Enhancing milk quality and consumption for improved income and nutrition in Rwanda
(Jan 2017 – Dec 2019)

Emily Ouma, Valerie Flax, Edgar Twine, Olivier Kamana and Julie Kariuki
PROJECT TEAM

- Interdisciplinary team
  - Human Nutrition – Valerie Flax
  - Food Science and Public Health – Olivier Kamana
  - Agribusiness development – Julie Kariuki
  - Agricultural Economics – Emily Ouma and Edgar Twine
RATIONALE

- High levels of malnutrition in children in Rwanda (CFSVA, 2015)
  → 37% of children less than 5 years of age are stunted
  → Only 30% of children aged 6-23 months meet the requirements for a minimum acceptable diet based on dietary diversity
RATIONALE

- Increased consumption of animal source foods (ASFs) - key pathway to improving dietary diversity and child stature.
- To achieve desired nutrition outcomes → promotion of ASF by integrating ASF in household diets.
- Focus – milk consumption from cattle
DAIRY VALUE CHAIN DEVELOPMENT INITIATIVES

- Dairy development considered by the GoR as promising solution for income generation and nutrition (National Dairy Strategy).

- Efforts through “Girinka program”:
  - Livestock asset transfer program
  - Objective to increase household income and reduce child malnutrition among poor households
  - Since 2006, up to 226,240 cattle distributed
DAIRY VALUE CHAIN DEVELOPMENT INITIATIVES

- One cup of milk per child - MINAGRI
- Other dairy value chain development initiatives – USAID FtF funded RDCPII
  → Improving dairy competitiveness in the region and milk consumption promotion (“shisha wumva”-RDCPII/MINAGRI).
  → Successes include technology adoption at farm, cooperative and processor levels for improving productivity and milk quality
- IFAD – Rwanda Dairy Development
CHALLENGES IN THE DAIRY VALUE CHAIN

- Challenges still exist as regards:
  - Production of high quality milk
  - Achieving competitiveness in milk market channels
  - Governance of dairy cooperatives and low value proposition to members

- Lack of evidence base linking dairy value chain interventions to nutrition outcomes

Source: Doyle et al, 2015 (Microbiological analysis of raw milk), African Journal of Food Science and Technology
PROJECT OBJECTIVES

- Generate evidence on interventions aimed at improving dairy income and consumption of milk in Rwanda. Specifically, the project will:
  - evaluate the impact of a nutrition education intervention on ASF consumption and nutrition outcomes among children (12-23 months) and pregnant and lactating women
  - assess and enhance performance and capacity of dairy cooperatives to improve market access for smallholder farmers
  - evaluate the costs and benefits to value chain agents of supplying milk that meets the Seal of Quality standards
RESEARCH APPROACH AND CAPACITY DEVELOPMENT INITIATIVES
OBJECTIVE 1

Evaluate the impact of a nutrition education intervention on animal source food (ASF) consumption and nutrition outcomes among children 12-23 months of age and pregnant and lactating women
**RANDOMIZE 60 VILLAGES IN 2-4 DISTRICTS**

Households with a child 12-23 month and eligible for Girinka program

| Did not receive a cow (n=240) | Received a cow (n=240) | Received a cow + nutrition education (n=240) |
DATA SOURCES

- Rapid formative data collection to identify enablers and barriers to consumption of milk and dairy products – generation of appropriate ASF and dietary promotion messages for men and women
- Cross sectional household surveys conducted at baseline and endline, analysed for nutrition outcome indicators using Difference in Difference approach.
- Qualitative interviews with implementers and participants
Nutrition education intervention

- Importance of nutrition – how to make decisions w.r.t food consumption especially milk
- Behaviour change messaging on consumption of ASF, especially milk – increasing dietary diversity
OBJECTIVE 2

To assess and enhance performance and capacity of dairy cooperatives to improve market access for smallholder farmers
→ Identify capacity gaps - assess current capacity levels of 30 dairy cooperatives using POSA tool (ILRI/TechnoServe) and AgroPro – performance assessment tool (Land O’ Lakes)

→ POSA dimensions:
  • Engagement with output market
  • Financial health
  • Effective and transparent leadership and management
  • Member loyalty
  • Access to production inputs and services
Targeted capacity building and mentorship of 4 dairy cooperatives on aspects of business management, governance, gender/youth integration.

16 cooperatives: market systems facilitation approach to enable linkages with business development services.

Quasi-experimental design – one group pretest post-test approach.
OBJECTIVE 3

To evaluate the costs and benefits to value chain agents of supplying milk that meets the seal of quality (SOQ) standards.
SEAL OF QUALITY (SOQ)

- An initiative launched in May 2013 by RDCP II
- The SOQ is a set of quality requirements to be certified for
- Follows the food chain approach from primary production to final consumption
- Good hygienic practices: general principles of milk hygiene
- Quality of raw materials
- Milk handling
- Working environment
- Considering quality and safety
SEAL OF QUALITY (SOQ)

- SOQ Kits
- Auto-control materials
- Appropriate equipments for milk handling
- Maintenance of hygienic working conditions

Cost implications
SEAL OF QUALITY (SOQ)

- Feasibility of the SOQ certification scheme and the distribution of its costs and benefits along the dairy value chain
  - Determine the feasibility of SOQ technologies/practices for milk producers, processors and retailers using capital budgeting methods such as benefit-cost ratios and NPV
  - Ex ante determination of the distribution of costs and benefits of SOQ along the chain using system dynamics modeling
SEAL OF QUALITY (SOQ)

- Effect of Rwanda’s seal of quality certification scheme on the cost structure of smallholder dairy farms
  → Econometric estimation of total cost and factor cost share equations.

- Demand for safe milk: health risk reduction and willingness to pay for Rwanda’s seal of quality certification
  → Analyze reduction in health risks from consumption of SOQ certified milk
  → Analyze consumer WTP for SOQ certification
PROJECT IMPACT PATHWAY

**Outputs**

- Nutrition education intervention on ASF consumption for mothers in participating households
- Assess and develop capacities of milk cooperatives in: governance, business management, leadership, and gender/youth integration
- Evaluate the costs and benefits of supplying milk that meet SOQ standards to generate evidence

**Outcomes**

- Changes in feeding and dietary practices for children and pregnant/lactating women & hh
- Improved marketing and business relationships
- Improved cash management and timely payments to farmers
- Sensitisation of dairy on the benefits and cost of producing milk that meet SOQ standards (policy fora and platforms such as the RNDP)

**Outputs**

- Improved value proposition by cooperatives to members – enhanced trust
- Improved marketing and business relationships
- Improved cash management and timely payments to farmers
- Sensitisation of dairy on the benefits and cost of producing milk that meet SOQ standards (policy fora and platforms such as the RNDP)

**Outcomes**

- Improved nutritional status for children and pregnant and lactating women
- Improved value proposition by cooperatives to members – enhanced trust
- Increased dairy income and supply of quality milk by participating cooperatives
- Improvement in the SOQ initiative to upgrade the value chain and improve milk quality and maximise benefits
## 2017 WORKPLAN

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timeline</th>
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<tr>
<td>Partnership engagements and staff recruitment</td>
<td>Jan-March 2017</td>
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<tr>
<td>Project planning and inception meeting</td>
<td>6th - 10th March 2017</td>
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<td>Finalisation of site selection</td>
<td>March 2017</td>
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<td>Development of survey protocols, testing, identification and training of enumerators</td>
<td>April-May 2017</td>
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<td>Baseline household data collection and dairy cooperative capacity assessments</td>
<td>June – Aug 2017</td>
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<td>Baseline data analyses and reporting</td>
<td>Sep – Nov 2017</td>
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<td>SOQ cost and benefit surveys</td>
<td>Sep – Nov 2017</td>
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<td>Generation of the ASF and dietary promotion messages for the nutrition intervention</td>
<td>Nov-Dec 2017</td>
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<td>Development of capacity development strategy for the dairy coops</td>
<td>Dec 2017</td>
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POTENTIAL PARTNERS

- Ministry of Agriculture and Animal Resources
- Rwanda Agriculture Board
- Ministry of Health – including CHWs
- Society for Family Health (SFH)
- Rwanda National Dairy Platform
- Rwanda Agriculture and Livestock Inspection and Certification Services of MINAGRI
- Private sector partners
- NGOs