

Engaging Young Agripreneurs: Options to Include Youth in Private Sector Extension and Advisory Services in Rwanda and Uganda

Developing Local Extension Capacity (DLEC) Project

October 2020

Suggested citation: Franzel, S., Miro, R., Uwitonze, N., Davis, K., Luzobe, B. and Rurangwa, R. (2020). Engaging Young Agripreneurs: Options to Include Youth in Private Sector Extension and Advisory Services in Rwanda and Uganda. Developing Local Extension Capacity Project. Washington DC: USAID.

Acknowledgements

The authors thank Rosemirta Birungi, Rosemary Bulyaba and Jean de Dieu Ndaruhuye Irankunda, Henry Kinyua, and David Spielman for their assistance in conducting the research. They also thank Jane Lowicki-Zucca and John Peters for their support. Finally, the authors thank the youth and other persons interviewed for this study.

This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Digital Green and do not necessarily reflect the views of USAID or the United States Government.

TABLE OF CONTENTS

Acronyms.....	1
Executive summary.....	3
Introduction.....	1
Methods.....	3
Findings.....	4
Government policies concerning youth engagement in private sector extension.....	4
Overview of implementers and models assessed.....	8
Models for youth engagement in private sector extension.....	9
Training youth to become agripreneurs.....	9
Village agents.....	15
Youth-led and other fee-based extension providers.....	21
Internships in extension and advisory systems.....	28
Paraprofessional extension workers.....	31
Credit and financial services.....	33
Youth agripreneurship awards.....	35
Performance of models and factors affecting youth engagement.....	36
Conclusions and recommendations on key elements of effective youth engagements in private sector extension and advisory services.....	42
References.....	48
Appendix: Recommendations specific to particular models.....	53

LIST OF BOXES, FIGURES, TABLES, AND VIDEOS

Box 1: Defining extension and advisory services.....	1
Box 2: “How can we youths benefit from dairy when we lack cash for buying cows?”.....	13
Box 3: Growing mushrooms for health and wealth!.....	14
Box 4: “Working with and being close to farmers is something I appreciate!”.....	19
Box 5: HoReCo: Proving that youths can start viable private extension services.....	22
Box 6: The Rwanda Youth in Agribusiness Forum: Changing mindsets and promoting innovation.....	29
Box 7: An intern one year and three years later recruiting his own interns!.....	30
Box 8: “If they can award youth musicians and artists, why not youth in agriculture?”.....	36

Figure 1: The youth options pathway model: A holistic approach to providing training for achieving self- or wage-employment.....	12
Figure 2: Village agent model as implemented by m-Omulimisa, a Ugandan company	15
Table 1: Overview of youth in private sector extension and advisory systems (EAS) models.....	4
Table 2: Ease of doing business in Rwanda and Uganda.....	7
Table 3: Types of implementer assessed	8
Table 4: Models of youth in extension and advisory services engagements	9
Table 5: Implementers training youth to become agripreneurs: numbers of youth benefiting	10
Table 6. Services offered to trainees by implementers training youth to become agripreneurs	11
Table 7: Village agent models: services offered and numbers of youths and women involved	17
Table 8: Youth-led extension-provider models: services offered and numbers of youths and women involved	25
Table 9: Other private extension provider models with solely young extension workers: services offered and numbers of youths and women involved	27
Table 10: Paraprofessional youth extension-worker models.....	31
Table 11: Performance of models on selected performance criteria	38
Table 12: Minimum levels of education required in each type of engagement.....	39
Table 13: Types of products dealt with in engagement models	40
Video 1: Key findings.....	5
Video 2: Youth-led, fee-based extension services	22
Video 3: Youth internships.....	23
Video 4: Youth paraprofessionals.....	32
Video 5: Recommendations	43

ACRONYMS

AFR	Access to Finance Rwanda
AFRISA	Africa Institute for Strategic Animal Resources Services and Development
AKDCYA	Abesigana Karshari Dairy Cooperative Youth Association
CAHW	Community animal health worker
CAES	Customized Agriculture Extension System (CAES)
CBO	Community-based organization
CDCS	Country Development Cooperation Strategy
DLEC	Developing Local Extension Capacity
EAS	Extension and advisory services
FAO	Food and Agriculture Organization
FBMMM	Farm Business Management Masters Model
FFS	Farmer field school
GoR	Government of Rwanda
HGT	Holland Greentech
HoReCo	Horticulture in Reality Corporation
HRNS	Hanns R. Neumann Foundation
ICT	Information and communication technology
IFDC	International Fertilizer Development Center
KEGRA	Keirere Green Africa Agency
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MINAGRI	Ministry of Agriculture and Animal Resources
MSME	Micro, small- and medium enterprises
NAEB	National Agricultural Export Development Board
NAES	National Agricultural Extension Strategy
NARO	National Agricultural Research Organization
NGO	Nongovernmental organization

NSYEA	National Strategy for Youth Employment in Agriculture
PSDAG	Private-Sector Driven Agricultural Growth
PSTA IV	The Strategic Plan for Agriculture Transformation, Phase 4
RAB	Rwanda Agriculture Board
RDB	Rwanda Development Board
RDCPII	Rwanda Dairy Competitiveness Project, Phase 2
RYAF	Rwanda Youth in Agri-business Forum
SILC	Savings and internal lending communities
SNV	Netherlands Development Organization
TI	Tworore Inkoko, Twunguke (Let's Raise Chickens, and Make a Profit)
TUNADO	The Uganda National Apiculture Development Organization
TVET	Technical and vocational education and training
USAID	United States Agency for International Development
USD	United States Dollar
USSD	Unstructured supplementary service data
VA	Village agent
YEAN	Youth Engagement in Agriculture Network
YLP	Youth Livelihood Programme
ZAABTA	Ziobwe Agali Awamu Agribusiness Training Association

EXECUTIVE SUMMARY

Introduction, Objectives and Methods

Engaging young agripreneurs in private sector extension and advisory services (EAS) is critical for livelihoods in rural areas where millions of youth are unemployed and face many barriers to entry into agriculture. A study in Rwanda and Uganda examined this and found seven models to engage youth in EAS as providers or recipients of the services: (1) training youth to become agripreneurs; (2) village agents; (3) youth-led and other fee-based EAS providers; (4) paraprofessional EAS workers; (5) EAS internships; (6) credit and financial services; and (7) youth agripreneurship awards (Table 1). The models served different purposes, and all seven provided important benefits to youth. Achieving sustainability and scale were key measures of success that *fee-based EAS* and *village agents* models achieved while having high benefits to youth through earnings. *Internships* had high participation rates for women, although the potential for scaling may be limited. *Training youth to become agripreneurs*, though potentially of high value to many poor youth, relied on government and donor assistance. *Paraprofessional EAS workers* had modest benefits in terms of earnings and some potential for being sustainable and scalable. *Credit* also had high potential but appeared to be difficult to make sustainable and scalable. *Youth agripreneurship awards* were important and low-cost but relied on the generosity of donors.

The major constraints to entry into productive work that rural youth face are limited education, lack of assets such as land or cash and negative perceptions of agriculture. However, there are a number of initiatives where youth are engaging in private, demand-driven EAS, overcoming these constraints, addressing the employment challenge and contributing to economic development. These initiatives involve youth as either private, for-profit EAS providers (such as when private companies hire more young extension agents) or as recipients of private or public sector EAS that guide youth toward self-employment (such as when EAS providers train youth in entrepreneurship). In fact, private sector extension is usually part of a “pluralistic” EAS system involving multiple providers—government, private, nongovernmental (NGO) and farmer organizations—offering various types of services. There is an important and much needed role for governments and the donor community in facilitating innovation in EAS for broadening private sector engagements and increasing youth employment, particularly among poor rural youth with low levels of education.

Whereas the term “extension” is traditionally associated with government advisory services for increasing agricultural productivity, EAS’s scope and functions have broadened considerably in recent years as pluralistic EAS systems offer various services, such as information, financial services and marketing to meet multiple objectives. For-profit private sector EAS is emphasized in this study because of the rapid growth of commercial agriculture, greater public policy emphasis on private market mechanisms and the sector’s potential for providing effective EAS on a sustainable basis at scale. Besides, public extension systems are unable to provide the needed coverage and private EAS, while not a substitute for public EAS, often complement public services effectively as when they provide expertise on niche enterprises that public EAS do not have.

While engaging youth in private sector EAS seems valuable, knowledge is still emerging about *how* to engage them. This report shares results of a study in Rwanda and Uganda examining how youth engaged in private sector EAS.

Table 1: Overview of youth in private sector extension and advisory systems (EAS) models

Model	Description	Main youth segment(s) targeted	Type of direct beneficiary (EAS provider or recipient)
Training youth to become agripreneurs	Implementers offer youth training to become entrepreneurs	Youth with little education (e.g. high school or lower)	Recipients
Village agents	Implementers recruit agents and pay them commissions for selling inputs, buying produce or selling services (e.g, insurance)	Secondary school graduates or less commonly, primary school leavers	Providers
Youth-led and other fee-based extension providers	Youths start companies, recruit young extension staff and offer services such as information and training	University graduates	Providers
Internships in extension and advisory services	Programs offer youth positions to gain experience in EAS for 6-12 months	University graduates	Providers and recipients
Paraprofessional extension workers	Programs train youth to work as independent paraprofessionals who earn fees for providing advice	Youth with primary or secondary school education	Providers
Credit and financial services	Programs offer loans and training to youth for starting or improving their businesses	Youth with high school education or less	Recipients
Youth agripreneurship awards	Implementers offer awards to youth in EAS that raise their status and enhance their networks	Any youth may apply	Providers and recipients
Source: Authors			

The objective was to assess how private sector EAS engages youth and what the potential is for greater engagement. Specifically, the study aimed to:

- describe models of youth engagement in EAS, involving youth as providers and recipients, in Uganda and Rwanda;
- assess model performance and the factors affecting performance; and
- make recommendations for how various stakeholders can facilitate promising youth engagement models.

The authors used a case study approach, gathering primary data through key informant interviews with “implementers,” that is, representatives of private sector, government agencies, universities, producer organizations, NGO and community-based organizations (CBOs) implementing initiatives engaging youth

in private sector EAS. Interviews were conducted with representatives of 37 of these initiatives in Rwanda and Uganda. In about one-third of the cases, field staff and youth participating in the initiatives were also interviewed. Interviews were also conducted with policymakers because of the critical role they play in creating an enabling environment for pluralistic EAS.

Findings

Youth Engagement Models in Private Sector EAS

Seven models that involve youth in EAS as both providers and recipients of extension were identified and are listed below. All models were pluralistic, involving government, private sector and NGOs. The private sector led and was the main funder in the village agent model. In the other models the leaders and sources of funding varied and included government, private sector, NGOs, CBOs, educational institutions and donor agencies.



Video 1: Key findings

1. Training youths to become agripreneurs. Programs to train youth to become agripreneurs were common and included training in such topics as developing a business plan, enterprise budgeting, record keeping and marketing. A weakness of some training programs was that they were not integrated into a broader strategy of increasing employment and offering or linking youth to other support services needed to start a business, such as coaching or credit.

2. Village agents. Village agents link farmers to input suppliers, produce buyers and other service providers. Often paid through sales commissions, they may work directly for these service providers or for NGOs, projects or private companies that link farmers to inputs and services. Five companies interviewed in Uganda employed on average 106 agents and served about 130,000 farmers in total. The mean proportion of youth agents was about three-quarters, but proportions of youths who were female were low, ranging from 16 to 33 percent.

3. Youth-led and other fee-based extension services. Youths have started successful fee-based extension companies in Rwanda and Uganda by focusing on niche enterprises and services such as horticulture and irrigation. In Rwanda, HoReCo contracted with government and donors and employed 104 extension staff (85 percent youth, of which 40 percent were female). Agriwin in Rwanda contracted with private, large-scale farmers and employed 20 extension staff (all youth and 45 percent female).

4. Paraprofessional extension workers. In Uganda, the Uganda National Apiculture Development Organization trained 150 “drones” (the name they give to paraprofessionals), all youths, who provide fee-based advisory services to beekeepers. Young community animal health workers backstopped by the Rwanda Agricultural Board provide fee-based services to dairy farmers in Rwanda.

5. Internships in EAS. Internships offer an effective way for youth to strengthen skills, gain experience, enhance their marketability, develop professional networks and realize that there are fulfilling careers in agriculture. In Rwanda, a government agency, donor project and a youth network developed an internship program for university graduates, placing them in private companies and agricultural cooperatives.

6. Credit and financial services. Two contrasting initiatives provided credit to young agriculturalists in Uganda. One government initiative gave loans to youth groups but repayment rates were low, less than half, and thus not sustainable. There was no link to extension services. In the other initiative, a private bank partnered with a development project to give loans to individual youths. EAS staff supported the youths, repayment rates were 95 percent and youths were able to start long-term relationships with the banks.

7. Youth agripreneurship awards. Prizes to motivate agriculturalists are a common EAS tool in many countries. Awards programs can be implemented at low cost while generating important benefits, such as recognizing and raising the status of winners, enhancing their networks and learning. The awards also help change attitudes among youth that they can benefit from careers in agriculture.

Model Performance

Limited data were available on the performance of different models as few impact assessments had been conducted. The research team compared performance on five criteria:

- **Numbers of youth directly benefiting per year.** Beneficiaries refer to EAS providers or recipients depending on the model (Table 1, column 4). The models training youth to become agripreneurs involved the most youths, numbering in the thousands per year. Most of the other models directly benefited hundreds of youth per year.
- **Benefits (income earned) per direct beneficiary.** The programs employing university graduates ranked highest, that is, fee-based extension providers and interns. Interns did not actually earn income from their internships, but being an intern significantly increased one's chances of getting a high-paying position.
- **Mean percentage of females among young beneficiaries.** This averaged 40 percent across all seven models and the proportion was highest for internships (66 percent). In only one model, paraprofessional extension workers, was the proportion less than one-third.
- **Financial sustainability.** Private sector models such as fee-based extension providers and village agents were rated by the research team as more financially sustainable than other models, as they were generally not dependent on subsidies.
- **Scalability.** Village agents and fee-based extension both had high potential as the demand for their services will rise as farmers increasingly adopt innovations and become better integrated into markets.

Key Elements of Successful Youth Engagements in Private Sector EAS

Study findings suggest that there are five key elements of successful youth engagement in private sector EAS:

1. Supportive policy environment. Supportive government policy involves much more than funding and managing public sector EAS. It also involves promoting pluralistic EAS and facilitating multi-stakeholder regulation, coordination, monitoring, evaluation and implementing reforms to adapt to changing priorities

and circumstances. Because of strong policy support in Rwanda and Uganda, governments, donor agencies, the private sector and youths are actively partnering and implementing initiatives promoting youth in agriculture.

2. Market-based solutions. Market-based solutions help ensure sustainability. Appropriate incentives are needed to ensure that the private sector and youth engage. Governments and donor agencies can play useful facilitation roles such as reducing risks of investing in innovations like digital tools.

3. Proactive measures to engage youth, particularly young women. Programs that proactively engage youth and, in particular, young women, have higher inclusivity than ones that do not. The high female participation rates in the fee-based extension model testify to women's abilities to perform well in these activities.

4. Partnerships. Nearly all initiatives involve collaboration among different types of development partners with complementary strengths. Pluralistic systems are most effective when EAS providers partner to achieve desired outcomes.

5. Integrated services. Initiatives helping youth develop businesses must help them access complementary services, such as business training, coaching or credit. They can do this by offering the service or linking youth to others who do so.

Recommendations

Recognize the richness, diversity of and high potential of EAS. This study highlights the importance of EAS as a means for integrating efforts of diverse partners for improving youth employment and livelihoods. This bridging role that EAS serves should be given more emphasis in development discussions.

Develop effective policies. Rwanda and Uganda have strong policies promoting youth in private sector EAS but each can learn from the other. Rwandan policies included streamlining regulations to make it easier to start and operate businesses, tax exemption for small enterprises, reduced airtime rates for rural businesses and inclusion of private sector extension staff in public sector EAS planning and trainings. Ugandan policies included a national strategy for youth employment in agriculture, a department in the national university that trains students in EAS and provides EAS research and policy expertise and registration of all EAS providers to improve coordination.

Dedicate resources for youth assessments. Dedicated resources for conducting youth assessments should be required in project planning and should include youths' views on their aspirations, needs and constraints. Targets should be set and monitored for achieving specified levels of youth inclusion. These targets may involve numbers of youths recruited as extension providers or numbers of youths receiving extension advice and training.

Understand heterogeneity. More consideration is needed on understanding youth heterogeneity. More programs should target particularly vulnerable youth segments, such as poor rural youth who lack high school degrees.

Provide incentives. Incentives are needed for private agribusiness companies to hire youth. These could include offering corporate social responsibility awards or recognizing high achievers.

Help young women. Implementers need to focus on gender at the same time as youth; otherwise, the benefits accruing to youth may help only young males, particularly if the unique constraints that young women face are not addressed. Data on youth should be broken down by gender to show the number and percentage of young women targeted or benefitting.

Monitor gender targets. It is imperative that incentives are created for implementers to set, monitor and meet gender targets, as for youth targets. EAS stakeholders have learned a great deal in recent years concerning how to increase the proportion of women providing EAS and benefiting from EAS. For example, proactively encouraging women to apply for positions or participate in training can help increase their participation.

Integrate services to help youth develop businesses. Programs offering training to agripreneurs should ensure that they offer or link beneficiaries to services needed to help their businesses develop. Such services may include foundational training (e.g., financial literacy), coaching and access to financial services.

Evaluate digital tools. The considerable emphasis being given to digital tools in EAS needs to be sustained and enhanced. Particular emphasis should be given to evaluating and improving the effectiveness of two tools being used in village agent programs in Uganda: call centers and videos. Subsidies are justified for helping to develop, adopt and evaluate such tools as long as there is a clear business plan and timeline for phasing them out.

Conduct impact assessments. No rigorous impact assessments have been conducted on the reviewed models. Such assessments are urgently needed to assess performance and learn how to use the models more effectively. Two high priority topics are:

- Are programs training rural youth to become agripreneurs effective? What types of training, for how long and what supplementary services (foundational training, coaching, and financial services) are required?
- Will the costs of making the young village agent a qualified extension agent pay for itself in increased sales, or is a village agent with limited qualifications more cost-effective?

Research to rigorously assess the advantages, disadvantages and cost-effectiveness of different models and how best to improve them could go a long way toward improving the viability of the models and the potential for young people and the companies and markets they work in to benefit.

INTRODUCTION

In Africa South of the Sahara, more than 12 million new jobs per year are needed in rural areas to absorb young entrants (FAO, 2019). Agriculture-led growth has high potential for reducing poverty levels (World Bank, 2008) and the economic opportunity that accompanies such growth at scale bodes well for youth. But youth face major constraints limiting their ability to benefit from such opportunity. Educational levels are still low in Africa, with one-third of youth between the ages of 12 and 14 and almost 60 percent between the ages of 15 and 17 not in school (UIS, 2020). Moreover, youths lack assets, particularly land for farming or cash to start a business. Adults often lack trust in youth. Finally, being a farmer or engaging in an agricultural enterprise can be perceived as being a failure (Huber, 2020)

Engaging youth in demand-driven extension and advisory services (EAS), both as providers and recipients of the services, can help overcome the constraints and address the employment challenge as well as contribute to economic development. Whereas the term “extension” is traditionally associated with government advisory services for increasing agricultural productivity, EAS’s scope and functions have broadened considerably in recent years as different service providers offer various services to meet multiple objectives (Box 1). Engaging youth in EAS is particularly critical given the advanced age of existing farmers and extension staff. Farmers in Africa average about 60 years in age (FAO, 2014) and extension staff, often over 50 years (Ragasa et al., 2013).

While engaging youth in EAS thus seems valuable, knowledge is still emerging about how to engage them, and in particular, how the private sector EAS engages youth and what potential exists for greater engagement. The study emphasizes for-profit private sector EAS because of the rapid growth of commercial agriculture, greater public policy emphasis on private market mechanisms, and the sector’s potential for providing effective EAS on a sustainable basis (AUC, 2015; DLEC, 2019). Besides, public extension systems are unable to provide the needed coverage. Private EAS, while not a substitute for public EAS, often complement them effectively as when they provide expertise on niche enterprises that public EAS do not have (DLEC, 2019).

Box 1: Defining extension and advisory services

Extension and advisory services (EAS) are all the activities “from different sectors that facilitate farmers’ access to knowledge, information and technologies; their interaction with markets, research and education, and the development of technical, organizational and management skills and practices. Thus, EAS includes not only technical knowledge, but also functional elements such as communication, facilitation, and empowerment.” (Davis and Sulaiman, 2018, p.3). Whereas extension staff traditionally relied on communication skills such as training and mass media campaigns, they are increasingly using other strategies and services to catalyze innovation such as network brokerage, demand articulation, gender analysis, lobbying, advocacy and conflict management (Blum et al., 2020).

Pluralistic EAS systems “are characterized by the coexistence of multiple public, private, and civil society service providers, offering various types of service. In order to provide services efficiently and effectively, there needs to be coordination of service provision, transparency in who provides which services, as well as partnerships and networks/platforms to agree on common goals and joint action” (Blum et al. 2020).

The emphasis on private sector extension includes “heterogenous private sector models,” which are models in which private sector actors work with other types of extension providers. These include public-private partnerships, as when a donor-funded project finances a private company to host young interns working in EAS. They also include cases in which a nongovernmental organization (NGO) or public EAS trains farmers to develop farm business enterprises or trains paraprofessionals to become private EAS providers.

The objective of this study was to assess how private sector EAS engages youth and what the potential is for greater engagement. Specific objectives were to:

1. Describe models of youth engagement used in Uganda and Rwanda (this means actions taken to engage youth in EAS as either providers, such as hiring more young extension agents, or as recipients, such as providing more agripreneurship training to young farmers);
2. Assess model performance in terms of numbers of youth benefiting, levels of benefits, gender inclusion, financial sustainability and scalability, and the factors affecting performance; and
3. Make recommendations for how governments and the donor community can support promising private sector youth engagement models.

This study centered on Rwanda and Uganda given the interest by government and development partners in youth in agriculture and the richness of many youth in agriculture models to study. The study furthermore builds on previous studies in the countries on youth in agriculture (FAO, 2017; Franzel et al., 2019; Scheer and Ariko, 2019).

Engaging youth in EAS is complex in part because of the importance of context, that is, the different socio-economic factors that influence the performance of EAS models. For example, model performance is likely to vary across different market type—crop, livestock, aquaculture and supporting markets¹—as well as across products of differing value (high-value versus low-value). Model performance also depends on the incentives available that drive youth participation across these models, including incentives that implementers (companies and organizations) have for engaging youth as well as the incentives that youth have for participating. Gender is also important given that women and men have different needs and opportunities and face different constraints in accessing information, tools and training. The integration of information and communication technology (ICT) into EAS may also affect the performance of youth engagement models, as youth are often more adept at using ICTs than older persons and because of ICT’s role in attracting youth to careers in agriculture (Ameyaw and Maiga, 2015; Lohento and Ajilore, 2015; Tambo et al., 2019).

The need to define and differentiate between youth population segments is also critical. Segments, also called target groups or recommendation domains, are sub-groups that share similar characteristics and circumstances such that a particular innovation would be appropriate for all members of the segment (Kotler, 1980; Harrington and Tripp, 1984). Hypothesized key distinguishing features among the segments are gender, age, education level, access to markets and access to resources such as land and finance. Other important characteristics that may influence youth engagement in EAS models include marital status,

¹ Supporting markets are those that offer a range of goods and services, or business functions, throughout a value chain. They may be financial, non-financial, cross-cutting or sector-specific. See: <https://www.marketlinks.org/good-practice-center/value-chain-wiki/supporting-markets-overview>.

whether they have children, disability status and occupation of parents. EAS models are needed that engage different youth segments as service providers and recipients and that are profitable, competitive, sustainable, resilient and pluralistic.

Several key lessons emerge from recent studies assessing youth engagement in EAS. Creating opportunities for rural youth is not just about increasing their productivity; to be sustainable they also need increased connectivity—to people, markets, services, ideas and information—to become more fully integrated with their society (IFAD, 2019). In addition, they need greater agency, that is, the power to make decisions in their own best interests (IFAD, 2019). It is necessary to acknowledge the heterogeneity of young men and women and to tailor programs to the needs and circumstances of these particular youth segments (USAID Youth Power Program, 2018; YouthPower Learning, 2018). It is also important to focus on gender at the same time as youth; otherwise, the benefits accruing to youth may benefit only young males, particularly if the unique constraints such as limited mobility and access to production resources that young women face are not addressed (USAID, 2018; Franzel et al., 2019). Youth entrepreneurship training is one of the most common models that agricultural development projects use in engaging youth (DLEC, 2019). But its effectiveness is limited when it is not integrated with other programs such as mentoring/coaching and access to finance (EDC, 2018; Yami et al., 2019). Finally, targeting youth as recipients of fully private for-profit extension services is unlikely to be effective as youth typically lack purchasing power for accessing such services (DLEC, 2019).

METHODS

Multiple methods were used to collect data for this study: a literature review provided secondary data and key informant interviews and focus group discussions provided primary data. The literature review focused on the activities of development partners and private companies engaging youth in EAS. The review also assessed government policies concerning youth, advisory services and private sector engagement and documents collected from key informants and their companies' and organizations' websites.

The unit of analysis in this study were the implementers (organizations and companies) engaging youth in EAS either as providers of EAS or recipients. The researchers focused on private sector initiatives, public-private partnerships and initiatives where the objective was to develop the private sector. The researchers interviewed representatives of 37 of these initiatives including private companies, donor-financed projects, NGOs, government agencies, universities and producer organizations. Twenty initiatives were in Uganda and 17 in Rwanda. In about one-third of the cases, the researchers also interviewed field staff and youth participating in the initiatives. In addition, policymakers were interviewed in each country because of the critical role they play in creating an enabling environment for pluralistic EAS to operate.

The report is not meant to give an account of all initiatives in youth and agricultural extension but rather to present a sample of such initiatives, including ones from all the main different types of implementers as mentioned above.

FINDINGS

Government Policies Concerning Youth Engagement in Private Sector Extension

Supportive government policy involves much more than funding and managing public sector EAS. It also involves promoting pluralistic EAS and facilitating multi-stakeholder regulation, coordination, monitoring, evaluation, and promoting the implementation of reforms to adapt to changing priorities and circumstances. Both Rwanda and Uganda give strong policy support to EAS and the role of youth and the private sector in EAS, as described below.

Rwanda

Rwanda has recorded significant economic growth in recent years; between 2010 and 2016, the poverty rate fell from 60 to 39 percent (MINAGRI, 2017a). Yet a major concern of policymakers is the ability of youth to participate in the country's economic growth. Youth, defined by the Government of Rwanda (GoR) as those aged 16-30 (New Times, 2015), number 3.2 million, and rural youth comprise about 79 percent of the total youth population (GoR, 2015).

The National Agricultural Extension Strategy (NAES), issued in 2009, noted the importance of youth participation in planning extension programs. It called for youth to be represented in District and Sector Agricultural Platforms and in Cell Agricultural Committees, which plan and review agricultural activities each season. It also sought to promote private sector EAS, public-private partnerships and better coordination among different EAS providers. A gap was that few strategies were proposed for achieving these.

The Youth Sector Strategic Plan 2013-2018 (GoR, 2013) focused on three priority areas: youth economic empowerment; youth mobilization and sector coordination. Acknowledging that coordination among stakeholders, including the private sector, was a major challenge, the plan detailed mechanisms for improving coordination including inter-ministerial partnerships, public-private partnerships, decentralization of youth programs and monitoring and evaluation of coordination mechanisms (GoR, 2013). These directly addressed the gaps of the 2009 National Agricultural Extension Strategy. The National Youth Policy (GoR, 2015), a revision of one completed a decade earlier, gave increased attention to economic empowerment, job creation, entrepreneurship and business development for youth, and recognized that opportunities for these were mainly in the private sector and through linking to and improving agricultural value chains (GoR, 2015).

The ICT for Rwanda Agriculture Strategy (2016-2020) was developed under the auspices of the Ministry of Agriculture and Animal Resources (MINAGRI) but involved a taskforce including membership from the Ministry of Youth and Information and Communication Technologies (MYICT) among other bodies (MINAGRI, 2016). One of the strategy's five objectives was to increase agricultural productivity through the use of ICT by spurring job creation among youth in the private agricultural sector. The strategy recognized that increased productivity and profitability were not sufficient for attracting youth to agriculture. Rather, initiatives were needed to "change the youth mindset toward agribusiness" (p. 32) and to enhance youths' "social status in their communities" (p. 31). Specific ideas identified in the strategy included a "Farming is Cool Rwanda" initiative (p. 32), e-learning programs and online diplomas in agro-technology and use of social forums to encourage youth to engage in agriculture. A more recent ICT for Commerce

strategy developed by the Ministry of Trade and Commerce also promotes youth engagement in agricultural enterprises.

The Strategic Plan for Agriculture Transformation, 2018-2024 (PSTA IV) underscored the need for a pluralistic partnership in funding and delivering EAS. It advocated commercially-driven extension that involves the public and private sectors, knowledge and research institutions, NGOs, development partners and farmers. PSTA IV included a section on youth and agribusiness development (MINAGRI, 2017a). A new initiative was to strengthen dialogue with relevant youth civil society organizations in agriculture, such as the Rwanda Youth in Agribusiness Forum (RYAF). Curriculum development and skills training were planned for women and young people with minimal formal education.

The 2018 National Agricultural Policy committed to generating jobs and ensuring the participation of women and youth in the workforce. It noted that technologies and programs needed to consider specific needs of women, youth and vulnerable households. Plans for enhanced agribusiness training for youth included developing learning curricula that were accessible and relevant to women and young people with minimal formal education, implementing incubation programs for youth start-ups, assisting youth with developing bankable business plans and allocating unused land to youth groups interested in cultivating (GoR, 2018).

MINAGRI is currently finalizing a document launching the Customized Agriculture Extension System (CAES), which serves as an update of the Twigire Muhinzi extension model. Twigire Muhinzi, developed in 2014, utilized farmer field schools and farmer promoters to promote the adoption of agricultural innovations to reach all of Rwanda's 14,837 villages (RAB, 2016). CAES is a demand-driven, value chain-oriented EAS system that involves diverse actors and is tailored to the specific needs of different types of beneficiaries including both small and large farmers and different production systems. CAES presents specific mechanisms for integrating the youth and the private sector into EAS. Whereas the 2009 NAES executive summary did not mention the private sector, the draft CAES document's executive summary mentions the private sector in its first sentence. The document specifies mechanisms to support more engagement of private extension services including providing incentives to them, stronger public-private partnership in extension and allocating funds for achieving these. It also outlines mechanisms for customizing extension to meet the needs of youth and greater involvement of youth in providing EAS. CAES aims to strengthen and effectively integrate strategies concerning youth, the private sector and agricultural extension.

Rwanda also has several policies that make it less expensive for youths in business: First, small and medium enterprises are exempted from paying the Trading License Tax in their first two years of operations. Second, there is room to negotiate with Rwanda Revenue Authority (RRA) for exemption of startups from other types of taxes for a specified period of time. In the Rwanda Private Sector Federation, the Chamber for Youth Entrepreneurs carries out advocacy for individual companies on request. Third, there are special mobile phone airtime rates for rural businesses. Rural businesses pay USD 0.105 for 30 minutes, a discount of 50 to 100 percent.

Uganda

Agriculture remains the mainstay of Uganda's economy, contributing up to 23 percent of the National Gross Domestic Product, and employing up to 65 percent of the country's workforce. As part of its Vision 2040, Uganda aims at becoming a modern middle-income country by transitioning from a peasant economy.

To achieve this vision, Uganda has strategized to have a private sector-led and market-oriented economy (MAAIF, 2013). Agriculture is one of the country's strategic economic levers, implying a critical role for agricultural EAS provision (MAAIF, 2016b). EAS are pluralistic involving the public and local government-based extension workers, private sector and nonstate actors, educational institutions, research organizations, farmers organizations, input dealers, processing and marketing companies and business development services targeting farmers and other actors along the agricultural value chain (MAAIF, 2016b). To harmonize and guide the provision of pluralistic EAS an agricultural extension policy (MAAIF, 2016a) and strategy (MAAIF, 2016b) have been put in place. Each provider will have to register, be accredited (MAAIF, 2017b) and follow a set of standards and guidelines for extension and advisory services provision (MAAIF, 2017c). Providers must also abide by the ethical code of conduct for agricultural EAS providers (MAAIF, 2017d). All these instruments are to ensure professionalism, accountability, effective and efficient service delivery. As such, pluralistic EAS offer wide employment opportunities for many including the youth. The government recognizes that the youth like all other citizens have rights and privileges including the need to empower them to effectively participate and equitably benefit from agricultural extension processes and demand for services (MAAIF, 2016b). However, EAS need to be attractive and rewarding to the youth to counter their declining participation in agriculture (MAAIF, 2017a) coupled with an aging farming population (Huber, 2020).

Uganda currently has the second youngest population in the world; close to 80 percent of the population is below 30 years, with the majority of youth lacking gainful employment. The government is cognizant of this situation and has developed several strategies to address youth unemployment (MOFPED, 2020). Youth with limited or no education and young girls and women are in a worse off unemployment situation (MAAIF, 2017a). The government acknowledges that there has been a focus on creating employment for youth between 18 to 30 years, ignoring those between 14 to 17 years. Government recognizes the challenges youth face in accessing employment including lack of experience, lack of capital, attitude challenges and lack of openings for them. It also recognizes the opportunities youth offer, including their high energy, enthusiasm and capacity to learn new things (MAAIF, 2017a). The government has put in place a number of youth-oriented programs including the Youth Opportunities Programme, Youth Livelihood Programme, the Youth Venture Capital Fund, the Youth Enterprise Scheme and Skilling the Youth through vocational education (MAAIF, 2017a). Several policies are in place to guide on addressing the youth unemployment challenge including the National Employment Policy (Ministry of Gender Labour and Social Development 2011), the National Agriculture Policy (MAAIF, 2013) and the National Development Plan III (MOFPED, 2020).

The National Strategy for Youth Employment in Agriculture (NSYEA) was put in place to guide generation of better/decent jobs for the youth in agriculture. The NSYEA's vision is economically empowered youth through gainful employment in agriculture, and envisages a multi-sectoral approach to its implementation involving seven key government ministries, the private sector, nonstate actors, higher education institutions and the youth themselves. The NSYEA has five themes: i) Ensuring an enabling environment for youth employment in agriculture; ii) Supporting youth-oriented agricultural extension; iii) Improving youth education and learning; iv) Supporting youth entrepreneurship, and v) adaptation to and mitigation of agribusiness risk and uncertainties (MAAIF, 2017a).

Several strategic interventions are proposed under each of the five NSYEA themes. For the thematic area of strengthening the enabling environment for youth employment in agriculture, seven strategies were proposed. These include: strengthening the policy and legal framework, enhancing land access and control

by the youth; strengthening family and community involvement in youth agricultural programs; increasing access to agricultural finance; increasing access to and use of ICTs for youth in agriculture; increasing access to markets and access to agricultural machinery. For the thematic area of supporting youth-oriented agricultural extension, the strategy is to empower youth to participate and benefit equitably from EAS. For the thematic area of improving youth education and learning, the strategies included mainstreaming youth-targeted agricultural education at all levels, and promoting agricultural vocational training. For the thematic area of supporting youth entrepreneurship, the strategy is to promote youth entrepreneurs as an incentive for job creation. Under the thematic area of adaptation to and mitigation of agribusiness risk and uncertainties, the strategies were: adaptation and resilience to related agribusiness risks and uncertainties; and promoting decent work and enhancing occupational health and safety. Government also considered effective participation to maximize benefits of youth-oriented EAS as well as promoting peer-to-peer learning and promoting and supporting young agricultural entrepreneurs (MAAIF, 2017a).

Ease of doing business in Rwanda and Uganda

Whereas both countries provide strong support for private sector EAS, it is significantly easier to start and operate a business in Rwanda than in Uganda (Table 2) (World Bank, 2019). Rwanda ranks 1st in Africa and 38th worldwide on ease of doing business; Uganda ranks 11th in Africa and 116th worldwide. Rwanda ranks better than Uganda in terms of ease of starting a business, getting electricity, registering property, getting credit and paying taxes.

Table 2: Ease of doing business in Rwanda and Uganda

	Rwanda	Uganda
Indicator	Ranking (1-190)*	
Ease of starting a business	35	116
Ease of getting electricity	59	168
Ease of registering property	3	135
Ease of getting credit	4	80
Ease of paying taxes	38	92
Ease of enforcing contracts	32	77
Ease of doing business*	38	116

*Economies are ranked on their ease of doing business, from 1st–190th. A high ease of doing business ranking means the regulatory environment is more conducive to the starting and operation of a local firm. The rankings are determined by sorting the aggregate scores on 10 topics giving equal weight to each topic (World Bank, 2019).

Key Findings on Policies

- Rwanda and Uganda give strong policy support to EAS and the role of youth and the private sector in EAS.

- The support given has increased the resources available to youth-led and other initiatives benefiting youth. It has also strengthened the profile of youth in development discussions and enhances the involvement of the private sector in programs benefiting youth.
- According to World Bank indicators it is much easier to start and operate a business in Rwanda than Uganda.

Overview of Implementers and Models Assessed

Private companies were the most common type of implementer interviewed, accounting for just under half of the interviews (Table 3). Next in importance were NGOs, most of which were international NGOs implementing donor-funded projects. The others included government agencies, universities, producer organizations, a community-based organization (CBO) and a mixed organization, that is, partly government and partly NGO.

Seven notable models of youth engagement in private sector extension were identified (Table 4). Training youth to become agripreneurs was the most common model, accounting for one-third of all types of youth engagements. Next was the village agent model, in which companies hired youths to sell inputs or buy produce. The third most common were youth-led and other fee-based extension providers. These extension providers were paid for their services by either farmers, government or donor agencies. Other models included internships, paraprofessional extension workers, credit and financial services and youth agripreneurship awards. In three of the models, direct beneficiaries were EAS providers whereas in two, direct beneficiaries were EAS recipients. Two models served both EAS providers and beneficiaries. Table 4 also shows some of the names that implementers gave to the model they were using. In the next section, each youth engagement model is presented and discussed.

Table 3: Types of implementer assessed

	Rwanda	Uganda	Total
Type of implementer	Number		
Private companies	8	8	16
NGOs	5	4	9
Government	2	2	4
International organizations	1	1	2
Universities	0	2	2
Producer organizations	0	2	2
Community-based organizations	0	1	1
Mixed	1	0	1
Total	17	20	37

Key Findings on Implementers and Models

- The types of implementers engaging youth in private sector extension included private companies, NGOs, government agencies, universities, producer organizations, a community-based organization and a mixed organization, that is, partly government and partly NGO.

- The types of models for youth engagement in private sector extension included training youth to become agripreneurs, the village agent model, youth-led and other fee-based extension providers, internships, paraprofessional extension workers, credit and financial services and youth awards.

Table 4: Models of youth in extension and advisory services engagements

			No. cases		
Models	Model name	Type of direct beneficiary	Uganda	Rwanda	Total
Training youth to become agripreneurs	Youth Pathway Options (United States Agency for International Development (USAID) Get Trained and Let's Work Project), Agribusiness Incubation Hub (Bishop Stuart University), Business and Enterprise Start-Up Tool (Enterprise Uganda) ¹	EAS recipient	7	7	14
Village agents	Village Agents (m-Omulimisa, Zirobwe Agali Awamu Agribusiness Training Association) Youth Village Agents (Akorion)	EAS provider	7	2	9
Youth-led and other fee-based extension providers	Farm Business Management Masters (Excel Hort)	EAS provider	2	5	7
Internships in EAS	One Acre Fund, Rwanda Youth in Agribusiness Forum, USAID Private-Sector Driven Agricultural Growth Project, Holland Green Tech	EAS provider and recipient	0	4	4
Para-professional extension workers	Community animal health workers (Rwanda Agriculture Board), "Drones" (The Uganda National Apiculture Development Organization)	EAS provider	1	1	2
Credit and financial services		EAS recipient	2	0	2
Youth agripreneurship awards	Youth Champions (Food and Agriculture Organization of the United Nations)	EAS provider and recipient	1	0	1
Total*			20	19	39
*Numbers sum to greater than the total of implementers interviewed because some were interviewed concerning more than one type of engagement.					

Models for Youth Engagement in Private Sector Extension

Training Youth to Become Agripreneurs

Different types of implementers have programs training youth to become agripreneurs. Nine such examples are presented in Table 5 and include cases from educational institutions, NGOs, government, a CBO and a private company. The types of training and services offered in each program are shown in Table 6.

The two examples from educational institutions are quite distinct. The Agribusiness Incubation Hub at Bishop Stuart University, Mbarara, Uganda, trained university students with agribusiness ideas to nurture them into successful business enterprises. The hub started in 2018 with a grant from Mastercard Foundation; other partners to invest in the program include AVSI Foundation and Excel Hort, Ltd. One hundred students are registered in the hub and 28 have enterprises at various stages of development, such as soaps, cleaners, yoghurt, briquettes, fertilizers, feeds and various foods such as banana flour and yoghurt. Six coaches mentor the students.

Table 5: Implementers training youth to become agripreneurs: numbers of youth benefiting

Name and year started*	Type of implementer	Enterprise type	No. extension staff	% young staff	% young staff who are female	No. young trainees	% young trainees who are females
Uganda							
Africa Institute for Strategic Animal Resources Services and Development 2010	Educational institution	Varied	17	NA	NA	4,000	60
Agribusiness Incubation Hub, Bishop Stuart Univ. 2019	Educational institution	Varied	6	67	25	100	30
Enterprise Uganda 2007	Government	Varied	18	80	12	39,000 by 2018	Less than 50
Hanns Neumann Foundation Youth Development Project 2014-2018	NGO	Coffee, annual crops	NA	NA	NA	5,200**	33
Marinas & Aviators 2014	Community-based org.	Cage fish farming	6	100	33	30	33
SNV, The Inclusive Dairy Enterprise Project 2016	NGO	Silage making, milk transport, yoghurt	42	80	37	NA	NA
Rwanda							
Deyi Ltd. 2014	Private company	Mushrooms	30	83	72	621	68
Education Development Center, Get Trained and Lets Work Project 2017	NGO	Varied	80	100	60	40,000	60
SNV Hortinvest Project 2017	NGO	Horticulture	15	100	47	6,600***	50***
NA means not available * All are on-going unless otherwise specified ** Not including 67 youth facilitators and 164 Young Change agent couples *** Targeted percentages; actual percentages are not known							

In contrast, the Africa Institute for Strategic Animal Resources Services and Development (AFRISA), a branch of Makerere University, offers seven months to one-year artisan certificates to rural dwellers with the objective of empowering them through technical training and knowledge provision to start or develop successful enterprises. Training takes place in trainees’ communities using local languages. During a two-week intensive course, trainees get foundational training in topics such as health and hygiene and doing agribusiness as a family. They also develop a business plan and enter into a two to three-month phase of enterprise establishment. Next is the “enterprise nurturing” phase, for which each trainee is attached to a nurturing team composed of a value chain expert and an enterprise coach. The team visits the enterprise at least three times and is also in touch regularly by telephone. At the end of the training period, an AFRISA panel evaluates the trainee’s work using a competence-based assessment tool and if accepted, a certificate is issued. Those not passing are given more time to improve. Typical enterprises involve raising livestock, cultivating cash crops, processing, marketing or packaging.

Table 6. Services offered to trainees by implementers training youth to become agripreneurs

Name	Services*					
	Needs assessment	Foundational training	Technical training	Business training	Financial services	Coaching
Uganda						
Africa Institute for Strategic Animal Resources Services and Development	√	√	√	√	√	√
Agribusiness Incubation Hub, Bishop Stuart University	√			√	√	√
Enterprise Uganda	√		√	√	√	√
Hanns Neumann Foundation Youth Development Project	√	√	√	√	√	√
Marinas & Aviators			√			√
SNV, The Inclusive Dairy Enterprise Project	√		√		√	
Rwanda						
Deyi Ltd.			√			√
Education Development Center, Get Trained and Lets Work project,		√	√			√
SNV, Hortinvest Project			√		√	
Total	5	3	8	4	6	6
*Services: Needs assessment refers to an assessment conducted with the target group to determine their needs and aspirations. Foundational training involves training in such topics as financial literacy, work readiness and goal setting. Business training includes topics such as developing a business plan, enterprise budgeting, recordkeeping and marketing. Financial services include helping trainees to establish savings and loan groups and links with banks and other financial institutions. Coaching involves assigning a mentor to assist trainees in developing a business and periodically meeting with them to discuss progress.						

Four NGO projects, two in Rwanda and two in Uganda, were assessed. Two focused on youth, those of the Hanns R. Neumann Foundation (HRNS) and the Education Development Center whereas the other two, both led by SNV, were broader initiatives with youth components (Box 2 and Tables 5 and 6). HRNS’s

Youth Development Project, operating in Mityana District, Uganda between 2014-2018 aimed to link youths to markets to improve their livelihoods and had several distinctive features. First, they were one of only three among the nine initiatives to offer foundational training, such as basic training in financial literacy, gender, and work readiness, before embarking on technical and business training. Second, though female participation in agripreneurial activities was low at first, it increased markedly after the project began to actively encourage young women to participate and sensitize parents and communities about the benefits of female participation. Third, in recognition of the problem of intra-household gender inequality, they trained 164 change agent couples to serve as role models for household planning including gender equality and joint decision making. These couples advocated for gender equality and coached other couples in their group.

The Educational Development Center’s “Get Trained and Lets Work” Project funded by the United States Agency for International Development (USAID) in Rwanda gave 40,000 out-of-school youths entrepreneurship training and coaching. The project targeted the Rwandan out-of-school youth ages 16 to 30 years old who had between six and nine years of basic education.

An important weakness of some training programs is that they are not integrated into a broader strategy of increasing employment and offering support services. To address this weakness, Get Trained and Lets Work uses a holistic approach, the Youth Options Pathway Model (Figure 1). This model helps ensure that business and vocational training are integrated with other programs which are often needed to attain self- or wage-employment. These other programs include foundational training, coaching and access to financial services. The project reached so many youths because it worked through 22 implementing partner institutions. Roughly one-third of the businesses and jobs it helped youth to develop were in agribusiness (EDC, 2018; Franzel et al., 2019).

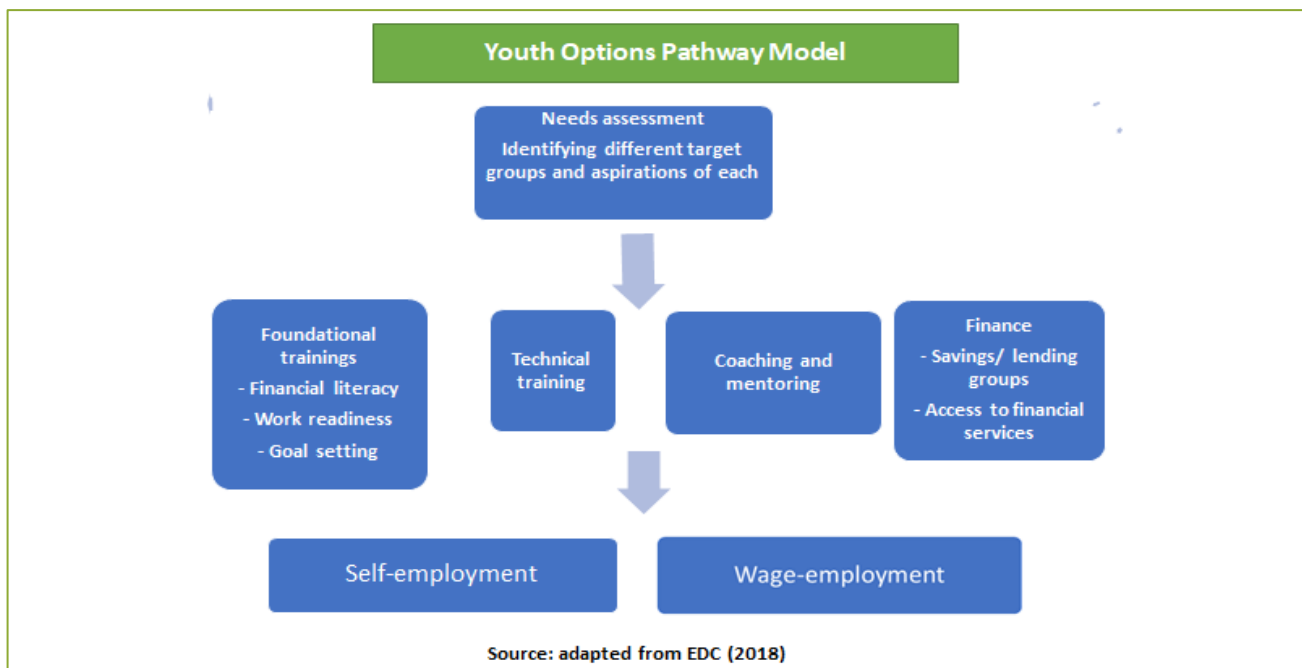


Figure 1: The youth options pathway model: A holistic approach to providing training for achieving self- or wage-employment

Box 2: “How can we youths benefit from dairy when we lack cash for buying cows?”

SNV’s The Inclusive Dairy Enterprise Project aims to improve incomes for 20,000 dairy farmers in six districts of western Uganda. The project faced the challenge of trying to involve youth in an enterprise, dairy, in which very few of them could afford to own dairy cows. The project works with dairy cooperatives and first helped them to organize youth associations. Then project staff worked together with cooperative and association members to identify five business opportunities serving the dairy enterprise that youth could participate in: extension, silage making, yoghurt making, milk transport and bull fattening. Concerning extension, an aggressive campaign to recruit youth led to 80 percent of dairy cooperative extension staff being youths and of these, 37 percent were female. For the remaining four enterprises, the project offered business training to the youths, including business case development, marketing and proposal writing. The project, through the cooperatives, also provided the groups with equipment at subsidized prices and on credit including chaff cutters for processing silage and motorcycles for milk transport. Cooperative extension staff trained youth how to make silage and how to feed, treat and care for bulls being fattened. For yoghurt production, the project linked the youth groups to Yoba For Life, a Dutch Foundation promoting yoghurt production.

Youth are earning incomes from all five enterprises but face challenges, according to leaders of the Abesigana Karshari Dairy Cooperative Youth Association (AKDCYA) and the cooperative’s extension officer. Cooperatives currently pay only 25 percent of the salaries of extension staff whereas the project pays 75 percent. Many fear that they will lose their jobs when the project ends in 2021. A proposed solution is to use veterinary doctors as extension staff, since they can charge for the services they provide and provide extension advice as a side activity. A main constraint with bull fattening is that youths — because they do not own land — keep their bulls with their fathers’ herds and the father may sell them. Another problem is that, aside from the extension activity, few women are involved in these enterprises. In the case of the milk transport business, no women participate as this involves riding motorcycles, a practice commonly done by men. Only two of 15 AKDCYA members are female. Members said that few women are involved because of household duties. Evidence from other projects, such as the HRNS project mentioned above, show that proactive measures are often needed to promote female participation; it does not happen by itself. In many cases such measures as consulting with community and cooperative leaders, identifying and resolving problems that women face in participating and actively encouraging their involvement can make a significant difference (Kiptot and Franzel, 2011).

The case from the Government of Uganda is Enterprise Uganda, a nationwide program established in 2007 and aimed at creating entrepreneurs and developing micro, small and medium enterprises (MSMEs). Its model provided an integrated and comprehensive range of business support services for MSMEs using a hands-on approach. The Ugandan government pays salaries and various donors, depending on the project, provide operational funds. Other organizations also contracted with Enterprise Uganda to provide training. Enterprise Uganda had provided training to about 39,000 youth in agricultural-related businesses by 2019. Their Business and Enterprise Start-Up Tool began with a one-week training involving as many as 1,200 people who gather in a large tent. Participants were sensitized about adopting a business mindset. They chose enterprises that they wanted to start or develop, and selected participants received specialized training and coaching. The period of support varied depending on available resources. Roughly 40 percent of

participants were women. Enterprise Uganda mostly operated its training programs with a specific partner, so the services it offered were influenced by the objectives and resources the partner had. Enterprise Uganda began linking trainees to financial services between six to twelve months after the initial training. Rarely were resources available to conduct post-program follow-up or evaluation. Enterprise Uganda intended to train government EAS staff to backstop trainees in order to help ensure sustainability.

The last two cases of training youth to be entrepreneurs are from a private company and a CBO. Deyi Ltd. a mushroom producer and processor, received a social inclusion grant from the Private Sector Driven Agricultural Growth (PSDAG) Project to train and equip 621 youth (68 percent women) to become mushroom producers in Rwanda. Mushrooms are a suitable enterprise for rural youth since they require little land and startup capital (Box 3). Deyi employed 30 extension staff who sold inputs, bought mushrooms and provided advisory services for a fee. Eighty-three percent of the extension staff were youths and 72 percent of the young extension staff were women.

Box 3: Growing mushrooms for health and wealth!

After finishing high school, Hannah Rubenga, a resident of Kibagabaga, Kigali, looked for a business to start. The eighteen-year-old decided on mushrooms, given the high demand and low risk, compared to other enterprises like poultry or flowers. She trained for mushroom growing at Deyi, Ltd., got a loan from her mother and built a small mushroom shed and garden at her parent's house (Mbabazi, 2018).

Deyi produces and sells mushroom "tubes", which consist of a pressed nutrient medium made of organic waste (rice husks or straw) and containing fungal spores. Farmers like Hannah buy tubes from Deyi, place them in the shed on shelves, and water them twice a day to keep them moist. The mushrooms grow out of the tubes and within a month after starting, Hannah was earning cash from mushroom sales. She sells to neighbors and to customers who see her advertisements on WhatsApp where she sends pictures of her mushrooms to friends and potential clients. She also has the option of selling to Deyi. A ten square-meter shed can hold 300 tubes and yields 500 kg per year, earning up to USD 1,000. Hannah's message for other youths: "Don't let anyone diminish your dreams, you are more powerful than you think. Believe in yourself and start with simple ideas. I was discouraged at the start but my passion was in this business." (Kigali Farms, 2017; Mbabazi, 2018; RecvCoal, 2020).

The CBO Marinas & Aviators was started by a young entrepreneur experienced in cage fish farming. Based in Entebbe, Uganda, the organization trained youth in the fishing business on Lake Victoria specifically in a one-year course on cage fish farming. They also imported and sold cage fish farming equipment, produced and sold fish fingerlings, supported those who want to start cage fishing and inland fish farms, provided educational services on lake-fishing standards and provided support services and advice to fish farmers. Their interest was mainly in training youth to make cages and other fishing equipment. These youth then provided their services at a fee to those interested. Some of the youth paid fees for the training whereas others were sponsored by the municipal council.

The entrepreneur leading Marinas & Aviators had a team of six youth who, over the last six years, trained 30 youths in their one-year program and helped 20 start cage fish farms. Twenty of the trainees, six of whom were women, were involved in cage establishment and other businesses related to fish farming such as fish

stocking and net repairs. The organization has also obtained contracts from established investors to establish cage fish farms.

Key Findings on Training Youth to become Agripreneurs

- A range of different types of implementers had programs training youths to become agripreneurs including educational institutions, nongovernmental organizations, government, community-based organizations and private companies.
- An important weakness of some training programs was that they were not integrated into a broader strategy of increasing employment. The Youth Options Pathway Model, as shown in Figure 1, helps ensure that business and vocational training are integrated with other programs which are often needed such as foundational training (goal setting, work readiness and financial literacy), coaching and access to financial services.
- Proactive measures are often needed to promote female participation; it does not happen by itself. In many cases such measures as consulting with community and cooperative leaders, identifying and resolving problems that women face in participating and actively encouraging their involvement can make a significant difference.
- Whereas there was strong interest in providing training to as many youths as possible, there was less interest in following up after training or assessing impact. Implementers publicized case studies of trainees who built successful businesses but there were no rigorous studies assessing program impact or comparing the costs of training with the benefits that it generated.

Village Agents

Village agents (VAs) linked farmers to input suppliers, produce buyers and other service providers (Figure 2). In some cases, they worked directly for these service providers and in other cases they were employed by NGOs, development projects or private companies specializing in linking farmers to service providers. In some cases, village agents advised farmers on a range of agricultural topics but in other cases they only assisted farmers to make calculations of their farm input needs using smartphones. Most village agents were paid by commission for sales of inputs or for brokering or aggregating products. Others received salaries.



Figure 2: Village agent model as implemented by m-Omulimisa, a Ugandan company
Source: m-Omulimisa

Sasakawa Global 2000, an international NGO, was the first to use the village agent model in Uganda, starting in the early 2000s (Scheer and Ariko, 2019). They continue to use the model and other prominent NGOs and projects that have used or promoted it in Uganda include the USAID Commodity Production and Marketing Project (2013-2018), the United Kingdom Department for International Development's Northern Uganda Transforming the Economy through Climate Smart Agribusiness Project, (2015-present), TechnoServe, Kilimo Trust and the World Bank financed E-Granary program. Numerous private companies also used the model, as discussed below. In Rwanda, the researchers were unable to identify any NGOs or projects using the model but it is used by some private input suppliers, as discussed below. In Uganda, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) adopted the model and proposed implementing it on a nationwide basis in order to help link farmers to services and help fill the gap of extension agent to farmer ratio (Scheer and Ariko, 2019; MAAIF, 2019). As of late 2019, plans were not clear as to whether and how village agents would contract with farmers to provide services and how they would be compensated (Scheer and Ariko, 2019).

Table 7 provides information on five implementers (four companies and one association of producer organizations) of the village agent model in Uganda and two companies in Rwanda. There was a wide range in numbers of village agents per organization. In Uganda, Akorion had the highest, 480, while the two agro-dealers in Rwanda had the smallest, five each. In all cases, over 50 percent of the village agents were youths and in five of seven cases, the proportion of youths was over 75 percent. But only a relatively small proportion of young village agents were women, with proportions varying between 16 and 33 percent. The two enterprises in Rwanda had a total of 10 agents, with nine of the 10 agents being youths and four of the nine young agents being females.

Recruitment criteria varied considerably among the companies using the approach. Most companies selected the village agents themselves whereas others, such as Zirowwe Agali Awamu Agribusiness Training Association (ZAABTA), involved community leaders or leaders of producer organizations in the selection process. Some companies worked closely with producer organizations, such as the Uganda National Farmers Federation or cooperatives, and preferred to have village agents who were members of those organizations. Minimum education levels for the village agents ranged from primary school (7-level) to high school (4 level). Those companies with higher level requirements, such as Famunera and ZAABTA, also recruited some village agents with vocational certificates, university degrees or other post-high school education.

The duties of village agents varied considerably. For most companies, the main role of the village agent was to inform farmers, often through their farmers' organizations and groups, about the products they sold and to take orders for inputs. Some also delivered inputs to farmers, managed demonstration plots, helped in bulking and purchasing produce and linked farmers to a range of service providers including extension, credit, insurance and machinery hire services. VAs also conducted "farm profiling," that is, they collected information on a farmer's area under cultivation, input use and other information useful for estimating yields, credit needs and marketing. Most used mobile phone apps for collecting such information. VAs helped farmers link to other development actors including the private sector, EAS, research, education and government. Village agents worked with a wide range of different crops. Six of the seven companies using village agents dealt with legumes, five with grains, five with horticultural crops, three with coffee and two with oilseed crops.

Table 7: Village Agent Models: Services offered and numbers of youths and women involved

Name and year started using VAs	Type of implementer	Types of crops served*	Donor funding	Products/Services offered				Advisory call center	No. VAs	% youth	% youth who are females
				Input Sales	Produce Sales	Advisory Services	Other†				
Uganda											
Akorion 2015	Private	C, L, O, Cf	Yes	X	X	X	X		480	75	NA
Famunera 2016	Private	C, L, H, O	No	X	X	X		X	50	50+ (over half)	33
Kerere Green Foundation 2010	Private	Cf	Yes	X	X	X			220	100	27
m-Omulimisa 2018	Private	C, L, O, B	Yes	X	X	X	X	X	36	89	25
Zirobwe Agali Awamu Agribusiness Training Association 2011	Association of producer organizations	C, L, H	Yes	X	X	X	X		70	66	16
Rwanda											
Agrofarm Icyerekezo 2016	Private	C, L, H	No	X		X			5	80	50
Etienne 2012	Private	C, L, H	No	X		X			5	100	40
<p>* C=cereals, L=legumes, O=oilseeds, H=horticulture (fruit trees and vegetables), Cf=coffee, B=commercial bean seed</p> <p>† Examples include agricultural insurance, soil testing, tractor hire, silos, planters and other machinery</p>											

Village agents shared considerable amounts of information with farmers as most sold a wide range of inputs—seeds, fertilizers and crop protection products among others—from several different companies. For example, Akorion’s village agents sold inputs from eight different companies. Some village agents such as those of m-Omulimisa, were instructed to give out only basic information about the products. Their farmers relied instead on other sources of information:

1. m-Omulimisa operated a call center that farmers can contact for more information;
2. m-Omulimisa’s short message service based on Unstructured Supplementary Service Data (USSD) through which farmers could send questions to extension workers;
3. produce buyers, such as Mukwano Ltd., who had EAS staff; and
4. farmers producing bean seed on contract got advice and training from staff of the National Agricultural Research Organization (NARO) supervising the seed production.

ZAABTA village agents, on the other hand, received considerable extension training from ZAABTA staff and partners and provided a great deal of information to their farmers. ZAABTA also had apps for its village agents and farmers that offered agronomic tips, information on weather, market prices, pest management and animated videos about such topics as planting and spacing.

Most companies using village agents trained them on their own, but most village agents also received training from other extension providers, including donor-financed projects and government (MAAIF extension staff and NARO researchers in Uganda; Rwanda Agriculture Board (RAB), MINAGRI and International Fertilizer Development Center staff in Rwanda).

Some village agents, such as those working with Akorion and m-Omulimisa in Uganda and the two agro-dealers in Rwanda, used smartphones to access web-based apps that serve many purposes. Akorion’s village agents used apps to map the different fields on a farm and to input data on cropped areas and yields to help farmers to assess their input needs and to estimate quantities to be marketed. This information also helped farmers to secure loans from financial institutions. The apps were also used for ordering inputs. Some companies’ village agents, such as Akorion’s and m-Omulimisa, also acted as agents for buying produce. These village agents “bundled” services, selling inputs to farmers on credit and deducting these costs when the farmers sell their produce. Both m-Omulimisa and Akorion worked with financial institutions to provide inputs on credit, the cost of which is deducted from farmers’ earnings from sales at harvest time. The two companies also offered agricultural insurance services to their clients. Other companies such as Famunera, had simpler business models, focusing on selling and delivering inputs and relying on USSD codes for purchasing inputs.

In Rwanda, village agents working for agro-dealers helped farmers to register their farms with Smart Nkunganire, a supply chain management service developed by Bank of Kigali TecHouse Ltd. in collaboration with RAB. Registration allowed farmers to qualify for input subsidies and could be done through the farmer’s smartphone or, if she or he lacks one, the village agent’s smartphone. The village agent also helped farmers to buy inputs from their agro-dealers through the service, again using either the farmers’ cell phone or their own. Farmers may pay through the Smart Nkunganire system or in cash (Box 4).

One company, Famunera, had two levels of village agents. Lower-level village agents had seven years of primary education and their role was to help farmers to register for services and order inputs by mobile phone, using USSD codes. The higher-level village agents, high school graduates, received agricultural training and then conducted demonstrations and provided extension advice to farmers. ZAABTA employed extension staff who periodically trained VAs, recruited new ones and backstopped them when they had questions.

In Uganda, four of the five companies received funds from government or donor agencies; the Rwanda enterprises had not received any. Funding was often provided to test a model, such as a marketing strategy, to test a new technology, such as an app for selling inputs or buying outputs, or to provide training in a particular area such as crop or business management.

Box 4: “Working with and being close to farmers is something I appreciate!”

Niyigena Jacqueline enjoys her work as a village agent in Nyarugenge Sector, Bugesera District in southern Rwanda. Jacqueline completed high school in 2013 and first worked for an agro-dealer in Kigali. In 2015, she relocated to Nyarugenge and started working for Etienne, an agro-dealer based in Shyara, a neighboring sector. Her main work is to sell inputs such as improved seed, fertilizer and phytosanitary products to farmers. She also conducts demonstrations of the improved technologies. She covers 20 villages and has 8 demonstration plots. Her work is full-time but she is able to take some time off during the July-August slack period every year to spend more time with her husband and 4-year old child.

Jacqueline sells inputs in several ways. She helps farmers register and use the Smart Nkunganire System, a supply chain management system that digitalizes the value chain of the government’s Agro-Input Subsidy Program. Farmers using the system can order the inputs they need from the agro-dealer of their choice and pay for them electronically from their phones or using cash. Jacqueline also accompanies and assists her employer when he sets up his mobile shop in villages and sells inputs directly on a cash basis. She is paid on commission by her employer depending on the quantity of inputs she sells.

Jacqueline appreciates the frequent training she gets from government services. At the beginning of each of Rwanda’s three cropping seasons, staff of the Rwanda Agriculture Board conduct a one-day training for agrodealers and village agents on crop management and the use of inputs such as fertilizers and techniques and products for pest and disease control. The sector agronomist who works for the Ministry of Local Government also conducts trainings on good agricultural practices for village agents and farmer promoters from time to time.

The biggest challenge Jacqueline faces is lack of transport. She does not own a bicycle but having one would increase her mobility and help her sell more inputs. Another problem is that farmers have difficulty getting loans to buy inputs, which limits the quantities they buy.

Jacqueline is pleased that she left Kigali to work in Nyarugenge. “Agrodealers should be next to the farmers and come to them, instead of being based in the capital city or district headquarters and obliging farmers to travel long distances to buy inputs. Working with and being close to farmers is something I appreciate!”

In all seven of the cases, village agents sold inputs. In five they also aggregated or bought produce while in other cases they helped farmers to link with buyers. Three, all in Uganda, provided other services to farmers such as soil testing, tractor hire and crop insurance.

The benefits to youth of becoming village agents are, firstly, the income that they earn. Most companies pay commissions according to the amount of inputs (mainly fertilizer and seed) sold or produce bought; only one, a private input supplier in Rwanda, paid village agents salaries.

Village agents' earnings were quite variable. M-Omulimisa agents typically earned USD 80 per season from commissions for selling inputs (about USD 160 per year).² The highest performing agent earned USD 134 in a single season. ZAABTA village agents earned commissions from selling inputs and buying produce from farmers. They earned about USD 260 to USD 335 per season or USD 520 to USD 670 per year. The agents also spent money on airtime and transport, but these are difficult to quantify.

In Rwanda, village agents earned about USD 84 per season from commissions for selling inputs. As there are three seasons in the areas where they worked, their earnings were about USD 252 per year. Village agents obtained other important benefits such as the skills and experience they acquired and the networks with other service providers and local officials they developed, which helped them to advance their careers. Some village agents were able to become agents for other companies, such as cell phone providers or solar panel vendors, as companies such as Akorion and ZAABTA allow them to work for other service providers at the same time. One of the agro-dealers in Rwanda had started out as a village agent and over time was able to develop his own business. In Uganda, the Keirere Green Africa Agency (KEGRA) also reported that some of their village agents were able to earn enough capital to open their own agro-input shops, buying their inputs through KEGRA.

The companies gave several reasons for having high proportions of young village agents. They said youth were more open-minded and willing to take up new ideas and had fewer household obligations than older farmers. Other considerations were that they were more trainable, fast learners, more conversant in using ICT and more physically fit, particularly important in hilly landscapes.

An important concern is the low proportion of women among young village agents, which ranged from 16 to 33 percent in Uganda but was higher, 40 to 50 percent, in the two cases in Rwanda (Table 7).

Respondents in Uganda explained the low proportions by claiming that women faced challenges such as traditional gender roles and family responsibilities that limit their interest in working as village agents and curtail their ability to meet job requirements, such as travelling long distances to meet farmers. Respondents in Rwanda explained their high proportions of female village agents by noting that young women tend to be more responsible and dependable than young men and are less likely to migrate out of the community.

Only one company, Famunera, reported some dissatisfaction with some of their village agents. The company had experienced problems with some agents selling fake inputs from local suppliers using Famunera's name. Famunera then changed the Village Agents' duties so that they only refer farmers to

² Exchange rates used in this study are as of June 2020: 1 USD = 3728 Uganda Shillings = 951 Rwanda Francs

Famunera and assist them to process their orders using any of Famunera's platforms. The rest of the activities including quality checks and delivery are now done without involving the agents.

Both Akorion and Famunera expressed the inadequacy of their village agents to address all of the technical needs of farmers. Their recruitment requirements and their terms of work did not involve them providing general extension advice.

Key Findings on Village Agents

- Village agents linked farmers to input suppliers, produce buyers and other service providers (Figure 2). In some cases, they worked directly for these service providers and in other cases they were employed by NGOs, development projects or private companies specializing in linking farmers to service providers.
- In some cases, village agents advised farmers on a range of agricultural topics but in other cases they only provided basic information about the inputs they sold.
- Village agents used digital tools for accessing extension information such as videos, for contacting call centers, for mapping farms to calculate input and credit needs and project quantities to be harvested, for ordering inputs and to link with other development actors.
- In five of seven cases where implementers employed village agents, over three-quarters of agents were youths. Youth were preferred as village agents because of their low cost, their aptitude for using digital tools and their flexibility concerning work conditions.
- Proportions of village agents who were female were fairly low; 16 percent to 33 percent in Uganda.
- Companies using village agents appeared to be particularly common in Uganda. Donor agencies appeared to have given the approach more emphasis in Uganda than in Rwanda.

Youth-led and Other Fee-based Extension Providers

Private extension providers are relatively few in Africa and one would not expect youth to have an advantage in this area. But in Rwanda and Uganda, young agriculturalists have started several private extension services that were performing very well. Six are presented below and in Table 8. Five were from Rwanda and one was from Uganda. In addition, two other fee-based extension providers are also presented which use solely young extension workers.

Several young agriculturalists started the Horticulture in Reality Corporation (HoReCo) in 2016, which was first a cooperative and then later a company that provides private EAS in Rwanda (Box 5).

Agriwin, like HoReCo, was founded by young agriculturalists returning to Rwanda from their horticultural studies at Kinneret College, Israel. Founded in 2017, Agriwin started by establishing nurseries and selling mango, avocado and macadamia seedlings. They took a different route than HoReCo did in developing their business, contracting with private, large-scale farmers rather than with government, donors and projects. They have 20 extension staff who provide services to 12 large scale farmers and train nursery operators across five districts.

The Youth Engagement in Agriculture Network (YEAN), founded in 2014, had 12,000 members in Rwanda who access information through their phones, YEAN’s website and Facebook and WhatsApp groups. YEAN also had a network of 60 volunteer youth community coordinators, two per district, to assist members and the public in accessing information. The community coordinators provided advisory services to farmers and cooperatives on a fee basis. YEAN’s other extension activities included partnering with Go Ltd to develop digital agricultural content and with the NGO Access Agriculture to translate agricultural videos for Rwandan farmers (YEAN, 2020).



Video 2: Youth-led, fee-based extension services

Box 5: HoReCo: Proving that youths can start viable private extension services

After returning to Rwanda from an 11-month horticulture study program at Kinneret College in Israel, several young agriculturalists pooled their savings from their per diems to start a small irrigated horticulture farm, making use of seeds and technologies that they brought back from their studies. Their idea was to use this farm as a demonstration site to show policymakers and others what they could do. Soon after, they received a grant from MINAGRI through a World Bank project that supported smallholder farmers in irrigation. Success in that endeavor led to increased demand for their services. The Horticulture in Reality Corporation (HoReCo) has grown rapidly, employs 104 extension staff and has had numerous contracts with various government offices, projects and donor agencies. Currently, it supports 76 agricultural cooperatives and 64 water use associations in operating, maintaining and managing 66 irrigation schemes. The schemes cover 10,037 hectares and are spread over 18 of Rwanda’s 30 districts. HoReCo trains cooperative staff in management and the schemes’ “farmer promoters” in irrigation techniques (HoReCo, 2020). Farmer promoters are volunteers, similar to lead farmers or farmer trainers in other countries, who serve their communities by sharing information with and training their peers.

HoReCo also has a project financed by the Alliance for a Green Revolution in Africa to develop a sustainable private sector-led potato seed system in Rwanda. HoReCo supports 10 cooperatives to establish seed production, inspection and certification units. HoReCo has also prioritized employing youth and women on its extension staff; 85 percent of its extension workers are under 30 years and 40 percent are women.

The last two youth-led extension providers presented here were newer, smaller companies.

Expanders was founded in 2018 by an agriculturalist who had completed an internship with an NGO in Rwanda, the One Acre Fund (OAF). With funding, mostly from the Tony Elumelu Foundation, Expanders was helping farmers grow fruit trees in Burera District and raise rabbits in Rutsiro District. Marula Creative Consultancy, Uganda, was founded by two European and one Ugandan youth in



Video 3: Youth internships

2018. Marula was training 405 young coffee farmers across four districts to become youth-to-youth EAS providers, with funding from Jacob Douwe Egberts, a Dutch coffee processing company. Marula also trained and mentored university students in entrepreneurship and provides video messaging services on contract.

Only one of the five extension providers, YEAN, used digital services in its extension program. YEAN developed a digital system of extension information on its web-based platform with 265 extension notes and articles available to network members. Extension staff and members also posed questions in YEAN's WhatsApp groups, which had 913 participating farmers, and got advice and responses to questions. Farmers could also post photographs of their problems and get recommendations for how to address them (Niyigaba, 2018; YEAN, 2020).

All five of the youth-led extension providers discussed in this section were founded and managed by youths but only three, YEAN, Agriwin and Marula, mention serving youth in their mission and objectives. YEAN was a network of youth and, along with Agriwin and Marula, aimed to enable youth as extension providers. The other two extension providers, HoReCo and Expanders, had extension staff who were nearly all youth but aimed to serve farmers of all ages.

Four of the five youth-led extension providers focused on high value, niche enterprises such as irrigation, horticulture or small livestock (poultry, pigs and rabbits). There was a lack of expertise in these areas so youths specializing in them were able to find business opportunities. Several had branched out into other areas where expertise was lacking, such as HoReCo in potato seed production and Marula in video messaging. Numbers of beneficiaries of the extension providers varied considerably, ranging from 12 to 40,000 (Table 8).

Two of the five appeared to be very sustainable with ongoing and diverse sources of financing for their EAS, either from the private sector (Agriwin) or from government and donor agencies (HoReCo). The two newest of the five, Expanders and Marula, had ongoing funding but were yet to diversify their funding sources for EAS. Marula had recently opened five agro-input shops in areas where it provided EAS to farmers to help finance its EAS activities.

The proportion of extension staff who are youths ranged from 75 to 100 percent across the EAS providers. The reasons given for recruiting young staff were:

1. youth are innovative
2. they can easily adapt to change
3. they are less expensive
4. they are quicker learners than older persons

Surprisingly, none mentioned a disadvantage that young people often have, which is less experience. Respondents noted that in the niche enterprises they were involved in, there were few persons, young or old, with any experience so this was not a particular disadvantage for youth.

The proportion of young extension staff who were female was 40 percent or higher in two of the extension providers but between zero and 23 percent in the other two that provided these data. The two with higher percentages were both founded by groups of male and female students returning from their studies so this may account for the reason why they have higher proportions of female extension staff. In contrast, the two providers with low percentages of females were founded by men.

Table 8: Youth-led extension-provider models: services offered and numbers of youths and women involved

Name and year started	Type of implementer	Crop or livestock types	Services other than extension	Who pays for extension services?			No. of districts	No. extension staff	% youth in extension staff	% youth staff who are females	No. beneficiaries
				Government	Donor agencies	Private farmers					
Rwanda											
Agriwin 2017	Private	Horticulture	Fruit tree seedlings; irrigation	0	0	12 large-scale farmers	5	20	100	45	12*
Expanders 2018	Private	Fruit trees, small livestock	Fruit tree seedlings	0	Elumelu Foundation	0	2	4	75	0	3,000*
HoReCo 2016	Private	Horticulture, cereals, tubers,	Irrigation systems; horticulture seeds	MINAGRI projects	AGRA, World Bank	0	18	104	85	40	40,000*
Youth Engagement in Agriculture Network 2014	Network	Cereals, legumes, horticulture, poultry, pigs	Network of 12,000 farmers for sharing info	0	Contracts with NGOs, companies	Some	30	60 (volunteers)	100	23	12,000
Uganda											
Marula 2018	Private	Coffee	Training and mentoring students, video and media messaging	0	Jacob Douwe Egberts, Ltd.	0	4	66	100	35	405
* Not including numbers who bought tree seedlings											

Two other private extension providers were identified which, while not youth-led, recruited only young extension workers. The two had highly-contrasting business strategies with regard to EAS—Holland Greentech (HGT) embedded the cost of extension in the products and services it sold, whereas Excel Hort Consult charged fees for EAS (Table 9).

Holland Greentech was a company offering an integrated portfolio of horticulture products and services supported by Dutch knowledge, skills and technology. They sold inputs and provided technical support for high-quality horticultural production and marketing in eight countries. HGT opened its Rwanda office in 2015 and its Uganda office in 2016. HGT operated in all 30 of Rwanda's districts employing 20 extension staff, all of whom were youths. Forty percent were female. The company also hosted many young interns every year, as discussed in the Internship section.

HGT's main sources of income were selling inputs and services such as soil testing, irrigation technology, greenhouses and marketing, including exporting. HGT believed strongly that training needed to be attached to delivered technology to guarantee sustainability. Therefore, they provided training and extension services free of charge to customers, as these costs were embedded in the costs of products and services they sold. HGT's business model relied on building a long-term relationship with farmers. Extension staff and interns supported a network of 40 lead farmers, who hosted horticulture demonstrations and led study groups of their colleagues. Each lead farmer conducted four field days per year. HGT's surveys showed that eight percent of visitors to field days bought inputs or services from HGT. No digital tools were used in extension.

In recruiting extension staff, HGT did not consider the degree the candidate had, but rather, their motivation, their capacity to learn and how practical they were. They recruited youth because they believed them to be better learners, more flexible and more effective than older farmers. That youth were lower-cost was also likely a consideration. Salaries were USD 52 per month and no sales commissions were paid, to ensure that farmers were not being sold items that they did not need. HGT estimated that one-third of its customers are youths and that over half of their young customers were female.

HGT received funding from several donors and has received funding from two USAID projects in recent years (Get Trained and Let's Work Project and the PSDAG Project) for training young extension staff and farmers.

The second initiative using only young extension staff was a unit in a larger company in Uganda: Excel Hort Consult. The unit implemented the Farm Business Management Masters Model (FBMMM) which Excel Hort Consult began promoting in early 2019. The objective was to help farmers develop and execute business plans and includes the provision of advisory services. FBMMM targeted high-income farmers who could afford to pay for EAS. The unit employed 30 extension staff, 14 (47 percent) of which were female. Most had started with Excel Hort Consult as interns and received extensive on-the-job training. All crops and livestock types were included in the services that FBMMM provided, and if the staff lacked expertise in a particular area, then Excel Hort Consult contracted with experts who could provide it. After one year, it was too early to report on results, but Excel Hort Consult was working with 50 farmers. Staff reported that finding clients is difficult because farmers do not want to pay for extension as they view it as a public good.

Table 9: Other private extension provider models with solely young extension workers: Services offered and numbers of youths and women involved

Name and year started	Type of implementer	Crop or livestock types	Services other than extension	Who pays for extension services?			No. of districts	No. extension staff	% youth	% youth females	No. farmers served
				Government	Donor	Private farmers					
Rwanda											
Holland Green Tech 2015	Private	Horticulture	Soil testing, irrigation, greenhouse, marketing	-	-	Farmers †	30	20	100	40	600
Uganda											
Excel Hort Consult* 2019	Private	Crops, livestock	Farm business planning	Ministry of Water	-	Large scale farmers ††	1	30	100	47	50
*Data are for Excel Hort's activities in Farm Business Management Masters Program, Mbarara District only											
†Costs of extension services are embedded in costs of inputs and services											
†† Farmers pay fees for extension services provided											

No digital tools were currently being used in this model, but two apps were being developed with partners who have information technology expertise. One was for farmers to use to give feedback about the performance of the services. The other was for monitoring crop and livestock activities and performance.

Key Findings on Youth-led and Other Fee-based Extension Providers

- Young agriculturalists had started several private EAS, particularly in Rwanda, that were performing very well. The larger companies focused on niche enterprises such as irrigated horticulture while others serviced coffee and small livestock producers.
- The proportion of young extension staff working for the youth-owned firms ranged from 75 percent to 100 percent while the proportion of female extension staff ranged from zero to 45 percent.
- The two most successful youth-owned private extension providers had contrasting business strategies. One focused on contracting government and donor agencies while the other targeted private, large-scale farmers.
- Two other private extension providers were identified that were not led by youth but for which all of their extension staff were youth. The reasons given for preferring youth were that youth are innovative, flexible, low-cost and quicker learners. Surprisingly, none mentioned lack of experience as a disadvantage when hiring youth.
- None of the private extension services used digital tools for accessing extension information

Internships in Extension and Advisory Systems

Internships offer an effective way for youth to strengthen skills, gain experience, develop professional networks and enhance their job prospects. Internships also help youth realize that there are fulfilling careers in agriculture. Interns also benefit their host companies because they are low-cost and often innovative, highly motivated and may bring cutting-edge ideas and technology from academia. Internships also help companies streamline their recruitment process, because companies often hire interns after they complete their internships (Jackel, 2011; GBC, 2020; McGill, 2018; PSDAG, 2018). Internships could also have negative effects if interns are used as a substitute for employing people or if hiring interns reduces the number of older staff that a company would hire.

The Rwanda Development Board (RDB) had an internship program for university graduates, placing them in public institutions or private companies and paying the interns a stipend for six months. USAID's PSDAG project worked with RDB and other partners to strengthen the program by extending 263 internships in agribusinesses and cooperatives to one year (USAID, 2019). About three-quarters of the interns were women. The program was highly collaborative, with PSDAG and MINAGRI coordinating the program, RYAF leading the selection of interns, monitoring and reporting, RYAF and MINAGRI handling placement and training, RDB providing interns with a monthly stipend and PSDAG topping up the stipends and facilitating the orientation program for the interns. The host companies and agencies provided transport allowances for the interns. It was not possible to get an estimate of the proportion of the interns involved in EAS but it was substantial, including those who were extension staff, sales agents, buying agents, or positions involving quality control, farmer credit or crop or livestock insurance.

RYAF also helped companies and other types of organizations to recruit youth interns. Between 2017 and 2019, RYAF helped 1,500 youth interns find placements in the agricultural sector, many of which were in extension roles (Silvia et al., 2019). RYAF contracted with private companies in the coffee sector to supply

them with interns, many who served in EAS roles. RYAF played many other important roles in Rwanda's agricultural sector, as discussed in Box 6.

Box 6: The Rwanda Youth in Agribusiness Forum: Changing mindsets and promoting innovation

The Rwanda Youth in Agribusiness Forum (RYAF) is a platform established in 2016 to bring together young farmers, different youth organizations and agripreneurs working in Rwanda's agricultural sector. RYAF's objectives are to change mindsets toward recognizing that youth can play a critical role in developing Rwanda's agriculture through entrepreneurship; promote, inform, advocate and mobilize Rwandan youth to engage in agribusiness; and help youth link with other stakeholders in the agricultural sector for accessing information, resources and partnerships.

RYAF is an important coordinating mechanism in the youth in agriculture area as it operates in all 30 of Rwanda's districts and is accountable to five ministries: MINAGRI, Ministry of Youth and Information and Communication Technologies, and the Ministries of Education, Public Service and Labor, and Trade and Industry. RYAF has a staff member in each of Rwanda's 30 districts, where it is hosted by MINAGRI, which pays the salaries of its district staff.

RYAF is a partner on many development projects. It has helped companies and organizations to recruit hundreds of interns. It works with the IFAD-financed Rwanda Dairy Development Project recruiting young veterinarians to support smallholder dairy farmers. With Hinga Weze, RYAF is helping young farmers form savings and loans associations in 10 districts and link to Equity Bank for obtaining loans. It also is setting up retail outlets where young farmers can sell their produce. At its retail outlet in downtown Kigali, 22 young entrepreneurs sell products from their farms or plants. Other RYAF activities include training youth in agribusiness and testing ICT applications for climate-smart agriculture. RYAF has 12,000 members and is also an important voice lobbying to promote the interests of youth in agribusiness at local and national level.

Furthermore, as members of RYAF, many young entrepreneurs have benefitted from the various trainings in entrepreneurship that RYAF and partners have sponsored over the years. Some of the successful businesses started by these young entrepreneurs include:

- Gashora farm company is owned by the vice chairman of RYAF, and recently secured a deal to export chili oil to China. Gashora farm contracts farmers and employs many youths to meet its market demand.
- Zima Enterprise is a pumpkin processing company started by a young woman, Marie Ange Mukagahima. Zima works with three cooperatives that grow pumpkins, including a youth cooperative and women's cooperatives. Apart from creating employment, Zima helps farmers to negotiate better prices for their crops and provides them with free pumpkin seeds. In return, the farmers assure her of a steady supply of pumpkins for processing.
- Go Ltd is a fast-growing ICT-enabled EAS company in Rwanda assisting farmers and cooperatives to get improved and personalized best practices through the AgriGO app.

FarmPal is a digital agriculture platform linking farmers and investors. The company enables people to invest in agricultural projects of their choice and earn a profit while empowering farmers.

Aside from the RDB and RDB-PSDAG programs, other organizations also had their own internship programs in which interns were involved in EAS. For example, Keplar University, Rwanda, supplied interns to the One Acre Fund, a high proportion of whom were involved in EAS activities. Internships were for six months and since the program started in 2017, OAF had 60 interns, 60 percent of whom were women. Interns were paid USD 158 per month. Deyi, Ltd. paid USD 63 per month to interns as a transport allowance. Their interns were graduates of technical and vocational education and training institutes.

The researchers were not able to find any systematic assessments of the positive and negative effects of internships in the Rwandan agricultural sector, but case studies drawn up by PSDAG and from others seem to confirm that the positive aspects of internship programs were high. OAF reported hiring 20, or one-third, of the 60 interns they had hosted. Holland Greentech hosted 50 interns per year and trained and equipped them to sell inputs, provide advice and conduct demonstrations with horticultural farmers. HGT's interns ranged from high school dropouts to university graduates. Zamura Feeds reported having four interns as broiler technicians and then hiring two of them when they completed their internships.

The researchers received many positive reports on internship programs from both the companies and interns alike, confirming the advantages mentioned in the first paragraph of this section. Interns reported that their learning was substantial and that they felt fortunate that they were able to interact with farmers and other actors in the community and along the value chain (Box 7). Those getting job offers were particularly pleased. Others not getting offers were at least able to gain experience and a network of contacts. Employers appreciated interns not only for the work they did but also

Box 7: An intern one year and three years later recruiting his own interns!

Following completion of his degree in veterinary sciences in 2016, Mr. Innocent Twizeyimana, age 26, opened a small agro-input shop. He was doing well selling inputs but as he said, "I was feeling in me an urge to become more, to expand my contributions and I thought I had to learn how I can do it; you know, this is something that we are not taught at school!" Innocent applied for an internship at One Acre Fund (OAF), an NGO, and upon acceptance in 2017 was assigned to their Product Innovation Department. He learned how they develop products and services and the types of analyses and consultations with farmers they do before they take them to the field. "My duties were desktop research and conducting interviews and focal group discussions with farmers about our products and services and how to improve them." He benefited a lot from the experience because "interns get to learn how to apply their skills and knowledge and how to get along with older people and get themselves integrated into the business community."

Following completion of his internship, Innocent founded and registered Expanders, Ltd. a social enterprise committed to improving the livelihoods of Rwandan smallholders. In 2019, Expanders was awarded a grant from the Tony Elumelu Foundation to set up a small livestock breeding center in Rutsiro District and fruit tree nurseries in Burera District. In planning a rabbit production program, he used the impact models he had developed at OAF. In 2020, Expanders recruited its first intern to help manage the rabbit breeding program.

"In my check-ins with my managers at OAF, they challenged my work and that way I learned a lot. They would ask me why I wrote what I wrote and have I considered all necessary aspects? Today in my current job, I ask myself and my employees those same questions!"

because they were able to assess interns as job candidates more thoroughly than if they were recruiting from outside.

Key Findings on Internships

- Internships in EAS offered an effective way for youth to strengthen skills, gain experience, and realize that there are fulfilling careers in agriculture. They also benefited companies, providing low cost workers, injecting fresh ideas and streamlining recruitment processes.
- In Rwanda, a USAID project added value to the government’s internship program, increasing the number of agribusiness interns, providing orientation training, extending the internship period from six months to one year and assisting interns with job searches.

Paraprofessional Extension Workers

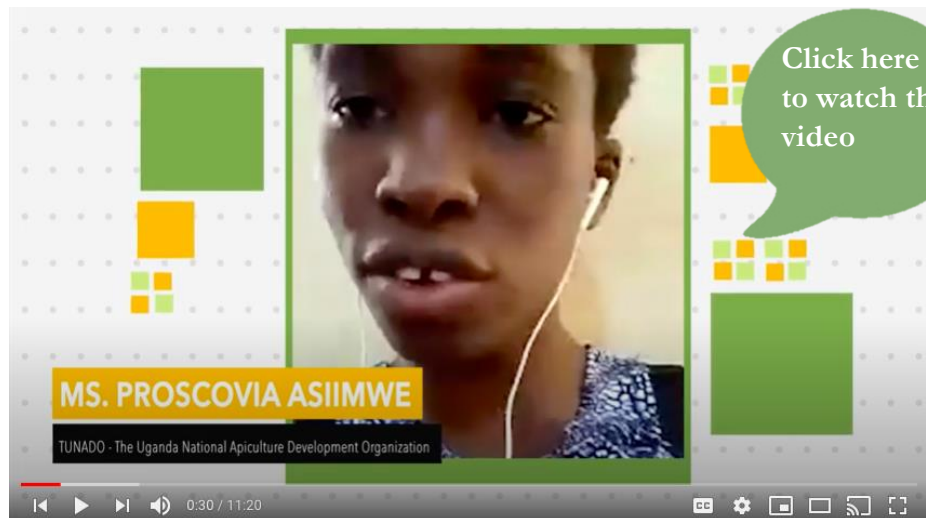
NGOs, government agencies and farmer organizations have helped youth to become paraprofessional extension workers in particular agricultural vocations, to provide services to farmers and earn income. A “paraprofessional,” is a person who has completed a short course to conduct professional duties but without a formal qualification in that field from a training institute or university. Two such cases are presented below and in Table 10: The Uganda National Apiary Development Organization (TUNADO) using beekeeper-to-beekeeper extension workers (known as “drones” in Uganda), and community animal health workers in Rwanda.

Table 10: Paraprofessional youth extension-worker models

Backstopping organization	Name of para-professionals	Enterprise type	Duties	No. para-professionals	% youth	% female youth	No. beneficiaries
Uganda National Apiary Development Organization	Drones	Beekeeping	Advise beekeepers on management, post-harvest handling and marketing	150	100	25	1,500
Rwanda Agricultural Board	Community animal health worker	Dairy cows	Artificial insemination; diagnose livestock diseases/pests and advise on treatments	1,152	27	18	62,000

“Drones” provided advisory services to beekeepers and those interested in becoming beekeepers. Their services included beekeeping and management, harvesting, marketing and business planning. Drones earned money from providing advisory services, input sales and marketing brokerage activities. They also often had their own businesses in beekeeping, input fabrication and sales (e.g., hives, smokers (a device to calm bees) and bee suits), honey marketing or value addition (e.g., candles).

Drones received training and mentoring through TUNADO, the apex body recognized by the Government of Uganda to coordinate the apiculture industry. The initial training was two months and afterward, TUNADO assigned mentors to help drones get established in business. Applicants for the training needed to be between the ages of 18 and 27 and have a certificate in a relevant field such as agriculture. They did not need to have



Video 4: Youth paraprofessionals

experience in beekeeping. Some trainees paid for their training; others received scholarships from TUNADO or other organizations. Organizations providing technical or financial support included Bees for Development (UK), Wood en daad (Netherlands), Trias, Oxfam, MAAIF and NARO. Other organizations, such as Mercy Corps, contracted with TUNADO to train drones to work in their projects.

TUNADO actively helped the drones make contacts in the apiculture industry for training farmers or starting other types of apiculture-related businesses. For example, TUNADO invited drones to youth forums and other apiculture events and shared their names and the services they provide with beekeepers and other actors in the beekeeping and honey value chain. It also planned to have a page on its website so that those in need of training can identify drones to contact in their area.

TUNADO began training drones in 2012 and by 2019, they had trained 150, all of whom were youths and 25 percent of whom were women. They planned to have 60 percent of future trainees be female. There were 90,000 beekeepers and other actors in the beekeeping/honey value chain, 40 percent of whom were youths.

Community animal health workers (CAHWs) provided reproductive and animal health services to livestock (mainly dairy) farmers in Rwanda. Their specific duties were to perform artificial insemination, assist farmers in diagnosing livestock diseases and advise on treatments. They also administered vaccinations and advised on feeding and nutrition. CAHWs were responsible to the local government's Socio-Economic Development Officers at the cell level and received technical backstopping from sector-level Animal Resources Officers.

Heifer International, an NGO, started the program in collaboration with MINAGRI in 2004. Applicants for the position needed to be residents in the community, have a primary school education and be knowledgeable about livestock production. Local livestock keepers nominated their fellow farmers to become CAHWs. Heifer provided training, technical support and bicycles to CAHWs, but has passed these responsibilities to RAB and the government's Veterinary Services. Other development partners such as donor-financed projects also contributed. Training took place once per year and lasted one day. CAHWs

also participated in meetings periodically, for example, when there is a campaign against a particular livestock pest or disease.

Farmers call CAHWs when they need their services and pay them USD 2.10 for visiting their farm, a fee determined by the government (MINAGRI, 2017b). CAHWs made about 25 farm visits per month earning USD 53. The CAHW position was considered part-time.

There are currently 1,152 CAHWs operating in Eastern and Western Provinces of Rwanda. RAB hoped to double this number by expanding to Southern and Northern Provinces. RAB did not keep track of the number of youth and women CAHWs but a count of the 11 CAHWs in Kayonza District found that three (27 percent) were youths and two (18 percent) were women.

The reason there were not more youth serving as CAHWs is because youth who have experience with livestock do not feel the position is sufficiently remunerative relative to other available opportunities.

Key Findings on Paraprofessionals

- Two types of paraprofessional extension workers were identified: “drones” providing advisory services to beekeepers and backstopped by the Uganda National Apiculture Development Organization and community animal health workers providing advisory services to dairy farmers and backstopped by the Rwanda Agricultural Board.
- Whereas drones were exclusively youths, only a minority of CAHWs were youths. Farmers paid drones and community animal health workers for the services they provided.

Credit and Financial Services

Two cases involving credit and financial services in Uganda are reviewed below, one involving a private bank partnering with an NGO and another led and funded by a government agency.

Centenary Bank is the country’s leading commercial microfinance bank, serving more than 1.8 million consumers. It has no programs of its own targeting rural youth but does participate in projects doing so. For example, Centenary is a partner with Swiss Contract, a Swiss-based NGO, in the Local Skills Development for the Youth Project 2017-2020, in 10 districts of Eastern Uganda. It helps poor rural youth start and develop businesses, most of which are agriculture-related.

Centenary’s role in the project is to help farmers establish bank accounts for saving and accessing funds, for paying for inputs and through which buyers of produce can pay farmers. Centenary and partners first train youth in financial literacy and business management. Youth can then apply for loans from the bank. Four thousand youths (50 percent female) have benefitted from the project and 1,650 youths (40 percent female) have accessed loans from Centenary for agricultural businesses. Forty percent of youth loans in agriculture are for production, 40 percent for marketing and 20 percent for other activities. Repayment rates were 95 percent. The Bank observed more viable agricultural business projects from youth with no university degree compared to university graduates. This observation speaks to the mindset of university graduates, possibly preferring to be employed than to set up their own agribusiness, while Uganda’s agricultural policies emphasize self-employment among the youth.

Centenary recently introduced a mobile banking platform that enables youth to transact and access banking services using their mobile or smartphones, if they or their group have one. Centenary account holders will soon be able to apply for loans and other services on their smartphones (Centenary Bank, 2020). This will reduce the challenges of having members travel for long distances while at the same time reducing bank costs and the costs of getting loans.

Mbarara District Local Government manages a loan scheme for youth with funding from the Youth Livelihood Programme (YLP) under the Ministry of Gender, Labour and Social Development. The objective of the scheme is to empower youth to harness their social and economic potential and increase self-employment opportunities and income levels. YLP targets youth between 18 and 30 years and operates nationwide. The assessment here focuses on the program's activities in Mbarara District.

YLP makes loans available to groups of five to 15 youths and offers them training in the supported enterprise. The youth groups apply for loans and committees of sub-county administrative and technical staff appraise the applications and select the grantees. Between 2017 and 2019, YLP made loans to 101 groups comprising 1,060 youths (57 percent male and 43 percent female). About 33 percent of the loans were in agricultural enterprises such as livestock (goat rearing, pigs, bull fattening or poultry), crops (mostly horticulture such as cabbage, spinach, or tomatoes), nursery seedlings, and services such as transport and produce trade. Loans averaged USD 2,400 and were heavily subsidized as grantees paid no interest in the first year and 5 percent per year thereafter. Training in the respective enterprises were conducted soon after the loans were made.

Results were mixed. Program managers estimated that only about 40 percent of the loans were repaid. Transport and trade were the most successful enterprises and had the highest repayment rates whereas most of the livestock and crop production enterprises failed. Program managers and other observers noted several reasons:

- Youth groups were weak and often fell apart. The program's intention was that groups manage the enterprises collectively whereas youths preferred to work individually.
- The project had no link to EAS. Although extension staff were involved in the initial training, there was no plan or mechanism for them to be involved afterward nor any mentorship program for youth developing businesses. No follow-up training or monitoring was conducted after the initial training.
- Local council leaders were responsible for disbursing loans and collecting repayments but some funds were lost or misappropriated.

Experience from other countries has shown that partnering with and dispersing loans through commercial banks is a more effective and efficient means of lending to smallholders (Faulkner et al., 2009). In such partnerships, projects may act as a guarantor for loans, may subsidize the bank's interest rate or provide upfront cash collateral. These arrangements allow the project funds to serve more farmers than without the bank's involvement. Furthermore, the arrangements help the bank to gain experience in lending to smallholders. Finally, they help farmers establish relationships with banks that can extend long after the project ends (Faulkner et al., 2009). But no bank would accept a 40 percent repayment rate so efforts would need to be made to ensure a higher rate.

Key Findings on Credit and Financial Services

- Two contrasting initiatives providing credit were identified. One, run by government, gave loans to youth groups but repayment rates were low, less than half, and thus not sustainable. There was no link to extension services.
- In the other initiative, a private bank partnered with a development projects to give financial services (e.g. opening bank accounts) and loans to youths. Repayment rates were much higher and youths were able to start long-term relationships with the banks.

Youth Agripreneurship Awards

FAO and MAAIF started the Youth Champion program to reward young people who have made cutting edge innovations in agricultural value chains and to inspire other youth to work in agriculture. Awards were given once in 2017. The opportunity to win an award was widely advertised and was open to youth between the ages of 14 and 35. MAAIF and FAO chose 25 winners from more than 500 applicants.

Winners were feted in the local media and participated in national and international exposure visits and a one-week training in agribusiness. The winners received monetary awards of USD 268 to USD 938 to invest in their enterprises. The winners also supported fellow youth in their areas by providing advice and training. Donors such as USAID provided training, publicity, and linkages to USA-based organizations. At the local level, government staff and EAS workers helped link the youth champions to youth initiatives that they were working with.

The Youth Champion program appears to have made four important contributions to promoting youth in agriculture:

1. **Recognition/status.** The program raised the profile of the 25 winners, their status among peers and more importantly in their communities and the country at large. The winners found this recognition to be important for inspiring themselves and other youth to excel in agriculture.
2. **Social networks.** The winners vastly increased their social networks and links with regional, national and international agencies active in promoting youth in agriculture. Of particular value were the enhanced links among the winners themselves, which led to collaborative ventures in a number of instances (see Box 8)
3. **Learning.** The one-week agribusiness course and the various forums that winners were invited to facilitated a great deal of learning, among the winners and among the persons they interacted with at the forums.
4. **Changing attitudes.** There is a feeling among many Ugandans that youths are lazy and do not have opportunities in agriculture (Huber, 2020). Programs such as Youth Champions help change attitudes across the nation in recognizing that there are many hardworking youth and that youths do benefit from careers in agriculture.

Youth awards always rely on funding from a donor but the costs can be very low relative to the benefits. A cash award is not necessary; prizes, such as restaurant meals, hotel stays and agricultural input supplies, can be solicited from private companies. Recognition and connections are important and are very low cost.

Box 8: “If they can award youth musicians and artists, why not youth in agriculture?”

As executive director of Keirere Green Africa Agency (KEGRA), Emmanuel Kweyunga leads a social enterprise that has made important contributions helping farmers improve their livelihoods through such enterprises as coffee, dairy and fruit trees and improved services such as literacy, credit and marketing (KEGRA, 2020). Emmanuel is particularly passionate about helping his peers, other youths, and KEGRA has a number of initiatives targeting youths such as village agents, savings and credit associations and agripreneur training, associations and forums. The mission of KEGRA, according to Mr. Kweyunga, is to “make agriculture cool, attractive and profitable for the youth and further promote community socioeconomic welfare.”

Emmanuel heard about the Youth Champions competition from a colleague who encouraged him to apply. His first thought was “I was happy that there was an initiative to recognize a youth in agriculture. If they can award youth musicians and artists, why not youth in agriculture?”

Emmanuel appreciated winning the award for several reasons. He was able to expand KEGRA activities to three districts - Kabale, Sebei and Mbale - because there were other youth champions in these areas that he could collaborate with. He also appreciated the training that awardees received on agribusiness and the cash prize, which all winners decided to use to create a fund that they could use to inspire youth in agriculture. Connections were also an important benefit as he learned a lot from other champions and was pleased to link with policymakers and development practitioners interested in promoting youth in agriculture. But among all of these benefits, “recognition is the most important thing. We have done a lot and when we get recognized we feel more inspired to support other youth in agriculture.” “People say that youth are lazy, they only want quick money, they have no time for agriculture.” These awards “come up and inform the public that youth are doing a lot in changing the face of agriculture and rural areas!”

Key Findings on Youth Agripreneurship Awards

- Youth awards recognize and raise the status of winners, enhance their connectivity and learning, and help change attitudes among youth that they can benefit from careers in agriculture. Awards programs rely on a donor but can be implemented at low cost while generating important benefits.

PERFORMANCE OF MODELS AND FACTORS AFFECTING YOUTH ENGAGEMENT

In this section, the research team assessed the relative performance of the seven different models for engaging youth in private sector EAS: Training youth to become agripreneurs, village agents, youth-led and other fee-based extension providers, internships, paraprofessional extension workers, credit and financial

services and youth agripreneurship awards. The team also assessed five factors influencing youth engagement and performance: education, market orientation, incentives, gender and digital engagement.

Model performance

Few data were available on the performance of different models as few impact assessments have been conducted. Moreover, the ones found were of low quality. For example, none involved any control group permitting the comparison over time of those participating in the model with those not participating. Most appeared to be assessments that tried to track what happened over time, but with few or no data available from the start of the project. Other assessments appeared to be aimed at getting more funds for the activity rather than objectively assessing its performance.

In the absence of hard data on performance, the researchers assembled qualitative data on relevant and available parameters for assessing and comparing the performance of the different models (Table 11). In terms of numbers of youth directly benefiting per year (Column 3), the models training youth to become agripreneurs involved the most youths, numbering in the thousands or tens of thousands. Most of the other models—village agents, youth-led and other fee-based extension providers, paraprofessional extension workers and internships—appeared to benefit hundreds of youth per year. Only the youth awards involved fewer youth. In terms of benefits (income) per direct beneficiary (Column 4), the programs employing university graduates rank highest, that is, fee-based extension providers and interns. Even though interns were not formally employed, there appears to be much evidence that internships increase the potential of getting a job. Credit programs also had high benefits, for those who could access loans. Agripreneurship training was the model with the least information available on benefits, as these are difficult to measure.

Column 5 of Table 10 shows the percentage of women among young beneficiaries who participated in each model. The mean percentage across all models was 40 percent and internships had the highest proportion, 67 percent. Paraprofessional extension workers had the lowest proportion, 23 percent.

Concerning financial sustainability (Column 6), researchers gave high ratings to those that were essentially private sector models such as fee-based extension providers and village agents. The fact that private companies were finding these approaches profitable and seeking ways to make them more profitable (through for example, increasing the number of products and services that a village agent can sell) is an indicator of sustainability. It is true that four of the seven models received donor funding but the funds were primarily for such activities as training and developing and testing new apps, which do not greatly influence the companies' short-term profitability. Internships were also considered highly sustainable because many of them were being done without government or donor assistance and because many of the internships funded by governments were not subsidized by donor agencies. Paraprofessional extension workers were of medium sustainability because they often relied on government or donor funding for training and backstopping. The credit programs examined were of low to medium sustainability because they relied on government or donor funding. Although youth award programs do not have to be costly, the fact that the one in Uganda was held once in 2017 and was not repeated indicates low sustainability.

Scalability (Column 7) indicates the degree to which the model could be expanded to reach more youth. Village agents and fee-based extension both have high potential for scalability as the demand for their services will rise as agriculture becomes increasingly commercialized. Internships have some scope for being upscaled, as the number of graduates from universities and vocational institutes increase and more firms and agencies recognize the benefits of internships. Credit programs have some scope for scaling up, particularly

in firms that bundle input and produce marketing services so that farmers can receive inputs on credit and pay for them at harvest time. Training youth to become agripreneurs and youth agripreneurship awards had low sustainability and scalability because they rely heavily on government or donor funding.

Table 11: Performance of models on selected performance criteria

Models	Sample size	Numbers of youth benefiting/year	Benefits (income) per beneficiary	% of young beneficiaries who are women*	Financial sustainability	Scalability
Village agents	9	hundreds	M	33	H	H
Youth-led and other fee-based extension providers	7	hundreds	H	33	H	H
Training youth to become agripreneurs	14	thousands/tens of thousands	NA	45	L	L
Internships	4	hundreds	H	67	H	M
Paraprofessional extension workers	2	hundreds	M	23	M	M
Credit and financial services	2	thousands	H	42	L-M	M
Youth awards	1	25	H	NA	L	L
Total	39			40		

H means high, M means medium and L means low as judged by the authors. NA means information not available.
 * Mean proportion across implementers in the group

In summary, the models served different purposes and all seven provided important benefits to youth. Achieving sustainability and scale were key measures of success that fee-based EAS and village agents achieved while having high benefits to youth through earnings. But women had lower participation rates in these models than in other ones. Internships had high participation rates for women, although the potential for scaling may be limited. Training youth to become agripreneurs, though potentially of high value, relies on government and donor assistance. Paraprofessional extension workers had modest benefits and some potential for being sustainable and scalable. Credit also had high potential but appeared to be difficult to make sustainable and scalable. Youth awards were important and low-cost but relied on the interest and generosity of donors and government, which appeared to be low.

Key Findings on Model Performance

- Few data were available on the performance of different models as few impact assessments had been conducted. Moreover, the ones found lacked rigor.
- The seven models served different purposes; all provided important benefits. Fee-based extension and village agents appeared to have the greatest promise for benefiting youth and for being the most sustainable. Internships had high participation rates for women, although the potential for scaling may be limited. Training youth to become agripreneurs, though potentially of high value, relied on government and donor assistance. Paraprofessional extension workers had modest benefits and some potential for being sustainable and scalable. Credit also had high potential but appeared to be

difficult to make sustainable and scalable. Youth awards were important and low-cost but relied on the interest and generosity of donors.

Factors affecting Youth Engagement

Education. The minimum education level required for participating in each type of engagement varied considerably, both within and between types of youth engagements (Table 12). Four of the seven types of engagement involved employment but opportunities were extremely limited for those with only primary school education. Some engagements, such as becoming an extension worker in a youth-led or other fee-based extension company or getting an internship, were usually only available for university graduates or in some cases, secondary school graduates. Becoming a village agent was usually only available for those with a secondary school education or in a few cases, those with a primary school education. Available models for those with primary school education were training to become an agripreneur, obtaining credit (but only in a youth-targeted project where they could get assistance in processing the loan), becoming a paraprofessional and in getting youth awards.

These findings highlight the importance of recognizing that youth are heterogenous and have different circumstances and opportunities (Green et al. 2019). Youth segments that are the most poor and vulnerable, such as those with only primary education, are often unable to access assistance from initiatives to help youth. At the same time, they lack the prerequisite education to serve as extension advisors.

That said, some respondents had dissenting views on the importance of education. Centenary Bank reported that youth with higher education were less serious to work with and often did not have convincing or promising proposals for bank loans. HGT in choosing interns said that they do not mind about the degree but instead emphasize the motivation and the capacity. They claimed that those with low levels of education are often better learners, more highly committed and more practical than those with more education. It is worth noting that implementers are also quite heterogenous, not just the youth!

Table 12: Minimum levels of education required in each type of engagement

Types of engagements	Primary school	Secondary school	University/tertiary	Gives youth employment
Village agents	*	**		√
Youth-led and other fee- based extension providers		*	**	√
Training youth to become agripreneurs	**		*	
Internships		*	**	√
Paraprofessional extension workers	*		*	√
Credit and financial services	**			
Youth agripreneurship awards	**			
** Most implementers required this level of education				
* Some required this level of education				

Market orientation. Market orientation concerns the type of agricultural product the model is dealing with and whether it is low-value (cereals, legumes, oilseeds/tubers) or high-value (horticulture, coffee, livestock or honey). Data were available for only three of the seven models and these are shown in Table 13. The researchers had surmised that youth engagement models would be more oriented toward high-value crops because there would be greater opportunities for earning cash in these enterprises. We mentioned earlier that HoReCo and Agriwin got started as youth-led extension providers by developing horticultural enterprises. However, Table 12 shows that the fee-based extension models were involved in both high-value and low-value products about equally. Horticultural crops were the most common type across the models but cereals and legumes were also high. Evidently, village agents and fee-based extension providers can service crops and enterprises of varying value. Even though cereals and legumes are lower in value, they were in high demand. The high demand translates into greater quantities so companies servicing them can earn money dealing with the larger volumes even though the margins may be smaller.

Table 13: Types of products dealt with in engagement models

Models	Sample size	Low-value products			High-value products		
		Cereals	Legumes	Oilseeds, tubers	Horticulture	Coffee	Livestock, honey
Village agents	9	5	6	2	5	3	0
Youth-led and other fee-based extension providers	7	3	2	2	6	1	3
Paraprofessional extension workers	2	0	0	0	0	0	2
Total	18	8	8	4	11	4	5

Incentives. For a private sector youth engagement model to work effectively, the company needs to have an incentive to engage youth and the youths need incentives to engage the company. In the case of village agents, the opportunity to earn cash from commissions is the youths' main motivation. Even though the earnings were modest, USD 160 per year to USD 670 per year, the work was part-time, providing opportunities for other cash-earning activities as well. In addition, there were other motivations. Young village agents reported enhanced social status, increased social networks and increased knowledge about agriculture. The companies also benefited. M-Omulimisa reported that village agents helped the company to expand its areas of operation, serve new groups and increase sales and profits. Village agents gave companies greater visibility in villages and helped them establish credibility, which is of utmost importance given the spread of fake inputs.

Youth were also highly valued in the fee-based extension companies. Frequent comments from employers in both youth-led and other companies were that youth were more flexible, more open-minded, quick learners and more adept at using digital devices. One said that youth were better in dealing with statistics. Across the five youth-led, fee-based extension providers, the mean proportion of youths among extension staff was 92 percent and it was 100 percent in the two companies not led by youths! Obviously, companies valued youth as extension staff and the ease with which firms find extension staff indicates that youth appreciate working for companies as well. The only case of weak incentives for youth in employment was in the case of the community animal health workers, where the proportion of youth was low because they did not think the payment for services, which was fixed by the government, was attractive.

Gender. As shown in Table 11, the mean rate of participation for women across the various models was 40 percent, a fairly high level, relative to the 28 percent to 37 percent for women in EAS reported in three African countries (Franzel, Kiptot, Degrande, 2019). Nevertheless, researchers noted two cases in the models where rates were particularly low. In the first case, which involved women as EAS providers, the proportion of female paraprofessionals was only 21 percent. In the second case, which involved women as recipients of extension, only two of 15 members of a dairy cooperative youth association in Uganda were female (Box 2). Part of the problem was that the cases concerned dairy and beekeeping, which were considered men's enterprises in traditional cultures of both countries. But it also appears that in neither case was a special effort made to get women involved. Too often, if no proactive measures are taken to involve women, their rates of participation are low. In such cases it is important to find out why women do not participate and determine how participation rates can be increased. For attracting women to apply to be EAS providers, some possible measures could include seeking out potential female candidates and asking them to apply or stating in the job advertisement that applications from women are welcome. To attract women as extension recipients, local leaders, particularly female leaders, can be consulted and asked to help.

In a few cases, such as those of CAHWs, data were not being collected on the proportion of youths or women. Governments and donors should require all initiatives that they finance to collect such data.

Digital engagement. Digital tools can strengthen youth engagement in extension in several ways: by improving efficiency through enhanced communication and feedback, by increasing the number of services that can be accessed digitally, by supporting field staff with extension information and advice and by adding prestige to agricultural vocations. Digital tools appear to be most effectively used in the village agent model. As mentioned above, ZAABTA village agents had phone apps that offer agronomic tips, weather and market information and videos about improved agricultural practices. Akorion agents mapped fields on farms to help farmers estimate the amounts of inputs they needed and the amount of produce they were expecting to harvest. Having such information helps farmers access credit, since lenders can better appraise the likelihood that loans will be repaid. M-Omulimisa village agents used a mobile phone app called M-Agro Sure in calibrating farmer input demand, and participated in WhatsApp groups to share experiences and advise each other. M-Omulimisa also operated a USSD phone-based system for those farmers with analog phones in which they could send questions and receive feedback from extension staff in at least five local languages. M-Omulimisa and Famunera also operated call centers for their farmers. But surprisingly, digital tools were not used very much in the other engagements, aside from cell phones for enhanced communication and money transfer. For example, aside from implementers using village agents, only HRNS reported using videos in extension.

Key Findings on Factors affecting Youth Engagement

- Concerning educational requirements, opportunities were extremely limited for those youth who lacked a secondary school education. Available models for such youth were training to become an agripreneur, becoming a paraprofessional or obtaining credit (but only in a youth-targeted project where they could get assistance in applying for a loan).
- Concerning enterprise orientation, fee-based extension services tended to service high-value crops such as horticulture whereas village agent models involved both high-value and more conventional crops, such as cereals and legumes.

- Youth engagement in private sector EAS was successful when both youths and companies felt they benefited. Cash income was obviously important for youth but so were other factors: opportunities for advancement, increased networking and improved social status.
- Concerning gender, the mean rate of female participation across the models was 40 percent, a fairly high rate compared to other countries. Proactive measures are often needed to ensure high rates of female participation such as actively inviting women to participate, involving local opinion leaders in nominating women or providing childcare during training.
- Concerning digital tools, they were only used effectively in village agent models, and hardly used in other types of engagements. Digital tools can strengthen youth engagement by improving productivity and efficiency and adding prestige.

CONCLUSIONS AND RECOMMENDATIONS ON KEY ELEMENTS OF EFFECTIVE YOUTH ENGAGEMENTS IN PRIVATE SECTOR EXTENSION AND ADVISORY SERVICES

Key elements of effective engagements

Our findings suggest that there are six key elements of effective youth engagements in private sector EAS. Effectiveness is defined as the degree to which the engagement involves large numbers of youths, generates benefits for them, benefits young women and is sustainable and scalable. The five key elements are presented below.

Supportive policy environment. Both Rwanda and Uganda had strong policies supporting youth, agricultural extension and the private sector. Because of these policies, governments, donor agencies and the private sector were actively partnering and implementing initiatives that promote private sector EAS. In Rwanda, the initiatives included the “Farming is Cool” initiative, support for the Rwanda Youth Agribusiness Forum, funding for youth internships with agribusinesses and allocating unused land to youth groups interested in cultivation. In Uganda, the initiatives included the Youth Livelihood Program (a credit and training program for young agripreneurs), Skilling the Youth through Vocational Education, and the Youth Enterprise Scheme. Moreover, even more important than these initiatives, government policy had influenced other key actors, such as civil society organizations, the private sector, local government and NGOs, to engage youth.

Market-based solutions. Market-based solutions helped ensure sustainability, as in the cases of fee-based extension, village agents and paraprofessional extension workers and credit programs. Inclusive markets are achieved when youths benefit from engaging with the private sector, and when the private sector benefits from engaging with youth in markets. The right incentives are needed to ensure that such engagements take place and EAS, by providing information and helping to fill learning gaps, plays an important role. Sometimes businesses take the initiative, and other times, governments and development actors have facilitation roles to play, such as to reduce risks of investing in new ways of doing business using digital tools.

Incentives to engage. Ensuring that youths have incentives to engage is critical, and short-term financial gain, though important, is not the only incentive that youths consider. For example, the fact that some village agents had gone on to become input dealers provides a huge incentive for other youths to become

village agents. Non-financial incentives are often also important, such as improving one's social status and developing social networks. Young village agents and EAS staff may be best-placed to influence and engage other young people in agricultural markets and encourage more expansive peer-to-peer exchange.

Proactive measures to engage youth, particularly young women. Because they lack assets and voice and are not organized, youth are often unable to benefit from programs offered by governments and donor agencies. Young women are at a particular disadvantage because, as mentioned earlier, they face more constraints than young men. Programs proactively engaging youth and, in particular, to young women have higher inclusivity than ones that do not. The high female participation rates in the fee-based extension and village agent programs testify to women's abilities to perform well in these activities.

Public-private partnerships. Most effective initiatives involve collaboration among different types of development partners. This is logical as different types of partners have different strengths and partnerships allow them to take advantage of this. For example, the internship program involved the Rwandan government administering the program and paying stipends, private companies hosting the interns and paying their transportation allowances and a development project, PSDAG, providing training. Private companies, government, and development projects also partnered effectively in Uganda's village agent models with the companies paying salaries and operational costs and the development partners financing training and development of digital tools.

Integrated services. A weakness of some programs aimed at improving agripreneurship is that they offered a single service, such as business training or credit instead of taking a more holistic approach to helping youth achieve self and wage-employment. For example, in Uganda, the YLP credit program in Uganda had no link to extension or coaching services and the HNRS training program at its start did not link trainees to financial services. The Education Development Center's Youth Options Pathway Model is useful for ensuring that business training is integrated with other programs which are often needed to attain self- or wage-employment (Figure 1) (EDC, 2018). These other programs include foundational training (goal setting, work readiness and financial literacy), coaching and access to financial services. It is not necessary that a single program offer all of these services but a program needs to ensure that it can link beneficiaries to other required services (Yami et al., 2019).

Recommendations for improved youth engagement in private sector EAS

Specific types of institutions that can take action on the recommendations are included in parentheses with each recommendation. Types of institutions include governments, donor agencies, and implementers (which include government agencies, NGOs, private companies and farmers' organizations).



Video 5: Recommendations

Recommendations specific to each of the seven models are shown in Appendix 1.

Recognize the richness, diversity of and high potential of extension and advisory services. This study highlights the importance of EAS as a means for improving youth employment and livelihoods. Each of the seven models of youth engagement in private sector EAS contributes in a different way and together they provide a broad range of benefits addressing different objectives and benefiting different youth segments. The models also demonstrate the important bridging role that EAS play, facilitating partnerships among diverse implementers, bridging the gaps across different sectors and providing links between public institutions, private institutions, NGOs and the youth they serve. For example, an NGO development project linking private EAS to a private bank's credit program for youths can help ensure that the funds are used effectively, leading to higher youth incomes, a higher repayment rate and a more sustainable credit program. The role that EAS serves is not widely recognized and needs to be given more emphasis in development discussions (*governments, donor agencies, and implementers*).

Develop effective policies (*Government*). As mentioned in the section on government policies, Rwanda and Uganda each had strong policies promoting youth in private sector EAS. Nevertheless, there were differences in policies and strategies between the two countries and the research team recommends that each country consider the appropriateness of the other's policies for their own situation. In the five cases listed below, Rwanda has policies advantageous to youth engagements in private sector EAS that Uganda does not have:

- In Rwanda, it is significantly easier to start and operate a business than in Uganda (Table 2)
- In Rwanda, small and medium enterprises are exempted from paying the Trading License Tax in their first two years of operations.
- In Rwanda, there is room to negotiate with the Rwanda Revenue Authority for exemption of startups from other types of taxes for a specified period of time. In the Rwanda Private Sector Federation, the Chamber for Youth Entrepreneurs carries out advocacy for individual companies on request. In Uganda, the Federation of Young Entrepreneurs Uganda advocates for youth but researchers were unable to find cases where they represent individual startups in negotiations over tax exemptions.
- In Rwanda, there are special mobile phone airtime rates for rural businesses. Rural businesses pay USD 0.105 for 30 minutes, a discount of 50 to 100 percent.
- In Rwanda, despite village agents working for private companies and lacking extension credentials (they have only high school education), they are still treated by the government as part of the overall EAS system. They are invited to sector and cell level meetings to plan and review the agricultural season and to attend periodic trainings conducted by government EAS staff (e.g., the sector agronomist).

The study also identified three policies or strategies concerning youth engagement in private sector EAS that Uganda uses but that Rwanda does not:

- Uganda has developed a national strategy for youth employment in agriculture, whereas Rwanda has not. Rwanda has strategy documents for gender and ICT and these include specific results and outcomes to be obtained, activities for achieving them, and indicators for monitoring progress. The plans were fed directly to line ministries and districts, who incorporated them into their own plans. As a result, whereas district plans (called performance contracts) routinely referred to gender and

ICT indicators, the plans rarely included youth indicators. In fact, many organizations do not collect data on youth indicators. A youth in agriculture strategy could go a long way toward mainstreaming youth considerations, enhancing youth employment in both the public and private sector (Franzel et al., 2019).³

- Uganda has a Department of Agricultural Extension in its national university system whereas Rwanda does not. A Department of Agricultural Extension in Rwanda would be useful for training students in the most effective and up-to-date extension approaches, many of whom would be employed in the private sector. The department would also be important for conducting research and advising government, NGOs and the private sector on the best methods for conducting EAS and for implementing research on EAS approaches, including project evaluation, impact assessment and assessing methods for youth engagement and gender analysis.
- Third, the Ugandan government is planning to register all extension service providers as a starting point for improving coordination among them. The government will also ensure that they have a certain minimum level of training to be regarded as providers.

Target and differentiate among youth. Dedicated resources for conducting youth assessments should be required in project planning and should include youths' views on their aspirations, needs and constraints. Targets should be set and monitored for achieving specified levels of youth inclusion. These targets may involve numbers of youths recruited as extension providers or numbers of youths receiving extension advice and training (*Governments and donor agencies*).

Implementers need to use the Rwandan and Ugandan governments' definitions of youth (age 16 through 30) and monitor how many youth they are employing and engaging, something that some implementers, including government agencies and NGOs, still do not do (*Implementers*).

Incentives for private agribusiness companies to hire youth should be encouraged by offering corporate social responsibility awards or recognizing and celebrating high achievers (*Governments*).

A common way of reporting on youth and gender is to give the number or percentage of youths targeted or benefitting and the number or percentage of women targeted or benefitting. While this information is useful, it does not indicate the extent to which young women are targeted or benefitting. For that, we need data on youth to be broken down by gender, that is, to show the number and percentage of young men and the number or percentage of young women targeted or benefitting (*Governments, donor agencies and implementers*).

More consideration needs to be given to understanding the heterogeneity of youth. Programs need to be tailored to the contexts of particularly vulnerable youth segments, such as disabled youth or poor young women in rural areas who lack high school degrees (*Governments, donor agencies and implementers*).

More attention is needed in particular for helping poor rural youth who have not completed high school. Initiatives need to start by understanding their varying aspirations, needs and contexts and helping them develop and implement viable business plans (*Governments, donor agencies and implementers*).

³ There is hope that the newly formulated Customized Agricultural Extension System can help raise the profile of youth in EAS the way that a youth in agriculture strategy could.

Help young women. A corollary of the above is the need to focus on gender at the same time as youth. Otherwise, the benefits accruing to youth may benefit only young males, particularly if the unique constraints that young women face are not addressed.

Young women should be engaged in suggesting ways in which they wish to participate in EAS. These discussions will form the basis of the strategies to work with (*Implementers*).

It is imperative that incentives are created for implementers to set, monitor and meet gender targets, as for youth targets (*Governments and donor agencies*).

Public and private extension services have learned a great deal in recent years concerning how to increase the proportion of women providing EAS and benefiting from EAS. For example, proactively encouraging women to apply for positions or participate in training can help increase their participation. Offering childcare during training sessions can help improve women's participation rates (*Implementers*).

Integrate interventions for helping youths to develop businesses. Programs offering credit or training to agripreneurs need to ensure that they are offering or linking beneficiaries to the range of services needed to help their businesses develop. The Education Development Center's Youth Options Pathway Model is useful for ensuring that business training is integrated with other programs which are often needed to attain self- or wage-employment. These other programs include foundational training (goal setting, work readiness and financial literacy), coaching and access to financial services. Other business development services, such as price information or insurance, may be required in particular circumstances. Integrating interventions often involves public-private partnerships, as when a donor-financed project providing training to young agripreneurs, such as that of Swiss Contract in Uganda, partners with Centenary Bank to provide farmers with financial services (*Donor agencies, implementers*).

Evaluate digital tools. The considerable emphasis being given to digital tools in EAS needs to be sustained. Increased research is warranted to assess performance and guide future use of these tools, particularly for ensuring that the economically poor and traditionally underserved have access to them. Some Ugandan private companies (e.g., ZAABTA in Uganda) are using videos to help their agents and farmers to access extension videos; others (Famunera and m-Omulimisa in Uganda) are connecting farmers to call centers where trained agriculturalists answer questions and offer advice. Subsidies are justified for such efforts as long as there is a clear business plan and timeline for phasing them out. There is also an important role for government and donor agencies to play in funding the evaluation of such tools, how to improve them and their impact, particularly for reaching disadvantaged groups such as youth and women (*Governments, donor agencies, implementers*).

Conduct impact assessments. As mentioned above, few impact assessments have been conducted on the models reviewed in this paper and none involved comparing a group of beneficiaries receiving support with a control group not receiving support. Rather, most appeared to track what happened to project beneficiaries over time and most appeared to be ex-post assessments (that is, data were collected only after the end of the project). Most also appeared aimed at documenting success so as to get more funding rather than objectively assessing performance or learning how to improve performance. None compared project benefits with costs.

Rigorous impact assessments are urgently needed to assess performance (*Donor agencies, implementers*). Wherever possible, these should involve experimental or quasi-experimental designs, compare beneficiaries with a control group not receiving benefits, and take costs into account as well as benefits. It is critical that impact assessments be aimed at improving performance and not just documenting progress toward planned objectives. For example, impact assessments could consider the following:

- Training youth to become agripreneurs is one of the most common means of engaging youth in private sector EAS. Yet there is only anecdotal evidence that such approaches benefit youth in Rwanda and Uganda. Impact assessments are needed that track beneficiaries and a control group over time demonstrating that beneficiaries use project training to improve their businesses and livelihoods and assessing how complementary services, such as credit and coaching, complement training.
- Will the costs of making the young village agent a qualified extension agent pay for itself in increased sales, or is a village agent with limited information more cost-effective? Or is backing up the village agent with a call-center, as m-Omulimisa and Famunera do in Uganda, a more effective strategy?
- Do 12-month internships in EAS result in significantly more youth employment than 6-month ones? Or would 6-month internships be preferable, giving an opportunity for twice as many youth to get involved?

Research to rigorously assess the advantages, disadvantages and cost-effectiveness of different models and how best to improve them could go a long way toward improving the viability of the models and the potential for young people and the companies and markets they work in to benefit.

REFERENCES

- AUC (African Union Commission). 2015. *Agenda 2063: The Africa We Want*. Addis Ababa: African Union Commission.
- Ameyaw, D. and E. Maiga. 2015. Current Status of Youth in Agriculture in Sub-Saharan Africa. In: *Alliance for a Green Revolution in Africa (AGRA) Africa Agriculture Status Report: Youth in Agriculture in Sub-Saharan Africa*. Nairobi, Kenya. <https://hdl.handle.net/10568/100862>
- Blum, M. L., F. Cofini, and V. R. Sulaiman. 2020. *Agricultural Extension in Transition Worldwide: Policies and Strategies for Reform*. Rome: Food and Agriculture Organization of the United Nations. Available: <https://doi.org/10.4060/ca8199en>.
- Centenary Bank. 2020. *About Centenary Bank*. Downloaded on June 20, 2020 from <https://www.centenarybank.co.ug/index.php/about-us>
- Davis, K. and V. R. Sulaiman. 2018. Overview of Extension Philosophies and Methods. In: Davis, K., A. Bohn., S. Franzel., M. Blum, U. Rieckmann, S. Raj, k. Hussein, and N. Ernst. *What Works in Rural Advisory Services? Global Good Practice Notes*. Lausanne, Switzerland: Global Forum for Rural Advisory Services. Pp. 3-6. Available: <https://g-fras.org/en/download.html>
- DLEC (Developing Local Extension Capacity). 2019. *Strengthening private sector extension and advisory services portfolio review*. Developing Local Extension Capacity Project. USAID, Washington D.C.
- EDC (Education Development Center). 2018. *Annual Report*. Kigali: Huguka Dukore Akazi Kanoze Project, Education Development Center, Kigali.
- FAO. (2014). *Food Security for Sustainable Development and Urbanization: Inputs for FAO's Contribution to the United Nations Economic and Social Council (ECOSOC) Integration Segment, 27-29 May, 2014*. Rome: Food and Agriculture Organization
- _____. 2017. *Analysis of Existing Approaches for Rural Youth Employment in Uganda*. Rome: FAO.
- _____. 2019. *Digital Technologies in Agriculture and Rural Areas: Status Report*. Food and Agriculture Organization, Rome.
- Faulkner L., J. Harrington D. Levy, and K. The. 2009. *Commercial Opportunities for Fruit in Malawi*. ICRAF Working Paper no. 86. Nairobi, Kenya: World Agroforestry Centre.
- Franzel S., E. Kiptot A. Degrande. 2019. Farmer-To-Farmer Extension: A Low-Cost Approach for Promoting Climate-Smart Agriculture. In: Rosenstock T., Nowak A., Girvetz E. (eds) *The Climate-Smart Agriculture Papers*. Springer, Cham, pp 277-288. Available: https://link.springer.com/chapter/10.1007/978-3-319-92798-5_24
- Franzel, S., H. Kinyua, M. Rucibigango, K. Davis, and S. Makh, 2019. *Youth in Extension and Advisory Services: Rwanda*. Developing Local Extension Capacity Project. Washington DC: USAID.

GBC (Greater Baltimore Council). 2020. *Developing an Internship Program*. Baltimore MD, USA: Greater Baltimore Council.

GoR (Government of Rwanda). 2013. *Youth Sector Strategic Plan 2013-2018*. Kigali: Government of Rwanda.

_____. 2015. National Youth Policy. *Towards a HAPPi Generation*. Kigali: Government of Rwanda Ministry of Youth and Information and Communication Technology.

_____. 2018. National Agriculture Policy. Kigali: Government of Rwanda Ministry of Agriculture and Animal Resources.

Green, K., E. Bagaye, R. Blum, L. Woolf, L., and C. Jessee. 2019. *USAID/Rwanda Youth Assessment*. Washington, DC: YouthPower Learning.

Harrington, L. W and R. Tripp. 1984. "[Recommendation Domains: A Framework for On-Farm Research](#)." [Economics Working Papers](#) 232445. El Battan, Mexico: International Maize and Wheat Improvement Center.

HoReCo (Horticulture in Reality Corporation) 2020. *Welcome Message by the Representative*. HoReCo website, <http://horeco.rw/>

Huber, C. 2020. *Youth Development Project (YDP) Uganda: Lessons Learned*. Zurich, Switzerland: Jacobs Foundation.

IFAD (International Fund for Agricultural Development). 2019. *Creating opportunities for rural youth: 2019 rural development report*. Rome: IFAD.

Jackel, D. 2011. *Evaluating the effectiveness of an internship program*. Paper no. 117. Service Learning Commons. Western Kentucky University. Bowling Green, KY, USA.

KEGRA (Keirere Green Africa Agency). 2020. *Youth and Farming*. Downloaded June 23, 2020 from Keirere Green Africa Agency website <http://www.kegra.org/our-profile/>

Kigali Farms 2017. *Oyster Mushrooms for Health and Wealth* (video). Kigali, Rwanda: Kigali Farms. Downloaded on May 17, 2020 from <https://www.youtube.com/watch?v=QCcjhVGnmhU>

Kiptot, E. and S. Franzel. 2011. *Gender and Agroforestry in Africa: Are Women Participating?* Occasional Paper No.13, Nairobi: World Agroforestry Centre. Available: <http://www.worldagroforestry.org/downloads/Publications/PDFS/OP16988.pdf>

Kotler, P. 1980. *Marketing Management*. Engelwood, NJ: Prentice Hall Inc.

Kwibuka, E. 2016. Parliament passes law cutting age cap. Kigali: New Times, February 4, 2016. Downloaded August 6, 2020 from <https://www.newtimes.co.rw/section/read/196766>

- Lohento, K. and O. D. Ajilore. 2015. Chapter 5: ICT and Youth in Agriculture. In: *Africa Agriculture Status Report: Youth in Agriculture in Sub-Saharan Africa*. Nairobi, Kenya: Alliance for a Green Revolution in Africa (AGRA).
- Mbabazi, J. 2018. *Meet 18-year-old Student who Makes a Living from Mushroom Farming*. Kigali: New Times, December 10, 2018. Downloaded on May 17, 2020 from <https://www.newtimes.co.rw/business/meet-18-year-old-student-who-makes-living-mushroom-farming>
- McGill, K. 2018. *Cultivating Youth Entrepreneurs in Rwanda's Agriculture Sector*. Research Triangle Park, North Carolina: RTI International.
- Rwanda, MINAGRI (Ministry of Agriculture and Animal Resources). 2016. The National Information and Communication Technologies for Rwanda Agriculture (ICT4Rag) Strategy (2016-2020). Kigali: Ministry of Agriculture and Animal Resources.
- _____. 2017a. *The Strategic Plan for Agricultural Transformation 2018-2014, Phase IV*. Kigali: Ministry of Agriculture and Animal Resources.
- _____. 2017b. *Determining the Range of Fees for Veterinarian Services*. Ministerial Order N° 017/11.30 OF 21/12/2017. Ministry of Agriculture and Animal Resources
- New Times. 2015. New Government Policy Lowers Youth Bracket. Kigali: New Times, November 15, 2015.
- Niyigaba, E. 2018. *Informed Farmers are Successful Farmers*. GFAR (Global Forum on Agricultural Research) Impactors Series. Rome: GFAR.
- PSDAG (Private-Sector Driven Agricultural Growth Project). 2018. Gender and Social Inclusion Learning Event. Kigali: USAID Feed the Future Project: PSDAG.
- RAB (Rwanda Agricultural Board). 2016 Twigire Muhinzi: Increase yield and foster solidarity. PowerPoint Presentation, Kigali: Rwanda Agricultural Board. October 2016.
- Ragasa, C., J. Ulimwengu, J. Randriamamonjy, and T. Badibanga. 2013. *Assessment of the Capacity, Incentives, and Performance of Agricultural Extension Agents in Western Democratic Republic of Congo*. IFPRI Discussion Paper 02183. Washington DC: International Food Policy Research Institute.
- RecyCoal. 2020. *Our First Site: Deyi, Ltd. Doncaster, UK: RecyCoal*. Downloaded on May 17, 2020 from <https://recycoal.org/our-first-site-deyi-ltd>.
- Scheer, J. and J. Ariko. 2019. *Village Agent Model Study: Likely Effect on the Ugandan Agricultural Sector*. USAID Feed the Future Developing Local Extension Capacity Project. 2019
- Silvia, S., N. Efa, R. Musebe, and M. Kimani. 2019. *Complimentary Feasibility Study of a Customized Agricultural Extension Project*. Kigali, Rwanda: Ministry of Agriculture and Animal Resources.

Tambo, J., C. Aliamo, t. Davis, I Mugambi, D. Romney, D. O. Onyango, M. Kansiime, C. Alokite, and S. T. Byantwale. 2019. The Impact of ICT-enabled Extension Campaign on Farmers' Knowledge and Management of Fall Armyworm in Uganda. *PLoS One* 14(8):e0220844.

Uganda, MAAIF (Ministry of Agriculture, Animal Industry and Fisheries). 2013. *The National Agriculture Policy*. Kampala: Ministry of Agriculture Animal Industry and Fisheries.

_____. 2016a. *National Agricultural Extension Policy*. Kampala: MAAIF.

_____. 2016b. *National Agricultural Extension Strategy 2016/17 - 2020/21*. Kampala: MAAIF.

_____. 2017a. *National Strategy for Youth Employment in Agriculture*. Kampala: MAAIF.

_____. 2017b. *Process of Registration and Accreditation of AEAS Providers*. Kampala: MAAIF.

_____. 2017c. *Guidelines and Standards of Agricultural Extension and Advisory Service Provision*. Kampala: MAAIF.

_____. 2017d. *Ethical Code of Conduct for Agricultural Extension and Advisory Service Providers*. Kampala: MAAIF.

_____. 2019. Ministry of Agriculture, Animal Industry and Fisheries. *Integrating the Village Agent Model into the Agricultural Extension System*. PowerPoint Presentation. Kampala: MAAIF.

Uganda, MAAIF (Ministry of Agriculture, Animal Industry and Fisheries and FAO (Food and Agriculture Organization of the United Nations). 2017. MAAIF-FAO Youth Champions Initiative 2017. Entebbe, Uganda: MAIFF and FAO. Available: <https://www.hiretheyouth.org/maaif-fao-youth-champions-initiative/>

Uganda, Ministry of Gender Labour and Social Development. 2011. *The National Employment Policy for Uganda*. Kampala: Ministry of Gender Labour and Social Development.

Uganda, MOFPED (Ministry of Finance, Planning and Economic Development). 2020. *The National Development Plan III*. Kampala: Ministry of Finance Planning and Economic Development.

UIS (UNESCO (United Nations Educational, Scientific and Cultural Organisation) Institute of Statistics). 2020 Education in Africa. The United Nations Educational, Scientific and Cultural Organisation Institute of Statistics. Downloaded on August 6, 2020 from <http://uis.unesco.org/en/topic/education-africa>

USAID (United States Agency for International Development). 2018. *Global Food Security Strategy Technical Guidance for Youth*. Washington DC: USAID Feed the Future. www.feedthefuture.gov

USAID (United States Agency for International Development) Youth Power Program. 2018. *What Works in Youth and Agriculture, Food Security, and Nutrition*. Retrieved from Youth Power: <http://www.youthpower.org/what-works-youth-and-agriculture-food-security-and-nutrition#YouthAssessmentTools>

USAID (United States Agency for International Development). 2019. *Rwanda Private Sector Driven Agriculture Growth Project. Final Report*. Washington, DC: USAID.

World Bank. 2008. *World Development Report: Agriculture for Development*. Washington, DC: World Bank.

World Bank. 2019. *Ease of Doing Business Rankings*. Downloaded on July 22, 2020 from www.doingbusiness.org. Washington, DC: World Bank.

Yami, M., F. Shiferaw, T. Abdoulaye, A. D. Alene, Z. Bamba, and V. Manyong. 2019. African Rural Youth Engagement in Agribusiness: Achievements, Limitations and Lessons. *Sustainability*, 11:185:1-15.

YEAN (Youth Engagement in Agriculture Network). 2020. *Agriculture Extension: Informed Farmers are Successful Farmers*. Kigali, Rwanda: YEAN.

YouthPower Learning. 2018. *Feed the Future Project Design Guide for Youth-inclusive Agriculture and Food Systems*. Washington DC: United States Agency for International Development Bureau for Food Security.

APPENDIX: RECOMMENDATIONS SPECIFIC TO PARTICULAR MODELS

1. Training youth to become agripreneurs

An important challenge of many agripreneurship training programs is that they are not integrated into a broader strategy of achieving self-employment and the various support services that can help. These other services include foundational training (e.g. financial literacy), coaching and access to financial services. During the design phase of a training program, planners need to determine whether these services are needed and, if so, how they trainees can access them.

A second important challenge is the need for rigorous impact assessments to determine the benefits of training programs and how to improve them. Wherever possible, these assessments should involve experimental or quasi-experimental designs, compare trainees with a control group not receiving training, take into account intra-seasonal differences and the effects of good and bad agricultural seasons and take costs into account as well as benefits. It is critical that impact assessments be aimed at improving performance and not just assessing benefits. For example, assessments could compare different intensities of coaching/mentoring to determine for how long these are needed and how frequently mentors/coaches should meet with trainees.

2. Village agents

Digital tools can strengthen the village agent model in several ways: by improving efficiency through enhanced communication and feedback, by increasing the number of services that can be accessed digitally, by supporting village agents with extension information and advice and by adding prestige to agricultural vocations. Some key research needs include:

- Assessing the cost-effectiveness of call centers as backup for village agents.
- Determining the optimal amount of extension training for a village agent.
- Finding ways to make digital tools more accessible to women. For example, would a call center for women with female responders, help increase women's participation?
- Testing the effectiveness of videos as tools that village agents can use to help farmers access advice and information.

Subsidies are justified for testing new digital tools as long as there is a clear business plan and timeline for phasing them out. There is also an important role for government and donor agencies to play in funding the evaluation of such tools, how to improve them and their impact, particularly for reaching disadvantaged groups such as youth and women

3. Youth-led & other fee-based extension providers

A key recommendation for policymakers in Uganda for increasing the number of youth-led EAS providers is to reduce the cost of starting and operating a business. Particular areas where Uganda ranks low are in ease of starting a new business, getting electricity, registering property, paying taxes, getting credit and enforcing contracts.

A second recommendation is to help youth-led extension providers in both countries to introduce and assess digital tools. The same recommendations mentioned above for private companies using village agents are also relevant for youth-led extension providers. The argument for subsidizing the testing and evaluation

of new tools is as relevant in the case of youth-led extension providers as it is for companies using village agents.

4. Internships in Extension and Advisory Services

Youth internships had high levels of benefits for youth and private companies alike. Expanding internships to high school students and vocational students could add to these benefits. Ways should also be sought for the private sector to take on more of the costs of internships since they are reaping benefits from them. Research could also help determine ways to improve internship programs. For example, research could help assess whether 12-month internships in EAS result in significantly more youth employment than 6-month ones. Would 6-month internships be preferable, giving an opportunity for twice as many youth to get involved?

5. Paraprofessional extension workers

The percentage of paraprofessionals who were women in the cases assessed in this report were low, 22%. The reason appears to be because no special effort was made to recruit women. In such cases it is important to find out why women do not participate and determine how recruitment rates could be increased. Some possible measures might include seeking out female leaders and asking them to assist in identifying candidates and to advise on ways to identify women candidates. Recruiters can also seek qualified women and invite them to apply. Another suggestion is to state in the job advertisement that applications from women are particularly welcome.

6. Credit and financial services

Funds for credit programs need to be channeled through banks or other financial institutions instead of through local government agencies. This not only ensures sustainability but allows farmers to start long-term relationships with private financial institutions. If governments wish to subsidize credit they can do so by acting as a guarantor for loans or subsidizing the bank's interest rates. Creating a formal link with private or public extension services can help ensure that farmers use loans effectively and are able to repay them. A second problem in credit programs is that they are sometimes not closely linked to other services that are needed for self-employment programs to be effective. These services include training in financial literacy, technical and business training and coaching/mentoring. EAS can play an important role in providing these.

7. Youth agripreneurship awards

Youth awards have important benefits including recognition, learning, networking and changing attitudes. Moreover, they can be implemented at low cost. For example, cash rewards may not be necessary if recognition and networking are the key benefits. Prizes can be solicited from service providers and input suppliers who can benefit from the recognition given to them for offering prizes such as restaurant meals, hotel stays and agricultural inputs. Moreover, competitions can be organized at district or regional levels to avoid the high transport costs associated with national ones. An ex-post evaluation of the FAO-MAIFF youth champions awards program would be useful for assessing how the winners benefitted from the various types of benefits—recognition, learning, networking and cash—and which were most important to them.