Local Assignment: Ugandan or East African volunteer to be paired with virtual supporting American volunteer.

Potential volunteers from Uganda or East Africa should email George.ntibarikure@crs.org and maria.nakayiza@crs.org to express interest.
American volunteers wishing to support virtually should email maria.figueroa@crs.org

Farmer to Farmer
Volunteer Assignment Scope of Work

Summary Information	
Assignment Code	**UG231**
Country	Uganda
Country Project	Livestock Country Project
Host Organization	Bihanga Dairy Farmers' Cooperative Society Ltd
Type of Volunteer Assistance	Technology Transfer (T)
Type of Value Chain Activity	On Farm production (F)
Assignment Title	Evaluation of dairy grazing systems
Assignment preferred dates	Flexible
Objectives of the assignment	• Evaluate zero grazing system against the conventional free-range system • Train dairy farmers the basics of zero grazing system
Desired volunteer skill/expertise	Specialized expertise in dairy management/production systems • Formal qualifications in dairy production/management or livestock production/management • Wide experience with small holder dairy production systems in developing/commercializing agriculture • Other skills may include hands-on experience in training, extension and tropical dairy farming.
PERSUAP classification	Type III

A. BACKGROUND

CRS Farmer -to-Farmer program (F2F) is a USAID funded program that will be implemented for five years (2019- 2023) with a primary goal of reducing hunger, malnutrition, and poverty across six countries: Benin, East Timor, Ethiopia, Nepal, Rwanda and Uganda. The program aims at achieving this goal through advancing inclusive and sustainable agriculture led growth aimed at generating sustainable, broad-based economic growth in the agricultural sector. The program's secondary goal is to increase US public understanding of international development issues and programs and share the knowledge back in the US. To achieve its goals, F2F program provides volunteer technical assistance to farmers and farmer groups (associations and cooperatives), private agribusinesses, agriculture education institutions in developing countries like Uganda to address host identified technical needs in selected agricultural value chains. F2F volunteers are pooled from abroad range of US agricultural expertise, from private farmers with varied experience, University professors, bankers/certified accountants, animal health and nutrition specialists, soil scientists, agronomists who support local host organisations F2F program introduces innovation and develops local organisations capacity for more productive, profitable, sustainable and equitable agricultural systems while providing an opportunity for people- to-people interactions within the agricultural sector. In Uganda F2F program will focus its technical interventions in the livestock and agribusiness value chains

Bihanga Dairy Farmers' Cooperative Society Ltd is a member owned organization started in 2015, it's legally registered at national level and guided by the Uganda cooperative act of 2006 and a member of the Uganda Crane Creameries Cooperative Union (UCCCU). The main product of the cooperative is raw cow milk. The cooperative as a vision "***to exploit the dairy potential of Bihanga community***" and a mission "***to empower society members to gainfully use the dairy potential to enhance household income and quality of life***".

The host has defined objectives which include;

- To satisfy the dairy needs of the cooperative members
- To profitably market milk and milk products of the cooperative
- To improve quality and quantity of milk and milk products by adding value
- Improve pasture and control dairy farm losses.

The vision, mission and objectives have all been translated into the local language for the better understanding by the illiterate members of the cooperative. The host has established core values to guide its operations which include commitment, hard work, honesty & accountability, transparency & credibility, cooperation & supportiveness. In terms of governance and cooperative leadership and

management; the host has a well detailed organization structure with a general assembly as the supreme comprised of delegates representatives of members, an executive board of 7 board members who are elected from the delegates and serve on a termly basis. Three committees have been created out of the executive; finance committee, supervisory committee, and a human resource committee, a technical team reports to the HR committee while the manager and other staff report to the technical team.
The livestock rearing is the main economic activity and important in this system with cattle taking the biggest percentage. The production system is characterized by open grazing, paddocking and zero grazing units. Cattle are kept for dairying and are kept on large farms where grazing is done on unimproved naturally growing pastures. Fodder crops are rarely grown. The host is currently dealing in collective bulking and chilling of members milk and collective marketing. The host owns a cooling facility of approximately 3000 liters which is used to chill members milk before collection by the buyer. The host organization also provides transportation services for members' milk from individual farms to the cooling center. The average land acreage is 15 acres while on average there is at least 3 dairy cows per household.

B. ISSUE DESCRIPTION

With over 70% of Uganda's population engaged in agriculture, the agricultural sector is fundamental to the country's development. The primary agricultural activities generate nearly 40% of the country's gross domestic product (GDP), 70 – 80% of export earnings, almost all domestic food requirements under normal farming conditions, and most of the raw materials required in local industries. Hence efforts towards reduction of mass poverty among the rural population depend very much on the promotion of agriculture and rural development. The agricultural sector in Uganda is broadly comprised of the crop sub sector and the livestock sub sector, both of which are crucial to the livelihoods of the rural farming population. Up to 73.3% of the working population (14 - 64 years old) is employed in crop and livestock farming and the extraction of aquatic and forestry resources, making these the key primary economic activities of the Ugandan people. Despite the importance of the crop and livestock farming activities to the livelihoods of the rural farming population, their yields are still very low, making up only 25-50% of what can potentially be achieved even with present technologies. Moreover, because most of the population is rural dwellers (up to 88%) and they use mostly low levels of technology, agricultural production in the country is heavily resource-based, using labor and land as the most significant inputs. The distribution and use of these resources are a matter of strategic importance, if a complementary policy is in place.

Livestock accounts for 53% of the agriculture capital stock and contributes 30% to agricultural GDP and contributing about 18% to overall agricultural GDP. The subsector provides opportunities for income generation, employment creation and improved food and nutrition security to households across the different production systems and along different value chains (such as meat, eggs, dairy, live animals and hides). It is projected that the demand for livestock products will increase substantially over the next 25 years, however the demand will supersede supply. About 5 million households in Uganda own livestock. The major livestock species in Uganda are; cattle (15 million), sheep (4 million), goats (12.5million), pigs

(3.6 million), and poultry (42 million). According to the ASSP 2016/2020, the sector is prioritizing the following livestock products over the medium term: Dairy/milk, Beef, Pork, Mutton, Goat, Poultry, Honey, Silk and Hides and Skins. Beef, dairy cattle, and poultry have been identified as strategic agricultural commodities for the country that are to receive increased investment for accelerated production. The sector targets to produce 3.35 billion liters of milk annually and its products worth approximately USD 49.673 million by 2020. Thirty three percent (33%) of the marketed milk in Uganda is processed whereas sixty seven percent (67%) is marketed raw, providing opportunities for further investment in dairy processing.

From an economic point of view, cattle are the most important livestock, with the indigenous breeds accounting for over 95% of the national herd. Southern and Western Uganda are the major producing regions, with 80% of the national cattle herd and an average number of cattle of 2.11 per household in 1999. The bulk of cattle (as is the case for small ruminants), essentially the indigenous breeds, are kept under traditional herding production systems. Most cattle (about 91%) are held by pastoral communal grazers, nomadic pastoralists and small holder mixed farmers, who together are the major suppliers of slaughtered cattle. The rest of the cattle are kept on beef ranches and farms**.**

Broadly, there are two livestock production systems, namely the traditional system and the improved systems. The traditional system, characterized by minimal inputs and correspondingly small outputs, depends on natural grazing and local breeds. Improved systems, on the other hand, involve some investment such as fencing, pasture and grassland improvement, provision of water and breed upgrading, but majority still dependent on open grazing practices. Livestock production systems and management practices are dictated by the degree of dependence of the household on livestock products for income, cultural values, food supply, and crop agriculture practiced in association with livestock under traditional and non-traditional practices. Forage resources in Uganda range from the traditional system, where extensive natural grasslands support semi-nomadic pastoralist and unfenced communal grazing, to the improved system, where the farm perimeter is fenced with paddocks of natural or planted grasses. This fencing helps to control tick-borne diseases while also enabling better pasture management. There is also a growing interest in intensive and semi-intensive beef and dairy cattle production, in which improved breeds (i.e. exotic and cross breeds) are mostly kept under intensive management on small and medium sized farms under zero grazing. Additionally, it is now common to combine crop and livestock production whereby the two enterprises complement each other. In fact, mixed farming is the most common smallholder dairy system in the southwest, central and southeastern regions.

Despite the noticeable progress in the development of the livestock sector and dairy sub sector, they are still faced with several limitations. These setbacks include, among others: increasing degradation of grazing areas due to poor grazing practices (like over-grazing); inadequate production of improved pastures and short supply of good livestock feeds; inadequate knowledge on improved livestock/dairy herd management practices to prevent high morbidity and mortality levels within the individual herd; inadequate feeding due to shortage of quality and quantity of forage and fodder particularly during the dry season; lack of access to high quality seed and vegetative planting material and the high cost of production

in the intensive systems resulting in low returns. These limitations are exacerbated by the widespread low literacy levels among most livestock farmers which hinder the adoption of improved technologies. The sector is further constrained by the poor market outlets for milk (due to a poor rural road network and near absence of rural electrification), coupled with low milk prices which partly contributes to dairy farmers reluctance to investing in intensive or semi-intensive dairy management systems. The continues population growth is equally increasing pressure on fixed land area hence reducing land available for free range/open grazing system. This is coupled with the cultural/traditional attachments farmers have with dairy animals resulting in keeping large herd sizes regardless of productivity on a large land size without consideration for the land's carrying capacity. However, a small percentage of the dairy farmers are thinking through a reduction in herd size so that they can keep few animals on available piece of land, but such animals should comparatively be more productive. This is the direction that Kamwenge dairy farmers want to take through piloting zero grazing systems and later scale up based on the associated benefits.

Bihanga Dairy Farmers' Cooperative Society Ltd and associated diary cooperatives face specific challenges of poor /inadequate dairy feeding caused by factors such as:

- Decreasing land availability
- Rampant tick resistance in open grazing system
- Lack of training for farm workers on proper fodder preparation and the types of pastures to grow to cater for animals' nutrition needs
- Small holder dairy farmers with low levels of milk production and high production costs
- Inadequate and less nutritive pastures on farms
- Inadequate water for animals
- Dairying is not being done as a business
- Inadequate extension service provision hinders improvement in productivity

The increasing population and the costs of running big farmlands coupled with the fact that under good management practices, a dairy farmer with a few animals on small area can produce more milk compared to one with a large herd size on a big area. This has prompted dairy cooperative members into exploring opportunities of investing in a zero grazing system, keeping fewer animals within the available land area. It is against this background that Bihanga Dairy Farmers' Cooperative Society Ltd and other partner cooperatives are interested in establishing the pros and cons associated with zero grazing and free-range system to make an informed decision on what system to adopt and promote amidst the decreasing land availability. Hence the cooperatives' request for a volunteer consultant with extensive experience in dairy cow nutrition. In the cattle herd aspect, the consultant's emphasis during visit shall be on cost benefit analysis of dairy cow management under both zero and free-range grazing management systems.

C. OBJECTIVES OF THE ASSIGNMENT

The main objective of the assignment is to evaluate zero grazing against free-range grazing system in the face of decreasing land availability and pave way for increasing milk production.

Specific objectives:

1. Assess existing diary management systems- challenges/opportunities and use this as a basis to evaluate the zero-grazing system against the conventional free-range system
2. Train dairy farmers the basics of zero grazing system, with emphasis on cost effective practices with practical demonstrations as applicable
3. Develop a cost benefit analysis for dairy cow management under zero grazing and free-range grazing system.
4. Use case studies to demonstrate benefits of zero grazing Vs free-range grazing
5. Develop a simple manual for setting up zero grazing system, with recommended affordable forage species, supplement and concentrate feeding, highlighting aspects of dry season feeding and forage preservation

Nature of training sessions:

Overall, dairy farmer cooperatives in Uganda are characterized by relatively small numbers of farmers between 30 – 70 members. The cooperatives are in proximity with in 5km radius although operating autonomously. To maximize F2F program resources, the volunteer trainings will benefit two more dairy cooperatives (Bishozi dairy farmers' cooperative and Bwitankanja dairy cooperative societies) beyond Bihanga dairy cooperative society. With this arrangement, more dairy farmers can benefit from the volunteer expertise. Notwithstanding, the inadequate agriculture extension system in the country, the volunteer trainings will be greatly appreciated by the farmers and the district local government since they are contributing to closing a gap in information access.

The volunteer will provide training at two levels:

Level 1: Management and selected board members, and dynamic individuals will be selected from each of the three dairy cooperatives. These will become ToTs and they will receive training in all four (1-4) aspects of the assignment. Their role is to continue training other members not reached by the volunteer and back stop those already trained.

Level 2: The volunteer will train at least 80 farmers in topics 2 and 4, some will participate in the initial field assessment exercise in response to specific objective 1. The farmers will be pulled from the three dairy cooperatives, with each cooperative receiving specific training days and training at least 25- 30 dairy farmers. The farmers will be divided into manageable groups to allow easy learning and interactions and active participation in the practical demonstrations

D. HOST CONTRIBUTION

Bihanga dairy cooperative will mobilize target dairy farmers and coordinate with the additional two dairy cooperatives to participate in the trainings to be conducted by the volunteer. The dairy cooperative will also avail key personnel to work closely with the volunteer, during the preparations and actual trainings,

to ensure that key staff are trained to backstop TOTs who will continue training other members even after the assignment is completed.

E. ANTICIPATED RESULTS FROM THE ASSIGNMENT DELIVERABLES

The anticipated assignment deliverables will include**:**

- Trainings conducted and people trained
- Zero grazing guidelines/manual developed
- Debriefing with USAID and in country group presentations after assignment
- Field trip report and expense report
- Outreach activity, press release or a media event back in US

F. SCHEDULE OF VOLUNTEER ACTIVITIES IN COUNTRY (DRAFT)

Day	Activity
Day 1	Travel from home to US international airport
Day 2	Arrival at Uganda Entebbe Airport, the volunteer will be picked by Fairway hotel shuttle to Kampala and check in at Hotel.
Day 3	At 9.00 am, the volunteer is greeted at the hotel by CRS staff and thereafter go to CRS office for introductions and briefings including host brief, logistics and expectations and anticipated outcomes. Any materials for printing will be prepared at CRS offices. Travel to Kamwenge to commence the assignment
Day 4	In the morning, CRS introduces the volunteer to the Bihanga dairy cooperative management team, and representatives from Bishozi dairy and Bwitankanja dairy cooperatives. Together with CRS and the management, the volunteer will review and finalise the work-plan. The action plan should include group presentations to be done after the assignment. Familiarise with cooperative operations particularly milk handling and farm operations– understand current practices and challenges to inform interventions in grazing practices. The volunteer will conduct field visits to selected dairy farms (small. Medium and large scale) to familiarize with the current grazing operations.
Day 5-10	Design zero grazing program and feeding regime. Develop a training program for demonstration of zero grazing and feeding techniques.

Day 10-12	Undertake a practical training session for farmers. Develop a comprehensive code of good practice for zero grazing and feeding regimes for different herd categories.
Day 13-14	Develop silage/hay program including requirements for making good hay, preservation and construction of hay barn suitable to tropical conditions. Discuss various models of making hay barn under local conditions.
Day 15	Wrap up trainings and emphasize key concepts of zero grazing and feeding regime assignment. Participants evaluate the training and together with the volunteer discuss final report recommendations.
Day 16	Volunteer travels back to Kampala
Day 17	Debriefing at CRS office with USAID Mission and CRS staff. Volunteer will finalize his/her reporting at CRS office and fill out all necessary M&E forms as well finalize advances and expenditures with finance.
Day 18	Depart for USA
TBD	Outreach event in the US
Note: ***This is a draft schedule that will be finalized based on volunteer actual dates of availability, Sundays are typical rest days and working on Saturday is, per the host's request***	

G. ACCOMMODATION AND OTHER IN-COUNTRY LOGISTICS

The volunteer will stay at Fairway hotel, www.fairwayhotel.co.ug. For the first one or two days on arrival. While in Kamwenge, the volunteer will reside at Club Afreka for the entire duration of the assignment. The volunteer will be provided with a modem from the CRS field office for internet access and a mobile phone to facilitate in country communications.

CRS will pay for hotel accommodation and provide volunteer with per diems to cater for meals and other incidentals. The volunteer may get an advance which has to be cleared before departing Uganda. For more information, please refer to country information that will be provided

H. RECOMMENDED ASSIGNMENT PREPARATIONS

i) Before departing for assignment:

- CRS-F2F designs assignments with the assumption of some pre-departure preparation by the volunteer. Actual preparation time will vary based on the experience of the volunteer, as well as informational or training resources the volunteer has readily available. CRS relies on the volunteer to assess the tasks outlined in this SOW and to make his or her own judgment about how much and what kind of preparation is needed prior to arriving in Uganda
- Learn about different grazing systems in tropical climates
- Review relevant literature on zero grazing, techniques and infrastructural requirements needed at local farm level in Uganda

- CRS strongly recommends that the volunteer become familiar with CRS programs in Uganda, especially the livestock country project description and other information in the briefing pack before arrival to Uganda

ii) In-country activities/tasks

- Assess current production levels, management procedures and feeding regimes practiced at the farm and examine available grass species.
- Together with management, undertake practical demonstrations and training on zero grazing
- The volunteer should prepare materials for hand out which can be printed at CRS office in Kampala before commencement of the assignment. Flip charts, markers, masking tapes can be obtained at CRS offices.

I. KEY CONTACTS

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