

Amy Taylor
Gilbert High School
Ames, Iowa
Uganda, Animal Agriculture
Improving Uganda One Animal At A Time

Uganda is the 9th largest country in the East African region with a population of over 30 million people; which is why it is so impressive that it has almost 50% of East Africa's most arable land (Futurepump.com, 2018). With Uganda being in one of the most agriculturally ideal places in East Africa it should be no problem introducing many kinds of livestock and plants to this environment. With its great climate and accessibility to water, through its position at the base of the Nile, rainfall, and its placement near several large lakes, this country practically bleeds agricultural opportunities. Because of its large lakes such as Lake Victoria and Lake Albert many smallholder farmers have taken the opportunity to build their homes and plantations near the lakes. A smallholder farmer is someone who grows and produces products that would benefit enough to sustain their family. Most smallholders in Uganda produce crops such as plantains, cassava, millet, sorghum, corn, beans, and ground nuts (Introduction to Ugandan Culture). These small but useful crops are some of the easiest to grow and maintain the health of an average Ugandan family. Agricultural growth contributes to Uganda's progress toward the second Sustainable Development Goal of ending hunger and malnutrition by 2030. Despite the agricultural potential, undernutrition is still widespread with 36% of children, chronically undernourished or stunted (USAID Agriculture and Food Security). There are still many rural families that need improved access to resources in order to gain food security.

One major challenge with Uganda's rural economy is its lack of economic opportunities. Uganda has the world's second youngest population with over half being under the age of 15. The private sector is unable to generate enough jobs to employ the rising youth population, resulting in distressingly high levels of unemployment among youth (USAID "Feed the Future"). Seeing that there are few concrete jobs or industries for their people to work, many choose to go into or supplement their livelihoods with farming. According to the official census published in 2016, 64% of the working population were engaged in subsistence agriculture ("Uganda Bureau of Statistics 2016"). Although there are many benefits to smallholder farming there are also many challenges as well. Challenges such as the dry season, soil fertility, and insects that could infect the crops. If a farmer's main income revolves around their crops, then they will have no way to purchase necessities during the dry seasons. And if it's the rainy season, but their crops aren't growing because the soil is no longer fertile then they have to start the planting process all over again. These complex problems can contribute to the overall malnutrition and economic problems within a community.

So how are the people of Uganda supposed to overcome these challenges and make a successful living while also maintaining the health of their communities? If these communities are introduced to different types of livestock these challenges may be dealt with, while also giving the citizens a supplemental and steady income to fall back on. Livestock alone can be one of the most important forms of income and work like a bank account for a family. Livestock can provide food (meat, milk, eggs), labor, hides and skins, and manure for fuel and fertilizer, and

may also have social or cultural significance for the family or community (Sansoucy). The Principal Environment Inspector of the Ugandan Ministry of Water, Lands and Environment called livestock “a hidden insurance for sustainable livelihoods” (“World Health Organization”).

While growing up in Ames, Iowa, my father’s family raised cattle and pigs as well as corn and soybean crops. When having conversations with my father and grandfather about their lives growing up I always thought that their main source of income came from their crops and that their livestock were just used as a side business to fall back on or a leisurely activity such as showing them at the fair. I couldn’t have been more wrong. Having the livestock on their farm meant they always had quick, accessible money. They were always able to have cash flow because they did many different things to receive a steady income, but when they needed to buy things fast or pay bills, they always had their livestock. Growing crops can earn you an income during the harvesting season, but it can be very hard to buy things when your product is sitting in the ground growing. And if they didn’t need the pigs for quick, accessible money at that time there were many other uses for them. They would often use their manure as fertilizer and meat for a good source of protein intake. When my father was about fourteen years old, he wanted to buy a motorbike. At the time he did not have a job, so he raised a set of piglets and then sold them and used that money to buy the motorbike. I believe the same concept can be used by these smallholder farmers and families in Uganda. By raising different types of livestock, they will be able to use them as a sort of bank the same way my father and grandfather were able to use their livestock.

Families who raise livestock can also consider hybrids of livestock that may have additional benefits depending on the specific needs of the community. For instance, if you crossbreed a large good meat quality pig like a Hampshire with a pig known for their large litter size like a Landrace you could come out with a pig that has many of each breeds great qualities. In a long-term plan, Ugandan farmers could cross breeds that have valuable traits for the environment and family needs: pest resistance, draught tolerant, large litter size, etc. Additionally, Ugandan families could benefit from the added protein livestock can provide to their diets.

A total of 5 out of 7.5 million households in Uganda own livestock as of 2008 (Joseph Kungu). The livestock common to Uganda consists of different breeds of pigs, chicken, and cattle. These animals were specifically chosen because of their many good qualities that can benefit a small community. Pigs are great to raise because they are prolific, they have a diversified diet, they mature quickly, provide fertilizer and they can be either used as a product to sell or be eaten. The challenges to raising pigs would be that they need proper housing and pigs are notoriously known for rooting, meaning digging holes. Poultry is also a good livestock to raise because of their ability to eat smaller amounts of things that humans and other animals wouldn’t be able to eat like insects and seeds, each chicken produces an egg every 24-25 hours if given the optimal living conditions, they also reproduce in large numbers and mature quickly. Some weaknesses to owning chickens would be that they need optimal living at all times, or they will not produce an egg a day and they are smaller and less defensive, so they are often sought out by predators. This means they will need proper living conditions which would require materials, knowledge and ability to build. Cattle are also a smart choice of livestock to breed because they cannot only provide milk and meat, but because of their size they are able to pull large machinery like plows or carts with jugs in them that families could fill with water. Three major challenges that involve

raising livestock that don't pertain to the type of animal are the fact that they need water to survive, they are susceptible to many different types of diseases, and if a family or smallholder farmer does not have enough food for themselves feeding animals could pose an additional challenge. These problems have easy solutions if the animal lived in the United States, but because they will be living in Uganda these problems will not be so easily solvable.

I've come across two programs that have successfully introduced animal agriculture in food insecure regions. These programs are The Center for Sustainable Rural Livelihoods (CSRL) and Heifer International. Both these programs take action at the local level to increase opportunities for rural families to introduce animal agriculture into their farms. Both programs utilize local expertise and strive to be appropriate to the complex circumstances of each community by trying not to have a "one size fits all" approach. Because the challenges facing rural Ugandan families are so complex there is not one single solution that will eliminate all of their challenges. Benefits from programs like these though could go a long way in improving nutrition for these families.

Recognizing the challenges of rural smallholder farmers and families in Uganda the researchers from the Iowa State University CSRL and Makerere University Uganda Livestock Integration Program have concluded that raising livestock will enhance opportunities for smallholder farmers. The Center for Sustainable Rural Livelihoods (CSRL) is a program at Iowa State University (ISU) which, in partnership with Makerere University in Uganda "has worked side-by-side with Kamuli District residents to discover and implement sustainable solutions to meeting the community's most urgent needs. Starting with farmer training, the center has evolved into programming that touches every stage of the life cycle." ("About CSRL"). Children learn about agriculture through the school gardens and poultry program in their primary school. After primary school, young adults gain practical skills in crop and livestock management, and agricultural marketing and leadership through the youth entrepreneurship program. Farmers of all ages benefit from on-farm research and training and extension programs in both crop and livestock agriculture. Breastfeeding mothers and infants receive supplemental nutrition along with health and sanitation training for their families through the Nutrition Education Centers. The rural network that is created through CSRL provides access to resources and knowledge for families to improve their livelihoods.

The CSRL livestock integration program has worked with many rural families in Uganda whose nutrition has suffered because of these families lacking the ability to produce enough animal-based protein. CSRL draws on the animal agriculture expertise from ISU and Makerere University, and leverages agribusiness opportunities and agricultural extension programs to provide Ugandan families with the means and resources to introduce animals into their farms. CSRL provides poultry, pigs and goats for smallholder farmers of all ages who are active in the school gardens and youth entrepreneurship programs and the Nutrition Education Centers. CSRL works with families to determine what livestock will be successful and appropriate, trains the farmers about caring for the animals and provides ongoing support to livestock farmers to help them successfully raise their animals. When given livestock these families were able to not only contribute to their economy but also have enough food to feed their families and buy more livestock. Featured on the CSRL website, "Saida Nakiyimba, has been keeping goats since 2010. While at the Kicono Nutrition Education Center, she received livestock training. In 2017, she received a Mubende buck, chosen because of its tolerance to tick diseases and for its high rate of

siring twins and triplets. Saida's buck has so far produced seven kids. She has sold seven goats and used the income to support her household and to buy a heifer" (Center for Sustainable Rural Livelihoods). In this example, Ms. Nakiyimba and her family have benefitted from improved nutrition through milk and meat directly from the goats, and have been able to use the income from selling the goats for expenses like school fees and other food they don't produce themselves. She is also planning to scale up her livestock operation, moving from goats to a heifer in the future which would bring additional opportunities.

A similar program called Heifer International has had numerous examples of success in the same concept of "teach a man to fish". I first learned about Heifer International through our local church youth group when I was in 4th grade. Every year the church handed out mini arks that had a slit in the top of them similar to a piggy bank. We would collect our spare change in those small arks and at the end of the month our church collected all of the ark and donated the proceeds to Heifer International. Each time you donated you could choose which animal you wanted your change to go to. For instance, if I wanted all of my change to contribute to donating a duck, I would check their website to see how much I needed to donate and try to reach that much money in change. The Heifer International organization all started with a farmer named Dan West who went on a mission trip during the time of the Spanish Civil War. The objective of the trip was to provide a single cup of milk to every weary refugee. Dan knew that farmers back where he was from in the Midwest had plenty of resources and he knew from his mission trip experience that others around the world did not. He wanted each of these refugees to have a cow instead of just one glass of milk. This idea of his led to him establish Heifer International and 75 years later, this organization has now helped over 32.3 million families around the world by donating livestock to them. Their overall goal is to "work with communities to increase income, improve nutrition, care for the Earth, and end world hunger and poverty." (Heifer International). Heifer International provides livestock to families in need, and in turn, each family who receives the gift of livestock donates the same to another family in their community. To do this in a successful and sustainable way, Heifer relies on field experts, project leaders and the community members themselves to determine what type of animal each area needs. While the program started with heifers, the organization now finds themselves supporting a wide variety of 'livestock' including ostriches valued for their meat, eggs and feathers, elephants which contribute to labor and tourism, grasscutters, a rodent known for their lean, sweat meat, and cochineal bugs used in the textile industry for their vibrant red color. This diversity showcases the wide variety of benefits livestock brings to families and communities.

Despite the significant agricultural potential in Uganda, there is still widespread undernourishment and food insecurity throughout rural Uganda. I think the introduction of livestock can contribute animal-sourced protein and the other tremendous benefits of animal agriculture for smallholder farmers. Livestock programs will not automatically be successful, however, these two programs, working at the local level, combining local and global expertise, requiring buy-in from the beneficiaries and promoting education along with providing resources to make owning livestock possible, are proven to be very good models for our contribution toward improving the quantity of animal source protein and livestock into the lives of rural families in Uganda.

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