



Impacts of improved dairy productivity in Senegal

Quantifying the effects of seasonality and market access to household revenue



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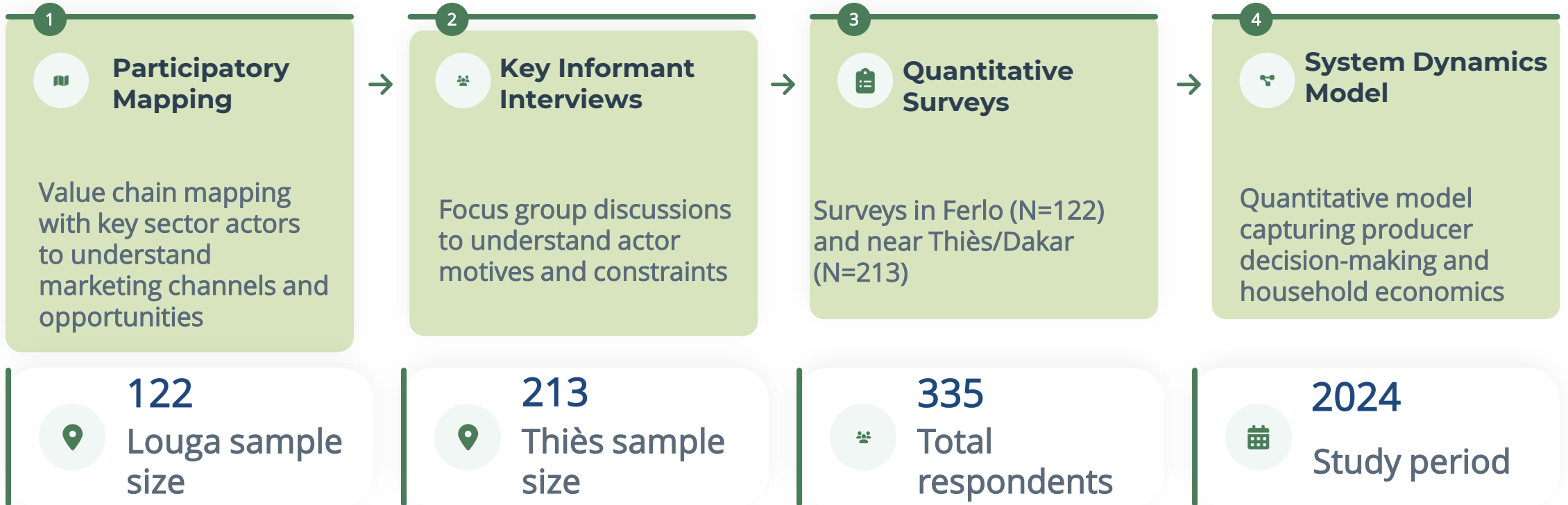
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Dairy in Senegal: Growing Demand, Uneven Opportunities

- Dairy production in Senegal meets only 30-51% of demand, giving an opportunity for pastoralist and agropastoralist households.
- It is one of the few agricultural activities that can provide **steady, daily revenues for households**, supporting expenses such as food, clothes, medicine and education.
- Numerous promising interventions are being implemented or considered, such as **improved animal feeds and on-farm management practices**, leading to improved results in on-farm trials, particularly during the nine-month long dry season.
- However, significant differences in **market access and infrastructure** across Senegal's regions means that the **economic benefits** to households differ significantly.



Grounded insights: production, markets, and decision-making (1)



Research methodology: Construction, calibration and validation of a quantitative system dynamics model, capturing producer's decision-making on dairy production and feed sources, dairy and meat marketing channels, and household economics all taking into account seasonal variations.

Grounded insights: production, markets, and decision-making (2)

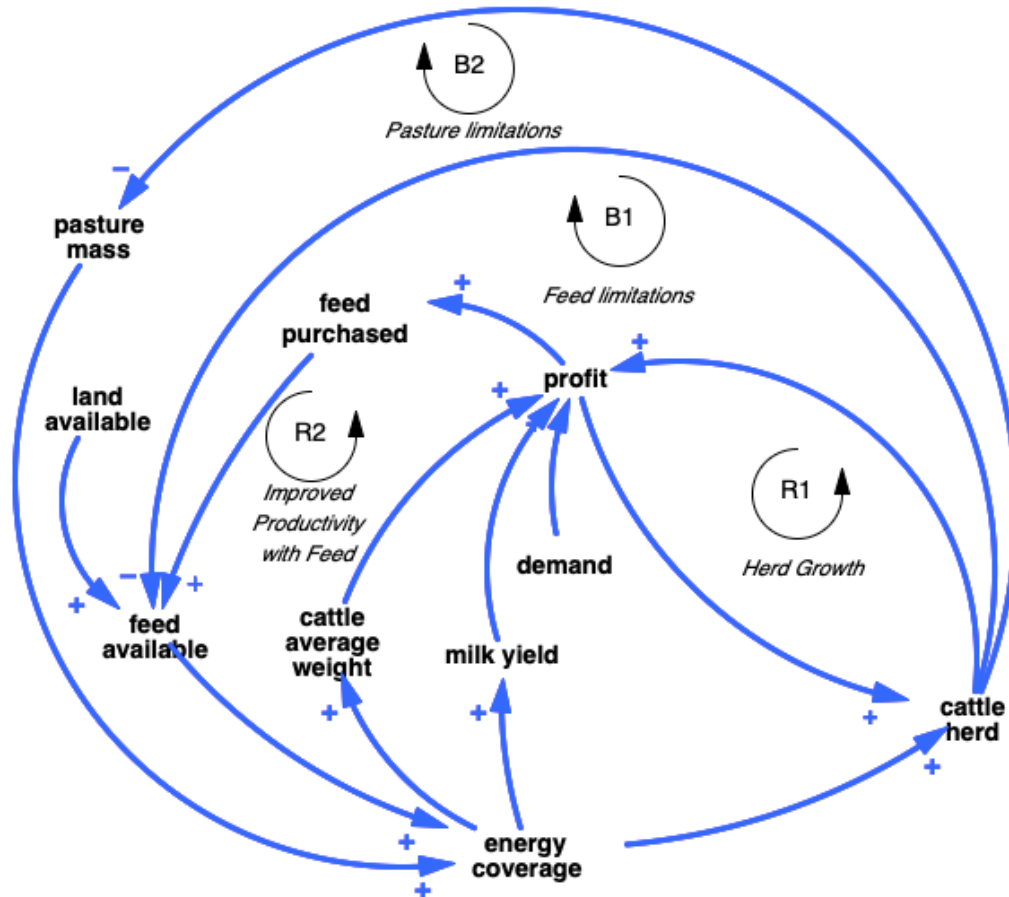


Figure 1: Causal diagram of the key feedback loops

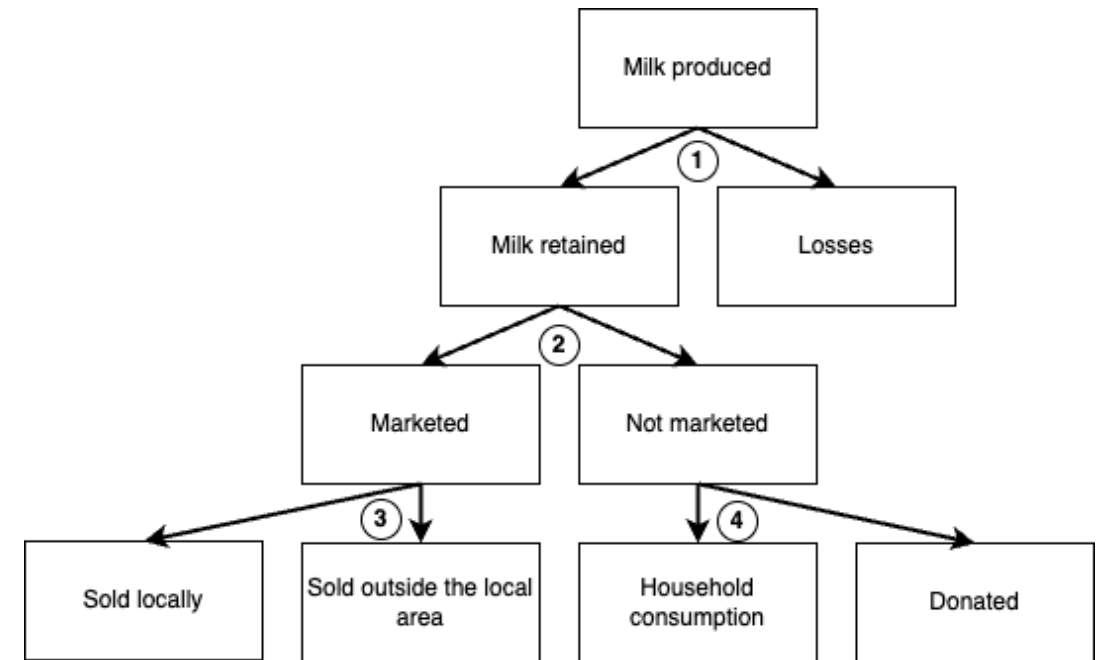


Figure 2: The point-of-sale of the milk produced

Feed intervention: productivity gains and trade-offs



Scenario: 5% of cropland is shifted from crops to grow specialized livestock feed. This intervention aims to improve dairy productivity, particularly during the dry season when feed availability is limited.

Impact Analysis: Louga vs Thiès

 Dairy Production	Louga +30.4%	Thiès +20.8%
 Dairy Revenues	Louga +15.0%	Thiès +25.9%
 Net Revenues (incl. crop)	Louga -4.7%	Thiès +1.1%

Louga Region

Despite higher production gains (+30.4%), net revenues decrease by 4.7% due to lower market access and crop income losses.

Thiès Region

Shows modest net gain (+1.1%) with better market access, despite lower production increase (+20.8%).



Seasonality: stronger dry-season production and food security

5.8 → 9.5 L

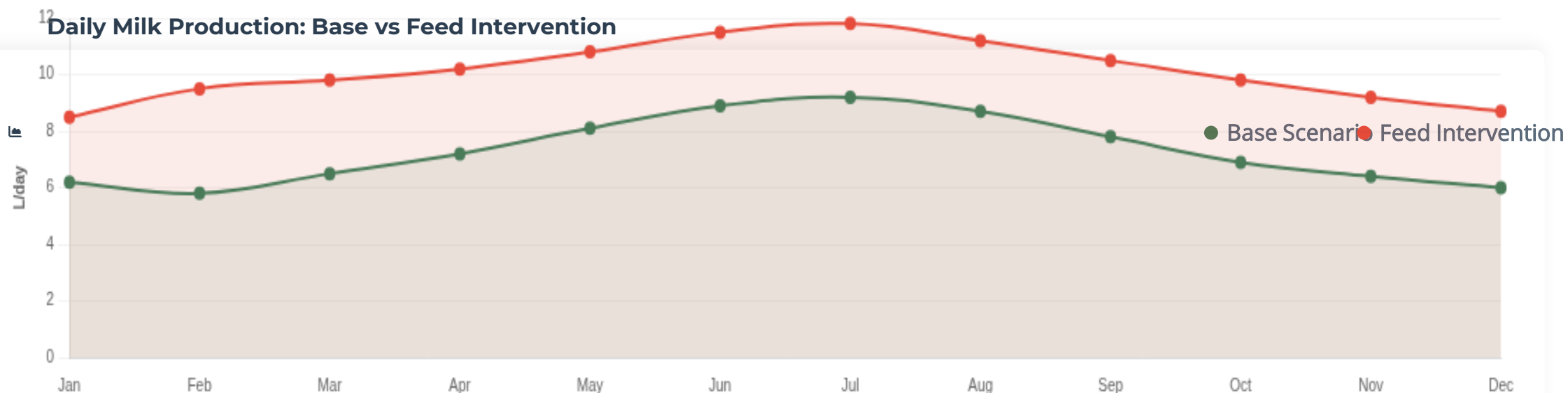


Daily milk production (Louga, lowest month)

3.5 → 5.0 L



Daily milk production (Thies, lowest month)



Production Increase

The month with the lowest milk production in Louga improves by +64% with the Feed intervention compared to the Base scenario.

Food Security

Improved dry-season availability supports household food security when crops underperform.

📈 Beyond production: markets, feed, and resilience

1. Market Access & Feed Availability

Feed improvements can raise production, but poor market access and land constraints limit income gains.

Infrastructure gaps reduce profitability

+30%

Production

+15%

Revenue

2. Livestock as Resilience Anchor

In Sahelian systems with long dry seasons, dairy and livestock and household resilience when crops fluctuate. stabilize incomes

• Food security buffer

9mo

Dry season

+64%

Food
Security

3. Inclusive, Integrated Solutions

Gendered roles, weak collective action, and infrastructure limits require coordinated investments for equitable benefits

💡 Market infrastructure needed

3

Pillars

100%

Coverage

Key Message: Success requires addressing market access, building resilience, and implementing integrated value-chain solutions that benefit all stakeholders in the dairy sector.

Thanks for your attention

