

# KYRGYZSTAN DAIRY SUPPLY CHAIN DEVELOPMENT

## ISSYK KUL PILOT



**WORLD BANK GROUP**

**IFC** International  
Finance Corporation

In partnership with:



## CONTENT

- I. PART I: Competitiveness of the Kyrgyzstan Dairy Sector
- II. PART II: Supply Chain Solutions for Dairy Company in Issyk-Kul

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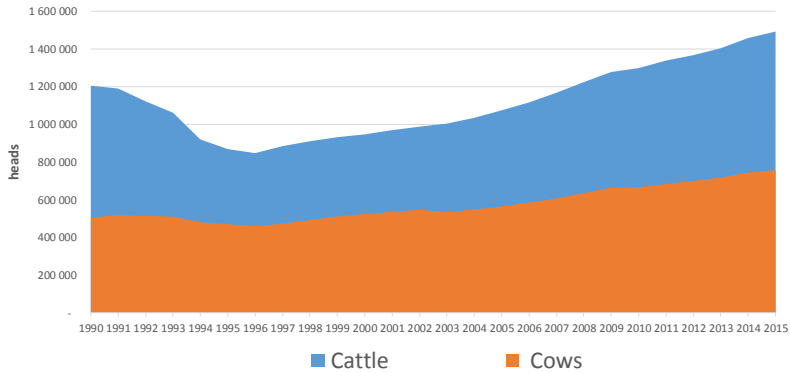
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## Change in Total Cattle Population Kyrgyzstan 1990-2015



Data source: National Statistical Committee of the Kyrgyz Republic

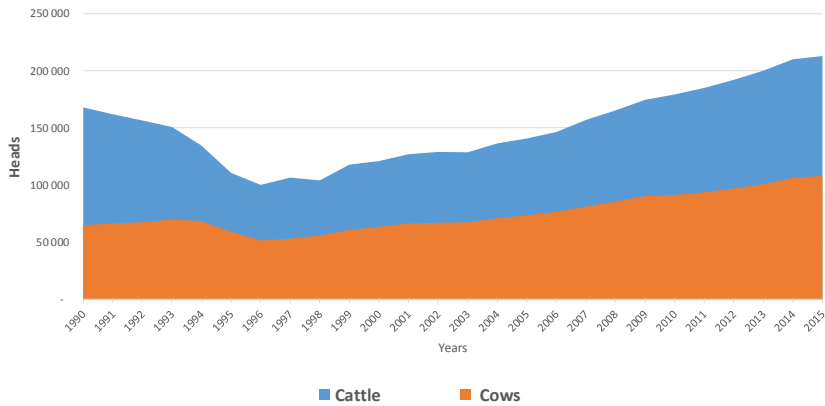
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## Change in Total Cattle Population Issyk Kul Region 1990-2015



Data source: National Statistical Committee of the Kyrgyz Republic

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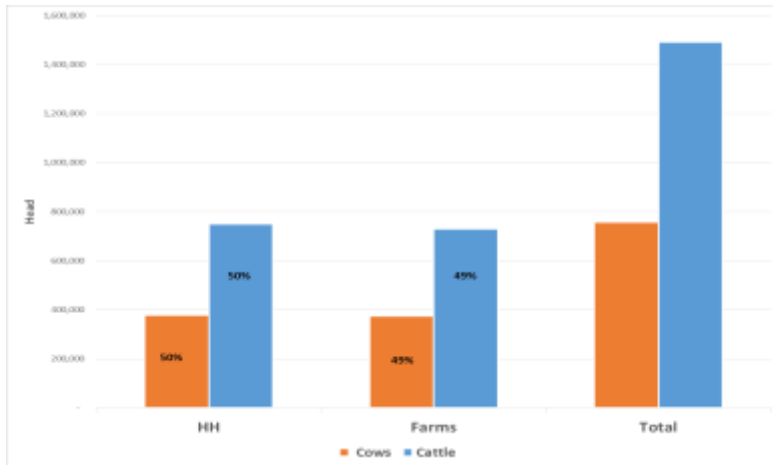
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## Two Main Categories of Cattle Ownership

### Kyrgyzstan

Data: 2015



Data source: National Statistical Committee of the Kyrgyz Republic

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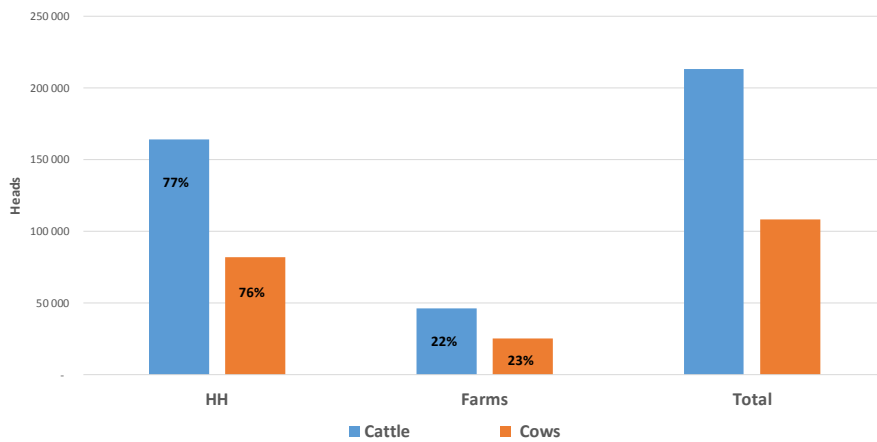
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## Two Main Categories of Cattle Ownership

### Issyk Kul Region

Data: 2015



Data source: National Statistical Committee of the Kyrgyz Republic

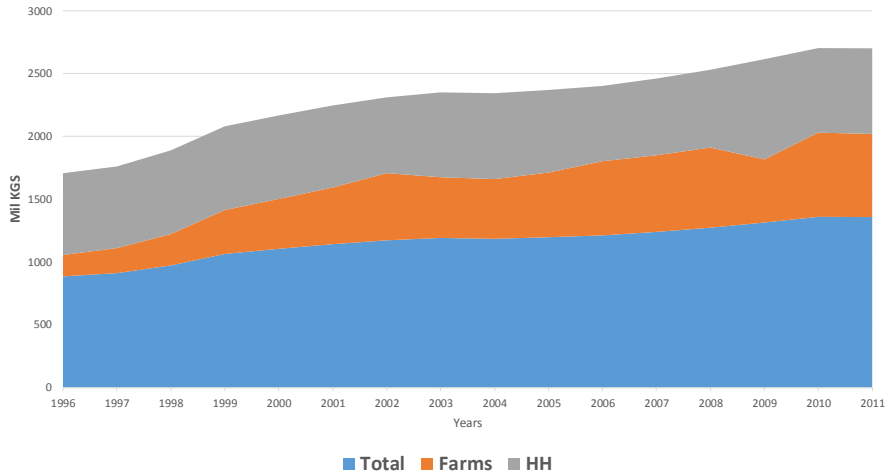
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### Change in Milk Production by Ownership Categories Kyrgyzstan 1996-2011



Data source: National Statistical Committee of the Kyrgyz Republic

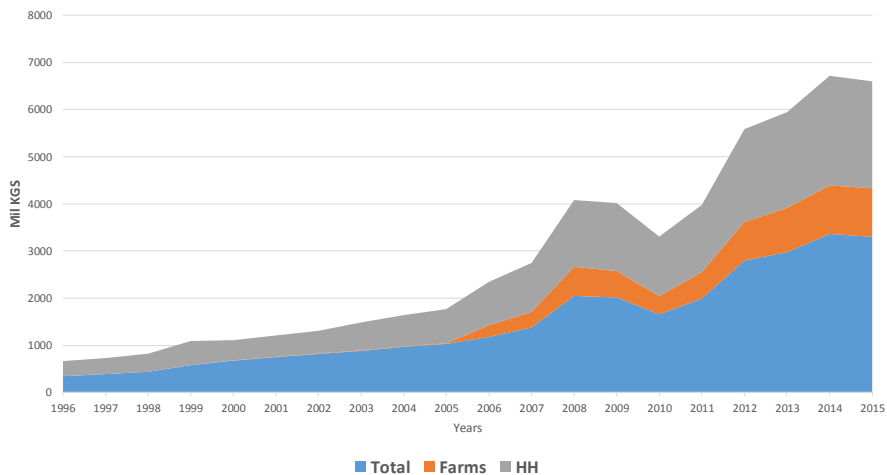
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### Change in Milk Production by Ownership Categories Issyk Kul region 1996-2015



Data source: National Statistical Committee of the Kyrgyz Republic

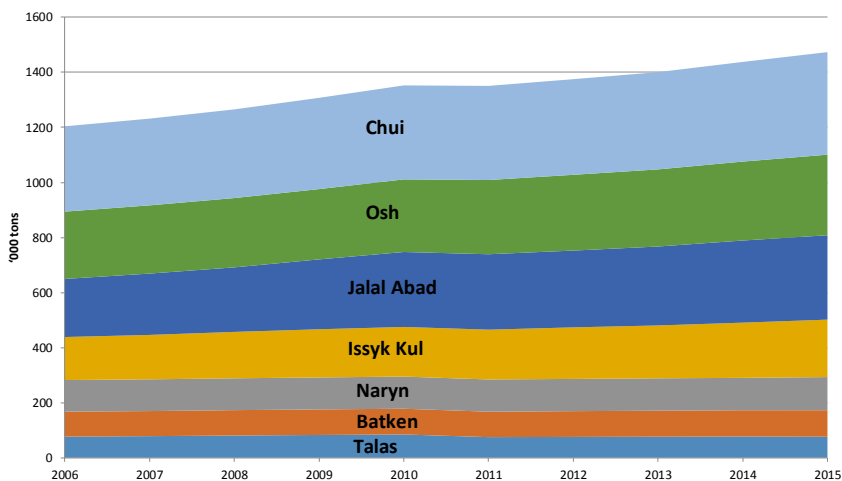
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## Change in Milk Production by Regions of Kyrgyzstan



Data source: National Statistical Committee of the Kyrgyz Republic  
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## Structure of Domestic Milk Processing places Issyk Kul region on top 3 in the country

- Raw Milk Quantities Received for Processing by the Dairy Industry in Kyrgyzstan

Province	2010	2011	2012	2013	2014	Share
Issyk-Kul	17,357	13,405	15,202	16,628	16,346	12%
Jalal-abad	132	173	104	1,823	1,899	1.3%
Naryn	648	719	715	775	956	0.7%
Batkent	2	2	2	2	2	0.002%
Osh	29	44	40	39	95	0.1%
Talas	17,600	22,358	23,832	23,715	27,925	20%
Chui	64,404	55,338	51,553	53,588	62,428	44%
Bishkek city	32,355	26,144	29,374	25,543	31,214	22%
Osh city	316	527	359	514	429	0.3%
<b>National level:</b>	<b>132,842</b>	<b>118,709</b>	<b>121,179</b>	<b>122,626</b>	<b>141,292</b>	<b>100%</b>

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## There is a Significant Investment Opportunity in the Milk Processing Industry in Kyrgyzstan

- Less than 10% of Milk is Processed;
- Globally Highest Per Capita Milk Consumption - 215 kg
- Significant domestic urban market for the processed milk products - 2 million people.

Country Milk Balance, 2013	000 t
Beginning stocks	62.3
Production	1,408.2
Import	25.7
<b>Total "In":</b>	<b>1,496.2</b>
Individual consumption	1,175.0
Processed	122.9
Export	126.7
Losses	1.7
Year-end stocks	69.9
<b>Total "Out"</b>	<b>1,496.2</b>

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## Milk Production in Kyrgyzstan is Globally Competitive

### Global milk production cost

Cost of Milk Production	USD/kg
Kyrgyzstan (9-10 som)	0.15
Global max (Switzerland)	1.18
Global min (Cameroon)	0.05
Global average	0.46
China	0.60

### Regional milk production cost

Cost of Milk Production	USD/kg
Russia	0.31
China	0.57
Belarus	0.20
Kazakhstan	0.24
Kyrgyzstan	0.15

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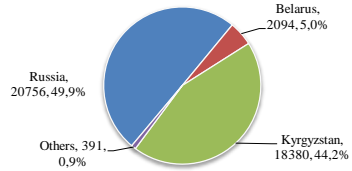


## Kazakhstan Market is Favorable for Kyrgyz milk

Kazakhstan milk balance trend 2009-2013

000 t	2009	2010	2011	2012	2013
Beg. Stocks	609	620	610	609	574
Production	5,304	5,381	5,233	4,852	4,930
Import	544	357	502	521	539
<b>Total IN</b>	<b>6,457</b>	<b>6,358</b>	<b>6,345</b>	<b>5,982</b>	<b>6,043</b>
Individual consumption	4,168.3	4,065.4	4,098.5	3,886.3	4,077.7
Processing	1,621.5	1,645.1	1,599.7	1,483.2	1,507.3
Export	14	5	5	8	30
Losses	32	32	32	30	30
Ending stocks	620	610	609	574	397
<b>Total Out</b>	<b>6,456</b>	<b>6,357</b>	<b>6,344</b>	<b>5,981</b>	<b>6,043</b>

Imports of processed milk and cream to Kazakhstan by countries, 2014 (tons and %)



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## PART II: SUPPLY CHAIN SOLUTIONS FOR DAIRY COMPANY IN ISSYK-KUL



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## GOALS AND OBJECTIVES

- To reduce the seasonality of milk supplies through herd planning, reproduction and feeding;
- To improve the quality and quantity of the milk supply available to Dairy Companies through increased herd size and productivity, and improved milking system;
- To keep milk prices competitive through increased herd productivity and cost-effective fodder supply; and
- To improve factory food safety management systems for dairy products through adoption of standards and best available practices

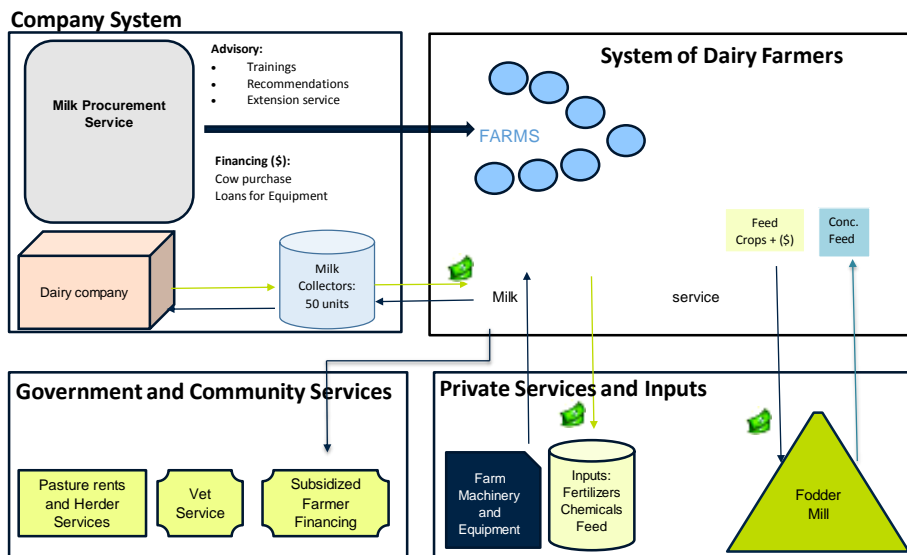
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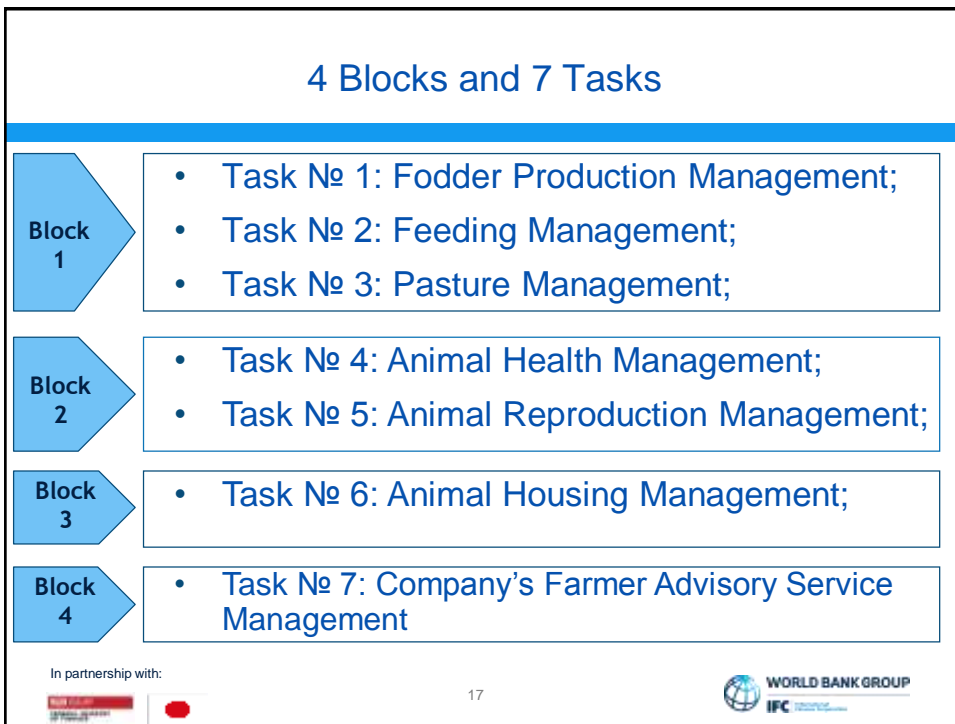
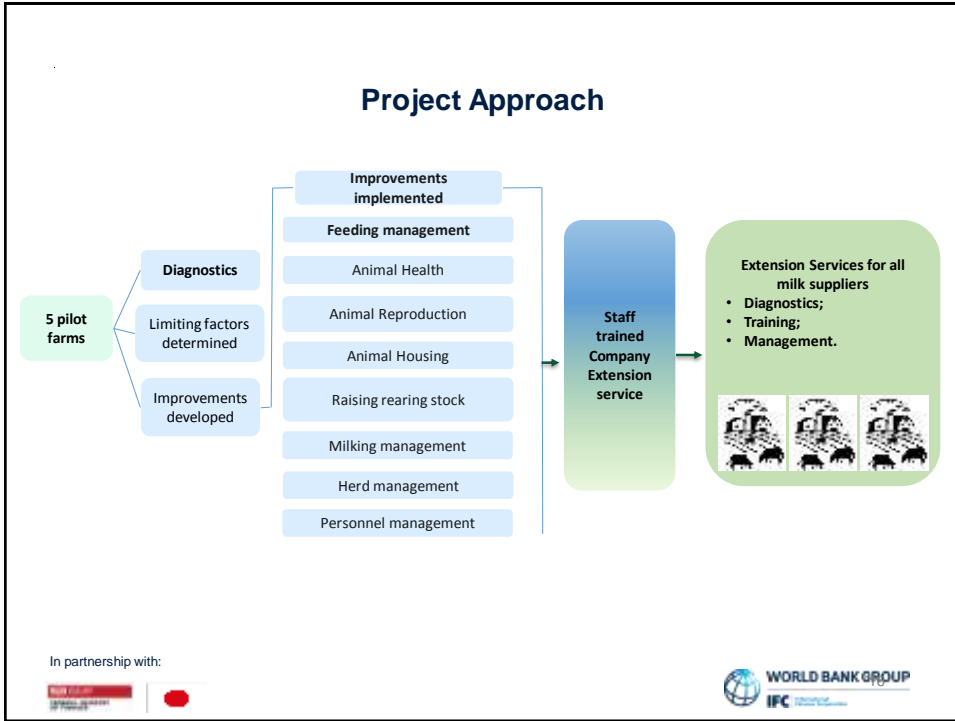


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## The Current Situation





## Fodder Production Management

Where loss occurs	Reasons	Loss KGS/head/day	Loss L/head/day
In the field (Timing of harvest and access to machinery)	<ul style="list-style-type: none"> <li>• Too late harvest (loss of nutrients)</li> <li>• Improper drying</li> </ul>	45	3,75
In silage pits (Poor physical characteristics )	<ul style="list-style-type: none"> <li>• Increase in dry matter loss by 15%;</li> <li>• Risk of clostridium</li> </ul>	3	0,25
Management of silage preparation (Knowledge and access to machinery)	<ul style="list-style-type: none"> <li>• Poor compacting;</li> <li>• Improper cutting height;</li> <li>• Poor isolation of the mass.</li> </ul>	3	0,25
<b>Total</b>		<b>51</b>	<b>4,25</b>

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## Feeding management

### Actual feeding ration of milking cows on the farm

#### Traditional feed ration for milking cows

Daily norm per head	kg/head	Unit Cost, KGS/kg	Total Cost, KGS
Pasture Hay (сено луговое)	4	4	16
Sainfoin Hay (Сено эспарцета)	4	6	24
Haylage (Сенаж)	25	1.5	37.5
Barley (Ячмень, дроблёный)	2	9	18
<b>Total Cost: KGS/head/day</b>		<b>35</b>	<b>95.5</b>
<b>Milk Yield, L/head/day</b>		<b>7</b>	
<b>Revenue, KGS/head/day</b>		<b>105</b>	
<b>Profit, KGS/head/day</b>		<b>10</b>	
<b>Milk Production Cost, KGS/L</b>		<b>14</b>	

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## Feeding management

### Results of the improved feed ration for milking cows

#### Improved feed ration for milking cows

Daily norm per head	kg/head	Unit Cost, KGS/kg	Total Cost, KGS
Pasture Hay (сено луговое)	2	4	8
Sainfoin Hay (Сено эспарцета)	0	6	0
Haylage (Сенаж)	25	1.5	37.5
Straw	0	9	0
<b>PMVC (БМВД*)</b>	<b>1</b>	<b>31.4</b>	<b>31.4</b>
Potato (Картошка)	4	2	8
Barley (Ячмень, дроблёный)	4	9	36
<b>Total Cost, KGS/head/day</b>	<b>36</b>		<b>120.9</b>
<b>Milk Yield, L/head/day</b>		<b>14</b>	
<b>Revenue, KGS/head/day</b>		<b>210</b>	
<b>Profit, KGS/head/day</b>		<b>89</b>	
<b>Milk production Cost, KGS/L</b>		<b>9</b>	

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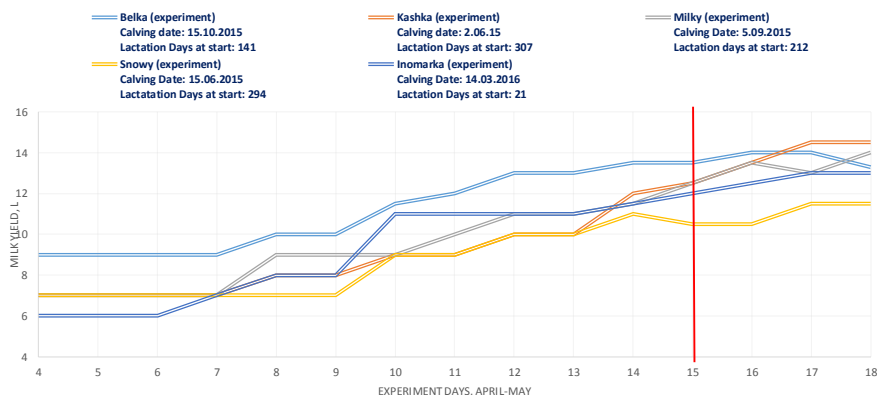


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## Results of the improved feed ration on the farm

### Milk yield increased by 4 L/head/day



#### Results:

- Avg. Milk Yield at Start: 7.2 liters;
- Avg. Milk Yield at End: 12.2 liters.

Avg. Productivity Increased: 69%.

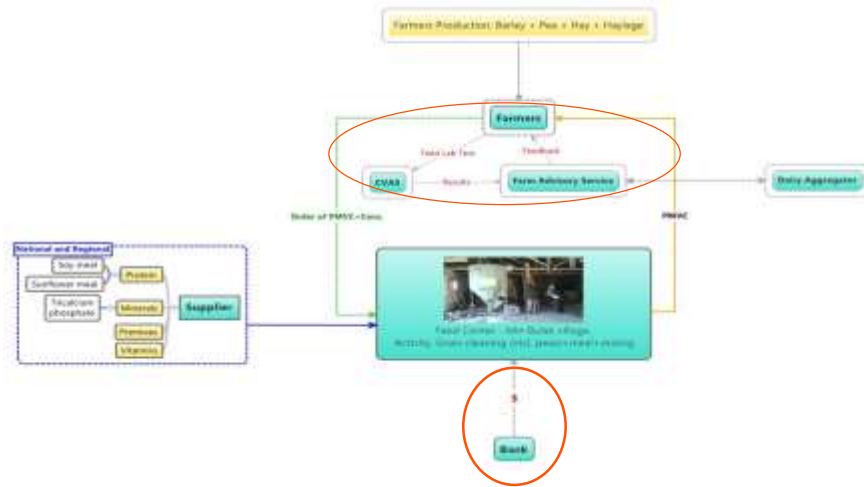
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## Involved Feed Center on the commercial basis for the preparation of feed mix for farmers based on the lab analysis



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## Pasture management

Preventing Decrease in Milk Yield by the end of Pasture Season by 4 L/head/day

### 1. Use electric fences

- Save biomass for cows (from sheep)

### 2. Use rotational management

- 2-3 rotations per season is possible



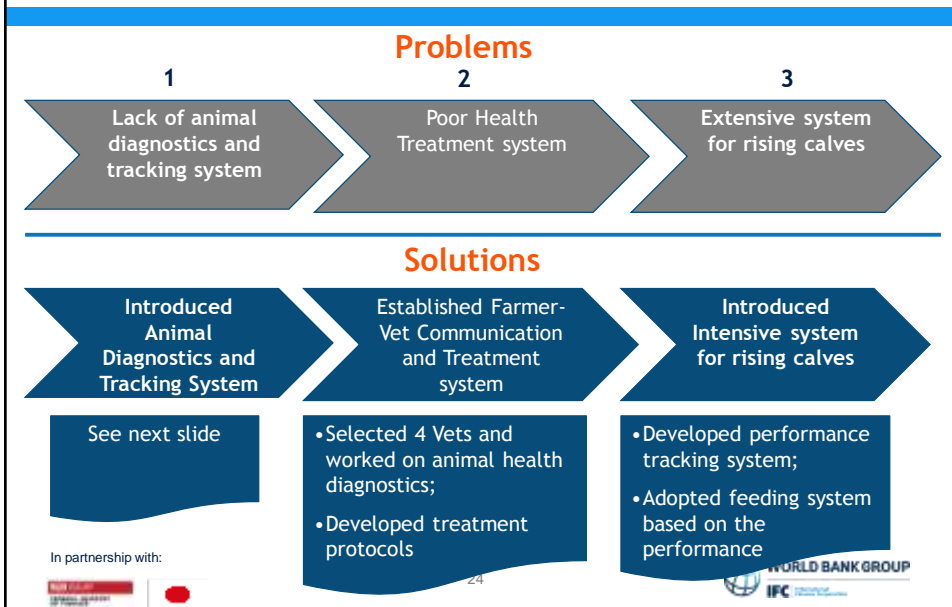
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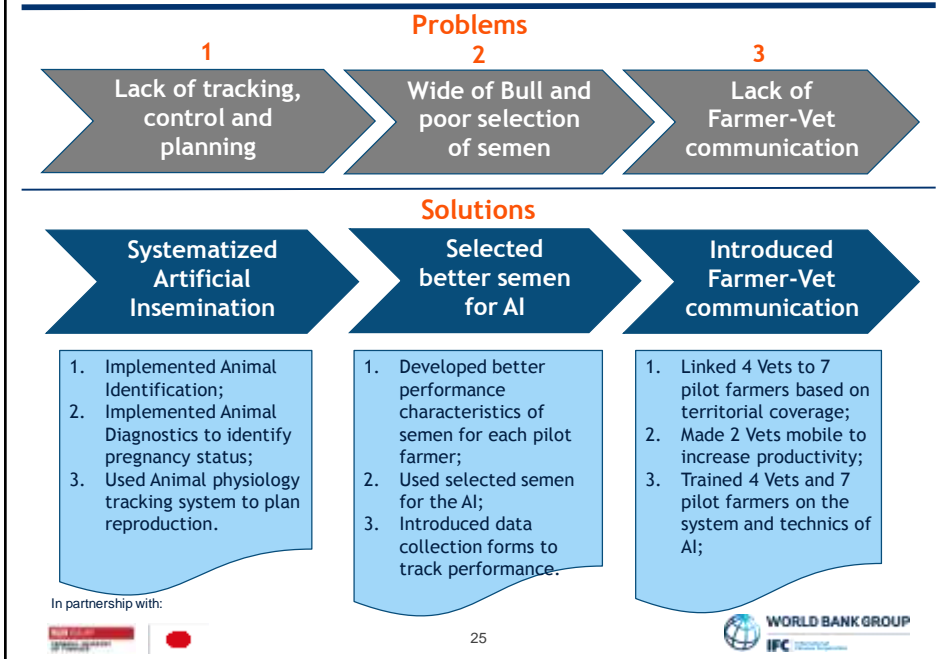
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## ANIMAL HEALTH MANAGEMENT



## ANIMAL REPRODUCTION MANAGEMENT



## Dairy Company Extension Service development program

- Development of staff expertise in the milk procurement unit:
  - Farmer extension service Business Model development;
  - Development of staff functions and KPIs;
- Extension service training program:
  - Development of veterinary specialists in the area of milk procurement;
  - Development of feed rations and feeding management;
  - Data collection, analysis and working with farmer data for effective herd management.

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# THANK YOU!

## Questions? and Discussion

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