

## FEED THE FUTURE INNOVATION LAB FOR LIVESTOCK SYSTEMS

# RWANDAN GOVERNMENT LIVESTOCK ASSET TRANSFER PROGRAM (“GIRINKA”) IS ASSOCIATED WITH IMPROVED CHILD NUTRITION

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## Background

The prevalence of stunting among young children in Rwanda remains high and is linked to inadequate dietary intake, among other factors. Less than one-third of children 6-23 months are fed at least four food groups per day (minimum dietary diversity) and consumption of animal-source foods (ASFs) is low.

The Government of Rwanda (GoR) and its partners are implementing programs to improve the nutritional status of young children. Among these programs is the GoR's Girinka program, which provides an exotic or cross-bred cow to households that do not already own any cattle and are in the lowest two social classes. The Girinka program has demonstrated economic benefits for participating households, but evidence of the program's impact on maternal and child dietary diversity and nutritional status is lacking. The Girinka program trains households to care for the cow they are given but does not include behavior change communication to promote consumption of the milk produced, which could increase ASF consumption by young children and women and improve their nutritional status.

This project aims to address these gaps by testing the impact of a social and behavior change communication (SBCC) intervention promoting consumption of ASFs, especially milk, in households participating in Girinka and by comparing nutrition outcomes in Girinka households with those who are eligible for Girinka but have not yet received a cow. Prior to the implementation of the SBCC intervention, a nutrition baseline survey was conducted among the Girinka and non-Girinka households. The baseline survey results are presented in this brief.

## Methodology

This evaluation is a mixed methods cluster-randomized controlled cohort study in Nyabihu and Ruhango Districts. The aim of the study is to measure the impacts of participation in (1) the Girinka program plus a community-based ASF SBCC intervention compared to participation in Girinka only and (2) Girinka only compared to Girinka eligibility, but no participation. We randomized administrative cells, which contain 5-7 villages, to SBCC or no SBCC. The Girinka and SBCC study arm is in the SBCC cells and the Girinka only

## Highlights

- **In general, there is a high burden of stunting, low dietary diversity, and low consumption of animal source foods (ASFs), including milk. 42% of children in the study were stunted.**
- **Shisha Kibondo, a cereal-legume-skimmed milk powder blend that is provided by the government for free to all children 6-23 months of age is an important source of ASF for children.**
- **There are strong associations between cow ownership through Girinka and reduction in stunting in children.**
- **Mothers lack knowledge about the importance of ASFs for child growth, the appropriate timing of introduction of ASFs and appropriate milk storage.**

and Girinka eligible study arms are in the no SBCC cells. We obtained lists of Girinka beneficiaries and households eligible for Girinka from district government officials. Girinka households were eligible to participate in the study if they had received a Girinka cow in 2017 or earlier or had received a Girinka calf in 2016 or earlier and the animal was still alive. In addition, participants in all arms were required to have: a child who is 12-29 months of age, the biological mother living with the child, and the mother is 18-49 years of age. Our target sample size was 229 mother-child pairs per arm (total n=687). We tested the association of nutrition outcomes and study arms at baseline using non-parametric chi-square tests for binary variables (e.g., minimum dietary diversity) and t-tests for continuous variables (e.g., height-for-age z-score). The tests compared Girinka and SBCC with Girinka only and Girinka only with Girinka eligible.

## Results

Households in the three study arms generally had similar demographic characteristics. The majority of mothers were farmers and had some primary education. Severe food insecurity affected 62-70% of households across study arms. A higher percentage of Girinka eligible compared to Girinka only households were food insecure and had household hunger, but the Girinka and SBCC and the Girinka only groups did not differ on these characteristics.

**Anthropometry.** Forty-two percent of children in the study were stunted. Mean height-for-age and weight-for-age z-scores were significantly lower in Girinka eligible compared to Girinka only households (-2.04 vs. -1.61 SD,  $p<0.001$ ; -0.91 vs. -0.62 SD,  $p=0.002$ , respectively). The prevalence of stunting was higher in the Girinka eligible compared to the Girinka only households (47.8% vs. 37.7%,  $p=0.014$ ). We found no differences in maternal or child anthropometry of the Girinka and SBCC compared to the Girinka only group.

**Dietary Diversity and ASF Consumption.** Based on a 24-hour recall, minimum dietary diversity among children ranged from 44-51% across study arms and 44-56% of children consumed ASFs on the previous day. Dairy and fish accounted for most of child ASF consumption and skimmed milk powder mixed in cereal-legume flour (“Shisha Kibondo”) accounted for most of dairy consumption. Cow milk was consumed by 5-9% of children across arms on the previous day. Based on a 7-day recall, more Girinka only (43%) than Girinka eligible (23%) consumed cow milk.

**Infant and Young Child Feeding Knowledge, Practices, and Support.** Mothers reported introducing cow’s milk to children early (around 7-8 months of age) and other ASFs, especially meat, late (around 11-12 months). Mothers tended to underestimate the number of food groups a child should eat daily and 43-50% were aware of the importance of feeding children ASFs. Community Health Workers (CHWs) were by far (90-94%) the most common source of information about the importance of feeding children ASFs. Most mothers reported that a CHW had visited them at home in the last 6 months, but only 29-40% said the CHW discussed ASFs during the last home visit.



**Livestock Ownership and Use of Cow’s Milk.** All Girinka beneficiary households owned livestock, while only 44% of Girinka eligible households had livestock. Girinka beneficiary households had more Tropical Livestock Units (1.6-1.7) than Girinka eligible households (0.4). Among Girinka beneficiary households,

nearly half said they never used the morning milk and two-thirds never used the evening milk from their cows. The percentage of households who kept the milk entirely for consumption varied by milking time; 58-72% kept the morning milk and 79-82% kept the evening milk. Households tend to get about 3 liters of milk per day at calving and a little more than 1 liter at the end of lactation. About 85% of households reported boiling the milk before using it, but more than 90% store it at room temperature in plastic containers.

## Recommendations

- Promotion of programs that enhance access of poor households to ASFs, such as Girinka, is necessary. Results of this study and others have shown associations between ownership of a cow and reduction in stunting in children.
- Identification and promotion of other sustainable business models to improve access to other ASFs, like fish in addition to dried and fresh milk.
- Results show lack of knowledge by mothers on the importance of ASFs for child growth and appropriate timing of introduction of ASFs. There is therefore need for investment in SBCC efforts at scale to enhance nutrition gains that can be achieved through ownership of a livestock asset such as a cow.
- The SBCC effort by this project, commonly referred to as “Gabura Amata Mubyeyi” is well accepted by communities and could be scaled to include other ASFs and implemented in other geographical areas.



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