

Research Application Summary

The role of incubation in creating business options for youth and women in beef producing areas of Uganda

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Abstract

This study reports how incubation contributed to creating alternative income generating business that counteract the detrimental activities of youth and women in the rangelands of Uganda. The youth and women were identified through sensitization seminars in pre-selected beef producing districts having high levels of environmental degradation. Tailor made business support services were accorded to selected beneficiaries to facilitate establishment of profitable and sustainable climate smart businesses. Among these businesses included, fodder feeds and feeding management, agroforestry tree nursery management, integrated water management and climate smart agriculture options in horticulture. The study found out that incubation facilitated establishment and survival of alternative businesses. It was further found out that incubation increased income generation, profitability and job creation potential of these businesses in beef producing areas in Uganda.

Keywords: Incubation, beef production, income generation, rangelands, Uganda

Résumé

Cette étude rapporte comment l'incubation a contribué à créer des activités alternatives génératrices de revenus qui contrecarrent les activités préjudiciables des jeunes et des femmes dans les parcours de l'Ouganda. Les jeunes et les femmes ont été identifiés grâce à des séminaires de sensibilisation dans des districts de production bovine présélectionnés présentant des niveaux élevés de dégradation de l'environnement. Des services de soutien aux entreprises sur mesure ont été accordés à des bénéficiaires sélectionnés pour faciliter la création d'entreprises rentables et durables intelligentes face au climat. Parmi ces entreprises figuraient les aliments fourragers et la gestion de l'alimentation, la gestion de pépinières agroforestières, la gestion intégrée de l'eau et les options d'agriculture intelligente face au climat dans l'horticulture. L'étude a révélé que l'incubation facilitait la création et la survie d'entreprises alternatives. Il a en outre été découvert que l'incubation augmentait la génération de revenus, la rentabilité et le potentiel de création d'emplois de ces entreprises dans les zones de production de viande bovine en Ouganda.

Mots-clés : Incubation, production bovine, génération de revenus, parcours, Ouganda

Introduction

Charcoal burning business has negatively contributed to forest cover reduction in Uganda (MWE, 2016; Nabukalu and Gieré, 2019) especially in the rangelands. This creates a threat to beef production which is a major economic activity in the rangelands subsequently affecting food

security (MAAIF, 2016; FAO, 2017). Even though both charcoal and beef production contribute to income generation (Zane and Pica-Ciamarra, 2021), they have significant negative effects on climate change (FAO, 2017). It is worth noting that, the high rate of unemployment among youth and women in Uganda has left charcoal burning as one of the major options for income generation (Khundi *et al.*, 2011). This is exacerbated by; i) limited awareness of the potential negative effects to livelihoods as a result of climate change, ii) lack of knowledge about alternative business options and opportunities especially for the youth and women. Ultimately, the demand for quality beef products has not been satisfied (Agriterria, 2012) which is attributed poor management practices including poor feeding using low quality and unpalatable feeds, in addition to genetics.

Other challenges youth and women living in rangelands face that hinder successful business establishment and growth emanate from limited access to land, restricted access to credit due to lack of collateral, inadequate skills in business planning due lack of training in enterprise development and management, limited awareness of appropriate models and means to support start-ups by many organizations thereby considering them to be riskier (Nkuba *et al.*, 2021).

In an effort to achieve sustainable beef production in Uganda, especially in the rangelands, incubation has been identified as one of the potentially effective interventions. The definition given in the World Bank InfoDev 2019, has been adopted in this case study (InfoDev, 2019). The role of incubation in supporting establishment and scaling of businesses and technologies cannot be under estimated (FAO, 2020). This is because incubation enables early-stage enterprises to survive through the “valley of death” (Mutambi, 2013). Incubation offers an environment where entrepreneurs can easily access services such as business planning, training in enterprise development and management, coaching, market linkages, networking, start-up capital, inspiration, financial management all aimed at increasing survival and growth (Li *et al.*, 2020). These can be transferred to several business options suitable for rangelands that include but not limited to fodder, feeds and feeding management aimed at improving quality of feeds, tree nursery management aimed at re-forestation and fodder, integrated water resource management aimed solving scarcity of water, climate smart horticulture enterprises aimed crop livestock interaction reducing potential greenhouse gases emissions.

The main objective of this article is to share incubation experience in creating new business options for youth and women in beef producing areas of Uganda. Specifically, the article documents; i) what was done to create youth and women enterprises through incubation, ii) achievement, iii) business opportunities, iv) challenges limiting scaling up of incubated businesses for youth and women, v) lessons learnt and policy recommendations for improvement of the beef producing areas in Uganda.

Research Methodology

Identification of youth and women for incubation. The youth and women for incubation were identified through sensitization seminars and workshops organized in nine districts located in i) Disease Control Zone one (Nakaseke, Nakasongola, Kiboga, Kyankwanzi and Masindi), and ii) Disease Control Zone 2 (Kiruhura Mbarara, Isingiro and Sembabule) as shown in figure 1. From the districts, parishes were selected under the guidance of the district production officers and district veterinary officers who were the focal persons at the respective districts. parishes

were selected depending on extent of environmental rangeland degradation with potential for improvement, high number of beef producers, availability of youth and women and the need for integrated water management improvement.

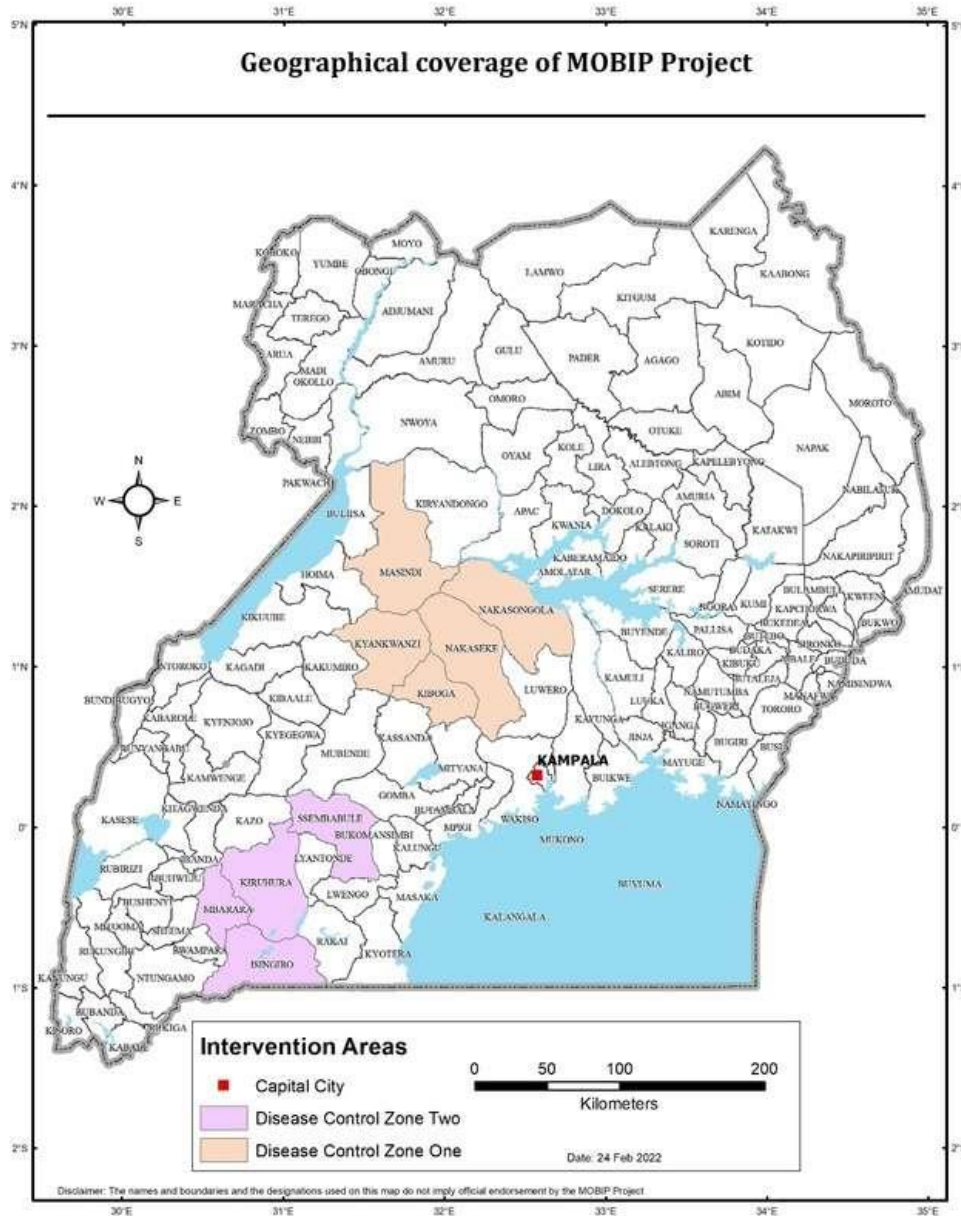


Figure 1. Map showing district intervention areas

Incubation process. The incubation processes to support youth and women in the beef sector involved three main phases. The first phase was pre-incubation phase which incorporated, mindset change and inspiration sessions in respective selected parishes. The sessions involved, an introduction to Market Oriented Beef Improvement Project (MOBIP) and its implementing partners, effect of climate change on beef production, contributing factors to climate which are mainly as a result human activities in rangelands, the huge demand for beef and beef by-products both local and international, the gender issues, stereotypes and how they affect beef sector, and an introduction to business incubation as a tool for technology adoption and commercialisation of start-up enterprises. At the end of the session, the participants expressed interest to undergo incubation in line with the business areas. These areas were establishing and managing businesses in; i) Fodder, feeds and feeding management, ii) Agroforestry involving commercial tree nursery beds establishment, iii) Integrated water management involving construction of water harvesting tanks, and iv) Climate Smart Agriculture (CSA) options in horticulture.

Dissemination of information about the potential businesses was done using brochures, posters, referrals, phone calls and peer to peer engagements. Even though over 180 youth and women were involved in mindset change and inspiration workshops, 105 expressed interest in undergoing incubation through filling and submission of applications.

The second phase which is the main incubation stage, applications were scrutinized and 50 (47.6 percent) were selected and enrolled into full incubation using the selection criteria below.

- i. Being a youth or a woman
- ii. Ability to adopt and start a profitable and sustainable business in one of the business areas
- iii. Willingness to be incubated and work in teams
- iv. A resident of one of the 9 districts in the rangelands
- v. Ability to make own contribution to the business
- vi. Dedication and time to run the business
- vii. Ability of the business to positively Impact on the beef sector and climate change mitigation.
- viii. Job creation potential

Upon recruitment, two business trainings aimed at increasing awareness of the potential business options for the youth and women living in the cattle corridor were organized. The following are some of the key modules that were covered;

- i. Current trends and business opportunities for youth and women in the beef sector.
- ii. Business planning
- iii. Governance and management of start-up enterprises
- iv. Case studies of successful businesses in the beef subsector established by youth
- v. Onsite training from model farmer field schools in the beef sector
- vi. Gender issues in agribusiness and in relation to the beef subsector
- vii. Financial management and book keeping for start-ups
- viii. Marketing and Use of ICT to enhance agribusiness
- ix. Climate change, mitigation and adaptation in range lands



Figure 2. Youth and women pose for a photo after the business incubation training in DCZ1 in Masindi District



Figure 3. Youth and women pose for a photo after the business incubation training in DCZ2 in Mbarara District

Other activities in the second stage of incubation that were undertaken to support entrepreneurs included; i) Organizing networking sessions aimed at group formation for establishment of joint business ventures, as well as raising resources for joint business establishment, ii) onsite mentorship and coaching, business diagnosis, market linkages as well as creating a WhatsApp communication platform for sharing of business opportunities. After a careful business analysis under a case by case basis, the groups were supported with working capital to facilitate certain activities such as renting land, additional labour and field preparation. Also, to avoid diversion of funds, entrepreneurs were also supported with in-kind support in form of seed, shade nets and linked to quality input suppliers.

The last stage in incubation is post incubation and entrepreneurs from the second stage that have reached business maturity are graduated. In this stage, services from the incubator are reduced and the enterprise is prepared to survive on its own in running a profitable enterprise. Ultimately the enterprise is graduated off. At the time of the study only one enterprise was in this stage.

Achievements. This section presents the key achievements in incubating youth and women businesses that foster gender responsive, inclusive and sustainable rangeland, agroforestry and water resources management. The performance is presented under each of the four business lines. These include, i) Fodder, feeds and feeding management, ii) Commercial tree nursery beds establishment, iii) integrated water management and v) Climate Smart Agriculture (CSA) options in horticulture. The achievements are as a result of two years of active incubation, from 2020 to 2021. Figure 4 below shows the number of entrepreneurs incubated in the four business lines.

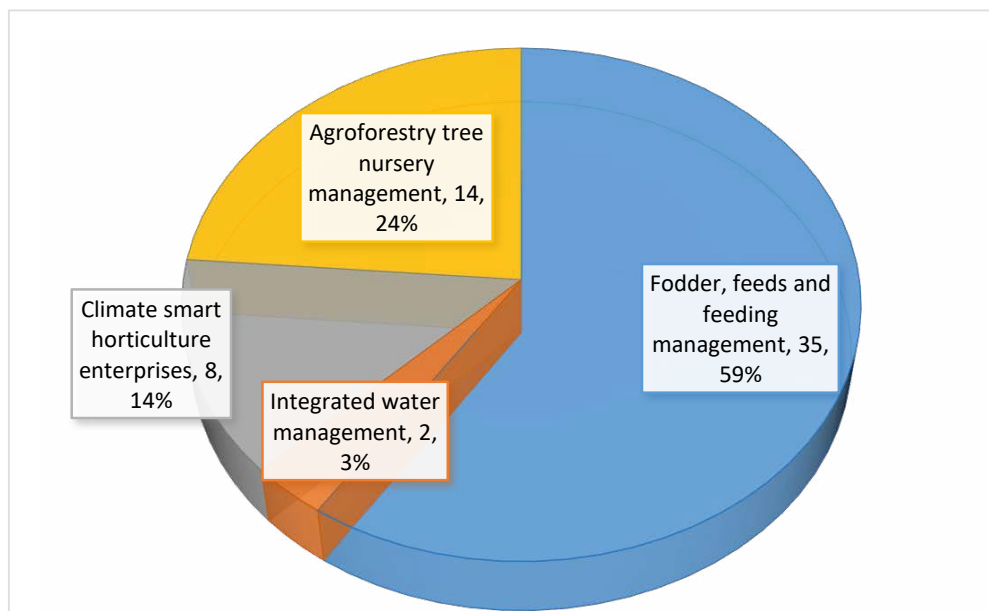


Figure 4. Number of entrepreneurs under the different business areas incubated

From Figure 4 above, the highest number of entrepreneurs were engaged in fodder, feeds and feeding management because after the training, most of youth identified a gap in feeding the beef cattle since they came from beef producing areas. Youth were able to immediately recognize the opportunity to satisfy the high demand for nutritious and palatable feeds which can improve on the daily weight gain of beef cattle. Youth and women involved in integrated water management were fewer because in addition to less demand for modern water harvesting tanks, this enterprise required more skill and knowledge that can only be acquired over a longer period of time.

Parameters considered in this study for business success included; knowledge in business planning, number of people trained, adoption of technologies as a business, size of the enterprise, gender, income generated, number of jobs created, networks crated, access to inputs and markets, and survival of the enterprise. These are presented below.

New business in fodder, feeds and feeding management Incubated. So far, 100 percent of the businesses established in this business line were engaged in production of Chloris Gayana because

alongside other benefits, it had the highest demand amongst beef producers as a result insufficient supply of nutritious and palatable feeds during the prolonged dry spells in the rangelands. Further, Chloris Gayana has higher tolerance to different weather extremes and variabilities. Out of 50 youth and women trained, 35 adopted the technologies and established 10 business in fodder, feeds and feeding management. Of the 35, 30 (85 percent) were youth, while 15 (42percent) were women. Figure 5 below show youth and women undergoing a training on how to establish and management Chloris Gayana.

There was an increase in the number of people who acquired business planning knowledge from 7 (20 percent) to 31 (88 percent). Figure 6 below show the number of people who could prepare a business plan in fodder feeds and feeding management before and after the business training.



Figure 5. Participants learning how to establish pasture business in DCZI-Mbarara District

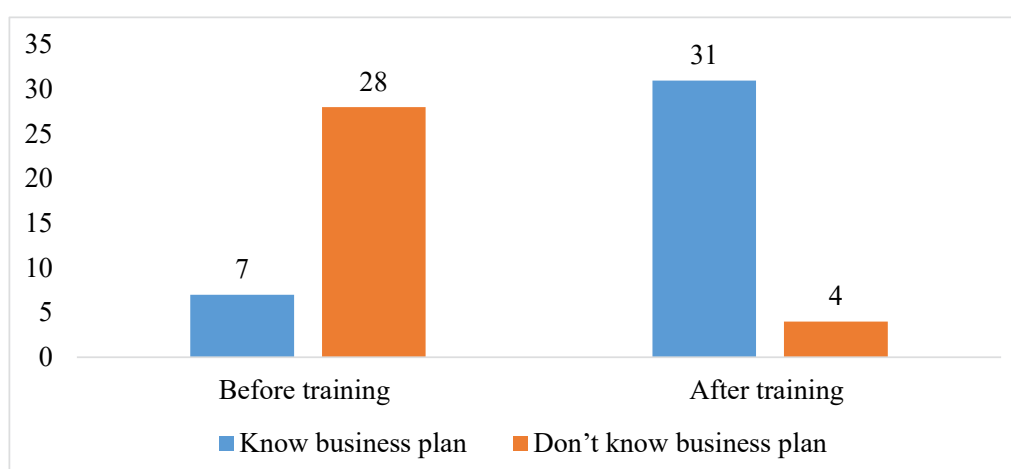


Figure 6. Number of entrepreneurs who could prepare a business plan before and after the training

From the Figure 6 above, the insufficient business planning skills acquired by the 4 (11.4 percent) entrepreneurs was attributed to the fact that they required more time for training. Also, a total of 20.8 acres of Chloris Gayana were established with average area of 2 acres per enterprise. Four (40 percent) of the businesses established were female owned. The relatively high number of women engaged in production and marketing of Chloris Gayana is because a deliberate effort was undertaken in selection of entrepreneurs for incubation. This was aimed at increasing incomes and number of women contributing to beef subsector thereby reducing on vulnerability.

Within one year of operation, these businesses had provided more than 114 green jobs (80 youth and 63 women) contributing to reduction of unemployment. On average each business was composed of 4 members which enabled leveraging on resources including raising own contribution for the business. Figure 7 below show the number of jobs generated by enterprises in fodder feeds and feeding management.

Apart from Kyantamba fodder and feeds producers who established 10 acres of Chloris Gayana and thereby by creating more jobs (24), the other enterprises each created on average 10 jobs. It was also noted that the number of jobs created increased with the acreage of the enterprise.

Further these businesses generated UGX. 55,510,000 within the first year of operation. With increasing climate change extremes and variabilities, demand to produce, process, conserve and supply feeds especially during the prolonged dry seasons that are rampant in cattle corridors has been rising and are expected to worsen in the near future. The enterprises are specializing in production of pasture seeds and hay. Figure 8 below show the income generated by enterprises and start-up capital given.

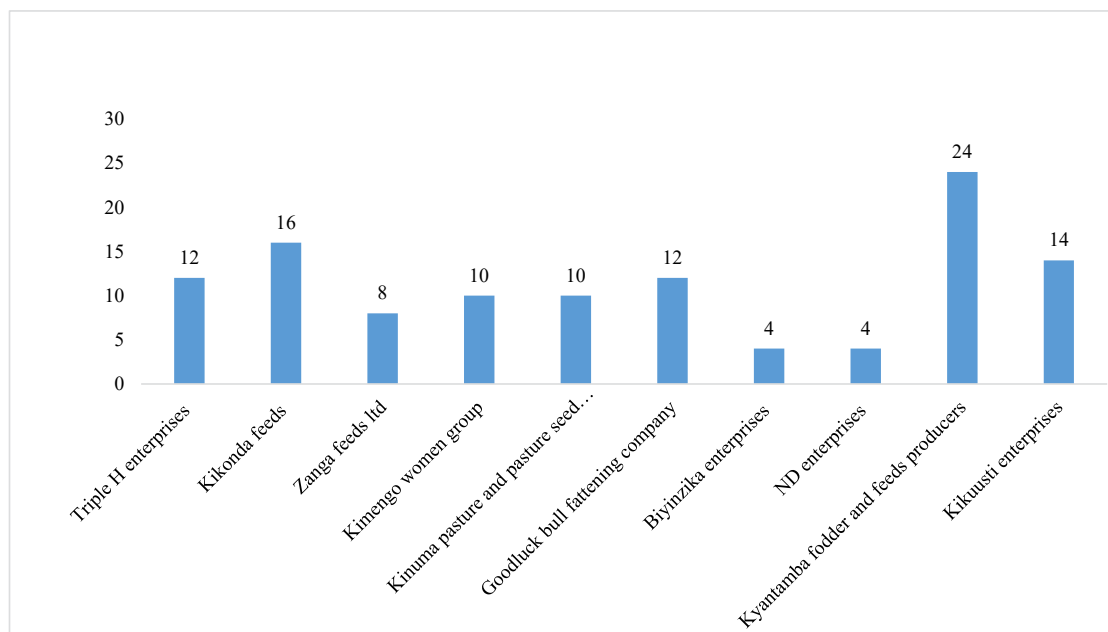


Figure 7. Number of jobs created by enterprises in Fodder, feeds and feeding management

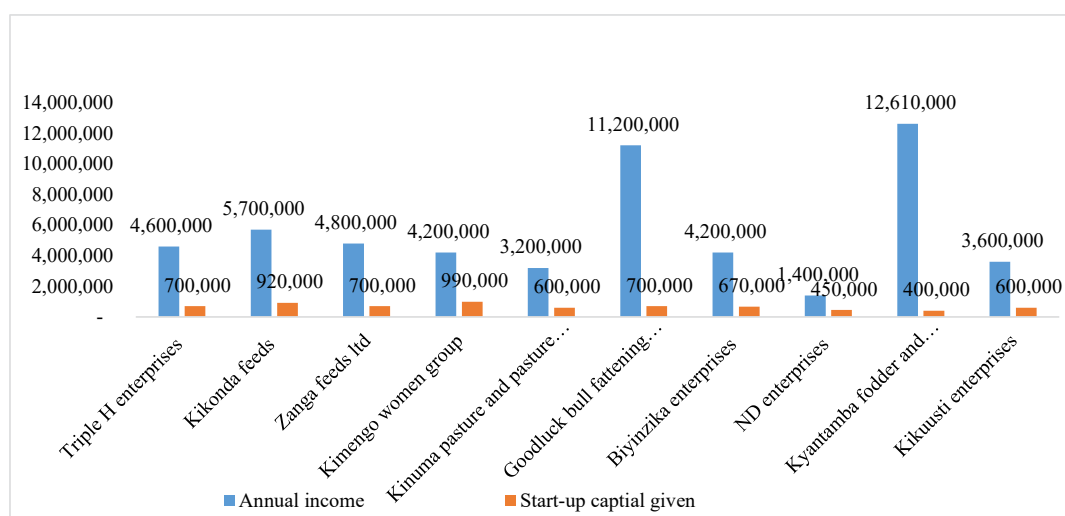


Figure 8. Income generated and start-up capital given to enterprises in fodder feeds and feeding management (UGX)

From Figure 8 above it can be noted that there was a return on investment as all enterprises generated more revenue than the start-up capital given to them. This was because incubation offered a supportive business environment for successful establishment of profitable enterprises. All the enterprise were still surviving by the end of the first year of incubation. Generally, even though start-ups that had prior information about technologies in fodder, feeds and feeding had not yet started business operations, they performed twice as much in terms of income generation compared to the ones that were getting to know the technologies for the first time. This explains why Good Luck bull fattening company, and Kyantamba Fodder and Feeds Producers had significantly more income than their counterparts in the same business.



Figure 9. Some of the youth from Kimengo women's group after field preparation and receiving *Chloris gayana* seeds for planting in Masindi district

A number of similarities were noted among the enterprises in fodder, feeds and feeding management in both the DCZ1 and DCZ2. These include;

- In regards to land for production, 50 percent of the businesses established entered into an agreement to share proceeds with land owners, 30 percent accessed the land through their parents, while 20 percent just rented the land.
- All the businesses survived the first year since inception even though 20 percent were affected by environmental extremes caused by drought and therefore had to wait for an extra season to replant. In addition, all the businesses had not broken even by the end of the first year.
- An equal number of entrepreneurs, 40 percent (14 youth and women) in production of fodder business expressed access to market and inadequate capital as the major challenges, while 20 percent (7 youth and women) considered extreme drought as the major challenge.
- There was high adoption rate for fodder feeds and feeding enterprise in both DCZ1 and DCZ2.

However, among the differences noted was 70 percent of the businesses established in fodder feeds and feeding management were located in DCZ1 while 30 percent were located in DCZ2. This was because it was easier to access land in DCZ1 than DCZ2 by the youth and women. The major challenge experienced by entrepreneurs in establishing fodder feeds and feeding management enterprises was limited access to land for pasture production. Among the mitigation measures used to address this constraint included linking entrepreneurs to land owners for renting land and formation of groups to facilitate joint business implementation.

Capacity of youth and women groups in commercial tree nursery bed establishment and management built. One hundred and two (102) youth and women from 14 groups received training in commercial nursery bed establishment and management as a means to improve knowledge among youth and women in agro forestry. The training also highlighted the contribution of trees in mitigation of climate change and how tree cutting for charcoal production is detrimental to favorable climate. It's from this, that 42 percent of the groups (6 groups) adopted the technology. The Figures 10 and 11 below shows a business mentorship session in Kibiga and Kiruhura district for youth and women in commercial tree nursery establishment.



Figure 10. Business Mentorship at rural Nevet's nursery bed in Kiboga district



Figure 11. Training for youth and women in commercial tree nursery establishment at Sanga nursery bed in Kiruhura district

The groups were further equipped with knowledge of business establishment and management which enabled them to establish 6 new businesses in commercial tree nursery bed by 14 entrepreneur. Nine (64 percent) of these were women. There was an increase (from 21.3% to 85.7%) in the number of people who could prepare simple business plans for their nurseries after the training. This high number of entrepreneurs that acquired knowledge in business planning was attributed to perceive benefits of business planning as well as tailor made business training approach that was focused on nursery bed establishment and management. Figure 12 below show the number of people who could prepare business plans before and after the business training.

This high number of women engaged in commercial nursery bed establishment and management in the business training and incubation process was possibly due to their inability to obtain land and capital required for successful establishment of this enterprise. As a result they saw the training and incubation support through the project as an opportunity to pursue nursery business. Recognizing that women have less access to land and credit facilities, the nursery business enterprise was a perfect match for them to generate their own income as well as creating jobs. One hundred

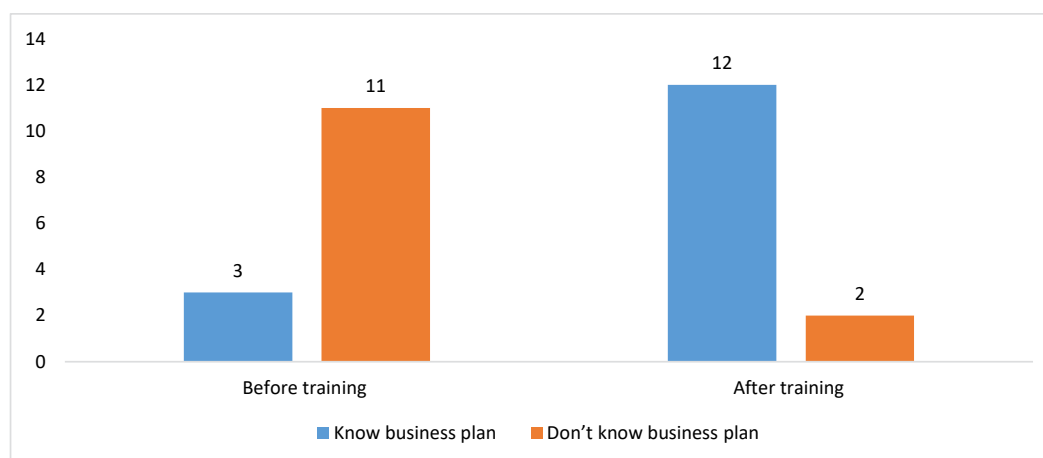


Figure 12. Number of entrepreneurs who could prepare a business plan before and after the business training in commercial tree nursery bed establishment and management built

percent (100%) of the enterprises were engaged in production and marketing of *Calliandra* sp. and *Grevillea* sp. for feed improvement and ecological enhanced of the range lands respectively. Over 57,400 seedlings were raised for both *Calliandra* sp and *Grevillea* sp with in the six nurseries in both DCZ1 and DCZ2 as shown in Table 1.

Table 1. Number of seedlings raised

Type of Seedling	Number
Calliandra	42,000
Grevillea	15,400
Total	57,400

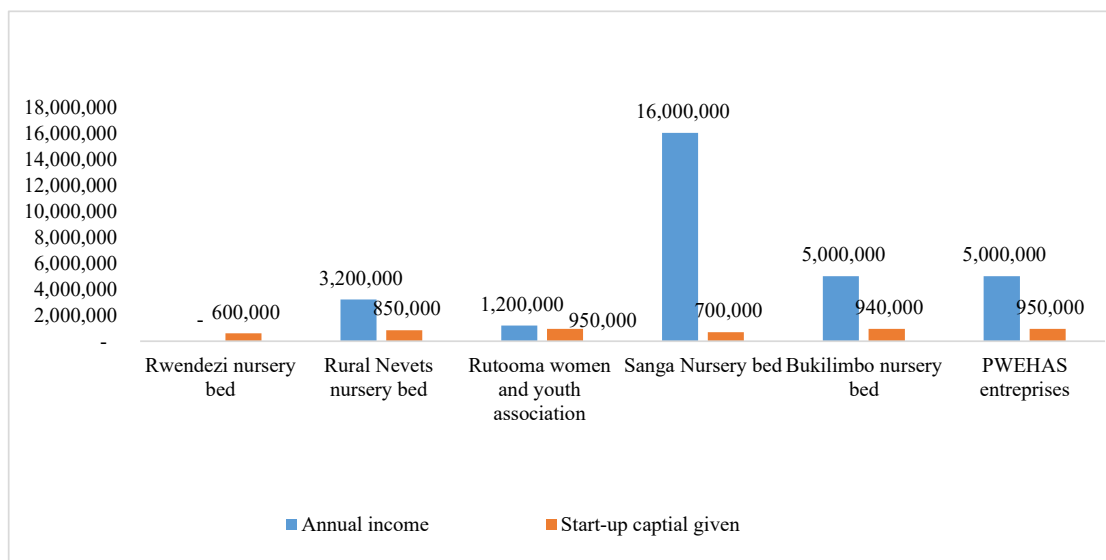


Figure 13. Income generated and start-up capital given to enterprises in commercial tree nursery establishment (UGX)

From the Figure 13 above, Sanga nursery bed performed three times more than the average because of proximity to a main road (tarmac road) which increased accessibility to market. In addition, they had prior experience in managing a tree nursery. Also one enterprise, Rwendezi Nursery, did not survive after one year of incubation because the composition of the team/ owners was not diverse. The team was composed of only students who upon re-opening of schools, abandoned the enterprise leaving no one to manage the nursery while at school. Besides Rwendezi Nursery, all the other nurseries generated more return than their start-up capital. Further, within one year of full incubation, commercial tree nursery enterprises were able to create 89 jobs of which 72 (80.9 percent) were women. Figure 14 below shows the number of annual jobs created per enterprise.

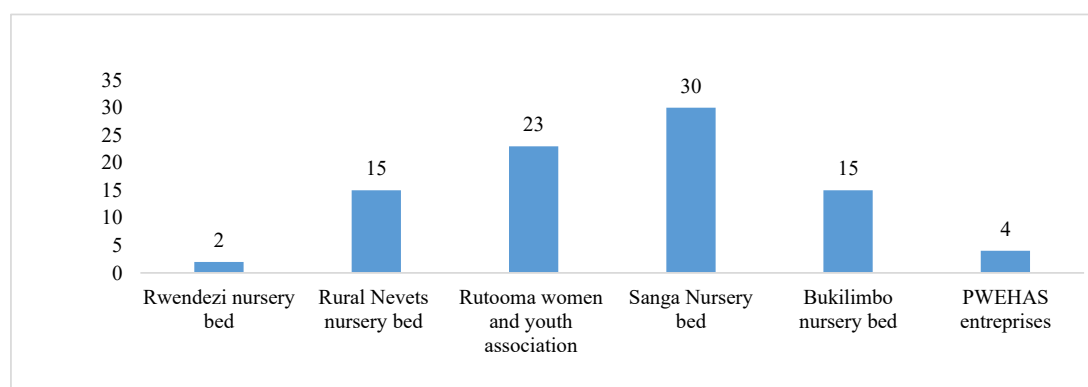


Figure 14. Number of jobs created by commercial tree nursery enterprises

Climate resilient vegetable production approach established. Vegetable production was envisaged as a strategic income generation activity alongside beef production based on its short turnover period and ability to effectively utilize cattle waste as manure. Fifty (50) youth and women were trained in alternative profitable sources of income that use climate smart vegetable production approaches. Sixteen percent (8 youth and 6 women), adopted the approaches. The low adoption rate was because, horticulture vegetable production was considered to be riskier, and required more technical knowledge and skills. Also, the effects of climate change were found to be more detrimental to vegetable production enterprises compared to other alternatives. For these reasons, In DCZ2, none of the youth or women adopted the technology.

Through growing tomatoes and cabbages while using animal waste to supplement soil fertility, the group was able to generate annual income of UGX 13,460,000. Within one year of operation the group created 32 job. The enterprise used animal waste to supplement soil fertility thereby reducing use of inorganic nitrous fertilizers which contribute to production of greenhouse gasses. In addition, these enterprises had increased access certified agro-inputs and practice minimum use of pesticide in an effort to reduce greenhouse gas emissions as a result of excessive use of synthetic fertilizer and pesticides. Table 2 below shows financial performance of the enterprise while Figure 15 shows some of the members in their gardens.

Table 2. Financial performance of arise and shine Kinuwma youth group in Masindi

Crop	Acreage	Yield	Unit price	Revenue	Costs	Margin
Tomatoes	1 acre	72 boxes of 100kgs	180,000	12,960,000	5,200,000	7,760,000
Cabbages	acre	1000 heads	500	500,000	320,000	180,000
Total		13,460,000	5,520,000	7,940,000		



Figure 15. Some of the members of Arise and shine Kinuwma youth group in the tomatoes and cabbages gardens in Masindi District

Challenges limiting scaling up of incubated businesses for youth and women. In an effort to promote youth and women involvement in the beef sector using incubation to create alternative climate smart agribusinesses, a number of challenges were encountered and below are some of them.

Limited funding for incubation services visa-vis the high demand for incubation services by the youth and women in the rangelands. Incubation is relatively a new concept in many developing countries including Uganda and many incubators are underfunded or not funded at all despite their tremendous contribution towards economic development. This poses a risk on their sustainability and capacity to support many youth and women who would benefit from their services. For example, out of the 105 applications from both individual youth and women and from groups only 50 applications (47.6 percent) were considered for full incubation. The selection processes was very rigorous due the limited resources that were available for the process. This was done in order to first create successful businesses that would trigger the creation of other businesses. Even though these successful businesses were created in communities, these would still require support to enable them have meaningful multiplier effect to others.

Inadequate funding for start-ups. Recognizing that youth and women have limited access to resources, they require optimum funding to kick start both financial and in-kind support to enable them run profitable and sustainable climate smart agribusinesses in the rangelands. Due to limited funding, fewer businesses were supported with start-up capital for renting land, field preparations and inputs.

The high cost of dealing with climate change and variability. Like many other businesses, climate change and its effects continue to negatively impact on enterprises established. Prolonged drought in the rangelands increased the cost of production for all enterprises. Half of the established businesses had to replant *Chloris gayana* which increased their cost of production by 20%

Opportunities

Having successfully created climate smart agribusinesses for youth and women in the rangelands through incubation, a number of opportunities have been identified that could be harnessed. These include;

High number of youth and women willing to start climate smart enterprises in rangelands.

Despite limited access to opportunities for youth and women, many of them are willing to undergo incubation to start profitable and sustainable climate smart enterprises. In fact, COVID-19 effects had devastating effects on the rangelands rendering youth and women vulnerable. Agribusiness incubation has proved to be a successful model that can be used to rebuild the livelihoods of many unemployed people out of economic and social deprivation.

Huge demand for climate smart technologies and products in the rangelands. With increasing effects of climate change on the beef sector, the demand for products and technologies that can help mitigate the effects of climate change is high. For example the increasing prolonged dry spells have resulted into an increase demand for hay, pasture seed, and integrated water management technologies. Once youth and women are empowered through incubation, this opportunity can be tapped.

Established supportive ecosystem for creation of businesses in the beef sector. Among the prerequisites for successful establishment of youth and women enterprises is a supportive entrepreneurial ecosystem. Over the two years of incubating businesses in rangelands, a network of supportive partners from public, private sector and civil society organizations has been identified and are willing to support youth and women to establish profitable and sustainable climate smart enterprises. The momentum for these actors to work together has been created however, there is need to sustain it to increase impact.

Lessons learnt and policy recommendations for improvement of the beef producing areas in Uganda

Through incubation many youth and women have been supported to establish profitable climate smart agribusinesses in rangelands. A lot of information was been shared in line with human activities that contribute to climate change and beef production. In addition, the confidence and capacity of many women was been built to start own enterprises as a means of reducing vulnerability. However, despite this tremendous achievement, the following lessons and policy recommendations have been put forward to sustainably improve beef production in Uganda.

- It was noted that access to land was one of the major challenges restraining youth and women to set up climate smart agriculture enterprises in fodder feeds and feeding management. More awareness is needed in range lands about; i) climate change and its effects, ii) the benefits of creating alternative business options for youth and women, iii) models and incentives for increasing access to land for youth and women.
- Increased funding for incubators and start-up enterprises is needed to have meaningful incubation and creation of alternative business options for youth and women in rangelands.
- More time is required to have Incubation of agribusiness enterprises as it takes three to five years to have profitable and sustainable enterprises graduate out of an incubator.

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