



**ROOTS**  
SEEDING CHANGE FOR THE FUTURE

Roots Africa Inc





*Together we're making changes in the poorest communities of sub-Saharan Africa" - ROOTS*







*Roots-Africa aims to improve the economics and productivity of African countries by training agricultural students to become extension agents in their communities.*

## **What Problem Do We Tackle?**

Roots Africa is tackling triple crises of poverty, agricultural inefficiencies and environmental erosion that impact the poorest communities of sub-Saharan Africa. We do this by training community members on how to grow vegetables, fruits, and rear animals to provide a base income and a local source of nutrition for thousands of people in Liberia and Uganda. We also provide climate-adaptive technology training, such as preparing organic compost fertilizer at home using household wastes. This report provides an overview of our accomplishments of the past year and our plans for the future.

Agriculture is generally referred to as the mainstay of the African economy, the real driver of economic growth. Agricultural extension plays a critical role in African development by bringing the farming community information on new technologies, which can be adopted to increase productivity, incomes, and standards of living. Therefore, extension staffs are key players in the development process. However, the numerous challenges faced by the extension systems in Africa limit their effectiveness in promoting smallholder farmer's productivity.



According to the Ministry of Agriculture in Uganda, the current extension worker to farming household ratio is about 1:1800, improving from the 2014-2015 ratio of 1:5000.

In Liberia, there are over 1 million smallholder farmers, and as of 2014, the ministry of agriculture employed only 72 extension officers to service the entire country, resulting in impossibly high farmer-to-officer ratios.

The COVID-19 pandemic, conflict, drought, economic woes, and extreme weather are reversing years of progress in African nations. As of 2019, 234 million sub-Saharan Africans were chronically undernourished, a higher percentage than

what is experienced in any other region.. In the whole of Africa, 250 million people (nearly 20% of the population) were experiencing hunger.

Agriculture extension services can contribute to boosting helpful crop yields by sharing useful information with smallholder farmers. Evidence suggests that it leads to economic growth and poverty reduction at the country level. While millions of young people enter the workforce each year, agriculture and agriculture extension represent a path for young people to earn a living and contribute to national economic growth with relevant technical skills.







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**234Million**

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# How We Address The Problem

Roots Africa aims to improve the economics and productivity of African countries by training agricultural students to become extension agents in their communities. These students receive rigorous extension training from extension experts in the US and Africa.

The agents and experts train the "changemakers" predominantly via videoconferencing. Changemakers, in turn, train farmers in their local communities through in-person visits, demonstration plots, field forums, and other means such as WhatsApp and Facebook.

With the impressive impact effected by the "change-makers so far, Roots Africa is confident of the future exponential possibilities of the concept. Since COVID-19 struck, "Changemakers' ' have been building solar dryers, producing and selling compost, extending technical assistance via social media, and inviting farmers to their backyard gardens and demonstration plots.



*"If each student we train reaches out and trains 10 farmers, we will change the world one student and ten (10) farmers at a time."*

# What We Aim To Achieve

Our Changemaker model will have a multiplier effect all over the African continent. Our belief is, "If each student we train reaches out and trains ten (10) farmers, we will change the world one student and farmer at a time."

## Program goals:



**Train 1,000** agriculture students in Uganda and Liberia

We train by teaching them the attitudes, skills, and knowledge necessary to be effective agriculture extension agents in communities.



**Students will train 10** farmers each

Support & encourage each of the 1,000 trained students to train at least ten (10) farmers each.



**Promote Agriculture Extension Service.**

Promote the knowledge exchange among African countries regarding effective and efficient Agriculture Extension Service.



**Elevate 1Million** farmers out of poverty

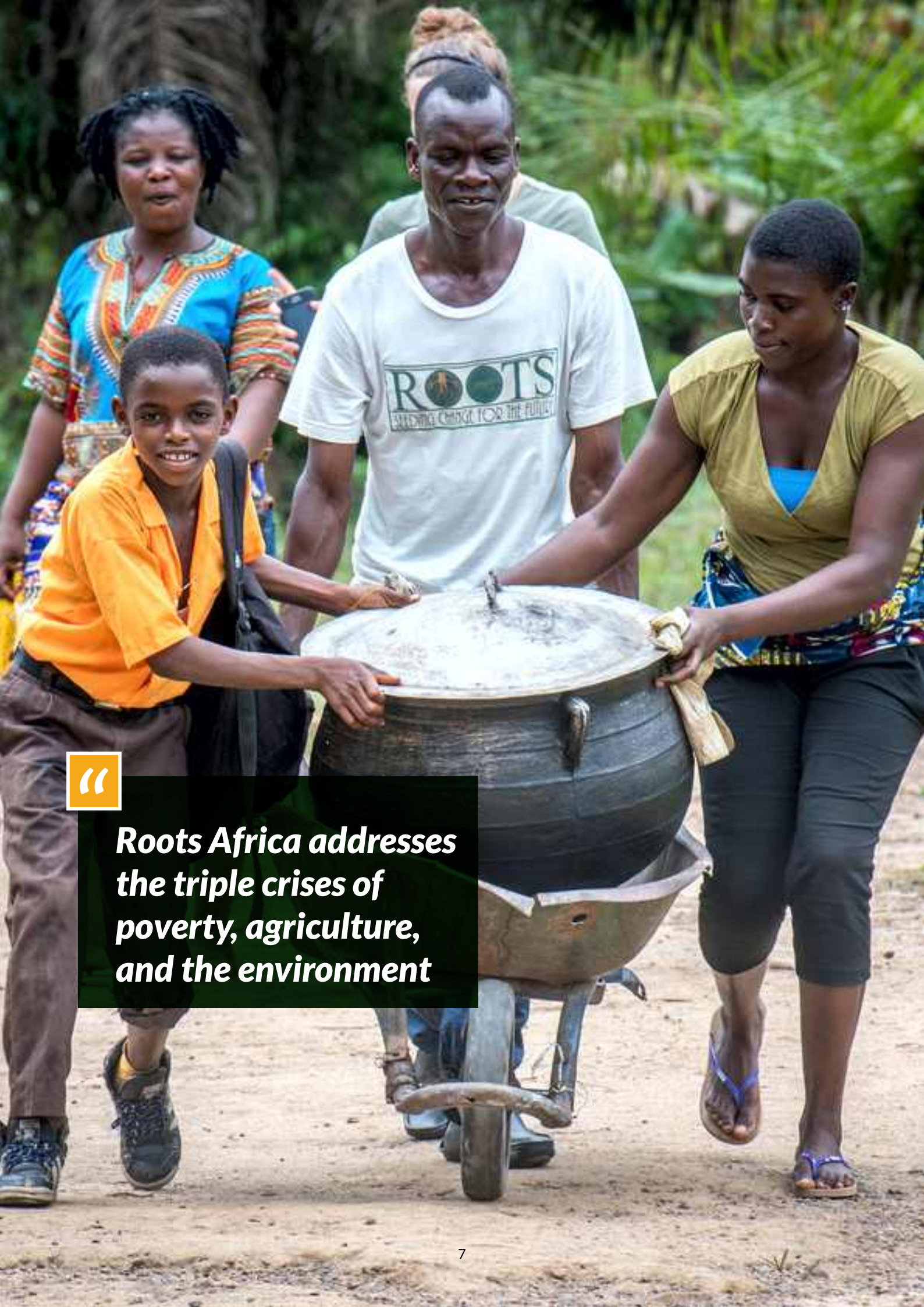
By Monitoring and Evaluating the program impact on lives and communities, we will get closer to our organisation goal of elevating 1 million farmers out of hunger and poverty.



**Foster relationship**

Foster relationships and cultural exchanges between farming experts in the U.S. and agriculture students in Africa.





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***Roots Africa addresses the triple crises of poverty, agriculture, and the environment***



# Where We Work

Roots Africa chapters work at the local level to carry out context-specific solutions to achieve our mission. Here are our current chapters:



**University of Maryland, College Park**



**Liberian International Christian College**



**University of Liberia**



**Uganda Martyrs University**



**Bukalasa Agricultural College**

**★** *Bukalasa Agricultural College employed 12 extension students who have trained 352 farmers so far*

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*Liberian International Christian College deployed 7 extension students who have trained 515 farmers*

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*Uganda Martyrs University employed 21 extension students who have trained 220 farmers*

As mentioned earlier, our chapters received coaching and guidance from Roots Africa by connecting trained university students and experts with farmers.

Starting January 2021, Bukalasa Agricultural College employed 12 extension students who have trained 352 farmers so far on topics ranging from record-keeping, vegetable cultivation, animal nutrition, farming practices, urban home composting, and backyard farming.

Over the same period, Liberian International Christian College deployed seven (7) extension students who have trained 515 farmers to improve soil health, add value to agricultural production, advertise, and market farm outputs.

Uganda Martyrs University employed 21 extension students who have trained 220 farmers and several other students



## What We Do

### Composting.

Composting as a solid waste management approach is very relevant in the highly populated urban areas of low-income countries, which are characterized by limited waste handling facilities.

In Uganda, like in many other low-income countries, over 53% of all the solid waste generated in urban centers is from residential households. However, composting of these organic wastes is limited, often practiced by only a few households and primarily for individual household gardens.

Roots Africa noticed that many urban smallholder farmers in Kampala lack access to quality fertilizer. Yet, they generate lots of food waste that can be turned into compost and used as an alternative to artificial fertilizers.

We select farmers, including those who own small backyard gardens or are willing to start one and train them to make home composting using black soldier fly larva. Each farmer needs a container/drum/wooden box to use as composting bin. The food wastes are poured into the composting bin with about 70g of baby larvae. Within 14 days, as they feed to grow, they break down about 15kg of food wastes into 4.5 kilograms of fertilizer and 2.5kg insect larvae.

The fertilizer is used for the backyard garden, and the insect larvae are used to feed chickens. This homemade fertilizer is cheaper than the organic fertilizers available in the local market, which is costly for a low-income family. Moreover, individuals can make an additional income by selling their produced fertilizers.

## What We Do

### Record Keeping

Most farmers do not attach a great deal of importance to record-keeping in their farming operations. Farmers often talk of profit and loss by intuition or guessing rather than facts and figures derived from record books. This failure to keep records results in part from the subsistent nature of production and the educational background of the farming communities.

With a view to helping the smallholder farmers understanding and implementing effective record-keeping practices, Roots Africa is providing training on the following areas.

- Keeping a record for inventory/farm inputs
- Calculate cost of goods sold.
- Calculate gross margin and net profit with the cost of production and revenue earned.
- Maintain financial records using cash book, ledger, trading account, profit, and loss account.
- Selecting an appropriate crop insurance policy
- Preparing a budget for the farming
- Maintaining diary for daily transactions
- Calculating assets and liabilities
- Keep a record of the quantity harvested and consumed by the farmer.
- Animal recordkeeping for disease prevention/keeping animal health records.



## What We Do



By 2030,  
**20% of**  
the world's population is  
expected to live in Africa.

## Vegetables and crop production

Given the large and rapidly growing population of Africa, food demand is expected to soar, creating new growth opportunities for the producers in the African agricultural sector.

By 2030, 20% of the world's population is expected to live in Africa. In addition, hunger in sub-Saharan Africa is increasing across all regions, and almost 20% of the continent's population is undernourished, the highest in the world.

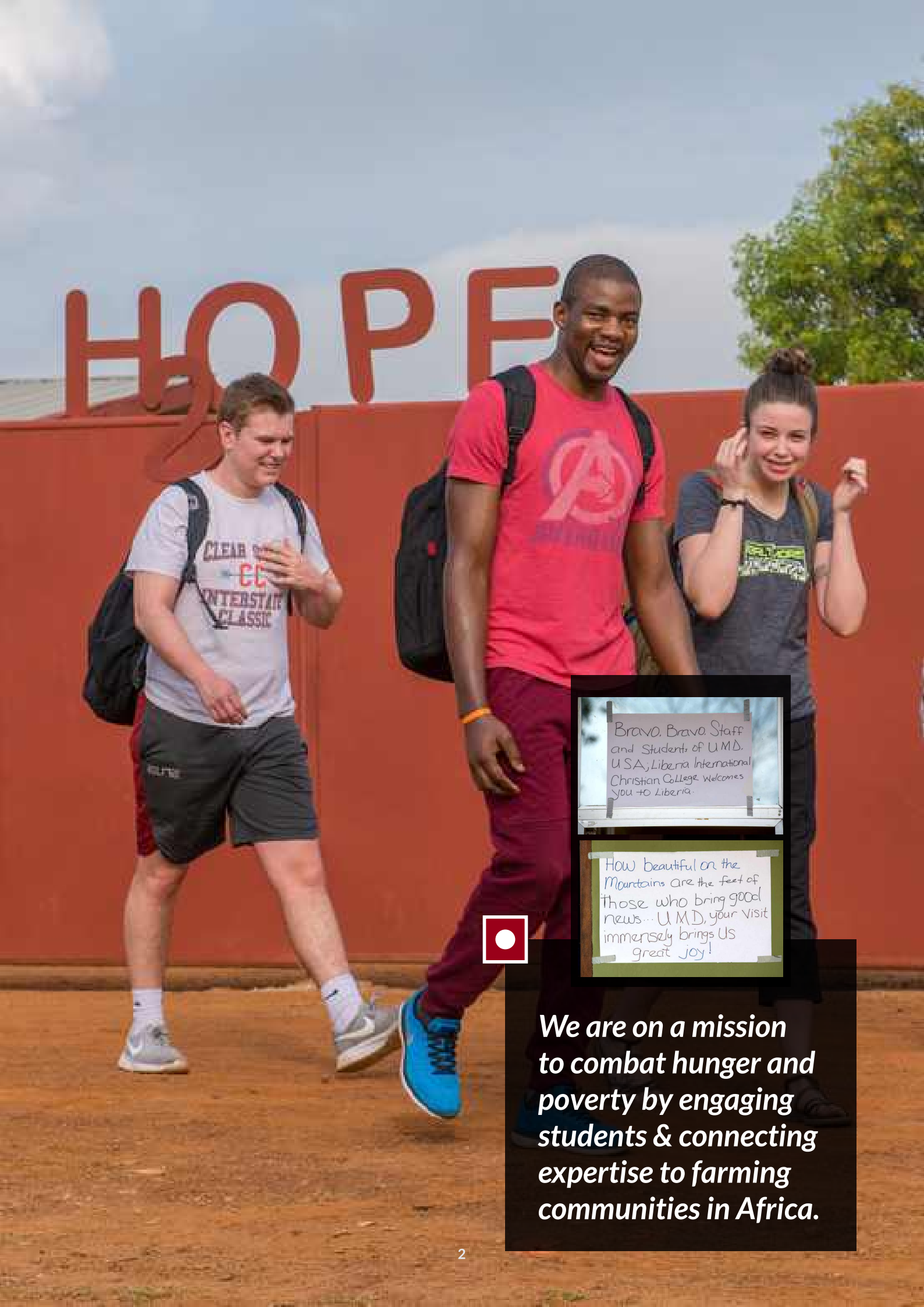
Intending to have a “Green Revolution” all over Africa and to address the economic and nutritional challenges through regenerative agricultural development, Roots Africa is encouraging local farmers to produce vegetables/crops/fruits such as tomato, vanilla, coffee, sweet potato, banana, papaya, groundnuts, beans, and maize.

Our pieces of training are targeted at smallholder farmers to understand better the importance of vegetables and crops for food security. We instruct farmers on the following issues.

- Key constraints to vegetable/crop production and mitigation measures.
- Best practices in the establishment and management of vegetable/crop field trials
- Soil and water management in vegetable/crop production
- Be better able to establish and manage vegetable nurseries or crop seedlings and produce healthy seedlings for transplanting.
- The major diseases and pests of vegetables/crops and the appropriate mitigation measures.

We transfer appropriate ideas/technologies to the poor farmers who produce vegetables/crops, accelerate food production in their community, increase income, thereby alleviating poverty.





Bravo, Bravo Staff  
and Students of U.M.D.  
U.S.A.; Liberia International  
Christian College Welcomes  
you to Liberia.

How beautiful on the  
Mountains are the feet of  
those who bring good  
news... U.M.D., your visit  
immensely brings us  
great joy!



**We are on a mission  
to combat hunger and  
poverty by engaging  
students & connecting  
expertise to farming  
communities in Africa.**



## What We Do

### Animal husbandry

Small and medium-sized livestock like poultry, sheep, goats, and pigs are viable and profitable enterprises that can be quickly adopted and adapted by small-scale farmers in Africa.

Our practical extension and training enable farmers to raise livestock successfully. With our appropriate training, small-scale farmers learn about safe and hygienic practices in pig production.

Besides production knowledge, we also provide training on marketing skills to educate small-scale farmers on marketing, understand their local markets, and increase livestock sales. Farmers are also empowered with

business skills, such as calculating costs, estimating yields, evaluating potential profit, etc.

Livestock farming exponentially improves the livelihood of the poor and vulnerable small-scale farmers.

The trained farmers recognize the importance of livestock farming as a significant source of family income and a supplementary source of funds for different purposes. Other purposes might include financing children's schooling, using during the celebration of festivals, paying dangerous off a debt, and saving for future contingencies.



## What We Do

### Post-harvest handling.

Agricultural products are highly perishable, and farmers suffer financial losses when correct post-harvest paying measures aren't taken. Therefore, to maintain the quality of fresh agricultural outputs, we provide training on the postharvest handling process for different fruits, vegetables, and crops.

We train farmers on environmental and human health-friendly techniques to preserve quality agricultural output through step-by-step drying, threshing, winnowing, and sorting to increase the storage life. Following our techniques, farmers benefit by reducing harvest loss, weight loss, and output decaying.



## What We Do

### Soil health improvement.

Roots Africa provides training on maintaining healthy soil, which is the foundation of productive and sustainable agriculture.

This training helps farmers maintain improved soil health by reducing soil erosion, maximizing water infiltration, improving nutrient cycling, saving money on inputs, and ultimately enhancing the resiliency of the farmland.

Our diverse farming approaches create awareness of soil health among farmers, helps them understand what soil health entails, how soil health is measured, and how to manage soil health for optimal and sustainable delivery of the agricultural outputs that soil provides.

To promote the sustainable management of soils to improve soil productivity, we advise farmers on the following strategies:

- Reduce soil disturbance
- Improve crop rotation practices
- Improve cover cropping practices
- Diversify production systems
- Add soil organic amendments
- Integrate livestock into cropping systems
- Promote diverse plant species with different rooting depths
- Sustain animal grazing practices





## What We Do

### Integrated pest management.

Farmers often use hazardous pesticides taking few or no safety measures. Human exposure to hazardous pesticides leads to several acute and chronic health effects and may affect the health of both farmers and consumers.

Acute symptoms are widely experienced among farmers with a high prevalence in African countries. Poor pesticide practices are caused by the lack of knowledge concerning side effects and lack of instructions on pesticide usage.

Roots Africa provides pest management training to farmers to improve their pesticide practices and to reduce the use of pesticides which is at the same time beneficial for the environment. Instead, we insist farmers use organic pesticides, which contributes to reducing health hazards for small-scale farmers.



# Training Provided

Pieces of training were provided to the farmers

Country of operation	Roots Africa chapter	Intervention/Training
Uganda	Bukalasa Agricultural College	Recordkeeping, monitoring, and evaluation
		Vegetable production
		Animal husbandry
		Composting
	Uganda Martyrs University	Soil health improvement
		Animal husbandry
		Vegetable production
		Composting
		Post-harvest handling
		Integrated pest management/Urban farming and organic pesticide use
Liberia	Liberia International Christian College	Radio out each
		Value-added agriculture
		Composting

## Challenges We Are Facing



The COVID-19 pandemic restricted the ability of extensions students to engage “face-to-face” with farmers due to travel restrictions and banning of public gatherings. However, students have adapted, turning to Zoom to deliver extension services to the smallholders.

While Zoom presents a lifeline to keep programs running, prices for mobile data are a challenge for both farmers and students. In Africa, on a good day, one has to spend about \$3/day for a one-day data bundle. Given the increased use of mobile data, \$50 monthly support is not enough for students to render extension knowledge, training, and transport costs.

To overcome this challenge, we are re-designing our pieces of training and communications to more effectively utilize local Wi-Fi signals and shared internet connections.





# What Does The Future Holds?

**T**hrough our interventions, Roots Africa addresses the triple crises of poverty, agriculture, and the environment. We have accomplished a lot, but there is more to do.

As we look to the coming year, we strive to scale up our programs by involving students of tertiary level agricultural educational institutions to develop the agility needed to respond to the impacts of changing climate on agricultural productivity losses and entrenched poverty in their respective countries communities.

To our supporters, we thank you for your contributions of time, knowledge, and funding. Together we are making changes in the poorest communities of sub-Saharan Africa. We could not do this work without you. We look forward to your continued support and partnership over the coming year.

Sincerely,  
Team Roots Africa







What Does The Future Hold?



**We will change the world one student and one farmer at a time!**



