



# **Results-Framework Document (RFD)**

**for**

**National Institute of Animal Nutrition and Physiology  
(2012-2013)**

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## **Section 1:**

### **Vision, Mission, Objectives and Functions**

#### **Vision**

Productivity enhancement for profitable and sustainable livestock production.

#### **Mission**

Improving production and reproductive efficiency in livestock through basic physiological and nutritional approaches.

#### **Objectives**

1. Improving nutrient availability and utilization in livestock
2. Assessing feed quality and safety for improved animal health and production
3. Elucidating basic reproductive functions for improving fertility in livestock
4. Development of feed and livestock informatics
5. Technology translation and human resource development

#### **Functions**

1. Conduct basic and fundamental research to address physiological and nutritional problems related to biophysical translation of nutrients for productive functions in livestock.
2. Developing quality human resource in frontier areas of animal nutrition and physiology.
3. Research translation to connect discovery with applications.

**Section 2:**  
**Inter se priorities among key objectives, success indicators and targets**

Objectives	Weight (%)	Actions	Success Indicators	Unit	Weight (%)	Target /Criteria Value				
						Excellent	V. Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
<b>Improving nutrient availability and utilization in livestock</b>	25	Improving digestibility of poor quality feeds using lignolytic enzymes	Identification of potent lignolytic fungi	Date	4	31.10.12	30.11.12	31.12.12	31.01.13	28.02.13
		Determining methane production potential of ruminant feeds and feed combinations	Number of plants/feed samples to be screened	Number	4	28	25	20	18	16
			Cataloging of feeds based on methane production potential	Date	4	31.08.12	30.09.12	31.10.12	30.11.12	31.12.12
		Evaluation of alternate feed resources (karanj and neem cakes and pineapple waste) for livestock	Suitability as animal feed	Date	5	31.10.12	30.11.12	31.12.12	31.01.13	28.02.13
		Determination of prebiotic level for modulating gut fermentation	Standardizing the prebiotic level in pig	Date	5	30.11.12	31.12.12	31.01.13	28.02.13	31.03.13
		Development of process to maximize xylan yield from agricultural waste/byproducts	Process for improved yield and quality of xylan	Date	3	30.11.12	31.12.12	31.01.13	28.02.13	31.03.13

<b>Assessing feed quality and safety for improved animal health and production</b>	8	Identifying potential plants for inhibiting toxin production	Screening of plants having potential for reducing aflatoxin	Number	8	30	25	20	15	10
<b>Elucidating basic reproductive functions for improving fertility in livestock</b>	25	Identification of candidate protein involved in follicular development in buffalo	Identification of candidate protein	Date	10	31.12.12	15.01.13	31.01.13	15.02.13	28.02.13
		Studies on sperm functional tests in relation to field fertility	Correlation between sperm functional attributes with field fertility	Date	8	31.12.12	15.01.13	31.01.13	15.02.13	28.02.13
		Data mining and extraction of available gene sequences for predicting milk production	Number of gene sequences to be screened	Number	7	10	8	6	5	4
<b>Development of feed and livestock informatics</b>	8	Developing models for assessing climate change impact on feed resources	Number of states for which forecasting models would be developed	Number	8	5	4	3	2	1
<b>Technology transfer and human resource development</b>	10	Development of web based knowledge management system	Knowledge enhancement of different stake holders on animal husbandry	Date	4	30.11.12	15.12.12	31.12.12	10.01.13	21.01.13
		HRD and capacity building	Number of trainings conducted	Number	6	7	6	5	4	3

<b>Project monitoring and evaluation and institute management</b>	12	Conducting RAC and IRC meetings	Timely conducting of meetings	Date	4	10.03.13	13.03.13	16.03.13	20.03.13	25.03.13
		Conducting IMC meeting	Timely conducting of meeting	Date	2	28.02.13	05.03.13	10.03.13	15.03.13	20.03.13
		Publishing Annual Report 2011-12	Timely publication of annual report	Date	6	30.06.12	15.07.12	31.07.12	15.08.12	31.08.12
<b>Efficient functioning of the RFD system</b>	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 of RFD for 2012-13	On-time submission	Date	1	01.5.13	02.05.13	03.05.13	06.05.13	07.05.13
<b>Administrative Reforms</b>	5	Implement ISO 9001	Prepare ISO 9001 action plan	Date	1	04.06.12	05.06.12	06.06.12	07.06.12	08.06.12
			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
<b>Improving Internal Efficiency / responsiveness / service delivery of Ministry / Department</b>	4	Implementation of Sevottam	Independent audit of Implementation of Citizen's Charter	%	2	100	95	90	85	80
			Independent audit of implementation of public grievance redressal system	%	2	100	95	90	85	80

**Section 3:  
Trend values of the success indicators**

<b>Objectives</b>	<b>Actions</b>	<b>Success Indicators</b>	<b>Unit</b>	<b>Actual Value for FY 10/11</b>	<b>Actual Value for FY 11/12</b>	<b>Target Value for FY 12/13</b>	<b>Projected Value for FY 13/14</b>	<b>Projected Value for FY 14/15</b>
<b>Improving nutrient availability and utilization in livestock</b>	Improving digestibility of poor quality feeds using lignolytic enzymes	Identification of potent lignolytic fungi	Date	NA*	30.12.11	30.11.12	NA	NA
	Determining methane production potential of ruminant feeds and feed combinations	Number of plants/feed samples to be screened	Number	NA	20	25	NA	NA
		Cataloging of feeds based on methane production potential	Date	15.10.10	20.12.11	30.09.12	10.06.13	NA
	Evaluation of alternate feed resources (karanj and neem cakes and pineapple waste etc.) for livestock	Suitability as animal feed	Date	NA	15.03.12	30.11.12	08.04.13	16.05.14
	Determination of prebiotic level for modulating gut fermentation	Standardizing the prebiotic level in pig in vitro	Date	NA	31.10.11	31.12.12	NA	NA
	Development of process to maximize xylan yield from agricultural waste/byproducts	Process for improved yield and quality of xylan	Date	NA	NA	31.12.12	09.06.13	04.04.14
	<b>Assessing feed quality and safety for improved animal health and production</b>	Identifying potential plants for inhibiting toxin production	Screening of plants having potential for reducing aflatoxin	Number	NA	30	35	NA

<b>Elucidating basic reproductive functions for improving fertility in livestock</b>	Identification of candidate protein involved in follicular development in buffalo	Identification of candidate protein	Date	NA	NA	15.01.13	NA	NA
	Studies on sperm functional tests in relation to field fertility	Correlation between sperm functional attributes with field fertility	Date	NA	NA	15.01.13	NA	NA
	Data mining and extraction of available gene sequences for predicting milk production	Number of gene sequences to be screened	Number	NA	NA	8	NA	NA
<b>Development of feed and livestock informatics</b>	Developing models for assessing climate change impact on feed resources	Number of states for which forecasting models would be developed	Number	NA	NA	4	5	NA
<b>Technology transfer and human resource development</b>	Development of web based knowledge management system	Knowledge enhancement of different stake holders in animal husbandry	Date	NA	NA	15.12.12	31.12.13	NA
	HRD and capacity building	Number of trainings conducted	Number	4	4	5	6	6
<b>Project monitoring and evaluation and institute management</b>	Conducting RAC and IRC meetings	Timely conducting of meetings	Date	NA	NA	13.03.13	13.03.14	13.03.15
	Conducting IMC meeting	Timely conducting of meeting	Date	NA	NA	05.03.13	05.03.14	05.03.15
	Publishing Annual Report 2011-12	Timely publication of annual report	Date	NA	07.07.11	15.07.12	15.07.13	15.07.14

<b>Efficient functioning of the RFD system</b>	Timely submission of RFD for 2012-13	On-time submission	Date	-	10.06.2011	26.3.2012	-	-
	Timely submission of Results for 2012-13	On-time submission	Date	-	01.05.2012	02.5.2013	-	-
<b>Administrative Reforms</b>	Implement ISO 9001	Prepare ISO 9001 action plan	Date	-	-	05.6.2012	-	-
		Implementation of ISO 9001 action plan	Date	-	-	26.3.2013	-	-
	Implement mitigating strategies for reducing potential risk of corruption	% of implementation	%	-	-	95	-	-
<b>Improving Internal Efficiency / responsiveness / service delivery of Ministry / Department</b>	Implementation of Sevottam	Independent audit of implementation of Citizen's Charter	%	-	-	95	-	-
		Independent audit of implementation of public grievance redressal system	%	-	-	95	-	-

*\* Note: **NA: Not applicable.** The target values for the year 2012-2013 have been given for respective success indicators of the objectives. For some success indicators the values have not been given for the previous (2010-11) and subsequent years (2013-14 or 2014-15 ) as either these activities were not initiated during the period or these activities are not envisaged subsequently.*



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

### **Objective 1:**

There is acute shortage of animal feed and to overcome these problems the options available are either to enhance the bio availability of nutrients from existing feed stuffs or to identify newer feed resources or balancing of feed. Majority of the crop residues are rich in lingo-cellulosic materials and lignin interfere with the digestibility of the nutrients. Attempts to break down the lingo-cellulose bonds using lignolytic enzymes can improve the quality and thereby improve the nutritive value of feeds. Assessment of methane production potential of various feeds would help in developing mitigation strategies and reduce the carbon footprint. Modulating gut fermentation using prebiotic/probiotic would help in improving the nutrient utilization and also reduce methane production.

### **Objective 2:**

Eliminating/avoiding toxins in feed, ameliorating effects of toxins, detection and rendering feed free of contaminants are essential to provide safe feed that can improve health and production in animals.

### **Objective 3:**

Enhancing productive and reproductive efficiency in livestock will increase animal production and contribute to food security and also increase farmer's economy. Better understanding of basics of physiological and nutritional mechanisms and constraints of reproduction in livestock will help augment reproductive efficiency. Improving quality of semen, protecting the functionality of the corpus luteum (CL), reducing oxidative stress, modulating attainment of puberty, early detection of pregnancy, understanding and modulating follicle development/function of ovary will all help in addressing the tissue.

### **Objective 4:**

Developing models for assessing the impact of climate change on feed resources is important to take appropriate measures for climate resilient animal production.

### **Objective 5:**

Collecting and collating data for providing scientific information to the stake holders and transferring viable technologies are necessary for enhancing their knowledge and skill and adopt technologies for improving animal productivity and profitability.

**Objective 6:**

Research priority setting, monitoring and evaluation of projects are the key to successful implementation of programmes and achieving targeted goals by synthesizing the recommendations of various expert committees. Publication of findings of basic and fundamental research through institute report are required for dissemination of knowledge and showcase the achievements of the institute.

## **Section 5:**

### **Specific performance requirements from other departments**

1. Involvement of animal husbandry departments, milk federations, and other line departments in providing inputs in terms of biological materials, data and in facilitating spread of technology.
2. Unforeseen environmental circumstances (biotic and abiotic) may affect the outcome of the studies especially involving animals.
3. Timely release of required funds is essential for implementation and proper progress of the programmes.
4. Timely completion of civil works by executing agency.
5. Availability of trained human resources in terms of technical and supporting staffs.
6. Policy environment of government in supporting basic and fundamental research.

**Section 6:  
Outcome/impact of organization/ministry**

S. No.	Outcome/Impact of Organization/ RSCs	Jointly responsible for influencing this outcome/impact with the following organization (s) / ministry (ies)	Success indicator (s)	Unit	2010-11	2011-12	2012-13	2013-14	2014-15
1	Better utilization of feed and improved production performance	State Animal Husbandry Departments, Feed industries, Developmental agencies, Livestock farmers and Milk federation	Enriching the feed basket	Number	NA	NA	2	3	4
2	Developing comprehensive database on animal feeds	Livestock farmers, milk federations / cooperatives, animal husbandry departments, NGOs, policy makers and feed industries	Updated information on feed quality and availability	Date	NA	31.03.12	31.03.13	31.03.14	31.03.15
3	Improved reproductive efficiency of livestock	Livestock farmers, state agricultural universities, milk federations / cooperatives, animal husbandry departments, NGOs, policy makers and sister organizations like DBT, DST, NABARD, feed industries	Identification of factors influencing reproduction	Number	2	3	4	5	6
4	Technology translation and HRD	Livestock farmers, state agricultural universities, milk federations / cooperatives, animal husbandry departments and NGOs	Dissemination/adoption of technology and knowledge enrichment amongst stake holders	Number	4	5	6	7	7