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Gender in the dairy value chain and implications for the GIRINKA program (“One Cow per Poor Family”) in Rwanda

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Background

Livestock development interventions are widely considered to have the potential to reduce poverty and improve nutritional status of households (Randolph et al. 2007; Smith et al. 2013; Herrero et al. 2012). In East Africa, studies of dairy interventions in several countries have demonstrated the positive effects of dairy production on income, food security and dietary diversity (Chagunda et al. 2014; Rawlins et al. 2014; Hoddinott et al. 2013; Kidoido and Korir 2015; Micere Njuki et al. 2016; Headey et al. 2017). However, there are also complicated social and gender dynamics related to both women's roles in the production as well as consumption of livestock, which, if not fully considered, may limit the effectiveness of such programs, or worse, increase gender inequalities within the household. Such cases may occur, for instance, when men take over decision-making and control of income from a livestock product, such as dairy, that has become more lucrative following the intervention (Njuki et al. 2011; World Bank 2009; EADD 2009; Njuki 2013).

Women livestock keepers in Rwanda also face higher rates of illiteracy and less access to agricultural extension and financial services compared to men (USAID 2015). These constraints limit their ability to increase the productivity of their livestock (USAID 2015). Furthermore, women in Rwanda face cultural barriers that limit their decision-making power (USAID 2015). Even in instances where women have ownership of an agricultural asset, they may not have access to, or control over, the income or food associated with those assets (Gaile et al. 2015).

Lack of decision-making power and limited control over resources also influence household nutrition, as women are primarily responsible for providing for the nutritional needs of their families. Pregnant and lactating women and young children have important nutritional needs to ensure proper growth and development, but they are more likely to be food insecure and have less access to nutrient rich animal source foods (Girard et al. 2012; Randolph et al. 2007; Smith et al. 2013). It has been demonstrated that increasing women's control of income from agricultural products resulted in improved household nutrition (FtF 2015), which could help to reduce the rates of stunting, underweight and wasting for children. The rate of stunting has decreased in Rwanda in the past decade, but was still at 37% in 2015 (Ministry of Agriculture and Animal Resources 2015). These issues are particularly relevant to the Government of Rwanda's GIRINKA program, which aims to reduce poverty and improve nutrition by providing poor families with a dairy cow (RGB 2014). This brief examines the literature on gender and the dairy value chain in Rwanda, particularly related to the GIRINKA program.

Gender in the Dairy Value Chain in Rwanda

In Rwanda, the Government has taken steps to improve gender equality by establishing the Ministry of Gender and Family Promotion in Rwanda (MIGEPROF 2011). The Government of Rwanda has also promoted livestock production for the rural poor through the GIRINKA ("One Cow per Poor Family") program established in 2006. The GIRINKA program aims to have impact in five areas: 1) increased milk production; 2) increased family income for poor families; 3) reduced malnutrition in poor families; 4) improved soil fertility from increased use of animal manure; and 5) improved

community cohesion from the gifting of cows (RGB 2014). Two studies have examined the gender roles in the dairy value chain in Rwanda (Umuzigambeho 2017; Colverson 2018), and have provided recommendations for improvement from a gender perspective. This brief summarizes their findings for other researchers working in the dairy sector in Rwanda.

Gender norms and relationships influence the resources that men and women have access to for livestock production, as well as their roles within the production system, and ultimately the benefits that they receive. In Rwanda, as in many other contexts, women have more limited access to the knowledge, resources and skills needed for livestock production compared to men. Women face higher rates of illiteracy, which makes it harder for them to make use of financial services and understand animal husbandry trainings (Umuzigambeho 2017). Women also have a higher workload than men, as they are responsible for both productive and reproductive roles within the household. These differing constraints are reflected in the responses that farmers gave for their main limitation to expanding dairy production: Men were more likely to state that animal disease and financial constraints limited their ability to expand, while women were more likely to state limited land and labor as their constraints (Umuzigambeho 2017). These findings suggest that men may be more aware of the external constraints to increasing livestock productivity (i.e. access to veterinary and financial services) whereas women more immediately perceive constraints related the resources under their control (i.e. land and labor).

Within the dairy value chain, women in Rwanda have distinct and significant roles, although those roles vary by production system. In extensive systems, men and boys predominately bring the animals to graze and find water, while women care for the calves and process the milk into fermented products and butter (Umuzigambeho 2017). In zero grazing systems, which are required for participation in the GIRINKA program, women are responsible for feeding the animals, cleaning the stalls and milking utensils, while men are more involved in the milking of cows as well as the transport and sale of milk (Umuzigambeho 2017). This division of labor was also referenced by one of Colverson's (2018) interviewees: "Women do feeding, stalls, and watering. Men sell the milk and decide outcomes of milk."

Although Umuzigambeho (2017) found that both men and women have joined milk cooperatives and collection centers, men participate at a higher rate than women (see Table 1). In addition, women are less likely to participate in cooperative leadership and decision-making than men (Umuzigambeho 2017). Only one milk cooperative included in the study had a majority female membership. Across all cooperatives, women comprised only 33% of milk cooperative members (Umuzigambeho 2017). Thus, it is important for livestock interventions to be aware that value chain activities, such as the formation and strengthening of cooperatives, may not benefit men and women equally, which has implications on the ultimate outcomes of livestock interventions. With this awareness, livestock intervention should create and implement strategies that work to overcome barriers that women may face in participating in cooperatives (i.e. inconvenient meeting times and places, lack of child care, lack of knowledge on cooperative activities etc.).

Table 1. Sex disaggregated milk collection center membership (adapted from Umuzigambeho, 2017)

Milk Collection Center	Men	Women	Total
Rwimiyaga	210 (85%)	37 (15%)	247 (100%)
Kamate Dairy Cooperative	102 (70%)	45 (30%)	147 (100%)
Bweya Cyensosho Rwempasha Kazaza (BCRK)	128 (80%)	32 (20%)	160 (100%)
Gwizumukamo	168 (80%)	42 (20%)	210 (100%)
Giramata Mworozu	122 (76%)	38 (24%)	160 (100%)
IAKIB	312 (46%)	373 (54%)	684 (100%)
Kirebe	210 (85%)	37 (15%)	247 (100%)
Agira Gieroka (Nyanza)	1,035 (67%)	518 (33%)	1,553 (100%)
MCC Union Nyagatare	14 (88%)	2 (13%)	16 (100%)

The GIRINKA Program, Successes and Challenges

The literature review conducted by Colverson (2018) found that the GIRINKA program had evidence of success in each one of stated program objectives but also of challenges that could be addressed (Table 2). Unfortunately, no gender-sensitive evaluation of the GIRINKA program has been conducted, although such an evaluation would be useful to determine the gender-specific impacts of the program and to further identify areas in which gender sensitivity could be more fully integrated. Clear successes could be attributed to the GIRINKA program, such as the increase in milk production and increased use of manure. For the objective of increased milk production, statistics from the Republic of Rwanda's RDDP report indicate that annual milk production has increased from 50,000 MT in 2000 to approximately 731,000 MT in 2015. This increase can be attributed primarily to the increase in the number of dairy cattle, of which the GIRINKA program has distributed more than 200,000, or nearly 20% of the country's total cattle stock (Abdulsamad and Gereffi 2017; Mudingu 2016). Along with the increase in milk production, the number of milk collection centers (MCCs) increased by 50% between 2012 and 2016 (Abdulsamad and Gereffi 2017). However, research has also found that proper training influences the milk production achieved by beneficiaries. Properly trained beneficiaries produced on average 1.5 liters of milk per day more than beneficiaries who did not receive training (Argent, Augsburg and Rasul 2014). A survey of beneficiaries in the Ngoma District found that 90% of beneficiaries reported using cow manure in their farms and notes that farmers observed a link between the resulting improvement in soil fertility and increased crop yields (RGB 2014).

Regarding increased income, reduced malnutrition and increased community cohesion, there was also some evidence that the GIRINKA program had positive effects. Households reported selling milk and manure from the dairy cows to increase their household income (RGB 2014). One survey found that 87.5% of beneficiary households reported that their monthly monetary income increased after receiving a cow (RGB, 2014). Another survey of beneficiaries by Send a Cow (2015) reported

increases in annual household income between \$150 and \$798. In addition, Send a Cow (2015) found that the food security among beneficiaries increased by 383% after receiving a cow and proper training. This increase in income, along with increased consumption of milk and increased soil fertility, is thought to have contributed to a reduction in malnutrition in Rwanda (Mudingu 2016). This result is supported by additional research in Rwanda and East Africa on the impact of dairy cow ownership on child nutrition. A study of Heifer International’s dairy cow donation program in Rwanda found that the cow donation resulted in a threefold increase in the amount of milk consumed in the household per month compared to the control group (9.34 versus 3.6 liters) (Rawlins et al. 2014). The study also found that ownership of a dairy cow had a statistically significant effect (at the 10% level) on the mean height-for-age z-score with a magnitude of 0.54 standard deviations, which is similar to the magnitude found by Hoddinott et al. (2013) for Ethiopia (Rawlins et al. 2014).

Table 2. Literature Review of GIRINKA Challenges and Successes (adapted from Colverson, 2018)

Successes		Challenges	
Increased milk production	Milk production increased from 50,000 MT 2000 to 731,00 MT in 2015 (RDDP report)	Training and capacity building	Training influences milk production of beneficiaries (Argent, Augsburg and Rasul, 2014), but not all beneficiaries received proper training, especially women (FtF, 2015).
Increased use of manure	A survey of beneficiaries in the Ngoma District found that 90% were using cow manure in their farms (RGB, 2014).	Milk sale vs. consumption	No data exists on the consumption versus sale of the milk produced. Consumption of milk has direct nutrition impacts while income influences nutrition indirectly. In addition, control of income by women can influence household nutrition.
Reduced malnutrition	The number of meals per household and food per meal increased after receiving a cow through the GIRINKA program (RGB, 2014).	Inadequate veterinary services	Only 53.8% of beneficiaries had access to veterinary drugs, and 36.6% to veterinary services, which are essential to maintain the health of dairy cows (RGB, 2014).
Increased income	On average households sell between 1 and 3 liters of milk per day (RGB, 2014). Other households sell manure (RGB, 2014).	Limited monitoring and evaluation data	A review of the GIRINKA program has been conducted, but not yet published, making it difficult to evaluate the gender impacts of the program since 2006.
Improved community cohesion	Passing on the calf of the pregnant heifer to a neighbor was said to help rebuild social relationships destroyed in the genocide (Mudingu, 2016).	Limited gender integration	Gender issues related to decision-making, labor, and training influence the intended outcomes of the program, but not have explicitly addressed in the training of beneficiaries.

To promote and rebuild social ties in communities, beneficiaries of the GIRINKA program must pass on the calf of their heifer to another community member. Over the past ten years, this relationship development has become a significant aspect of the program and is thought to have

been effective at increasing social cohesion among participants (Mudingu 2016; RAB personal communication 2016).

Colverson (2018) also found some challenges and gaps related to the GIRINKA project through the literature review and key informant interviews. For example, although the training was found to be necessary for beneficiaries to achieve high milk yields, there is evidence that not all beneficiaries of the GIRINKA program were properly trained, especially the “pass on” beneficiaries (FtF 2015; Colverson 2018). Additionally, there were challenges with adequate access to veterinary and extension services. A survey of beneficiaries found that only 53.8% had access to veterinary drugs and 36.6% had access to veterinary services (RGB 2014). These two challenges, training and access to extension services, are more likely to affect female beneficiaries, as the trainings may not be scheduled at a convenient time to encourage their attendance. Women are typically underserved by extension services, and they may not be able to understand the training materials that are available since they face high rates of illiteracy (Colverson 2018). The Government of Rwanda is working to overcome these challenges through increased gender mainstreaming, as well as creating an expanded network of local extension providers by training more female extension agents (Umuzigambeho 2017).

In addition, although there has been evidence of improved nutrition and increased income through the GIRINKA program, there is no data available on the sale versus consumption of milk produced by the GIRINKA program. This is important since it influences the way in which the program impacts nutrition, either directly through milk consumption or indirectly through increased income. Some evidence suggests that the child nutrition impacts from cow ownership are higher in areas with lower market access, which promotes consumption of the animal-source food (Hoddinott et al. 2013). Also, if income from the sale of milk is the primary pathway through which the GIRINKA program influences nutrition, an understanding of the gendered control of income from milk becomes very important. Since men are primarily involved in the transport and sale of milk, they may also control the income from these sales. In fact, the amount of milk sold to milk collection centers is recorded with the name of the head of the family, which is frequently only the man (Umuzigambeho 2017). In addition, results from focus group discussions reveal that although women contribute significantly to milk production, they may not control the resulting income. Men may use that income for recreational activities, including drinking, as described by a female respondent in Nyagatare (Umuzigambeho 2017):

My husband often collects money from the so-called joint account. He goes to drink with other men. When he comes back home, I try to ask why he is drunk and the source of the money he spends on beer. The response is obvious. He beats me up. He always replies that I married him when he had most of the cows. So, I have to shut up for my safety.

The idea that men use cash for their own needs was also echoed by a key informant from Colverson (2018):

If it is a woman/female who is keeping the animal, normally there is no problem – they put their efforts into the animals...women want to use that animal/cow for their children. Men want cash to pay for personal items.

In addition to data on the consumption versus sale of milk, and gendered data on the control of income from milk sales, there had not been an external evaluation of the GIRINKA program, which makes it difficult to evaluate the gender impacts of the program through sex-disaggregated data. Colverson (2018) stated that an evaluation by the Government of Rwanda was in progress, but to date it is not been published. Ideally, such an evaluation would also incorporate a gender component to look at issues such as control of income, a possible increase in women's workload from the program, and women's ability to realize the benefits generated from dairy production. For example, within the selection criteria of the GIRINKA program there is a target of 30% women beneficiaries, but there are barriers to women's participation such as the capital needed to set up the required zero-grazing infrastructure (estimated at \$400), and it is not clear how poor women could access that capital (Umuzigambeho 2017). Additionally, although the GIRINKA program presents an opportunity for higher income, it also represents a larger workload for men and women and a greater responsibility for women in the daily care of the cattle (Umuzigambeho 2017). A gender analysis of the GIRINKA program's impact on women's labor and control over income, as well as the barriers they face to accessing the resources and information needed to care for their animals properly, could improve the outcomes of the GIRINKA program.

Recommendations

Based on the literature review, there are several recommendations for the GIRINKA program and other dairy value chain initiatives in Rwanda to improve gender integration.

- Program monitoring and evaluation: Many of the stakeholders interviewed by Colverson (2018) acknowledged the need for a formal evaluation of the GIRINKA program by an external agency. To be able to examine gender gaps and opportunities in the program, this evaluation should collect and analyze sex-disaggregated data.
- Improve training of beneficiaries: The benefits of the GIRINKA program for beneficiaries are clearly influenced by their ability to care for and manage the dairy cows. Although some NGOs implementing the program, such as Send A Cow, provide comprehensive training programs, these trainings are not being provided to every recipient, which can result in the improper care of the cows (Argent, Augsburg and Rasul 2014; FtF 2015; RGB 2014). The training and delivery approach of NGOs is currently under consideration by the Ministry and funding agencies, which will hopefully lead to improvements (Dr. Rutagwenda, MINAGRI, personal communication, September 21, 2016). In addition, integrating gender into these training programs could improve nutrition outcomes, as some evidence shows that targeting women in livestock production can improve child nutrition (Jin

and Ianotti 2014). Without a gender-sensitive evaluation of the program, it is difficult to say what are the most effective ways of integrating gender. Possibly training could include methods to increase women's participation in cooperatives, training for women to address lack of financial concepts, training for men and women on increasing joint decision making, and improving gender-equitable workloads within the household.

- Conduct and incorporate results of a gender analysis of the dairy value chain into the GIRINKA program: Gender roles in livestock are complex, but they are important to consider as they directly relate to the management of the animal as well as the management of the resulting products and income. Increasing women's control of the income from the One Cow per Poor Family program could substantially improve overall household nutrition and reduce children's malnutrition, thus contributing to the program's overall objectives.

References

- Argent, J., Augsburg, B., & Rasul, I. 2014. Livestock asset transfers with and without training: Evidence from Rwanda. *Journal Of Economic Behavior & Organization*, 108: 19-39. doi: 10.1016/j.jebo.2014.07.008
- Chagunda, M., Mwangwela, A., Mumba, C., Dos Anjos, F., Kawonga, B., Hopkins, R., & Chiwona-Kartun, L. 2015. Assessing and managing intensification in smallholder dairy systems for food and nutrition security in Sub-Saharan Africa. *Regional Environmental Change*, 16(8): 2257-2267. doi: 10.1007/s10113-015-0829-7
- Colverson, K. 2018. Increasing the health and nutritional outcomes of the Government of Rwanda's 'One Cow per Poor Family' program from a gender perspective. *Food Studies: An Interdisciplinary Journal*, 8(2).
- EADD. 2009. Strategy for Integrating Gender in EADD. East Africa Dairy Development Project. <https://cgspace.cgiar.org/handle/10568/1965>
- Feed the Future (FtF). 2015. Gender Analysis for USAID/Rwanda: Feed the Future Project December 15. External Version. <https://www.usaid.gov/sites/default/files/documents/1860/GA%20-%20FtF%20-%20FINAL%20December%202014%202015%20-%20Public%20Version.pdf>
- Galiè, A., Mulema, A., Mora Benard, M., Onzere, S., & Colverson, K. 2015. Exploring gender perceptions of resource ownership and their implications for food security among rural livestock owners in Tanzania, Ethiopia, and Nicaragua. *Agriculture & Food Security*, 4(1): 2. doi: 10.1186/s40066-015-0021-9
- Girard, A., Self, J., McAuliffe, C., & Olude, O. 2012. The effects of household food production strategies on the health and nutrition outcomes of women and young children: A systematic review. *Paediatric And Perinatal Epidemiology*, 26: 205-222. doi: 10.1111/j.1365-3016.2012.01282.x

Headey, D., Hirvonen, K., & Hoddinott, J. 2018. Animal sourced foods and child stunting. *American Journal Of Agricultural Economics*. doi: 10.1093/ajae/aay053

Herrero, M., Grace, D., Njuki, J., Johnson, N., Enahoro, D., Silvestri, S., & Rufino, M. 2012. The roles of livestock in developing countries. *Animal*, 7(s1): 3-18. doi: 10.1017/s1751731112001954

Hoddinott, J., Headey, D., Dereje, M. 2013. Cows, missing milk markets and nutrition in rural Ethiopia. In: Presentation at the Farm Production and Nutrition Workshop, World Bank, June 7.

Jin, M., & Iannotti, L. 2014. Livestock production, animal source food intake, and young child growth: The role of gender for ensuring nutrition impacts. *Social Science & Medicine*, 105: 16-21. doi: 10.1016/j.socscimed.2014.01.001

Kidoido, M., & Korir, L. 2015. Do low-income households in Tanzania derive income and nutrition benefits from dairy innovation and dairy production?. *Food Security*, 7(3): 681-692. doi: 10.1007/s12571-015-0419-z

Micere Njuki, J., Wyatt, A., Baltenweck, I., Yount, K., Null, C., & Ramakrishnan, U. et al. 2016. An exploratory study of dairying intensification, women's decision making, and time use and implications for child nutrition in Kenya. *The European Journal Of Development Research*, 28(4): 722-740. doi: 10.1057/ejdr.2015.22

Ministry of Agriculture and Animal Resources. 2015. Comprehensive food security and vulnerability analysis 2015 (CFSVA 2015). Republic of Rwanda: Ministry of Agriculture and Animal Resources.

Ministry of Gender and Family Promotion (MIGEPROF). 2011. National Strategic Plan against Gender Based Violence. Republic of Rwanda: Ministry of Gender and Family Promotion.

Mudingu, J. 2016. *Girinka Programme Transforms Livelihoods, Reconciles Communities*. Kigali: Rwanda Agriculture Board.
http://www.minagri.gov.rw/fileadmin/user_upload/SUCCESS_STORY/article_about_Girinka.pdf

Njuki, J. 2013. *Women, Livestock Ownership and Markets*. Women, Livestock Ownership and Markets: Routledge.

Randolph, T., Schelling, E., Grace, D., Nicholson, C., Leroy, J., & Cole, D. et al. 2007. Role of livestock in human nutrition and health for poverty reduction in developing countries. *Journal Of Animal Science*, 85(11): 2788-2800. doi: 10.2527/jas.2007-0467

Rawlins, R., Pimkina, S., Barrett, C., Pedersen, S., & Wydick, B. 2014. Got milk? The impact of Heifer International's livestock donation programs in Rwanda on nutritional outcomes. *Food Policy*, 44: 202-213. doi: 10.1016/j.foodpol.2013.12.003

Rutagwenda, Dr. T. 2016. MINAGRI, personal communication, September 21, 2016.

Rwanda Governance Board (RGB). 2014. Rwanda Governance Review: The Assessment of the Impact of Home Grown Initiatives. Kigali: Rwanda Governance Board.

Send a Cow. 2015. Rwanda Impact Report. https://www.sendacow.org/wp-content/uploads/2018/07/Rwanda_Impact_final.pdf

Smith, J., Sones, K., Grace, D., MacMillan, S., Tarawali, S., & Herrero, M. 2013. Beyond milk, meat, and eggs: Role of livestock in food and nutrition security. *Animal Frontiers*, 3(1): 6-13. doi: 10.2527/af.2013-0002

Umuzigambeho, J.F. 2017. Gender assessment of dairy value chains: evidence from Rwanda, Rome, FAO. <http://www.fao.org/3/a-i6845e.pdf>

USAID. 2015. Gender Analysis for USAID/Rwanda: Valuing Open and Inclusive Civic Engagement Project, External Version. <https://www.usaid.gov/sites/default/files/documents/1860/GA%20-%20FtF%20-%20FINAL%20December%202014%202015%20-%20Public%20Version.pdf>



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