

**Information and communication
technologies for integrated animal
identification, traceability,
performance recording and health
recording for smallholder
production systems – the case of
NDDB in India**

**National Dairy Development Board
Anand, India**



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Information Network for Animal Productivity and Health

INAPH

Objectives

- Provide IT infrastructure to productivity enhancement service providing organizations
- Record activities of animal identification and registration, traceability, artificial insemination, milk recording, genetic evaluation, nutrition and healthcare.
- Provide information support to producers, field technicians and supervisors and managers of service providing organisations.
- Develop a national level database on productivity and health.
- Estimate breeding values of bulls and bull mothers centrally.
- Achieve maximum participation of all stakeholders including producers.
- Promote the use of the central database.
- Make use of the network for extension and education of farmers.

Network at a glance

NDDB

- Administration
- Analytical reports
- BV Estimation
- SMS Delivery



XYZ Organisation/EIA



CEO

AI Delivery

Progeny Testing

Nutrition

Veterinary

Laboratories

Regional Manager

District Coordinator

Regional Manager

Regional Manager

Milk Component Testing Lab

Area Officers

Supervisors

Tech. Officer

Area Officer

Nutrition Lab.

I & R

AI Technicians

Milk Recorders

Resource Persons

Veterinarians

Disease Diag. Lab.

1. Data entry
2. Data validation
3. Up-dation
4. Local output
5. Synchronization

- Registration
- Movement
- Re-Registration
- Eartag Change

- AI
- PD
- Calving
- Other Services
- Yield measurement
- Sample Collection
- Typing
- Growth Monitoring

- RB Individual Animal
- RB Group of Animals
- Feed & Fodder sample collection

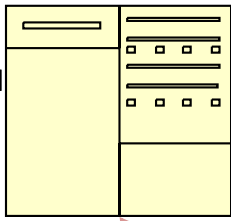
- Treatment
- Diagnosis
- Testing
- Outbreak
- Other services

Mobile



Farmer with animals in a village

Central server



Internet

Desktops

Communication Media



Synchronisation GSM/GPRS

Handheld devices



SMS – Alert Messages

INAPH Application Platforms & Versions



Tools & Technologies

Server

- MS SQL Server 2012 (Enterprise Edition)

Desktop/ Netbook Clients

- Windows based application developed using .NET framework.

Tablet Clients

- Android (4.1 Jelly beans) application.
- Windows based application.

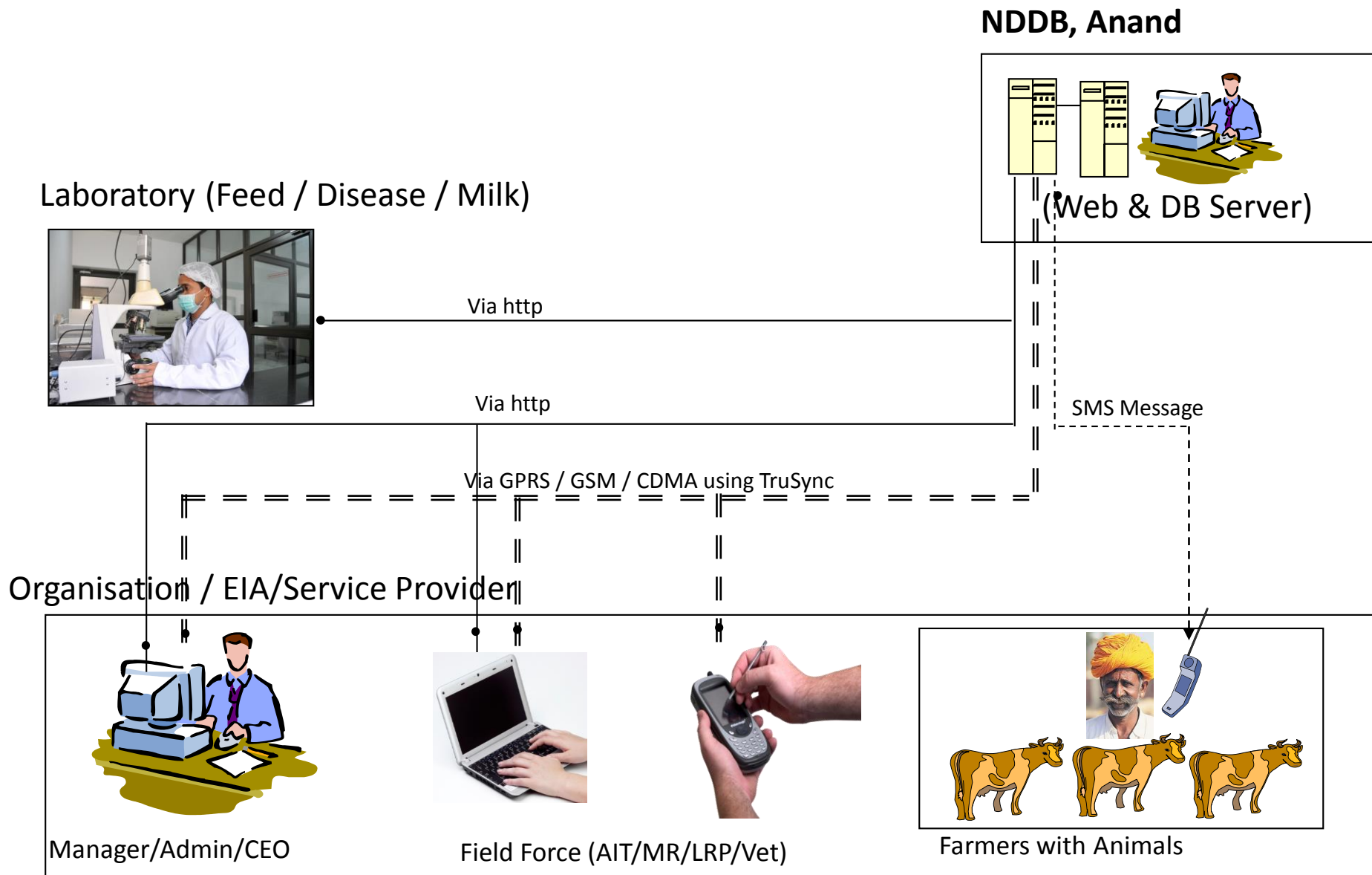
Handheld (Windows Smart Phones) Clients

- Windows Mobile based application developed using .NET framework.
- SQL CE database, available with windows mobile devices.
- IPMSS : Infosys Proprietary Mobile Synchronization Solution.

Web-based thin client

- Browser (Internet Explorer) based application.

Deployment View



High Level Architectural Representation

The INAPH Information network solution architecture consists of the following subsystems at a high level

Admin Application – Windows application featuring complete Administrative functions.

Desktop Main application – Windows application featuring the complete functionality both for data collection and operational reporting.

Laboratory Application – Windows application featuring the complete functionality of Feed Sample Analysis, Milk component Analysis and Pathology Analysis.

PDA Application – Device application having a subset of the overall functionality primarily for field data collection and field reporting requirements.

Analytical Reporting – Web application. The Analytical Reports can be viewed using Web Browsers (Internet Explorer etc).

INAPH MIS Tool – Web based tools for need-based reports

SMS Application – Windows service application residing on Web server.

Unique Animal Identification System

Animals are identified by 12 digit unique Ear tag numbers

First 11 digits of Ear tag number are running serial numbers. 12th digit is check digit

Mandatory requirement for the use of INAPH Application.

NDDB is centrally managing uniqueness of Animal Identification system across country.



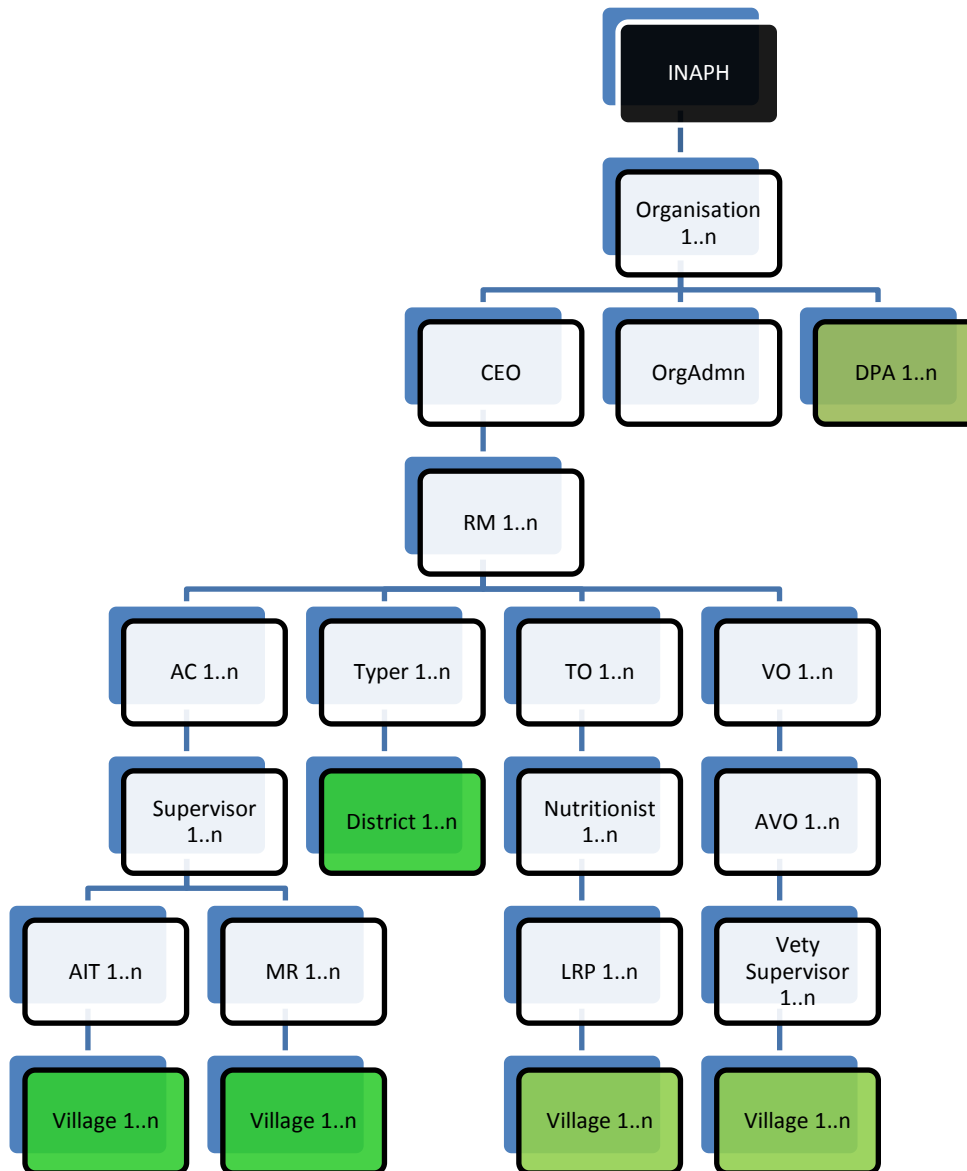
Location/Geography Hierarchy



As per GOI, 2011 census.

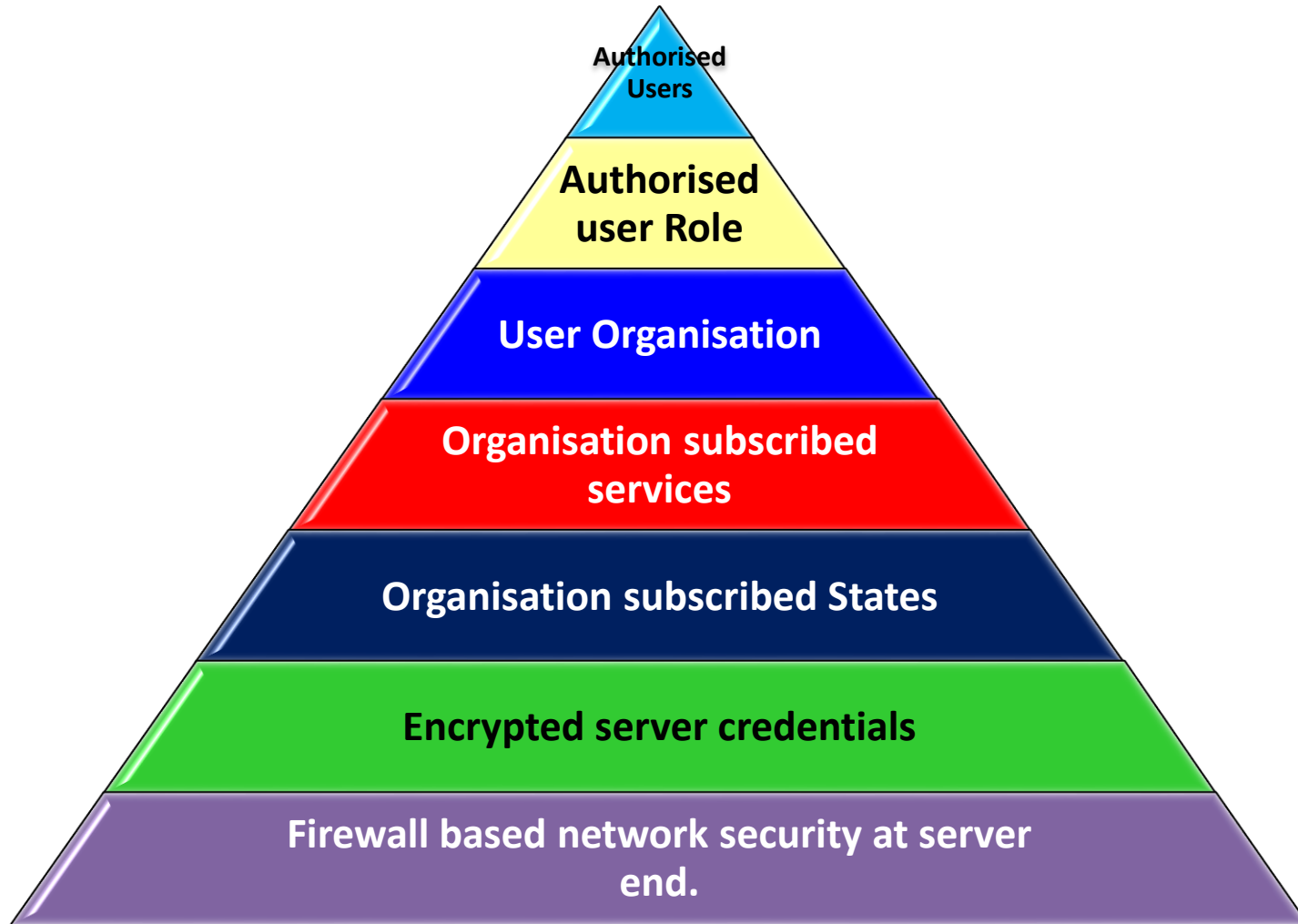
State	35
District	648
Blocks	6,072
Villages	612,426
Hamlet	1,693,646

Organisation Hierarchy, Roles & Village Allocation

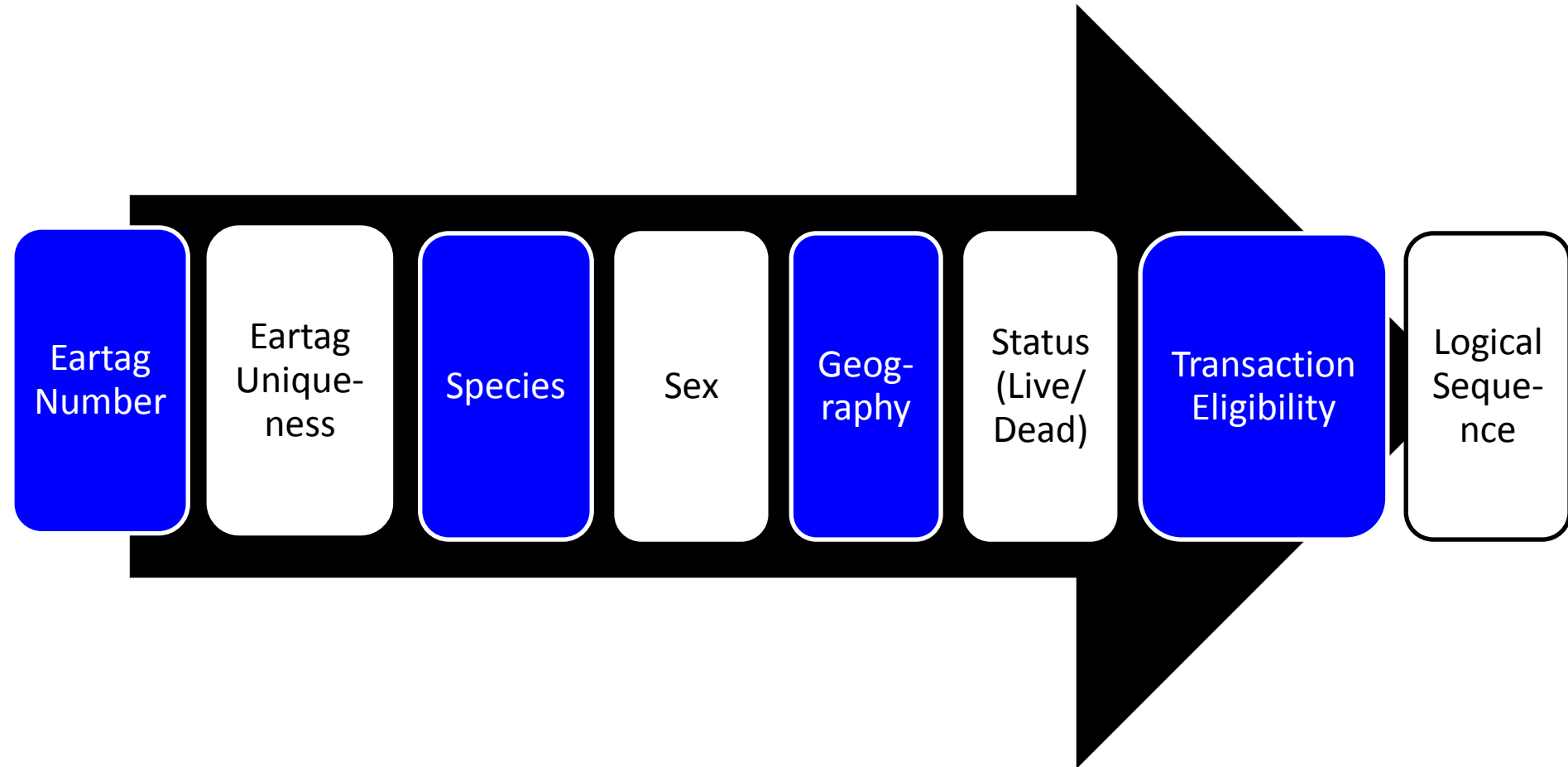


Role	Name/Description
CEO	Chief Exec Officer
OrgAdmn	Organisation Administrator
DPA	Data Processing Assistant
RM	Regional Manager
AC	Area Coordinator
Supervisor	Supervisor
AIT	AI Technician
MR	Milk Recorder
Typer	Typer
TO	Technical Officer
Nutritionist	Nutritionist
LRP	Livestock Resource Person
VO	Veterinary Officer
AVO	Assistant Veterinary Officer
Veterinary Supervisor	Veterinary Supervisor

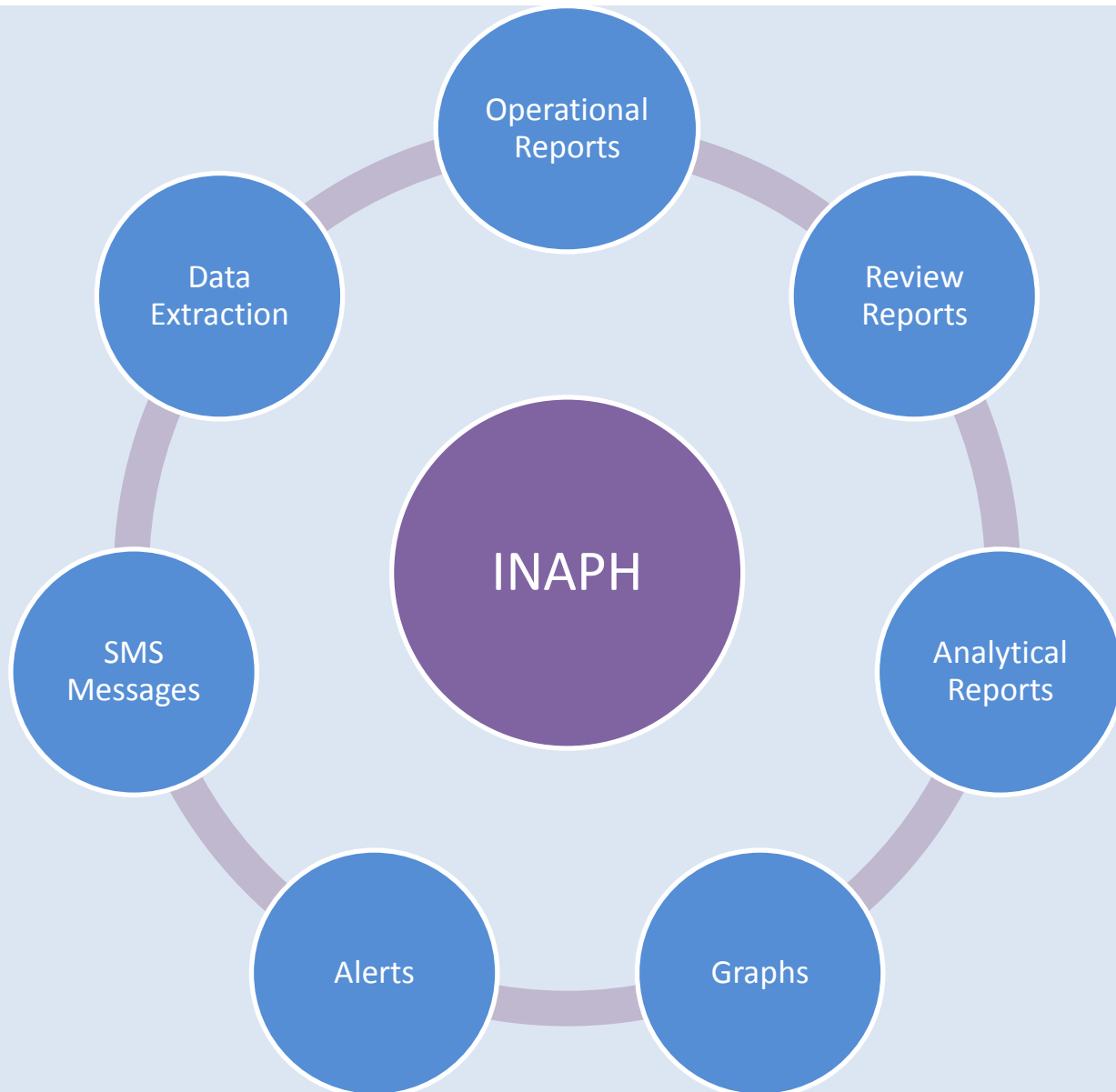
INAPH Database Security



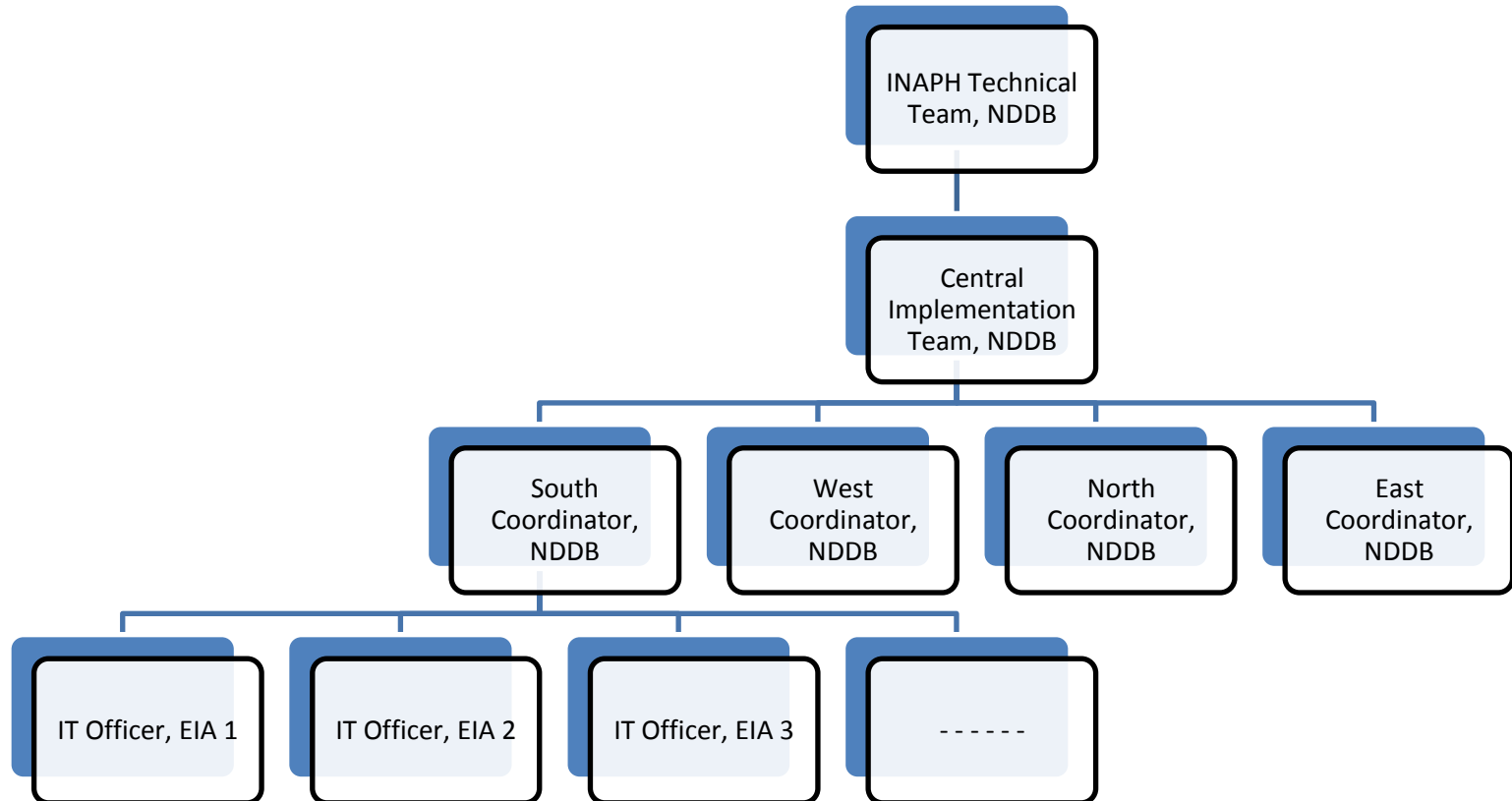
Activity Recording & Validation Process



Information Generation



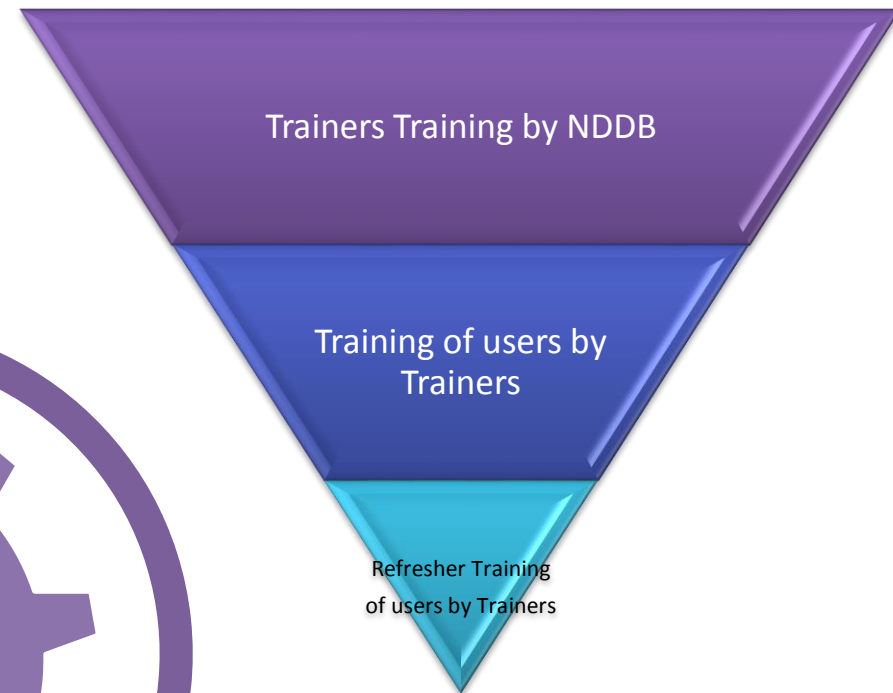
Implementation Support



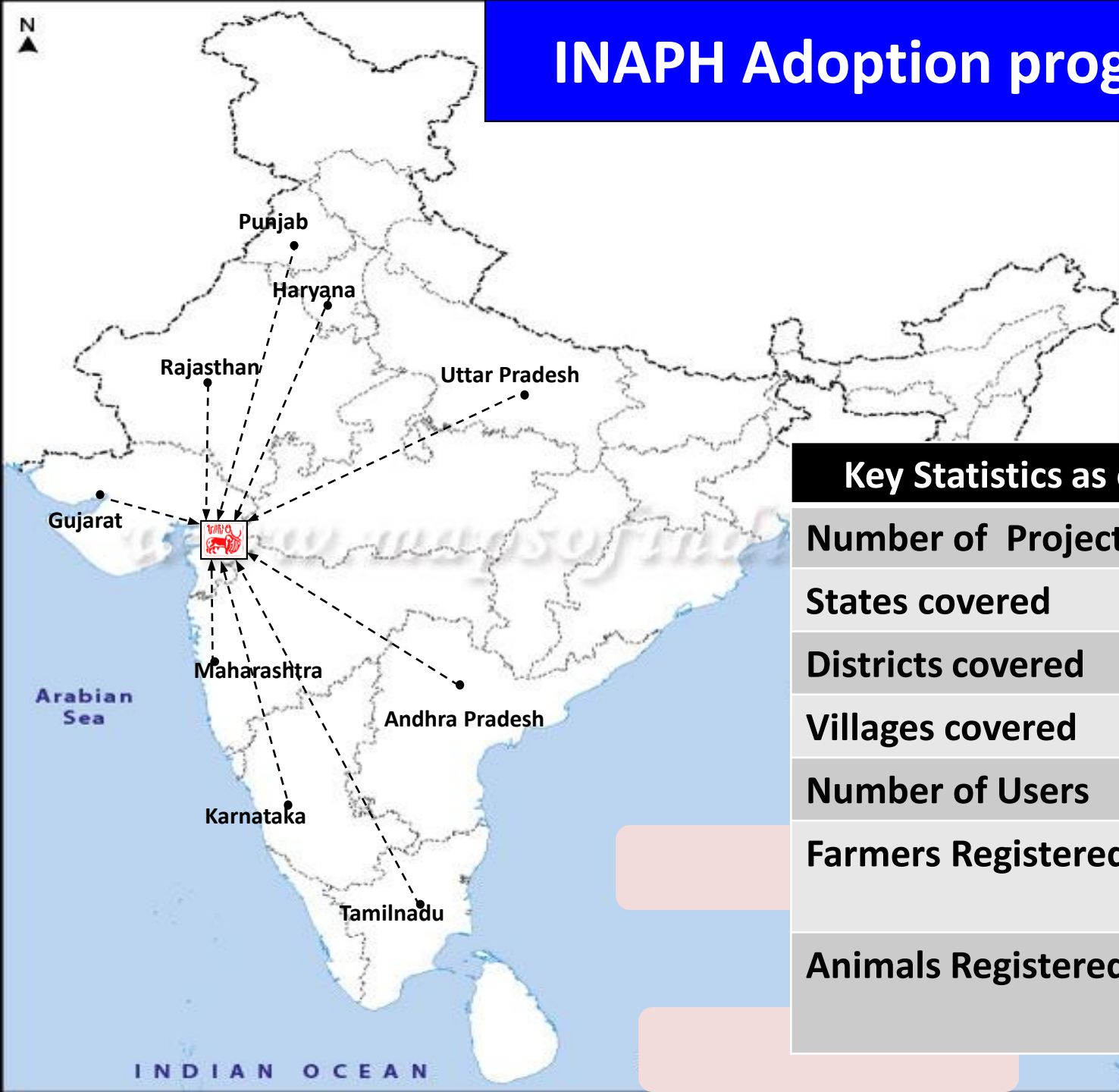
INAPH Help Desk

<http://10.10.16.24/CAisd/pdmweb.exe>

Training



INAPH Adoption progress so far



Key Statistics as on 31st Jul'2014

Number of Projects	85
States covered	15
Districts covered	158
Villages covered	19,284
Number of Users	15,000
Farmers Registered	1.77 million
Animals Registered	3.75 million

INAPH Modules & Activities.



Identification
Registration
&
Traceability



AI Delivery:
AI
PD
Calving



Genetic
Evaluation:
Milk
Milk components
Typing
Fertility



Health:
Treatment
Diagnosis
Testing
Disease outbreaks
Vaccination



Nutrition :
Ration
Balancing
Feed Testing



Lab Analysis &
Examination:
Milk component
Feeds and Fodder
analysis
Diseases diagnosos



Stock
Management





National Dairy Development Board
(INAPH) Information Network for Animal Productivity and Health



Main Application

User Name: sbrm

Password: *****

☐ Without Internet Connection

Language: ENGLISH

ENGLISH

HINDI

GUJARATI

MALYALAM

PANJABI

Release Version: 4.0.14.8



Animal Identification Registration


[Animal Registration](#)
[Owner Registration](#)
[Animal Movement \(Sale, Cull, Death\)](#)
[Eartag Change](#)
[Animal Re-Registration](#)
[AM Reports](#)

Breeding


[Artificial Insemination \(AI\)](#)
[Pregnancy Diagnosis \(PD\)](#)
[Calving](#)
[Forced Pregnancy Termination](#)
[Operational Reports](#)
[Performance Review Report](#)

Health



Individual Services

[Vaccination](#)
[De-worming](#)

Fertility Issues

Disease Testing

Animal Treatment Followup Treatment

Group Services

[Mass Vaccination](#)
[Mass De-worming](#)

Village Infertility Camps

Group Disease Testing

First Information Report

Report Outbreak Followup Outbreaks

Reports

Nutrition



Ration Balancing

District Feed Library

Individual Animal

Herd

Nutrition Masters View

Feed Sample Collection

New/Edit Sample

Reports

Progeny Testing (Milk Recording)


[Morning Milk Recording/ Dry off](#)
[Noon/Evening Milk Recording](#)

Mass Dry Off

[Growth Monitoring](#)
[Elite Animal Declaration](#)
[Parantage Verification](#)
[Male Calf Procurement](#)

Typing

[Operational Reports](#)
[Review Reports](#)

Miscellaneous Reports


[Miscellaneous Reports](#)
[Miscellaneous Services](#)

Target Reports

[Target Reports](#)
[User Data Export](#)

Animal Identification & Registration

Animal Registration

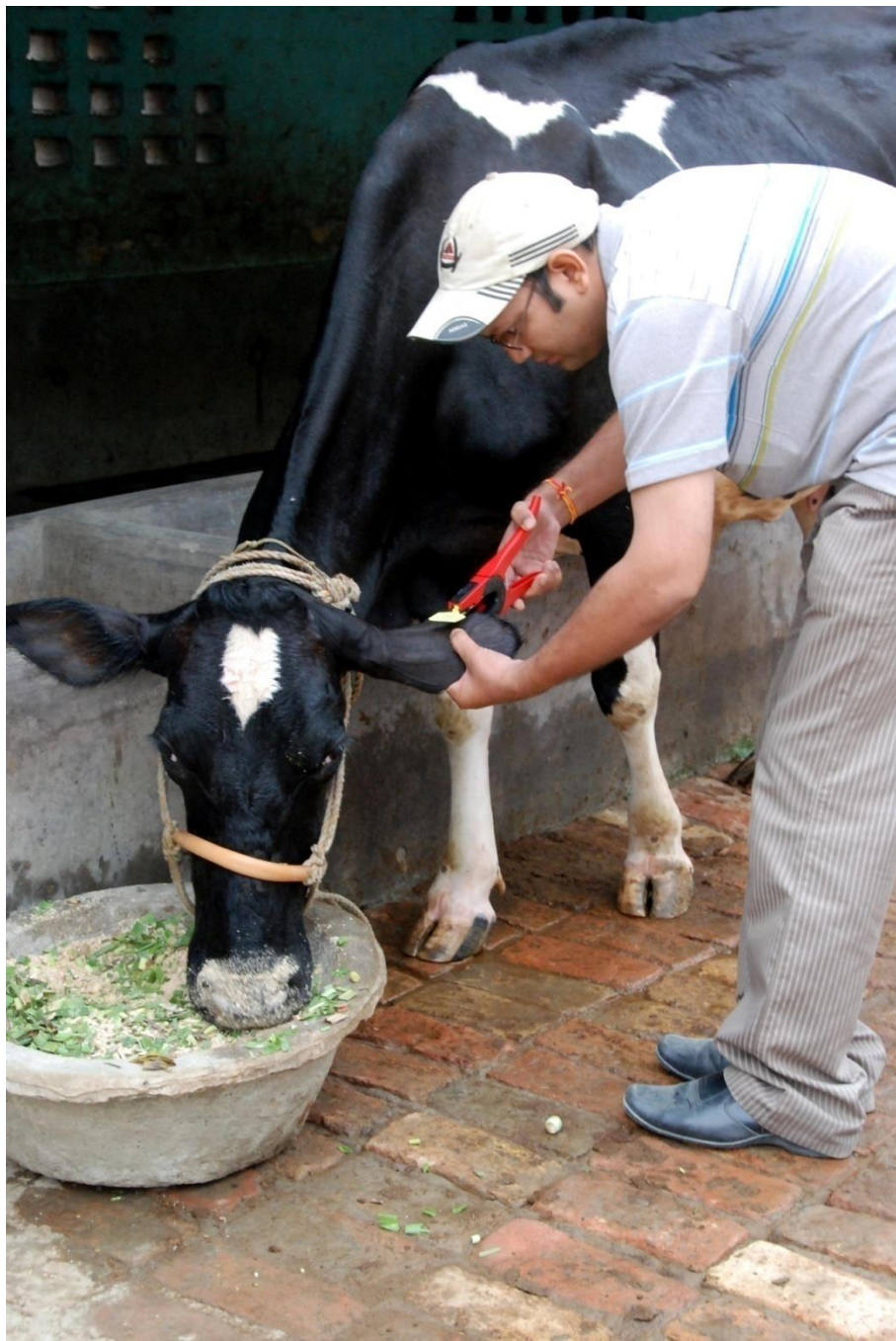
Movement (Sale, Death, Cull etc)

Re-Registration (Enable)

Eartag Change



Mehsana Buffalo being
ear tagged





4/16/2015

NDDDB

2





Animal Registration



Tag Number:



Animal Details

Eartag Number:

Registration Date:

Sex : ☐ Male ☒ Female

Species: ☒ Cattle ☐ Buffalo

Breed(s):
Sahiwal

Get Breed

Age(Year and Months): -

Date of Birth:

Exotic Blood Level:

Sire ID:

Dam ID:

Sire's Sire ID:

Dam's Sire ID:

Number of Calving:

Last Calving Date:

Reset

Pregnancy Status: ☐ Yes ☒ No

Pregnancy Months:

Milking Status: ☒ In Milk ☐ Dry

Immediate Milk Recording? : ☐ Yes

Registering Organisation:

Owner Details

Owner Details

Previous Owner Details

Owner Name	Gender	Affiliated Agency	Village Institution	Farmer Association Number	Below Poverty Line	Mobile Number	Landline Number
Radhay Lal S/o Shambhu	Male	PANCHMAHAL MIL...	Aankalava(Lunawad...		No		

Location Details

Hamlet:

Village :

District :

Tehsil:

State :

+ Register

✎ Modify

🗑 Delete

🔄 Reset



Owner Details



Village: * Hamlet: Owner Name: 

Village: *

Hamlet: *

Owner's Name along with Father's Name: *

Gender: ☒ Male ☐ Female *

Social Status:

Land Holding:

Owner Address:

Date of Birth:

Farmer Association No:

Village Institution:

Pourer Member: ☐ Yes

Below Poverty Line? : ☐ Yes

Village Institution Type:

Mobile Number:

Affiliated Agency:

Landline Number:

Number of Milch Animals:

UID:

Longitude:

HHID:

Latitude:

Add
 Modify
 Delete
 Reset
 Select



Animal Movement



Tag Number: 190000024015



Animal Movement

Movement Date: 15-04-2012

Movement Type: Sold

Amount (Rs) : 15000

From Owner Details

Owner Name: Radhay Lal S/o Shambhu

State: GUJARAT

District: Panch Mahals

Taluka: SHEHERA

Village: Bordi

Hamlet Name: PAGI FALIYA

To Owner Details

Owner Name: RUKMINI PATEL

State: GUJARAT

District: Panch Mahals

Taluka: GODHRA

Village: Ambali

Hamlet: AMBALI GANTAL

Remarks:

NDDB-Other Services-Animal Move...



3002:Details saved successfully

OK



Add



Modify



Delete



Reset



Eartag Change

Village: Hamlet : Owner Name: Old Tag Number: 

Search Results

	Animal ID	Species	Gender	Owner	Farmer Association No.	Village	Hamlet
☒	190000024015	Cattle	F	SOLANKI SAJJANSINH AD...	368	Bordi	PAGI FALI...

Last Change Ear Tag Details

Modify	Last AnimalTagID	AnimalTagID	TagID Chang Date

Change Ear Tag

New Tag Number: Ear Tag Change Date: 

Animal Re-Registration



Tag Number: 190000024015



Last Movement Transaction

Movement Type	From Owner	From Location	To Owner	To Location
d	Radhay Lal S/o Shambhu	GUJARAT;Panch Mahals;SHEHERA;Bordi;BOR...	RUKMINI PATEL	GUJARAT;Panch Mahals;GODHRA;Ambali;A...

Animal Details

Eartag Number: 190000024015 *

Registration Date: 01-01-2011 *

Sex : ☐ Male ☒ Female *Species: ☒ Cattle ☐ Buffalo *

Breed(s): HF,Sahiwal *

Age(Year and Months): 3 6 *

Date of Birth: 01-07-2007 *

Exotic Blood Level: HF, 50.00;HF, 50.00 *

Registering Organisation: NDDB-SAG-PT PROJECT *

Sire ID: *

Dam ID: *

Sire's Sire ID: *

Dam's Sire ID: *

Number of Calving: 2 *

Last Calving Date: 15-02-2012 *

Pregnancy Status: ☐ Yes ☒ No *

Pregnancy Months: *

Milking Status ☒ In Milk ☐ Dry *Immediate Milk Recording? : ☐ Yes *

Re Registration Date: 01-05-2012 *

Existing Owner Details

Owner Name: RUKMINI PATEL

Hamlet: AMBALI GANTAL

Village: Ambali

Tehsil: GODHRA

District: Panch Mahals

State: GUJARAT

Previous Owner Details

Owner Details

New Owner Details

Owner Name	Gender	Affiliated Agency	Village Institution	Farmer Association Number	Below Poverty Line	Mobile Number	Landline Number
SOLANKI SAJJANSINH ADARS...	Male	PANCHMAHAL MILK U...	BORDI DCS	368	No		

Location Details

Hamlet: PAGI FALIYA Village: Bordi District: Panch Mahals *

Tehsil: SHEHERA State: GUJARAT *

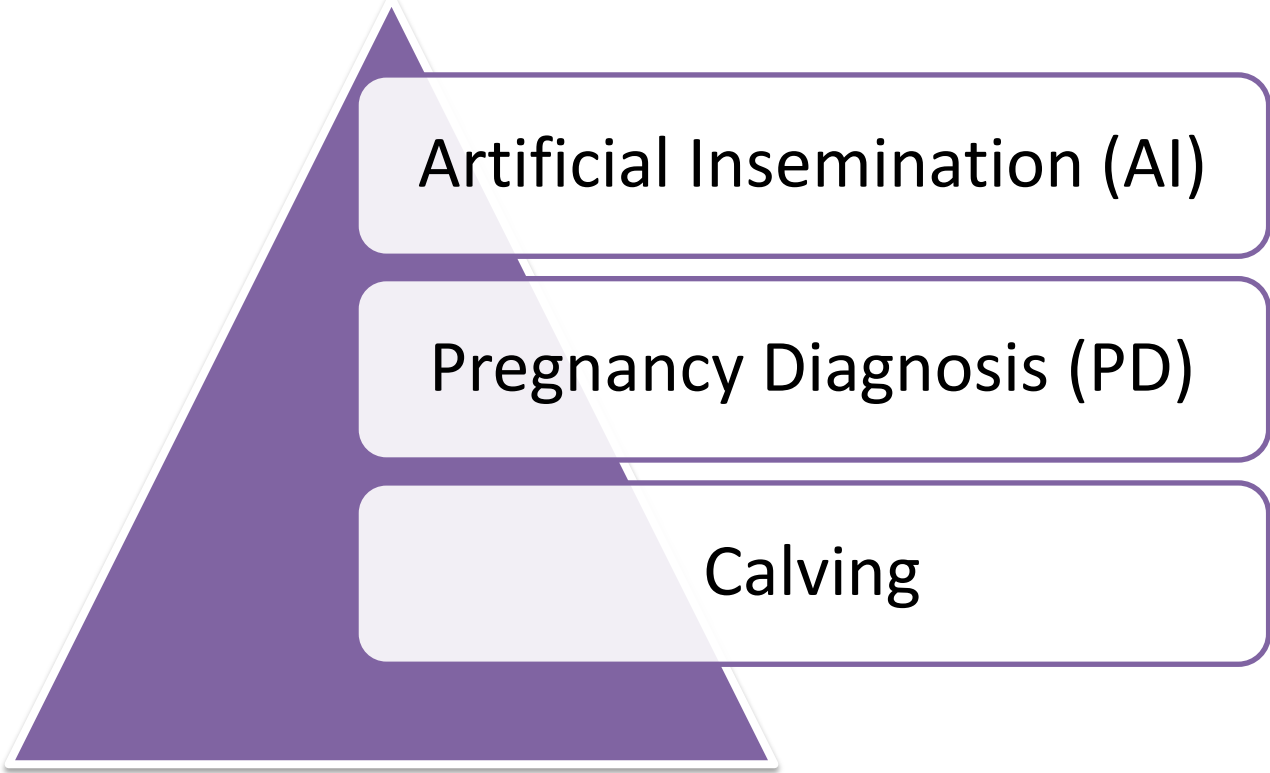
+ Re-Register

Modify

Delete

Reset

Breeding Module



Artificial Insemination (AI)

Pregnancy Diagnosis (PD)

Calving



AI service at farmer's door step



Every inseminated animal is to be identified by an ear-tag having unique number

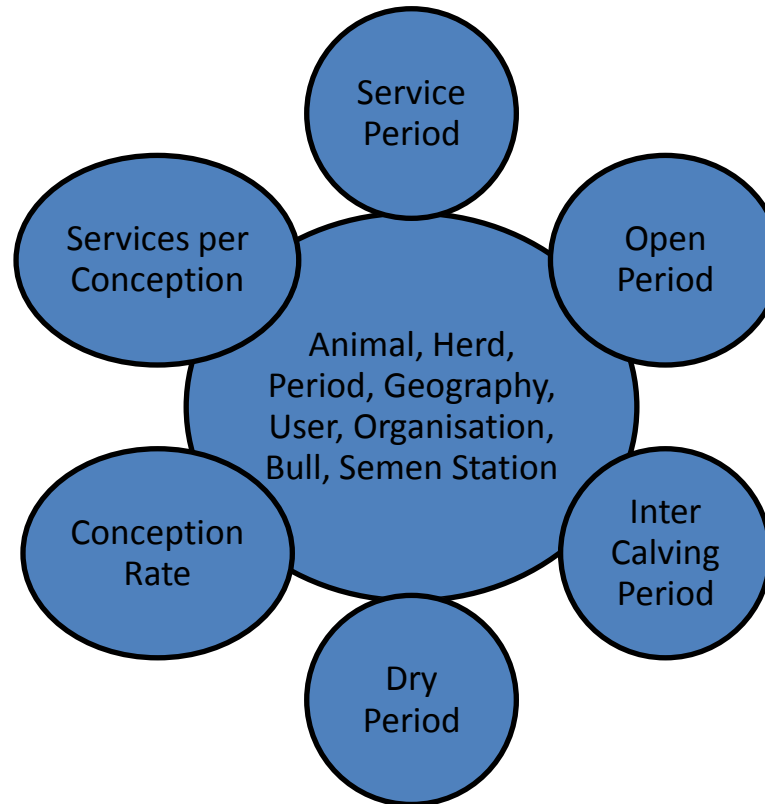
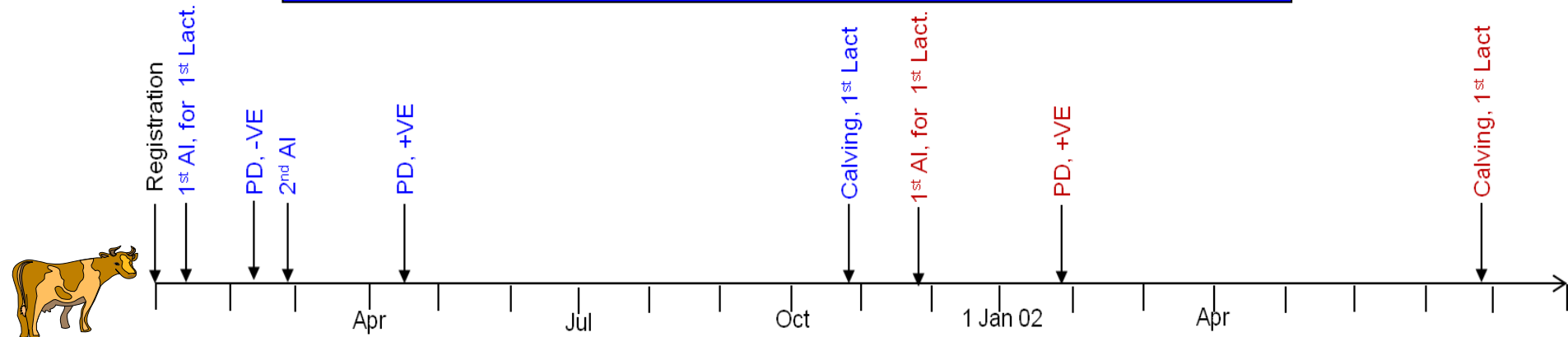


Semen from A or B grade semen station
and of certified bull only used



Record all data of AI, PD and calving on an individual animal basis through an MIS

AI Delivery – Activities



Breeding Module – Operational Reports

- 1 Animals Not Inseminated after calving(Open Period > N Days)
- 2 Heifers Not Pregnant (Age > N Months)
- 3 Non-Pregnant Animals (Latest Service > N Days)
- 4 Non-Pregnant Animals (Services > N)
- 5 Non-Pregnant Animals (Open Period > N Days)
- 6 Pregnant Animals (Services > N)
- 7 Pregnant Animals (Pregnancy Period > N Days)
- 8 Animals to be dried off during given period.
- 9 Animals expected to calve during given period.
- 10 Calves born during the Period



NDDB-SAG-PT PROJECT

09-06-2013

Animals not Inseminated after Calving. Number of Days >= 60

Village: VASAI-2405000400366300 Taluka: IDAR District: Sabar Kantha

User: Kamlesh Mohanbhai Patel Role: AITechnician User ID: sbrkamleshmp

SNo	Animal ID	Specie	Last Calving Date	Open Days	Owner Name
290	340030397595	C	25-03-2013	76	PATEL KAMUBEN LAKHA
291	340030665216	C	25-03-2013	76	PATEL DALJIBHAI NARASABHAI
292	340021119925	C	25-03-2013	76	DESAI LALJI MADHU
293	340021305996	C	26-03-2013	75	PATEL VINUBHAI DUNGAR
294	340004057047	C	27-03-2013	74	PATEL VINU DUNGAR
295	340015605365	C	27-03-2013	74	PATEL DALJIBHAI NARASABHAI



Breeding Module – Performance Review Report

Report Generation Criteria

Location wise • Village • Block • District • State	Role wise • AI Tech. • Area Coordinator. • Regional Manager	Specie wise • Cattle • Buffalo • Both	Bull wise	Period
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NDDB-SAG-PT PROJECT

09-06-2013

Artificial Insemination Review Report

(Rolewise -> Detailed)

From Date: 01-04-2012

To Date: 31-03-2013

Species: Both (Cattle & Buffalo)

User: sbrameshp

Role: Area-Coordinator

Names		Artificial Insemination						Followed Up AIs					Pregnancies with AIs					Conception Rate(%)				Calves Born	
AI Tech	Location	1st AI	2nd AI	3rd AI	>3 AI	Actual	Total	1st AI	2nd AI	3rd AI	>3 AI	Total	1st AI	2nd AI	3rd AI	>3 AI	Total	1st AI (Folld- Up)	Total AI (Folld- Up)	1st AI (Over All)	Total AI (Over All)	Male	Female
Bharatbh ai S Patel	BHUVEL - 2405000 400370	273	120	49	26	468	491	211	77	35	16	339	133	55	26	9	223	63	66	49	48	20	27
	CHADA SANA- 2405000 400	201	83	29	15	328	343	163	57	19	9	248	101	43	14	4	162	62	65	50	49	6	16
TOTAL		474	203	78	41	796	834	374	134	54	25	587	234	98	40	13	385	62	65	49	48	26	43

View Report

SemenStation **NANDINI SPERM STATION (KMF UNIT)**Species **Cattle**BullNo **KMF-300, KMF-369, KMF-391,**ReportGeneratedAson **01-03-2011**

1 of 1 Page Width

Find | Next Select a format

Export



INAPH Analytical Report

Report Date: 10-06-2013

Reproduction Performance of Bulls – Test Semen Doses

Semen Station: **NANDINI SPERM STATION (KMF UNIT)**Species: **Cattle**Report as on: **01-03-2011**

		Number OfTest Doses Used			Conc. Rate %		Calves Bom						Abortion%	Calving Ease%				Genetic Defect Observed–1		Genetic Defect Observed–2	
							Month		Year		Cumulative										
Bull Number	Breed	Month	Year	Cumulative	Year	Overall	Male	Female	Male	Female	Male	Female	Abortion%	Normal	Slight Pull	Heavy Pull	Dystokia	Name	Cases	Name	Cases
KMF-300	HF	0	209	1194	36.59	44.56	4	3	121	67	211	127	3.5714	97.33	2.37	0.30	0.00		0		0
KMF-369	HF	0	79	1507	21.61	46.78	2	6	160	102	269	192	2.5532	96.09	3.48	0.43	0.00		0		0
KMF-391	HF	0	180	1500	27.00	35.93	8	0	87	64	194	128	1.8553	91.30	8.39	0.31	0.00		0		0
KMF-392	HF	0	196	1639	38.46	43.99	5	2	150	99	251	182	1.9417	97.92	2.08	0.00	0.00		0		0
KMF-398	HF	0	211	1621	31.97	39.42	0	4	73	90	188	188	1.8779	97.34	1.60	0.80	0.27		0		0
KMF-402	HF	0	292	1831	41.85	39.98	3	4	114	92	216	170	2.3224	99.48	0.26	0.26	0.00		0		0
KMF-403	HF	0	213	1793	39.58	39.04	8	4	159	117	267	194	1.7143	98.70	1.30	0.00	0.00		0		0
KMF-407	HF	0	672	1783	41.58	40.49	23	16	104	92	208	166	1.3850	98.93	1.07	0.00	0.00		0		0
KMF-408	HF	0	380	1950	43.37	42.26	5	5	129	116	233	194	1.6990	92.97	6.09	0.94	0.00		0		0
KMF-409	HF	0	691	2150	28.99	37.07	14	25	133	130	207	202	1.0038	97.06	2.45	0.49	0.00		0		0
KMF-415	HF	0	273	1808	29.48	39.33	16	9	115	123	253	199	2.8129	98.89	1.11	0.00	0.00		0		0
KMF-419	HF	0	234	1822	44.01	42.97	16	0	129	120	255	195	2.5543	99.55	0.45	0.00	0.00		0		0
KMF-423	HF	0	198	1875	29.55	43.47	10	9	188	131	287	206	2.0859	98.78	1.22	0.00	0.00		0		0
KMF-424	HF	0	368	1939	24.51	37.60	9	9	153	148	235	205	1.6461	97.04	2.51	0.23	0.23		0		0
KMF-426	HF	0	504	1886	35.40	45.12	16	9	134	151	228	205	2.7027	96.76	3.24	0.00	0.00		0		0

Done

Internet | Protected Mode: On

125%

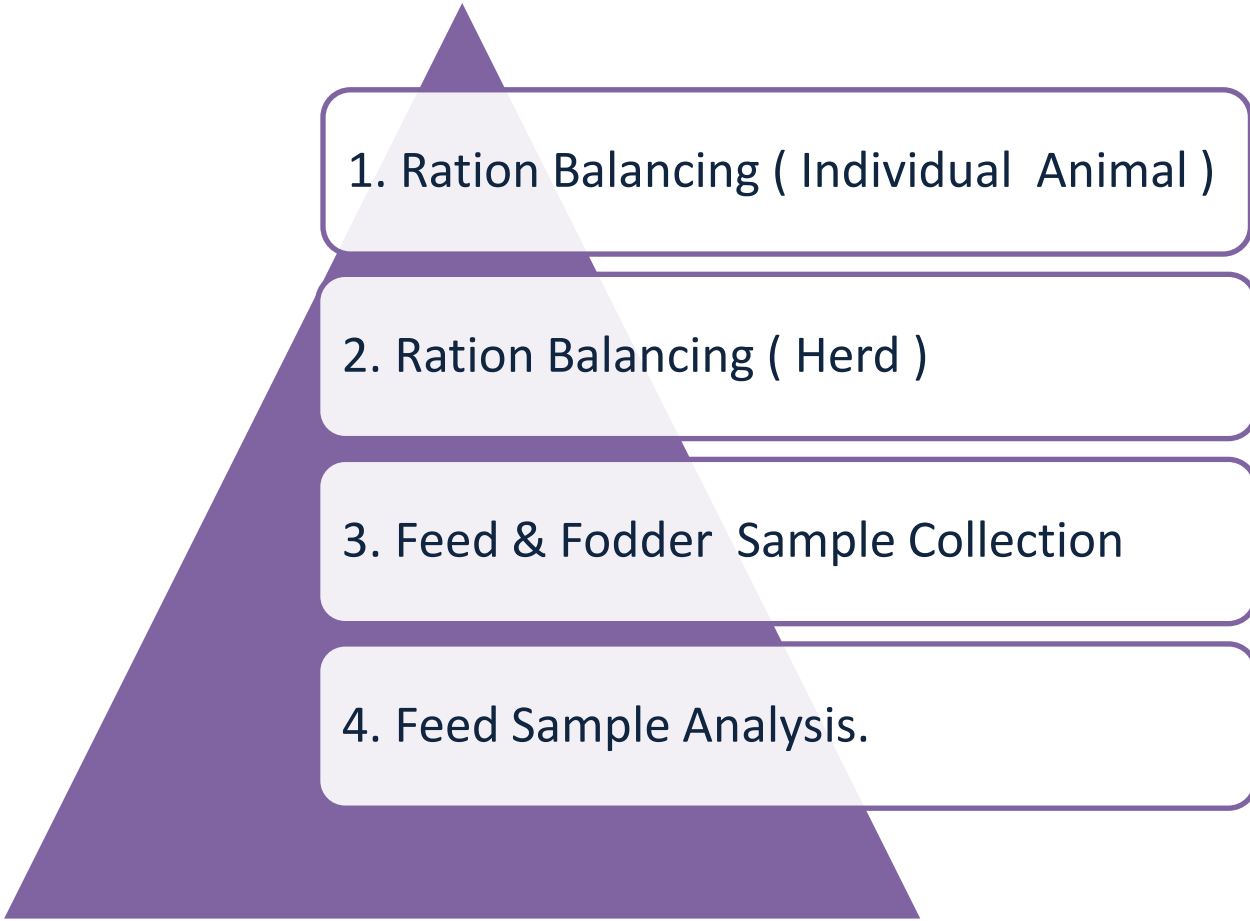


Desktop

Quick Launch

12:48 AM
6/10/2013

Nutrition Module



1. Ration Balancing (Individual Animal)

2. Ration Balancing (Herd)

3. Feed & Fodder Sample Collection

4. Feed Sample Analysis.





Nutrition Module – Ration Balancing

Objectives

1. Balanced ration for meeting nutritional requirements of the animal based on locally available feed resources.
2. Cost minimization of the Balanced Ration, using Linear Programming technique.
3. Increase in net daily income of the farmer.

Nutrition Module – Ration Balancing

Nutrients to be Balanced

Crude Protein (CP)

Total Digestible Nutrients (TDN)

Calcium (Ca)

Phosphorous (P)

Fields marked with * are mandatory
Ration Balancing Individual

*Tagged Already

☐ Yes

☒ No

*Tag Number:

5645454


Animal Details

*Sex:

☐ Male

☒ Female

*Species

☒ Cattle

☐ Buffalo

*Breed:

GIR

KANKREJ

HF

JERSEY

*Body Weight(kg):

300.00



*Milking Status:

☒ In Milk

☐ Dry

*Month after Calving:

5

*Class:

☐ Heifer(Young)

☒ Adult

*Fat in Milk(%):

3.50



*Age(Year and Month):

3



3



*Pregnant:

☒ Yes

☐ No

*Pregnancy Month:

3



*Milk Production(Kg):

10

Owner Details

*Owner Name:

RK Jadhav

Affiliated Agency:

*Village:

Pratapgar

Village Institution Name:

ME

NE for Lactatic

NE for growth

RUP

RDP

NDF

MCP

>>

<<

View Nutrient Requirements

Reset

Fields marked with * are mandatory

Ration Balancing Individual

Nutrient Requirements

	Particulars	TDN	CP	Calcium
►	Maintenance	3113	668	20
	Milk Production	3010	840	29.7
	Growth	311.3	66.8	2
	Total	6434.3	1574.8	51.7

Permissible Dry Matter(DM) Intake Range:

7.5 Kg to 12 Kg (2.5% to 4% of Body Weight)

Fill Current Feeding Practice

	ect	Feed Name	Feed Sub Class	Rate/kg	Quantity (Kg)
	☐	Cotton Seed ...	Cake/Meal	8	2
	☐	Cow Pea Fo...	Green Fodder	1.25	4
	☐	Guar Korma	Cake/Meal	4	1
	☐	Lucerne Fod...	Green Fodder	1.25	10
	☐	Paddy Straw	Straw	2.5	3

Add Feed

Delete Feed

View Nutrient Availability in Existing Ration

Nutrient Available in Existing Ration

	Feed Name	Feed Sub Class	Quantity(kg)	Rate	Amount	Dry Matter	TDN	CP	Calcium
	Lucerne Fodder	Green Fodder	10	1.25	12.5	1.8	1170	306	14
	Paddy Straw	Straw	3	2.5	7.5	2.7	1134	121.5	4.32
	Total	---	23	---	63	10.62	6687	2249.1	36.44

Cost of Ration/Kg of milk Production: Rs 6.3

Nutrients Surplus/Deficient in Existing Ration: (+)Surplus;(-)deficient

	TDN	CP	Calcium	P
►	+252.700	+674.3	-15.26	-16.27

<Back

Perform Ration Balancing

Fields marked with * are mandatory

Ration Balancing Individual

Nutrient Requirements

	Particulars	TDN	CP	Calcium
▶	Maintenance	3113	668	20
	Milk Production	3010	840	29.7
	Growth	311.3	66.8	2
	Total	6434.3	1574.8	51.7

Dry Matter(DM) Requirement:

7.5 Kg to 12 Kg (2.5% to 4% of Body Weight)

Select Feed Items to be Balanced

	Select	Feed Name	Feed Sub Class	Rate/Kg	Min(kg)	Max(kg)
	☐	BIS Type-II	▼ Compounded Feed	6	0	100
	☐	Cotton Seed ...	▼ Cake/M meal	8	0	100
	☐	Cow Pea Fo...	▼ Green Fodder	1.25	0	100
	☐	Guar Korma	▼ Cake/M meal	4	0	100
	☐	Lucerne Fod...	▼ Green Fodder	1.25	0	100
	☐	Paddy Straw	▼ Straw	2.5	0	100
▶	☐	Mineral Mixture	▼ Minerals	25	0	100

Add Feed Delete Feed

Modify LCF Constraints Formulate Least Cost Balanced Ration

Nutrient Available in Existing Ration

	Feed Name	Feed Sub Class	Quantity(kg)	Rate	Amount
▶	BIS Type-II	Compounded Feed	3	6	18
	Cotton Seed Cake	Cake/M meal	2	8	16
	Cow Pea Fodder	Green Fodder	4	1.25	5
	Guar Korma	Cake/M meal	1	4	4

Nutrients Surplus/Deficient in Existing Ration:

(+)Surplus;-)Deficient

	TDN	CP	Calcium	P
▶	+252.700	+674.3	-15.26	-16.27

LCF Constraints and Parameters

LCF Constraints and Parameters

Permissible Dry Matter Intake

Min

Max

Dry Matter in terms of Body Weight (%)

2.5

4

Equivalent Dry Matter (kgs)

7.5

12

Dry Matter in ration from Concentrates (%)

50

L

OK

Cancel

Change

Nutrient Requirements

	TDN	CP	Calcium	P
▶	3113	668	20	12
	3010	840	29.7	18.3
	311.3	66.8	2	1.2
	6434.3	1574.8	51.7	31.5

Dry Matter(DM) Requirement:

7.5 Kg to 12 Kg (2.5% to 4% of Body Weight)

Select Feed Items to be Balanced

	Feed Name	Feed Sub Class	Rate/Kg	Min(kg)	Max(kg)
	BIS Type-II	Compounded Feed	6	2	100
	Cotton Seed ...	Cake/Meal	8	0	100
	Cow Pea Fo...	Green Fodder	1.25	0	100
	Guar Korma	Cake/Meal	4	0	100
▶	Lucerne Fod...	Green Fodder	1.25	5	15
	Paddy Straw	Straw	2.5	0	10
	Mineral Mixture	Minerals	25	0.1	0.2

Add Feed Delete Feed

Modify LCF Constraints

Formulate Least Cost Balanced Ration

Last Recommended Date: 12-08-2008

Ration Implemented:

Nutrient Available in Existing Ration

	Feed Name	Feed Sub Class	Quantity(kg)	Rate	Amount
	Guar Korma	Cake/Meal	1	4	4
	Lucerne Fodder	Green Fodder	10	1.25	12.5
	Paddy Straw	Straw	3	2.5	7.5
	Total	---	23	---	63

Nutrients Surplus/Deficient in Existing Ration:

(+)Surplus:(-)Deficient

	TDN	CP	Calcium	P
▶	+252.700	+674.3	-15.26	-16.27

Least Cost Balanced Ration

	Feed Name	Quantity	Rate	Amount	Dry Matter	TDN	CP	Calcium	P
	Lucerne Fo...	5	1.25	6.25	900	585	153	7	1
	Paddy Straw	5.024	2.5	12.56	4521.49	1899	203.5	7.2	1.4
	Mineral Mixt...	0.146	25	3.65	146.15	0	0	29.2	17.5
	Total	16.031	---	49.91	10842.98	6434.3	2593.2	58.2	31.6

Cost of Ration/Kg Milk Production : 4.99 Only

cost of Ration/Kg (as such) : 3.11 Only

Cost of Ration/Kg (DM Basis) : 4.60 Only

View Solution Details

Shadow Pricing

Nutrition Module – Operational Reports

- 1 Village wise Ration Balancing done for a given period.
- 2 Village wise Feed samples analyzed for a given period.
- 3 Samples pending for testing.
- 4 Summary of Analysis work done.
- 5 Region-wise summary of Analysis work done.



Thank You