 2:
Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
		before 31.3.2012	year.							

* Mandatory Objective(s)

Section 3: Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
[1] Utilizing frontier research in identified areas / programs for better genetic exploitation	[1.1] Collection, characterization and conservation of genetic resources	[1.1.1] Germplasm conserved under long term storage (other crops)	Number	6386	4000	5000	5500	5600
		[1.1.2] Germplasm collected (horticultural crops)	Number	300	315	400	400	425
	[1.2] Evaluation of genetic resources / improved varieties for suitable crop husbandry practices	[1.2.1] Germplasm / breeding lines evaluated	Number	38000	2500	35000	35500	36000
	[1.3] Development of improved varieties suited to diverse agro-ecologies	[1.3.1] Varieties identified by AICRP Varietal Identification Committees (food, fodder and cash crops)	Number	0	0	35	38	40
		[1.3.2] Varieties identified by AICRP Varietal Identification Committees (oilseeds & pulses)	Number	0	0	15	17	19
		[1.3.3] Varieties identified by AICRP Varietal Identification Committees (fruits, vegetables, flowers and spices)	Number	15	18	18	20	22
	[1.4] Production of breeder seed, other seeds and planting materials	[1.4.1] Quantity of breeder seed produced (other crops)	Quintals	100000	82000	85000	87000	88000

Section 3: Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
[2] Improving natural resource management and input use efficiency		[1.4.2] Quantity of breeder seed produced (horticultural crops)	Quintals	35000	36000	36000	37000	37000
		[1.4.3] Planting materials produced annually	Number (in lakhs)	40	40.5	41	41.5	42
		[1.5.1] Provisioning of piglets to farmers and development agencies	Number	1366	2779	1950	2000	2100
		[1.6.1] Provisioning of day old / 6 weeks old chicks to farmers and development agencies	Number (in lakhs)	3.21	6.17	6.5	6.2	6.4
	[2.1] Soil resource characterization and mapping	[2.1.1] Soil resource maps including thematic maps developed at different scales	Number	0	0	19	22	22
	[2.2] Integrated nutrient management (INM)	[2.2.1] Technologies for improving soil health and nutrient use efficiencies	Number	3	4	8	10	11
		[2.2.2] Developing INM packages for different agro-eco regions of the country	Number	4	9	14	15	15
	[2.3] Integrated water management (IWM)	[2.3.1] Technologies for enhancing water / irrigation use efficiencies	Number	4	5	3	4	6

Section 3: Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
[3] Development and strengthening of higher agricultural education		[2.3.2] Technologies for water harvesting storage and groundwater recharge	Number	6	8	3	3	3
		[2.4.1] Awareness building amongst stake holders through trainings / demonstrations	Number	100	244	90	95	100
		[2.4.2] Programs organized for developing trained manpower in research and technology dissemination	Number	0	0	25	28	30
		[2.4.3] Testing crop varieties / breeds for climate resilience at different locations	Number	7	10	8	9	10
	[3.1] Accreditation / Extension of accreditation of agricultural universities	[3.1.1] Universities granted accreditation / extension of accreditation	Number	5	8	6	7	8
	[3.2] Grant of ICAR International fellowships to Indian and foreign students	[3.2.1] Fellowships awarded (subject to availability of competent candidates)	Number	15	12	14	14	14
	[3.3] Grant of JRF and SRF to students	[3.3.1] Fellowships granted every year (subject	Number	660	625	640	645	650

Section 3: Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
		to availability of competent candidates)						
	[3.4] Establishment of experiential learning units	[3.4.1] Establishment of experiential learning units	Number	106	22	22	25	30
	[3.5] Financial support and monitoring of progress	[3.5.1] Amount released as per BE	Rupees (in crores)	486.89	360	600	750	800
	[3.6] Capacity building and faculty up-gradation	[3.6.1] Faculty trained	Number	1000	900	1850	1870	1890
	[3.7] Creation / continuation of the centres under Niche Area of Excellence (NAE)	[3.7.1] Continued support for the existing centres and establishment of new centres of NAE	Number	0	0	22	25	28
[4] Frontline agricultural extension through technology assessment, refinement & demonstration	[4.1] Capacity building for technology application	[4.1.1] On-farm trials and frontline demonstrations conducted	Number	0	0	95000	100000	105000
		[4.1.2] Trainings organized (farmers, rural youth, women and in-service extension personnel)	Number	0	0	45000	50000	55000
[5] IP management and commercialization of technologies	[5.1] Patents and other IPR titles	[5.1.1] Applications filed	Number	111	105	60	70	80
	[5.2] Partnership development including licensing of ICAR technologies	[5.2.1] Partners identified	Number	136	149	150	155	160

Section 3: Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
[6] Development of diagnostics and vaccines	[6.1] Development of diagnostic kits	[6.1.1] Diagnostic kits developed	Number	5	3	2	4	4
	[6.2] Development of vaccines against important animal diseases	[6.2.1] Vaccines developed	Number	3	2	2	3	3
[7] Knowledge management in agriculture	[7.1] Knowledge dissemination	[7.1.1] Print and electronic publication / products brought out	Number	0	0	238	250	260
[8] Farm mechanization, post-harvest management and value addition	[8.1] Develop / refine equipment for crop production and processing	[8.1.1] Equipment developed / refined	Number	20	17	20	22	24
	[8.2] Testing of commercial prototypes / technologies	[8.2.1] Commercial test reports	Number	27	8	12	14	16
	[8.3] Process protocols for product development, storage, safety and improved quality	[8.3.1] Process protocols developed	Number	21	13	12	14	16
	[8.4] Development / refinement of agro-products	[8.4.1] Value-added products	Number	31	14	14	16	18
[9] Assessment and monitoring of fishery resources	[9.1] Fish resources assessment and eco-system monitoring	[9.1.1] Number of explorations / surveys carried out	Number	60	128	120	130	140
[10] To develop and sustain excellence in basic and strategic research for providing knowledge support in the NARS for technology	[10.1] To create awareness of the need and nature of basic / strategic research in agriculture	[10.1.1] Success rate of concept notes submitted	Percent	0	0	18	25	30

Section 3: Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
solution								
		[10.1.2] Success rate of full proposals finally selected	Percent	0	0	67	85	90
	[10.2] Outcome of research done in the projects	[10.2.1] Technologies / methodologies developed	Number	0	0	4	7	9
* Efficient Functioning of the RFD System	Timely submission of Draft RFD 2014-15 for Approval	On-time submission	Date	--	--	06/03/2014	--	--
	Timely submission of Results for 2012-13	On-time submission	Date	--	--	02/05/2014	--	--
* Transparency/Service delivery Ministry/Department	Independent Audit of implementation of Citizens' Charter	% of implementation	%	--	--	95	--	--
	Independent Audit of implementation of Public Grievance Redressal System	% of implementation	%	--	--	95	--	--
* Administrative Reforms	Implement mitigating strategies for reducing potential risk of corruption	% of implementation	%	--	--	95	--	--
	Implement ISO 9001 as per the approved action plan	% of implementation	%	--	--	95	--	--
	Implement Innovation Action Plan (IAP)	% of milestones achieved	%	--	--	95	--	--
	Identification of core and non-core activities of the	Timely submission	Date	--	--	15/10/2013	--	--

* Mandatory Objective(s)

Section 3: Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
* Ensuring compliance to the Financial Accountability Framework	Ministry/Department as per 2nd ARC recommendations							
	Timely submission of ATNs on Audit paras of C&AG	Percentage of ATNs submitted within due date (4 months) from date of presentation of Report to Parliament by CAG .during the year.	%	--	--	90	--	--
	Timely submission of ATRs to the PAC Sectt. on PAC Reports.	Percentage of ATRS submitted within due date (6 months) from date of presentation of Report to Parliament by PAC .during the year.	%	--	--	90	--	--
	Early disposal of pending ATNs on Audit Paras of C&AG Reports presented to Parliament before 31.3.2012.	Percentage of outstanding ATNs disposed off during the year.	%	--	--	90	--	--
	Early disposal of pending ATRs on PAC Reports presented to Parliament before 31.3.2012	Percentage of outstanding ATRS disposed off during the year.	%	--	--	90	--	--

* Mandatory Objective(s)

Section 4:
Acronym

Sl.No	Acronym	Description
1	AH	Animal Husbandry
2	AICRP	All India Coordinated Research Project
3	AUs	Agricultural Universities
4	BE	Budget Estimate
5	DAC	Department of Agriculture and Cooperation
6	DADF	Department of Animal Husbandry, Dairying and Fisheries
7	DAE	Division of Agricultural Extension
8	DBT	Department of Bio Technology
9	DKMA	Directorate of Knowledge Management in Agriculture

Section 4: Acronym

Sl.No	Acronym	Description
10	DST	Department of Science and Technology
11	DU	Deemed University
12	FACE	Free Air Carbon-dioxide Enrichment
13	FATE	Free Air Temperature Enrichment
14	FLD	Front line Demonstration
15	ICAR	Indian Council of Agricultural Research
16	ICMR	Indian Council of Medical Research
17	ICT	Information and Communication Technology
18	INM	Integrated Nutrient Management

Section 4:
Acronym

Sl.No	Acronym	Description
19	IP	Intellectual Property
20	IPNS	Integrated Plant Nutrient Supply System
21	IPR	Intellectual Property Rights
22	IWM	Integrated Water Management
23	JRF	Junior Research Fellow
24	KVK	Krishi Vigyan Kendra
25	MoAs	Memorandum of Agreements
26	MoRD	Ministry of Rural Development
27	MoUs	Memorandum of Understandings

Section 4: Acronym

Sl.No	Acronym	Description
28	MoWR	Ministry of Water Resources
29	NAE	Niche Area of Excellence
30	NARS	National Agricultural Research System
31	NFBSFARA	National Fund for Basic, Strategic and Frontier Application Research in Agriculture
32	NGOs	Non-Governmental Organizations
33	NHB	National Horticulture Board
34	NHM	National Horticulture Mission
35	OFT	On-Farm Trial
36	PG	Post-Graduate

Section 4: Acronym

Sl.No	Acronym	Description
37	SAUs	State Agricultural Universities
38	SRF	Senior Research Fellow
39	SVUs	State Veterinary Universities
40	UG	Under Graduate

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
1	[1.1.1] Germplasm conserved under long term storage (other crops)	Diverse germplasm is the basic requirement to bred new improved varieties	Basic genetic resource for crop improvement	Number of germplasm samples/accessions	
2	[1.1.2] Germplasm collected (horticultural crops)	Germplasms are genetic resources of horticultural crops which are source for genetic variability	Germplasm is collection of cultivars, landraces, wild species etc. for conservation and utilization	Number	Germplasm material serve as base for utilization in crop improvement programs for breeding new varieties
3	[1.2.1] Germplasm / breeding lines evaluated	Source material for the improved varieties to be evaluated	Material generated from the basic germplasm	Number of breeding lines evaluated	
4	[1.3.1] Varieties identified by AICRP Varietal Identification Committees (food, fodder and cash crops)	Breeding lines tested along with checks in multi-location trials through All India Coordinated Research Projects and the best performing entries compared to checks are identified as new improved varieties for release	Best performing entries identified as a new variety for release	Number of such varieties identified	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

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
5	[1.3.2] Varieties identified by AICRP Varietal Identification Committees (oilseeds & pulses)	Breeding lines tested along with checks in multi-location trials through All India Coordinated Research Projects and the best performing entries compared to checks are identified as new improved varieties for release	Best performing entries identified as a new variety for release	Number of such varieties identified	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
6	[1.3.3] Varieties identified by AICRP Varietal Identification Committees (fruits, vegetables, flowers and spices)	Varieties/cultivars produced by careful breeding and selection for desirable characteristics	A variety/cultivar is a plant or group of plants selected for desirable traits	Number	Varieties are result of breeding improvements can include high yield, quality, better disease resistance, drought tolerance, fruit size, etc.
7	[1.4.1] Quantity of breeder seed produced (other crops)	Produce from nucleus and breeder seed is the starting point in seed chain of producing quality seeds for farmers	Breeder seed is the starting point in seed chain which is multiplied/converted in to foundation /certified seed	Quantity produced (Quintals)	Quantity may vary as per indent from DAC
8	[1.4.2] Quantity of breeder seed produced (horticultural crops)	Propagating material directly controlled by the originating or sponsoring plant breeder of the breeding program or institution	Breeder seed, whose production is personally supervised by a qualified plant breeder and is source for foundation and certified seeds	Weight in Quintals	Breeder seed shall be genetically so pure as to guarantee that in the subsequent generation

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
9	[1.4.3] Planting materials produced annually	Production of planting material of vegetatively propagated horticultural crops	It is a process of vegetative means by which new individuals arise without production of seeds or spores	Number of saplings/plants (in lakhs)	In a wider sense, planting material arise from vegetative propagation include cutting, vegetative apomixis, layering, division, budding, grafting and tissue culture
10	[1.5.1] Provisioning of piglets to farmers and development agencies	The provisioning of piglets will depend on high reproductive efficiency (preferably with a pregnancy rate not less than 70%) of the sows (female pigs), and other inputs like quality management, balanced feed, health cover for optimum growth to be monitored initially weekly weights up to weaning and thereafter fortnightly monitoring of weight and growth rate till the piglets are ready for sale to farmers / development agencies	The piglets being provisioned will serve as the basic unit (seed) for production, reproduction, maintenance and preservation	Number	The piglets supplied will be used by the farmers as means of nutritional security and economic returns and by the State AH Departments for enhancing production / productivity on their farms and for multiplication and production of quality germplasm
11	[1.6.1] Provisioning of day old / 6 weeks old chicks to farmers and development agencies	Provisioning of day old / 6 weeks old chicks would require production of more than 70% fertile eggs from the breeding population and thereby hatchability of 75%. The target can be successfully reached if the standard management practices, quality feeding schedule, health schedule with	The chicks / fertile eggs/ being provisioned will serve as the basic unit (seed) for production, reproduction, maintenance and preservation	Number (in lakhs)	The chicks supplied will be reared by the farmers for egg / meat production. The chicks of parent line provisioned to government farms will serve as the replacement stock for enhancing production / productivity and for multiplication and production

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
11	[1.6.1] Provisioning of day old / 6 weeks old chicks to farmers and development agencies	closed monitoring of the environment and management standards is done during the growth period of the chicks and of the parent population	The chicks/ fertile eggs/ being provisioned will serve as the basic unit (seed) for production, reproduction, maintenance and preservation	Number (in lakhs)	of quality germplasm
12	[2.1.1] Soil resource maps including thematic maps developed at different scales	Soil resource inventory & characterization is prerequisite for developing land use planning	Soil resource maps are the record of soil units delineated on the basis of similar properties in a readable format	Mapping will be done at different scale using geo reference data	This will ensure effective monitoring and judicious use of land resources
13	[2.2.1] Technologies for improving soil health and nutrient use efficiencies	The nutrient use efficiency in the country is very low and fertilizer being a costly input, this has to be increased to reduce the use of fertilizer vis-a-vis cost of production	Nutrient efficiency can be defined in agronomic, economic, or environmental terms with an aim to get maximum yield benefit with reduce rate of application without harming the environment	Nutrient use efficiency is measured in terms of partial factor productivity (kg crop yield per kg nutrient applied) or agronomic efficiency (kg crop yield increase per kg nutrient applied) or apparent recovery efficiency (kg nutrient taken up per kg nutrient applied); and physiological efficiency (kg yield increase per kg nutrient taken up)	Augmenting nutrient use efficiency will facilitate reduction in use of costly chemical fertilizer, fertilizer subsidy burden and environmental pollution

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
14	[2.2.2] Developing INM packages for different agro-eco regions of the country	Integrated nutrient management is practiced encompassing conjunctive use of both chemical and organic nutrient sources for improving soil health & sustaining higher productivity	Integrated nutrient management refers to the maintenance of soil fertility and plant nutrient supply at an optimum level for sustaining the desired productivity through optimization of the benefits from all possible sources of organic, inorganic and biological components in an integrated manner	Developing integrated plant nutrient supply systems (IPNS) for different crops / croppings	To ensure balance fertilization and sound soil health
15	[2.3.1] Technologies for enhancing water / irrigation use efficiencies	Improving irrigation/water use efficiency is aimed to save water bringing more area under irrigation	Irrigation efficiency is the index of irrigation performance while water use efficiency is defined as yield/unit of crop water use	To be measured in terms of irrigation water use and evapo-transpiration	This will increase the crop water productivity
16	[2.3.2] Technologies for water harvesting storage and groundwater recharge	Rainwater is harvested through bio engineering measures and used for augmenting ground water level	Groundwater recharge is a hydrologic process where water moves downward from surface water to groundwater	Groundwater recharge measurement will be studied through development of location specific filter systems	Groundwater recharge technique shall help in minimizing surface run-off and augmenting groundwater table
17	[2.4.1] Awareness building amongst stake holders through trainings / demonstrations	The knowledge and skills of primary and secondary stakeholders shall be enhanced by organizing exposure visits to on-farm trials/ demonstrations conducted by SAUs and KVKs	Exposure to advanced techniques in understanding and managing climatic risks	Number of programmes	Skill enhancement of primary and secondary stakeholders

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
18	[2.4.2] Programs organized for developing trained manpower in research and technology dissemination	Staff of NARS and NGOs will be exposed to state-of-art facilities/ techniques /tools developed within the country/abroad for pursuing advance research and technology dissemination	Enhancing the knowledge of scientists and officials in understanding climatic variability and coping strategies	Number of training programmes	Human capital development in coping with changing climatic scenario
19	[2.4.3] Testing crop varieties / breeds for climate resilience at different locations	State of art facilities like phenomics, FACE and FATE and other advanced techniques will be employed in identifying the germplasm /varieties/ livestock breeds/ fisheries species tolerant to biotic and abiotic stresses	Germplasm/ varieties/ livestock breeds / fisheries species that can tolerate biotic and abiotic stresses	Number of germplasm/ varieties/ livestock breeds / fisheries species	With increased frequency of occurrence of weather aberrations have necessitated the need for identifying tolerant germplasm/ varieties/ livestock breeds / fisheries species
20	[3.1.1] Universities granted accreditation / extension of accreditation	Educational quality and reforms are to be measured from the number of universities accredited and need based reforms undertaken	Accreditation is periodically undertaken to ensure education quality by Accreditation Board, ICAR	Number	
21	[3.2.1] Fellowships awarded (subject to availability of competent candidates)	International fellowships to both Indian and foreign students are awarded in cutting edge areas for showcasing strength of Indian agriculture	Fellowships are awarded in competitive mode based on merit	Number	
22	[3.3.1] Fellowships granted every year (subject to availability of competent candidates)	JRF/SRF fellowships are awarded for attracting and retaining talented youths towards higher agricultural education through All India Examination	JRF/SRF (PGs) fellowships are meant for Master and Doctoral programme respectively in Agriculture and Allied Sciences in competitive mode	Number	

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Sl.No	Success indicator	Description	Definition	Measurement	General Comments
22	[3.3.1] Fellowships granted every year (subject to availability of competent candidates)	JRF/SRF fellowships are awarded for attracting and retaining talented youths towards higher agricultural education through All India Examination	JRF/SRF (PGs) fellowships are meant for Master and Doctoral programme respectively in Agriculture and Allied Sciences in competitive mode	Number	
23	[3.4.1] Establishment of experiential learning units	Experiential learning units are being established across Agricultural Universities for providing hands on training and developing entrepreneurship skills amongst youth at UG level	Experiential learning unit are in different areas of Agriculture and Allied Sciences at college level for Under Graduate students	Number	
24	[3.5.1] Amount released as per BE	ICAR provides grant for development and strengthening of higher agricultural education to Agricultural Universities for the infrastructure development including students' amenities and facilities, modernization of laboratories and classrooms and to facilitate course-curriculum delivery and quality assurance with enabling environment and ICT support on yearly basis	ICAR development grant to Agricultural Universities emphasizes quality education, its relevance and usefulness	Rs. (in crores)	
25	[3.6.1] Faculty trained	Capacity building and faculty up-gradation in need based areas of agriculture and allied sciences to be measured from the number of trained personnel through summer-winter	Training programmes are key to sustain quality of agricultural education through updating of knowledge and skill of faculty	Number	

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
25	[3.6.1] Faculty trained	schools/short courses, Centres of Advanced Faculty Trainings and niche area centres	Training programmes are key to sustain quality of agricultural education through updating of knowledge and skill of faculty	Number	
26	[3.7.1] Continued support for the existing centres and establishment of new centres of NAE	Creation/continuation of Niche Area of Excellence for scaling up of research capabilities of the universities and promote human resource development	Basic elements of Niche Areas of Excellence are quality of human resource, adequate infrastructure, access to latest information and well developed educational technology system	Number	
27	[4.1.1] On-farm trials and frontline demonstrations conducted	Trials and demonstrations conducted for technology testing and proving the technology potential 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	

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
28	[4.1.2] Trainings organized (farmers, rural youth, women and in-service extension personnel)	Capacity building activities related to knowledge and skill improvement/development programmes conducted for farmers, rural youth 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	
29	[5.1.1] Applications filed	Filing of patents and other IPR titles for protection of IP	Protection of IPs in the form of patents and other IPR titles	Number	
30	[5.2.1] Partners identified	With respect to commercialization of technologies and services for promoting partnerships with both public and private sector agencies, it is envisaged to bring commercial ethos in agricultural research system. The increasing numbers of partnerships over the years points towards emphasis on transfer of knowledge, skills and technologies, thereby contributing to improved socioeconomic impact from contribution of ICAR	Partnership development, includes licensing of ICAR's technologies and/or services	Number	

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
31	[6.1.1] Diagnostic kits developed	The development of diagnostic kits would involve delineation of process (processes) for detection of specific diseases of livestock and thereby denoting a specific number for field testing / validation through various institutes, State AH Departments, NGOs, private production houses/industry	To develop sensitive tests for detection of causative agents for specific diseases of livestock and poultry	Number	Development of new diagnostics will be need based dependent on occurrence / emergence / prevalence / severity of a disease likely to result in high economic loss
32	[6.2.1] Vaccines developed	The development of vaccines would involve delineation of process (processes) and thereby denoting a specific number for field testing / validation through various institutes, State AH Departments, NGOs, private production houses/industries	Vaccine is a prophylactic agent rendering immunity against specific disease through scheduled active immunization(s)	Number	Development of a new vaccine will be need based dependent on occurrence / emergence / prevalence / severity of a disease likely to result in high economic loss
33	[7.1.1] Print and electronic publication / products brought out	Dissemination of knowledge products like books, periodicals, journals etc. published through print, electronic mode etc.	No. of publications like newsletters, reports, journals, books and electronic products	Number	
34	[8.1.1] Equipment developed / refined	Development of need based farm equipment	R&D work on farm mechanization	Number	

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
35	[8.2.1] Commercial test reports	Type of machinery	Equipment or products for testing	Number of reports as per BIS standards	
36	[8.3.1] Process protocols developed	Methodology to carry out a process	Development of methods to complete a process	Quality of process	
37	[8.4.1] Value-added products	Development of new products from the raw agro-produce	Development of different products from agro-produce	End-product	
38	[9.1.1] Number of explorations / surveys carried out	Explorations/surveys carried out to identify new fishery resources and locating potential fishing zones	Newer fishery resources and potential fishing areas identified	Percent increase in fish production and productivity	
39	[10.1.1] Success rate of concept notes submitted	By creating awareness through workshops it is expected that the participants of workshop & through then their colleague will be encouraged to submit more meaningful research concepts which will lead to increase in percent of submitted concept notes that are selected for full		Number of concept notes received	

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

Sl.No	Success indicator	Description	Definition	Measurement	General Comments
39	[10.1.1] Success rate of concept notes submitted	project development		Number of concept notes received	
40	[10.1.2] Success rate of full proposals finally selected	Based on the selected concept notes full proposals are developed. The proponents are actually helped by NBSFARA in full proposal development. Thus, the percent reflects the success of efforts of NBSFARA and the awareness of the proponents		In percent	
41	[10.2.1] Technologies / methodologies developed	Certain ideas and technologies may be directly developed from the project which is reflected in patents filed and usable technology and methodology developed		Number	

**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 Government		Departments	Department of Agriculture and Cooperation	[1.4.1] Quantity of breeder seed produced (other crops)	Indent for quantity of breeder seed	Variety wise indent for breeder seed	Quantity of breeder seed is produced as per the indent	Less or more quantity of breeder seed will be produced

Section 6:
Outcome/Impact of Department/Ministry

Outcome/Impact of Department/Ministry	Jointly responsible for influencing this outcome / impact with the following department (s) / ministry(ies)	Success Indicator	Unit	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16
1 Enhanced agriculture productivity	DADF, DAC, Planning Commission, Ministry of Environment & Forests, Ministry of Panchayati Raj, Ministry of Rural Development and State Governments	Increase in agriculture productivity	%	2	2	2	2	2
2 Enhanced milk, egg, meat & fish productivity	DADF, Ministry of Panchayati Raj, Ministry of Rural Development, State Governments and NGOs	Increase in milk productivity	%	3.8	4	4	4	4
		Increase in egg productivity	%	2	2	2	2	2
		Increase in meat productivity	%	2.5	2.5	2.5	2.5	2.5
		Increase in fish productivity	%	4	4	4	4	4
3 Enhanced availability of quality human resources for agricultural research & development activities	SAUs, SVUs, Ministry of Panchayati Raj, Ministry of Rural Development and State Governments	Increase in Graduates / PG students passed out and capacity building	%	5	5	5	5	5
4 Enhanced rural livelihood security	DAC, DADF, SAUs, SVUs, Ministry of Panchayati Raj, Ministry of Rural Development, Ministry of Fertilizers and State Governments	Decrease in rural poverty	%	1	1	1	1	1
5 Improved nutritional security	DST, DBT, ICMR, Ministry of Food Processing, Ministry of Panchayati Raj, Ministry of Rural Development and State Governments	Increase in per capita availability of agricultural products	%	3	2	2	2	2
			%	1.6	0.8	0.8	0.8	0.8

Section 6:
Outcome/Impact of Department/Ministry

Outcome/Impact of Department/Ministry	Jointly responsible for influencing this outcome / impact with the following department (s) / ministry(ies)	Success Indicator	Unit	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16
6 Enhancing frontier research / programmes		Technical papers published in recognized journals	Number	4000	4500	5000	5000	5000
		New varieties developed	Number	60	70	80	80	80
7 Commercialization of technologies	SAU/DU	Research converted into commercialized technology	Number	10	10	10	10	10