



The Movement for
**SCHOOL-BASED
AGRICULTURAL EDUCATION**

Haley Q. Traini

Author

Trent McKnight

Author

2024

SBAE Ready:

A Technical Guide to Implementing
School-Based Agricultural Education
in Developing Countries



Sponsored by **The Movement for School-Based Agricultural Education**

Funded by **Oregon State University College of Agricultural Sciences and AgriCorps, Inc.**





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**College of Agricultural
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Acronyms

ADF	French Development Agency
ASO	Agricultural student organization
BWI	Booker Washington Institute
CARI	Central Agriculture Research Institute
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer field school
HEP	Home entrepreneurship project
ME&L	Monitoring, Evaluation, and Learning
FO	Field officer
IPA-L	Innovations in Poverty Action – Liberia
LEAD	Leadership, Education, Agriculture and Development
LICC	Liberian International Christian College
M&E	Monitoring and evaluation
MoA	Ministry of Agriculture
MoE	Ministry of Education
MoU	Memorandum of Understanding
NGO	Non-governmental organization
PPE	Personal protective equipment
PTA	Parent-teacher association
R&D	Research and development
RCT	Randomized controlled trial
SBAE	School-based Agricultural Education
SDF	School demonstration farm
STEM	Science, technology, engineering, and math
USAID	United States Agency for International Development

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Executive Summary

SBAE Ready: A Practical Guide to Launching School-Based Agricultural Education in Developing Countries is a manual designed to facilitate the establishment of school-based agricultural education (SBAE) programs in developing nations. This guide spans a broad spectrum, from the national to the local levels, covering the entire implementation process. It serves as a complement to the 2021 document titled *Empower Youth, Transform Agriculture: An introductory Guide to School-Based Agricultural Education in Sub-Saharan Africa*, which delves into the theoretical aspects of SBAE, including its models, objectives, and foundational principles.

This resource is organized into four main sections, systematically guiding readers through the core concepts, ideas, and recommendations for effectively initiating SBAE within their country. Its primary audience comprises government bodies, non-governmental organizations (NGOs), development agencies, and individuals keen on promoting SBAE initiatives globally.

Section 1 introduces SBAE, explaining its four pivotal components: classroom instruction, school demonstration farms, home entrepreneurship projects, and leadership development. This section also offers a brief review of how the SBAE model strives to harness youth to transform agricultural communities and concludes with an overview of the critical phases of introducing SBAE at national and local levels.

Section 2 outlines crucial maneuvers and suggestions to institute SBAE nationally. It encompasses strategies for securing and integrating governmental backing, hiring national staff, and identifying schools and communities primed for successful SBAE programs.

Section 3 highlights the curriculum and training components essential for initiating SBAE. It identifies which school and government officials should undergo training and delineates the areas of focus. Furthermore, it delves into comprehensive best practices for imparting practical training sessions and facilitating learning experiences.

Section 4, the final section, is dedicated to steering the launch of SBAE within schools and local communities. It furnishes practical recommendations and considerations for bolstering the four components of SBAE on the ground. This entails guiding the adoption of student-centered experiential pedagogy, strategies for realizing effective school demonstration farms, and ways to support home entrepreneurship projects. It also fosters leadership development through local, regional, and national agricultural student organizations such as 4-H clubs.

SBAE Ready is a practical compass, charting the course for the successful inception and implementation of SBAE initiatives across developing nations.



Section 1. Introduction

An Overview of School-Based Agricultural Education

School-based agricultural education (SBAE) is a 115-year-old, cost-effective system of delivering agricultural innovations into rural communities, guided by a practical, hands-on, experiential learning model in non-dormitory, post-primary schools. By reaching youth where they live and learn, SBAE achieves two core objectives of:

- contributing to youth's academic, vocational, and life skills development through experiential learning methods
- improving rural livelihoods by transferring skills and agricultural innovations into the home and community through schools.

The SBAE system was developed in the early twentieth century by Rufus Stimson, a Harvard-educated philosopher and the president of the Connecticut Agricultural College, which is now the University of Connecticut. Introduced in 1908, Stimson's initial goal was to connect the agricultural research of American land grant universities to farmers through the home projects of public-school students (Stimson, 1919). According to Stimson, this would require both: i) an adequately supported central source of trained teachers and research-backed agricultural innovations, and ii) an inexpensive agricultural service system operating through local schools. The SBAE model introduced in this guide builds on Stimson's concept – diffusing agricultural innovations through youth in schools (Stimson, 1919).

Over the decades since Stimson's ideas were conceived, SBAE has demonstrated its value in regions throughout the world. Today, its potential to support developing countries is especially critical due to the exponential growth of youth populations as well as its profound influence on developing countries' agricultural, economic, and political landscapes (Yeboah, 2018).

SBAE provides a multi-disciplinary approach to agricultural transformation by integrating principles from Diffusion of Innovations (Rogers, 2003), Positive Youth Development (Lerner, et al., 2013), Experiential Learning (Kolb, 1984), and Behavioral Economics (Kahneman, 2011; Kahneman & Tversky, 1979). The model employs four key components of the agricultural education model: classroom instruction, school demonstration farms, home entrepreneurship projects, and leadership development.

SBAE's diffusion of innovation begins by establishing collaboration among governmental organizations, institutions, research offices, and the private sector, and in turn, developing curriculum and training sessions to introduce agricultural innovations to agriculture teachers. Teachers, supported by field officers or extension agents, then pass these ideas to students, who apply them on school and home farms. By involving agricultural student organizations (ASOs), such as 4-H clubs, SBAE allows students to develop leadership, entrepreneurship, and core life skills.

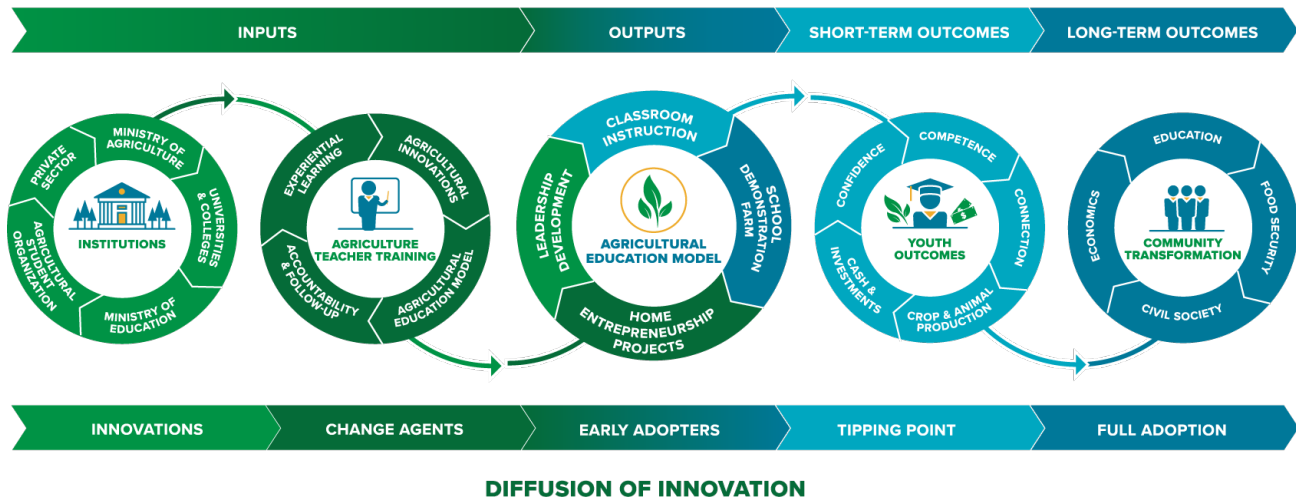


Figure 1. School-Based Agricultural Education System

Being more open to influence and unburdened by previous experience, youth are ideal conduits for introducing agricultural innovations into rural communities. Their success on the farm, driven by the science-based knowledge learned at school, piques the curiosity of adults and encourages them to replicate and adopt similar measures. SBAE leverages this unique dynamic to facilitate behavioral changes that benefit the students' families and extend to the broader rural community. As these behavioral changes lead more farmers to adopt the successful innovations employed by students, a tipping point of community-wide adoption initiates community transformation.

By creating a community-based learning environment and providing practical agricultural experiences, SBAE also ensures that students recognize the relevance of studying agriculture.

Harnessing Youth Potential for Agricultural Transformation

Farming as Rocket Science

"In the 1920s educational trains trundled through the [American] prairies, pulling boxcars of animals and demonstration crops. At each stop, hundreds would gather for public lectures. Older folk resisted such newfangled ideas as planting hybrid corn bought from merchants rather than seed-corn from their own harvests. Enter the 4-H movement, which gave youngsters hybrid seeds to plant, then waited for the shock as children's corn outgrew their parents'."

Lexington, The Economist, September 7, 2013

Innovations often elicit feelings of uncertainty within social systems, and in agriculture, this uncertainty can be a significant barrier to their adoption (Rogers, 2003). In this regard, young people are an ideal entry point for introducing agricultural innovations into a community because they are generally more open to adopting new ideas than adults, especially within a school setting. They are not blinded by experience and are better equipped with basic proficiency and literacy skills than older generations. Rather than focus on youth solely as early adopters, SBAE also equips and engages youth as change agents for their families and rural communities.

When a young person using innovative methods on the farm outperforms an adult using traditional methods, it challenges the status quo. Not wanting to be outdone by their younger counterparts, adults are motivated to adopt the innovative methods introduced by the younger generation. Such a dynamic highlights the transformative potential of viewing school-aged youth as change agents in their agricultural communities. By employing a series of interventions and nudges within the school environment, SBAE turns educational institutions into hubs for fostering agricultural innovations, benefiting the entire community.

SBAE is not merely about educating the young. It is about “choice architecture”, inspired by *Nudge: Improving Decisions About Health, Wealth, and Happiness*, Thaler and Sunstein’s (2009) work that calls for nudging various stakeholders – teachers, students, parents, and farmers – to make better agricultural decisions.

The following sections of this guide introduce a variety of nudges and interventions that provide comprehensive advice on how to implement the SBAE model. These strategies are intended to support and enhance the adoption of agricultural innovations within the targeted communities. Appendix A provides a detailed breakdown of the different nudges and interventions applicable to each SBAE model component, which contains a comprehensive matrix that offers valuable insights to facilitate an SBAE implementation journey.

Randomized Controlled Trial in Liberia

In 2019, Chris Udry, co-founder of Northwestern University’s Global Poverty Research Lab, and Jimmy Lee, a Ph.D. candidate in Economics at Northwestern University, developed a randomized controlled trial (RCT) to measure the model’s effectiveness in diffusing agricultural innovations and promoting youths’ development.

AgriCorps, a U.S.-based non-governmental organization (NGO) committed to advancing SBAE in sub-Saharan Africa, served as principal organizer for the RCT through coordinating funding, research, curriculum development, and program implementation. 4-H Liberia, a Liberian-registered NGO, implemented SBAE in local schools and oversaw the daily activities of the program. To strengthen the project’s delivery, monitoring, and evaluation components, AgriCorps, Northwestern, and 4-H Liberia formed strategic partnerships with several key institutions, including Innovations for Poverty Action Liberia (IPA-L), the Liberian Ministry of Agriculture (MoA), the Liberian Ministry of Education (MoE), the University of Liberia, Booker Washington Institute (BWI), and the Liberian International Christian College (LICC). Funding was provided by USAID, the French Development Agency (ADF), and the National Science Foundation

The study selected 100 randomized schools for treatment and compared them to 97 control schools. From the 57 4-H clubs that existed before the study, there are now 157 active 4-H clubs across seven counties: Bomi, Bong, Gbarpolu, Lofa, Margibi, Montserrado, and Nimba.

After only 18 months of implementing SBAE, midline research shows a positive effect on students and communities. Girls have boosted their spending on school supplies by 79%, leading to an 11% increase in school retention rates. Students now miss 16% fewer meals, 10% more students consider agriculture-related professions as top career choices, and adult farmers have increased their adoption of improved farming practices by 13%.

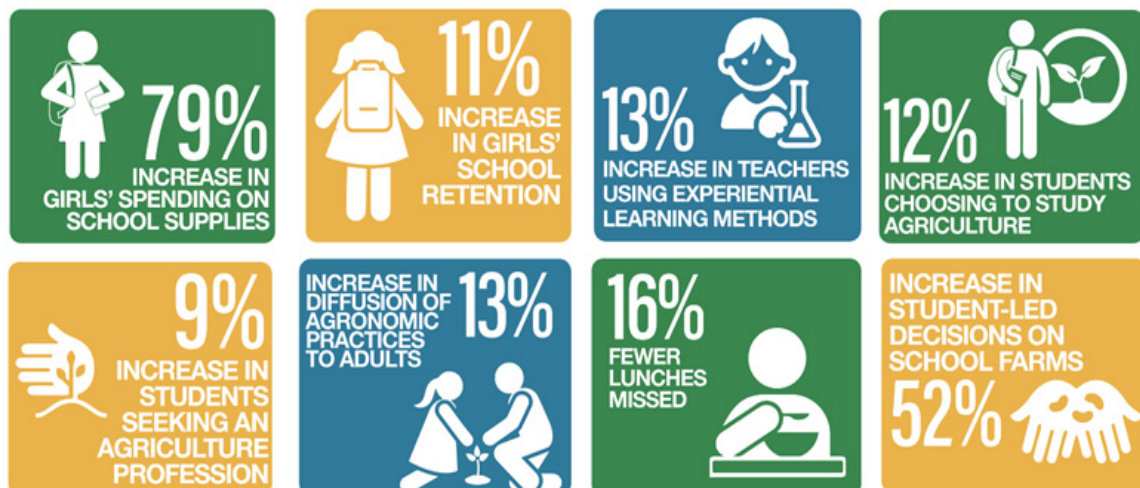


Figure 2. Midline results from the randomized controlled trial

The RCT in Liberia helps validate SBAE's role as an education strategy to boost youth development and speed up the adoption of agricultural innovations. These encouraging results not only support the century-old SBAE approach, but also emphasize its ability to transform agricultural economies in developing regions across the world.

The information in this publication is based on both historical experience and the findings of the four-year research project in Liberia.

Implementation Overview

Successful implementation of the SBAE model necessitates a deliberate and comprehensive 12-step approach that outlines a tentative sequence of actions and their requisite order.

1. Establish an ASO within the country, such as 4-H, to effectively engage and empower the youth.
2. Cultivate partnerships and collaborations with government agencies and departments to garner crucial support and resource access.
3. Recruit and hire qualified national staff.
4. Recruit and hire field officers.
5. Select schools for SBAE that have enthusiastic agriculture teachers, ASOs, school administrators, and parent-teacher associations (PTAs).
6. Identify agricultural innovations suitable for adoption, aligning them with the specific needs and context of the targeted communities.
7. Develop or identify SBAE and technical agriculture curriculum for field officers, teachers, and students.
8. Conduct comprehensive training sessions for field officers, equipping them with essential skills and knowledge for their roles.
9. Provide specialized training for agricultural teachers and 4-H advisors, facilitated by newly trained field officers.
10. Implement the four components of the agricultural education model at the school: classroom instruction, school demonstration farm, home entrepreneurship project, and leadership development.
11. Create motivation tools such as awards, competitions, and events, including agriculture fairs, leadership camps, and recognition awards, to show appreciation for outstanding students, clubs, teachers, and parents.
12. Implement ongoing monitoring, evaluation, accountability, and system maintenance to ensure program sustainability and continual improvement.

The subsequent sections of this guide offer strategies and instructions on each of the above steps.

For detailed information on the origins and theoretical foundations of 4-H and The Movement for SBAE, see *Empower Youth, Transform Agriculture: An Introductory Guide to School-Based Agricultural Education in Sub-Saharan Africa*.



Section 2. Establishing a National SBAE System

Effective implementation of SBAE requires localized efforts within communities and schools as well as robust support from national stakeholders. Involving these players facilitates SBAE activities by encompassing training, monitoring, and ASO initiatives.

This section outlines fundamental steps essential for the successful launch of a national SBAE system. These steps call for integrating institutional support, establishing a national ASO with the appropriate staff to manage operations, identifying school sites with enthusiastic agriculture teachers, administrators, and PTAs, and introducing SBAE to local communities. Figure 3 illustrates the collaborative nature of these stakeholders that will form the bedrock of a thriving national SBAE system.

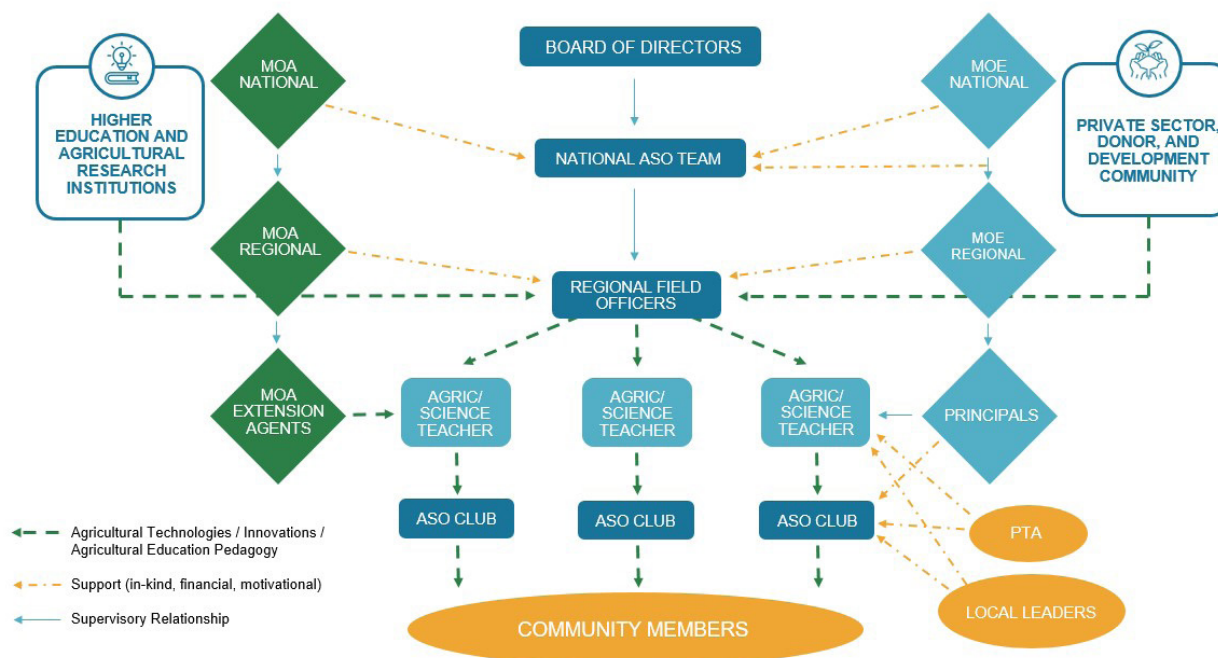


Figure 3. SBAE stakeholder connections

Integrate Institutional Support

The enduring effectiveness of SBAE hinges largely on forging robust partnerships among various participating institutions. First, these partnerships accelerate the spread of agricultural advancements, often spearheaded by the Ministry of Agriculture, into schools managed by the Ministry of Education. Second, collaborations diversify funding streams, thus ensuring long-term operational stability. To achieve sustainable success, it's imperative for national governments to facilitate cross-ministerial collaborations. Engaging the Ministries of Finance, Trade, and Commerce is crucial to unlocking supplementary budgetary resources that the Ministries of Agriculture and Education may not have.

Different government frameworks can facilitate this inter-ministerial collaboration. For example, the Smith-Hughes Act of 1917 established a Federal Board for Vocational Education consisting of the Commissioner of Education and the Secretaries of Commerce, Labor, and Agriculture in the United States. In Liberia, the Joint Department Program for agricultural education comprises representatives from the Ministries of Agriculture and Education. Prior to its communist era, Ethiopia had similar multi-ministerial agreements that also included higher education institutions.

Each country's institutional support may look different, but several key stakeholders are important to consider.

Ministry of Agriculture (MoA)

Serving as a cornerstone for agricultural expertise and research dissemination, and given its main focus of boosting agricultural productivity, the MoA is well-suited to spearhead SBAE initiatives. Depending on the structure of each country's government, other agriculture-related departments may also have roles to play.

Through agricultural extension agents, the Ministry can extend customized farming methods and technological advancements geared towards the needs of local farming communities to a range of stakeholders, including field officers, educators, students, and farmers, particularly in the context of school demonstration farms.

Ministry of Education (MoE)

The MoE plays a crucial role in successfully rolling out SBAE managing schools, teachers, and curricula. It holds a key position in integrating SBAE seamlessly into the broader educational landscape, providing benefits to students and the community at large. At the local or regional level, representatives from the Ministry of Education can serve as champions for SBAE, promoting its value to school administrators.

Higher Education Institutions

Over 1,600 higher education institutions in sub-Saharan Africa offer agriculture-related courses, but there needs to be more coordination between primary and secondary educational levels (Cletzer, et. al., 2016). These institutions, which train future agriculture teachers, researchers, and extension agents, could serve as the academic backbone for shaping SBAE.

Private Sector and Development Partners

In recent years, private investments in agricultural research and development (R&D) have outstripped public funding. In contexts such as the United States, the private sector accounts for the majority of R&D expenditures. Although this ratio may differ among nations, the overall trend is consistent across high- and low-income countries. A well-structured SBAE system can serve as a conduit between public and private sectors, benefiting curriculum development and the diffusion of technological advancements in agriculture.

Additionally, donor and development partners can help coordinate SBAE with school feeding programs, value chain enhancement, education initiatives, and agricultural innovations.

Legislative Bodies

It is critical not to overlook the importance of legislative bodies, such as a parliament or senate, in representative democracies. Engaging elected members, particularly those on agriculture and education committees, is also critical to long-term SBAE success.

Civil Society

Civil society improves sustainable development efforts beyond the community level. In the context of SBAE, it is important to identify and engage influential groups and individuals who can advocate for SBAE to community members, politicians, and government leaders. Faith-based groups, PTAs, farmer cooperatives, and women's groups can each offer grassroots strength to a country's SBAE system.

Establish an Agricultural Student Organization

Agricultural student organizations (ASOs), commonly called 4-H, Future Farmers, or Young Farmer Clubs, can take various forms, including government entities, NGOs, or public-private partnerships.

Government of Liberia integrates 4-H...

The history of SBAE in Liberia dates from 1952 when Liberia's Secretary of the Department of Agriculture and Commerce (now the Ministry of Agriculture) and its Secretary of the Department of Public Instruction (now the Ministry of Education) commissioned a Joint Department Program to implement the Vocational Education Program (another name for SBAE) for Liberian schools. USAID provided financial assistance.

The first 4-H Clubs emerged from the program in 1956 in Maryland County under the guidance of US agriculture advisor Sandy J. McCorvey – an African-American agriculture extension agent from Alabama. By 1961, the Liberian Department of Agriculture had appointed a national extension staff, including a national 4-H club leader (executive director), to oversee all 4-H clubs and SBAE programs. The national 4-H club leader reported directly to the Department of Agriculture's Director of Extension, and the Department of Agriculture formally employed all school-based agriculture teachers.

During the 1970s, 4-H membership peaked at 27,000 young people in approximately 1,000 clubs. Unfortunately, 4-H and SBAE activities were abandoned in the 1990s due to the civil war, which extended from 1989 until 2003. 4-H was reorganized in 2006 as an NGO and is in the process of rebuilding SBAE in the nation.

These organizations oversee and facilitate various initiatives, employing field officers to coordinate vital activities such as training sessions for agriculture teachers, student leadership camps and competitions, and agriculture fairs and exhibitions. The organizational structure dictates the need for formal registration, aligning with the legal procedures of the local jurisdiction.

Many countries already have an active ASO or at least the history of a strong ASO in the past. For instance, 4-H is located in over 70 countries around the world. Rather than create a new organization, investigate the history of ASOs in the country. When ASOs are rooted in local history as opposed to a directive from a foreign-based development NGO, they positively change the receptivity of politicians, ministers, teachers, and administrators.

If an ASO such as 4-H does not exist in the country, hiring several professionals who can champion SBAE implementation and sustainability will be necessary. Figure 4 outlines an example of the hierarchical structure of an ASO. This is followed by example position descriptions. The specific staffing structure of a particular country's ASO may be slightly different, depending on the size of operations and budget. As such, the following examples illustrate an ideal team's roles and responsibilities.



Agricultural Student Organization Structure

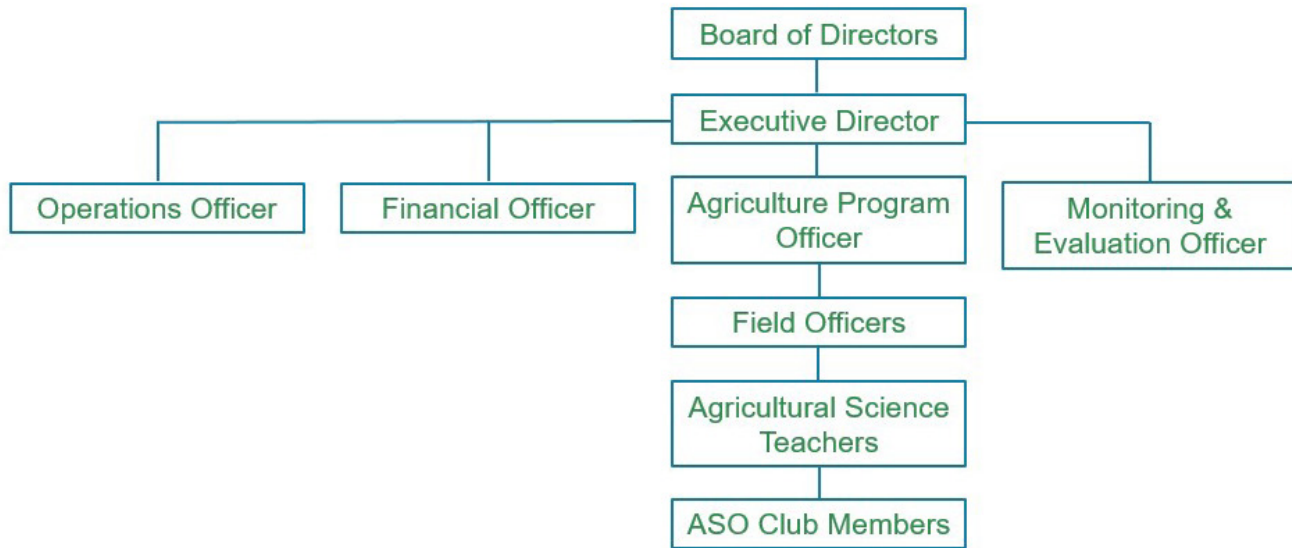


Figure 4. ASO hierarchal structure

Board of Directors

The board of directors holds the highest authority within the ASO, playing a pivotal role in shaping its strategic direction and overall vision. It also ensures the ASO's attainment of financial and operational goals while upholding governance standards. The composition of the board encompasses a diverse spectrum of profiles, ranging from government representatives of MOE and MOA, donors, and representatives from donor organizations to private entrepreneurs within the agricultural sector, including farmers, legal professionals, and financial experts. These members, whether local or international, share a vested interest in the ASO's success, dedicating their intellectual, financial, or social resources to enhance the organization's advancement.

National Executive Director

The national executive director assumes a pivotal leadership role, overseeing the administration, financial management, fundraising, and overall operations. Collaborating with the board chair, the executive director conducts strategic planning and ensures an ASO's program aligns with its mission. The executive director's role also calls for developing funding resources, pursuing grants and international donor relationships, and maintaining financial integrity while at the same time supervising staff, overseeing field activities, and playing an essential role in writing reports and representing ASO to stakeholders.

Civil Society Agriculture Program Officer

The agriculture program officer should have an agricultural background in order to drive the organization's agricultural education initiatives. Working closely with the national executive director, the agriculture program officer designs and executes the national agriculture work plan and calendar of events and has a key role in designing trainings, camps, contests, and the annual national agriculture fair.

Monitoring the progress of agricultural instruction through field visits, the agriculture program officer oversees field officers and teachers on best agriculture practices and proper implementation of the program. Additionally, the agriculture program officer receives monthly reports from field officers, evaluates their performance, and provides recommendations to the national executive director.

Operations Officer

The operations officer manages the ASO's daily operations, including human resource management, procurement, policy compliance, safety and security, and logistics. The operations officer supports the agriculture program officer in organizing trainings and events, including overseeing logistics, venue, printing, and procurement of supplies.

Financial Officer

The financial officer manages financial operations and maintains fiscal integrity by managing the ASO's financial books, verifying and allocating financial transactions, thus ensuring timely payment of invoices. Thorough knowledge of accounting principles and standards is essential, along with strong reporting skills and attention to detail.

Monitoring and Evaluation Officer

The monitoring and evaluation (M&E) officer drives program improvements through continuous learning and adaptation. Regular data collected from the field quantifies outputs and measures the performance of individual teachers and agricultural technologies being promoted, informing changes to the curriculum, training, or projects being implemented. The M&E officer is responsible for donor reports and can support fundraising efforts through grant writing.



Field Officers

Field officers play a critical role in establishing and sustaining SBAE. They oversee and support agricultural education programs, school demonstration farms, home entrepreneurship projects, and ASO clubs within their assigned regions. Field officers must have a post-secondary degree in agriculture in addition to practical experience as farmers. They also must have proficient motorbike skills, be fluent in the relevant local dialects, and be native to the area of their assignment. The latter ensures a sense of pride in their work and creates trust within the communities they serve.

An optimal ratio of one field officer per 10 to 12 communities is recommended to ensure efficient supervision and effective oversight. Field officers report to the agriculture program officer.

The field officers' role entails collaborative work with communities, PTAs, teachers, and school leadership aimed at introducing and nurturing ASO clubs and school-based agricultural education programs within their assigned regions. To achieve this, field officers undertake the following core tasks of training, monitoring, and reporting.

Training & Events

- Facilitate training sessions, including teacher and administrator trainings, PTA trainings, farmer field schools, and classes for students during field visits. These trainings span agriculture, entrepreneurship, and leadership skills.
- Coordinate local LEAD contests, agriculture fairs, and award recognition ceremonies.

Monitoring

- Undertake a minimum of two monthly visits to each assigned school each year to ensure comprehensive oversight of program implementation.
- Contribute agricultural expertise to schools and students regarding school demonstration farm activities and home entrepreneurship projects.
- Offer guidance to school leaders on management linked to school demonstration farm activities, prioritizing the well-being and activities of students and the PTA, and cultivating a student-friendly environment.

Reporting

- Submit reports and work plans consistently to the national ASO office.
- Provide feedback to the national ASO office that enables program improvements.
- Participate in local Ministry of Agriculture and Ministry of Education meetings, delivering comprehensive updates and insights on the ASO.
- Uphold a community-driven approach to the school demonstration farm and home entrepreneurship projects, actively involving community leaders, elders, and residents in the process and ensuring continuous updates on its progress.

Establish SBAE in Local Schools and Communities

Selecting schools for successful SBAE programs calls for following specific criteria and steps. This includes the following.

Emphasize rural areas

To optimize outcomes, directed efforts should be channeled towards rural communities for club establishment, considering that clubs in rural areas typically exhibit superior performance compared to urban and peri-urban locations.

Consider logistics

Recognize the proximity and concentration of a field officer's schools. This is pivotal, as extensive distances can impede visits and engagement.

Make on-site visits

ASO officials should conduct on-site school visits, documenting local interest and adhering to the below criteria:

- Schools interested in participating in the program should be certified by the relevant education authority, such as the Ministry of Education.
- School administrators should express their interest in having an ASO club by submitting a letter of interest to the local ASO field officer.

- Schools must have active PTA members that formally agrees to support the students in establishing and maintaining their ASO club.
- Schools must provide agricultural land with a nearby water source suitable for a school demonstration farm within a 10-minute walk of the school campus.
- Schools must designate a willing science or agriculture teacher who meets the proper requirements to be the ASO club advisor.

School Administrators

School administrators are key to the success of SBAE programs, providing strategic oversight and working with teachers to integrate agriculture into the curriculum. They manage resources, including funding and materials, and engage the community by partnering with local farmers and organizations. Administrators also liaise with PTAs to boost parental involvement, advocate for SBAE, nominate standout students and teachers for awards, and secure additional program funding.

A supportive administration will directly influence the success of SBAE implementation, regardless of field officer and teacher support. After selecting the schools, organize a one-day training session for school administrators, many of whom maintain their own farms and welcome better farming innovations for personal use. Ensure administrators understand and support the program, even before teachers are chosen. If this step is skipped, administrators may not cooperate fully and could assign teachers who don't meet the requirements.

Agricultural Science Teachers as ASO Advisors

School administrators should assign motivated agriculture or science teachers to serve as ASO advisors based on their qualifications, interests, and background. The success of the SBAE program greatly relies on the motivation level of the assigned teacher. A highly motivated teacher distinguishes a successful program from an ineffective one.

While only one teacher is formally designated as an ASO advisor, providing training to an additional teacher is beneficial. This ensures that there is support for the primary teacher, creates a backup in case of teacher transfers, and reinforces the notion that the program belongs to the entire school and not only to the agriculture teacher. In cases where the assigned agriculture teacher becomes disengaged, prompt action should be taken to replace him or her with another motivated individual. Field officers and school administrators can work together to identify suitable replacements.

Requirements

- Paid agriculture or science teacher.
- Current or previous experience as a farmer.
- Enjoys working alongside children.

Responsibilities

- Supervise year-round ASO club activities.
- Inform prospective students and parents about the ASO club.
- Train students in improved agricultural practices.
- Collaborate with the ASO field officer on leadership, organization, and parliamentary procedure training.
- Work alongside the PTA to provide support for farmers in the community and to spread the information that is generated within the ASO club.
- Encourage the involvement of all ASO club members in ASO activities.
- Encourage all members to start and maintain home entrepreneurship projects using the best practices implemented on the school demonstration farm.
- Make monthly visits to all home entrepreneurship projects.

- Prepare students for involvement in agricultural fairs, contests, and other national activities.

Parent-Teacher Association

To ensure the productivity, protection, and success of the ASO club, the school demonstration farm, and home entrepreneurship projects, an active and supportive PTA is imperative. The PTA should actively support the ASO club and dedicate resources and time to help the ASO members thrive. The following outlines the responsibilities of the PTA in supporting the field officer, school administration, agricultural science teacher, and students for the successful delivery of school-based agricultural education.

PTA Responsibilities

- Advocate for and create awareness of SBAE in the community.
- Serve as guardians for all club equipment such as tools, seeds, fertilizers, and other inputs.
- Encourage farmers and ASO club members to donate seeds, tools, and other agricultural inputs as needed and available.
- Support students with their home entrepreneurship projects and explain their importance to reluctant parents.
- Hold the ASO club advisor accountable to implement the program as agreed.
- Encourage other farmers and parents to donate time and labor for agricultural activities such as clearing brush, weeding, and other labor-intensive activities.
- Serve as communication agents with local farmers and community members by sharing improved agricultural innovations from the school demonstration farm.
- Encourage local farmers to visit the ASO club's demonstration farm.
- Participate in PTA meetings and liaise with the ASO advisor to receive updates on school farm activities and upcoming events.

Promotional Video

Research has shown that informing parents about SBAE significantly boosts its impact on students and the diffusion of innovation into households. To do this, field officers should organize a parents' meeting at the start of the school year and present an SBAE promotional video. The video should outline various aspects of the SBAE program and include testimonials from respected community members (e.g., chiefs, teachers, MoA extension agents) and past participants. The testimonials should underscore how the program improves students' farming skills, motivation, and overall livelihoods. The aim is to demonstrate to parents the concrete benefits their children can gain from SBAE. Using local language videos enhances the impact. Following the presentation, an open discussion on parental expectations can foster engagement and address any concerns.

Introduce SBAE to the Community

The success and long-term viability of the SBAE program hinge on fostering enthusiastic community involvement. To achieve this objective, it is recommended to convene a community stakeholder meeting. The primary aim of this meeting is to share the SBAE model and explain the benefit of introducing improved agricultural innovations to farmers and the community at large. Facilitate a conversation concerning the community's potential contributions and support for this endeavor and reinforce the point that SBAE is economic development for the entire community.

Hosting the meeting within the first month of the academic year will ensure that all stakeholders are aware of changes coming to their school and community. Invitees should include the field officer, agriculture teacher, school administrator, town chief, town elders, women leaders, PTA members, male and female farmers, and students.



Section 3. Designing Policies, Curriculum, Training, and Monitoring Programs

Adopt ASO Policies and Procedure

Every NGO must design and adopt a set of governance bylaws that outline how the organization operates. Additionally, the ASO may wish to adopt other policies and procedures relevant to organizational best practices, including human resource policies, sexual harassment and fraternization policies, data management and record-keeping policies, procurement policy, financial audits, budgeting and accounting procedures, donor gift acceptance policy, brand guidelines, social media policy, health and safety guidelines, and a code of ethics. These policies should be reviewed and updated regularly and understood by the board, management and appropriate staff members or volunteers.

Child Labor and Youth Safeguarding Policies

To best protect children and youth, a Child Labor and Youth Safeguarding Policy should be written in accordance with local and international laws. The *United Nations Convention on the Rights of a Child* (1989) Article 32 “recognize[s] the rights of a child to be protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child’s education or be harmful to the child’s health or physical, mental, spiritual, moral, or social development.” It is equally important to note that the *International Labor Organization Convention No. 182* emphasizes that “such light work that is not harmful, but which contributes to children’s development and provides them with skills, attitudes, and experience that make them useful and productive members of their community during their adult life can in no way be equated with harmful child labor.”

The following general principles should guide any safeguarding policies.

- **Best Interest of the Child.** As defined by the *United Nations Convention on the Rights of a Child* (1989), the best interest of the child is “in all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration.” When assessing the best interest of the child, it is necessary to balance all aspects of a child’s life.
- **Duty of Care.** Organizations have a legal responsibility to put systems, standards, and policies in place for the protection of children. ASOs uphold their Duty of Care by having proper hiring procedures set in place, training all staff members on safeguarding policies, child labor policies, and other child protection concepts, and pathways for reporting any allegation of abuse that may arise.
- **Professionalism.** Every standard, principle, process, and procedure ought to be designed and executed using the highest degree of professionalism.

Agrichemical Policy

SBAE should prioritize education over ideological debates when teaching agricultural technologies. It’s crucial to inform students about the advantages and disadvantages of various modern agricultural methods without labeling any approach as “bad” or “wrong.” Doing so keeps the focus on science rather than transforming agriculture into a belief system. Three guiding principles can shape the formulation of an agrichemical policy.

- **Education First.** SBAE has a duty to teach students about the safe use, responsible application, and advantages and disadvantages of agrichemicals, irrespective of the curriculum’s focus. The ultimate goal is to foster lifelong learners in the field of agriculture.
- **Ideology Never.** Ideology has no place in science and ends up hurting beneficiaries in the long term.
- **Safety Always.** If agrichemicals are available in local markets, there’s a likelihood they’ll end up on school demonstration farms or home entrepreneurship projects. Therefore, field officers, teachers, students, and parents need training in the safe handling, storage, and disposal of these chemicals, regardless of whether the curriculum or training programs plan to introduce them.

Design Training Curriculum

SBAE is a pedagogical system, not a set of curricula, and can be applied to any country’s standard science or agriculture curriculum currently in use. SBAE offers a system of teaching agriculture, not a set of agricultural techniques or theories to be taught. While a standard agriculture curriculum for

students is ideal, it is not essential for SBAE. SBAE was developed as a “learn-by-doing” way of teaching agriculture long before agricultural curricula had been introduced to the world.

In order to teach this pedagogical system, a set of training-of-trainers curricula must be developed that will prepare field officers and agriculture teachers to implement SBAE in their regions and communities. The following sets of training curricula are recommended and introduced below. AgriCorps, a U.S.-based non-profit focused on strengthening capacity for SBAE in developing countries, has developed lesson plans and training-of-trainer manuals, which can be found at www.sbae.org.

School-Based Agricultural Education Training Manual

The SBAE training-of-trainers manual is primarily intended for field officers who lead SBAE programs, but it is also recommended for distribution to agriculture teachers. It presents the following five modules: Overview of SBAE, Leadership Development, Student-Centered Classroom Instruction, School Demonstration Farms, and Home Entrepreneurship Projects.

- **Overview of School-Based Agricultural Education.** This module introduces the framework, purpose, and benefits of SBAE. It emphasizes the roles and responsibilities of field officers, ASO advisors, and the PTA.
- **Leadership Development.** This module supports the student-led ASO club and its emphasis on both life and livelihood skills. It covers important aspects of operating a club efficiently, including how to elect officers and conduct meetings using parliamentary procedure, while also cultivating public speaking skills and goal-setting abilities.
- **Classroom Instruction.** Focusing on student-centered learning, this module incorporates problem-based approaches to address real-world issues. Educators learn to craft engaging lesson plans, including various teaching methods and strategies for diverse learning styles.
- **School Demonstration Farm.** This module guides the establishment of an educational and entrepreneurial demonstration farm. Students gain practical experience in market research, marketing, record keeping, and budgeting. The farm serves as both a valuable teaching tool and a business venture by emphasizing student and adult contributions.
- **Home Entrepreneurship Projects.** This module involves students creating and managing projects at home and showcasing their learning and entrepreneurial skills. Its components guide project initiation, including record-keeping and advisor supervision. Successful projects contribute to community innovation and productivity.

Technical Agriculture Training Manual

Identifying or creating an agriculture curriculum tailored to local conditions is essential for launching a successful SBAE system. This involves selecting the most relevant techniques, technologies, and innovations for local dissemination while ensuring they address community-specific challenges. The goal is bolstering in-country agricultural initiatives rather than adopting generalized, international practices. Not all crops, varieties, techniques, or technologies are appropriate for every country. Since many countries often contain diverse agroecosystems – from arid to tropical – it is crucial that the curriculum and innovations are aligned with the unique needs of the local environment and economy.

When developing this curriculum, the following issues should be taken into consideration.

- Collaborate with the Ministry of Agriculture extension agents, local research agencies, and research universities to identify appropriate agricultural practices that can be shared with farmers. These organizations can recommend the best agronomic practices and the technologies most suitable for local farmers in a particular region or agroecosystem.
- Stay informed about the activities of international agricultural development organizations, such as the UN Food and Agriculture Organization (FAO) and the US Agency for International Development (USAID), for additional insights.
- Engage with private agribusinesses to access agricultural technologies that improve crop yields and provide job opportunities for agricultural education graduates.

Improved cassava beds and varieties...

In Liberia, the traditional practice among farmers is to plant cassava flat on the ground. They dig a hole using a cutlass and insert two or three cassava sticks, then cover them up. A more effective approach, which can increase yields by up to 35%, involves planting on mounds or ridges and using only one cassava stick per hole. This method demands more labor but results in less soil compaction, allowing for larger tuber growth and facilitating an easier, more marketable harvest due to fewer chipped or broken tubers.

Liberia boasts a wide range of cassava varieties, from local to improved types. Some are sweet and suitable for cooking, while others are bitter and ideal for industrial applications. Many improved varieties resist the cassava mosaic virus, which diminishes plant productivity. Yet, many farmers remain uninformed about the available varieties and their distinct characteristics.

School demonstration farms serve as perfect venues for showcasing and experimenting with these different planting methods and cassava varieties, thereby educating both students and farmers on the best choices for their individual needs.

- Partner with local agriculture research institutes and those of the CGIAR to leverage their expertise and resources.
- Explore innovations, including improved crop varieties, that have proven effective and useful for farmers in the country.
- Prioritize climate-smart practices that require minimal inputs and resources, making them cost-effective.
- Ensure technologies are available on the local market.
- Establish communication channels that will enable field officers and farmers to acquire necessary inputs, such as seeds, efficiently.
- Explore innovations that have proven effective and useful for farmers in the country.

It is also important to ensure the curriculum covers a broad range of relevant topics, such as General Crop Production Principles, Post-Harvest and Nutrition, Roots and Tubers, Vegetables, Legumes, Cereals/Grains, Poultry Production, and Livestock Production. These innovations and curriculum topics can be introduced during a three- or four-year cycle. For example, focus on vegetables, roots, and tubers in the first year; concentrate on legumes and grains in the second year; and introduce poultry or livestock in the third year.

Field Officer Professional Development Training Manual

Field officers (FOs) and teachers need ongoing professional development for the effective and enduring implementation of SBAE's transformative programs. While initial training lays the foundation, it's insufficient for creating a lasting impact. Tailoring further training to address the specific challenges encountered during SBAE implementation is vital. This could involve refresher courses or specialized training on particular topics, such as the following.

- *Pedagogy and Teaching Skills* ensure that FOs and teachers have a deep understanding of experiential teaching pedagogy and can effectively demonstrate these skills.
- *Agricultural Practices and Innovations* train the FOs and teachers in both traditional and modern agricultural practices, ensuring they are knowledgeable enough to train others.
- *Behavioral Change Methodology* equips the FOs and teachers with problem-solving tools and techniques for shifting the behavior of teachers, students, and farmers.
- *Financial Literacy and Money Management* strengthens financial literacy and understanding of money-

related beliefs, ensuring they can guide others in making sound financial decisions.

- *Leadership and Critical Thinking* prepare FOs and teachers to lead and facilitate training sessions, ASO club meetings, and leadership contests while fostering critical thinking skills.

Such continued development enables field officers and teachers to adeptly manage complexities, articulate SBAE principles, and foster enduring positive shifts in both the educational landscape and the broader community. Given that SBAE aims to impart not just agricultural expertise but also life skills and community development, investing in the professional advancement of these educators is key to the initiative's long-term success.

Video Supplements

Video and other digital tools can serve as useful supplements to SBAE's training and agriculture curriculum. They can also motivate students by giving them replicable tutorials on everything from agricultural techniques to leadership models, such as public speaking or parliamentary procedures. Organizations such as the global development organization Digital Green create digital solutions for locally relevant agricultural issues. Numerous leadership videos developed by global 4-H programs, AgriCorps, and other youth organizations can be found on YouTube and easily distributed through mobile messaging platforms. It might also be important to create locally relevant digital content using appropriate language and dialect.

Conduct Trainings

The successful implementation and long-term viability of SBAE rely heavily on comprehensive training programs for a diverse range of stakeholders, including field officers, teachers, school administrators, farmers, parents of ASO club members, government officials, and students. The following describes the training programs recommended for various stakeholders and the best practices for facilitating such programs.



Training Programs

Field Officer Training. Prior to launching SBAE, field officers should attend a month-long Field Officer Training Institute, which covers all topics in the *SBAE Training Manual* and selected portions of the *Technical Agriculture Training Manual*. Field officers should demonstrate proficiency in their knowledge and practice facilitating and training others with constructive feedback. All training should be practical and experiential. Field trips to schools with successful SBAE programs, agriculture research institutes, and commercial farms allow field officers to visualize the impacts of their future roles.

After the initial Field Officer Training Institute, weeklong field officer trainings should be implemented quarterly for continuous professional development and preparation for teacher trainings and quarterly teacher meetings, which field officers facilitate. Remember, field officers are the most important component of SBAE and require tremendous investment and growth. Field officers may be paired with each other and encouraged to connect across regions to share best practices. The stronger they are as a group, the stronger they will be as individuals.

In the months not occupied by trainings, virtual calls, and workshops are valuable tools to further momentum and keep field officers in constant communication.

Teacher Trainings. To ensure the successful implementation of SBAE programs, countries can consider offering a range of targeted training opportunities for agriculture teachers. These trainings should encompass both theoretical knowledge and practical skills, enabling educators to teach, guide, and mentor students. To keep training sessions fun and experiential, each day should open with icebreakers, games, and the ASO ritual (discussed in Section 4). To keep teachers refreshed on parliamentary procedure, teachers should act as students and elect a new set of mock ASO club officers at the beginning of each training event. Remember, SBAE is fun! Train teachers the way they should teach students.

It is recommended to conduct two weeklong training sessions annually in accordance with the school calendar and growing season.

- **SBAE pedagogy training session.** This training centers on the four components of the agricultural education model, including student-centered teaching strategies, school demonstration farms, home entrepreneurship projects, and ASO club leadership activities. This material can be found in the *SBAE Training Manual*.
- **Technical agricultural training session.** The second training should focus on technical agriculture and the adoption of innovative practices, first within the ASO club and subsequently within the wider community. Recurrent workshops designed for reviewing or reinforcing training content can be conducted throughout the year, enhancing the continuous professional development of agriculture teachers. This material can be found in the *Technical Agriculture Training Manual*.

While the specific content covered in each training session may evolve to address current needs and challenges, the overarching framework should remain consistent. This approach ensures that agriculture teachers receive a well-rounded education, allowing them to stay attuned to the dynamic landscape of agricultural education while consistently practicing the principles of SBAE.

Teacher Quarterly Meetings. Communities of practice are cohesive groups of individuals who share common objectives and seek opportunities to learn and progress collectively. When field officers bring together agriculture teachers, it facilitates the development of a supportive community that encourages meaningful interactions, promotes reflection, facilitates the exchange of ideas, and provides validation.

Regional meetings play a pivotal role in cultivating this community of practice. Field officers are advised to organize daylong meetings for their regions during times of the year not occupied by weeklong training. These meetings can be held on a Saturday at a school with a top-performing ASO club and school demonstration farm. This will serve as a valuable platform for agriculture teachers to convene, collaborate, and advance their shared goals.

Each meeting should include aspects of best practices as well as the training curriculum.

Best Practices and Innovations

- Showcase successful strategies and innovative practices in implementing SBAE.
- Share lessons learned and insights from hands-on experiences.
- Discuss effective methods for engaging students and promoting active learning.
- Troubleshoot common problems with communities, clubs, or school farms.

Curriculum and Pedagogy Review

- Analyze the technical agriculture curricula and common issues that might arise.
- Share effective approaches to student-centered teaching and instructional techniques.
- Conduct workshops to improve teachers' understanding of financial management within agricultural contexts.
- Discuss organizing leadership activities and set clear goals for the upcoming year.

Ministries of Agriculture and Education Training. Prior to launching SBAE, it is highly recommended to conduct a daylong SBAE Introduction Workshop with local representatives of the Ministries of Agriculture and Education, such as agricultural extension agents or district education officers. This workshop could be in conjunction with field officer training, teacher training, or teacher meetings. Whichever way, SBAE needs the buy-in of local ministry representatives to support teacher trainings, school programs, and farmer field schools. Lessons from the *SBAE Training Manual* that cover foundational theories of SBAE can underpin the session, allowing for a deeper understanding and support of SBAE by government officials.

Farmer Field Schools. Farmer field schools (FFSs) are designed to elevate local farmers' agricultural practices by introducing practical and accessible innovations during a one-day workshop at the local school demonstration farm. FFSs embody a focused and practical training approach, equipping local farmers with applicable agricultural innovations. Through hands-on learning, strategic timing, and collaborative efforts, FFSs contribute to the advancement and sustainability of agricultural practices within the community.

FFS Characteristics

- FFSs encompass succinct one-day training sessions at the school demonstration farm that are led by field officers, agriculture extension agents, local teachers, and students.
- FFS training is practical and experiential.
- FFS training aligns with harvest periods to demonstrate the outcomes of the techniques taught.
- FFS farmer training aligns with the curriculum and practices taught to students in their ASO club.

Objectives

- Enhance local farmers' technical competencies for embracing innovative farming practices.
- Increase the adoption rate of newly introduced agricultural methods.
- Highlight the school demonstration farm as a resource hub for ongoing and continuous learning in the community.

Best Practices

- Prioritize practical learning on the school demonstration farm at the FFS. Many farmers may be illiterate.
- Initiate FFS sessions with vibrant opening ceremonies led by ASO club student officers. This inspires adults and allows them to see how SBAE benefits youth.
- Emphasize the concept and merits of SBAE for youth development.
- Train farmers in the local dialect for enhanced comprehension.
- Organize regular follow-ups by field officers so they can assess implementation progress and deliver guidance.



Training Facilitation

Training is not just about imparting information; it is also about building the efficiency and confidence of those individuals being trained. The primary goal of a training facilitator is to create an experience that enables attendees to implement what they have learned, take it back to their community, and teach it to others. Modeling the teaching approach to what the attendees should then use when they teach is an effective way to achieve this. In other words, if the goal is for the attendees to spice up lectures and engage students through activities, labs, or fieldwork, this model should be used for their lessons and facilitation, so it can then be passed on.

The following items present ideas to consider when planning trainings for field officers, agriculture teachers, farmers, and others.

Selecting facilitators. Selecting the right trainers or facilitators will directly impact the effectiveness of the training and the learning experience of the participants. It is important to select those who are experienced facilitators, speakers, or teachers to improve the quality of the training. As field officers are the primary facilitators for agriculture teachers, it can't be understated how vital their training is.

While one facilitator is sufficient, having two to three facilitators is ideal. Multiple facilitators, preferably both male and female, can showcase different teaching styles in action. This increases participants' understanding as they see how different facilitators approach and adapt the same material to their own style. Having multiple facilitators can also help with training execution. While one facilitator is teaching a workshop, the other can prepare for the next session, coordinate meals, observe participants, take field notes, or answer questions.

Consider a facilitator's nationality. While foreign facilitators, such as American NGO officials, can be effective, selecting a local facilitator will increase participants' likelihood of implementing what they've learned. This is because seeing someone like themselves successfully implement the behavior increases participants' self-efficacy and motivates them to try it on their own. Having local facilitators also increases participants' understanding, as foreign accents can be difficult to discern.

Ideally, select facilitators who are trained with experiences similar to those of the participants. They should be able to articulate complex ideas, project their voice effectively, and use movement effectively when they teach. Additionally, they should be able to "read a room" and pick up on non-verbal cues that indicate participants' emotions or needs. For example, if participants are quiet and sleepy, the facilitator knows to get them moving and talking to increase engagement.

For technical agriculture trainings, invite local experts from agricultural research institutions, universities, or agricultural extension to facilitate and contribute. This helps bridge the gap between research and education of local farmers and will give greater legitimacy to the program.

Considering the needs of participants. Think about participants' needs to provide a positive experience for them. Take the time to understand and incorporate their cultural elements into the schedule. For example, in predominantly Muslim communities, schedule class breaks that correspond to prayer times. Leveraging the participants' culture will also create a comfortable learning environment. For instance, some cultures enjoy competitive activities, singing, dancing, and presenting to their peers. Incorporating elements such as these into lessons will increase learning and engagement.

Norming the group of participants and facilitators. Once training has started, communicate expectations to the participants. This is especially important if the participants come from different backgrounds or regions. Take time to discuss how participants are expected to engage, especially if it is different from typical student-teacher interactions. For example, consider discussing the importance of participation, including raising hands, hearing from all participants, and encouraging females to speak. It is also important to emphasize promptness and starting on time, as this is interpreted differently in different cultures. Setting expectations at the beginning of the training can create a more conducive learning environment that enables participants to learn effectively and implement the skills they acquire.

Choosing the venue. The location of the training venue is an important consideration. It should be easily accessible and attractive to participants. There are generally two options for hosting trainings: residential and non-residential. Residential trainings are hosted outside the home communities of trainees and require they stay in residence near the training site. Non-residential trainings occur in the

community in which participants live, meaning the host is not required to provide housing for trainees. Both have their advantages, making it important to consider the specific needs and goals of the training when selecting a venue.

- **Residential trainings.** These are a good option when inviting individuals from multiple communities or cities, but they require added expense and coordination. It is recommended to select a central location, such as an agricultural research center or college farm, accessible by public transportation. If participants are expected to travel far from home, ensure the selected location has the amenities they may need, such as a hospital or medical facility, church, and access to fuel. A venue with room accommodations and a training facility on-site is ideal, such as a hostel with a conference center or large room that can accommodate the group. If this is not possible, search for accommodations that are within walking distance or can be easily accessed using public transportation from the training facility. If a residential training site is chosen, consider the cost of participants' travel, housing, and meals when developing a budget.
- **Non-residential trainings.** These are hosted within the home community of participants and can increase attendance and lower costs. Training multiple teachers at the same school or adjacent schools helps participants share resources, motivate each other, and hold each other accountable for implementing the content. Hosting trainings at local schools is wise, as it reduces costs and content can be modeled in a classroom setting. That said, training is held at a school; setting it during a school holiday or break would be advantageous to avoid intermittent participation, as teachers would likely have to leave to teach classes.

Sending Invitations. Inviting participants well in advance is critical for attendance. Prior to this, consider the need to coordinate with the Ministry of Education. This may require official letters of invitation from the Ministry to legitimize the training and recruit participants.

Facilitators should take the time to call or text participants individually. Sending an initial invitation via phone or WhatsApp at least one month before the training date is recommended. Personal invitations can significantly affect whether someone decides to attend. In addition to invitations, ensure that participants have the necessary information to plan for the training, including the training schedule, location, and any required materials or resources.

Finally, keep in mind that participants may face barriers to attending, such as work, family obligations, religious observations, or financial constraints. Consider ways to mitigate these barriers, such as offering stipends to cover travel expenses or childcare or scheduling the training during a school holiday or break. Avoid training on Sundays. Making the training accessible and accommodating to participants has the potential to increase attendance and the likelihood of success.

Determining group size. It is important to have enough participants to facilitate meaningful discussions and, at the same time, ensure that the group size is manageable. A group of 30 to 40 participants may prove appropriate in terms of cost and manageability. If there are more than 40 participants, it may be necessary to have multiple facilitators and breakout sessions to ensure the training is effective.

Rather than train a large group in a theater-style setup, consider breaking the larger group into smaller groups or table sizes of five or fewer people. This small group work can be an effective way to facilitate learning and encourage discussion, and it will allow participants to have meaningful interactions with each other and increase the chances of active participation.



Teaching by Modeling

The training included in an SBAE program should be practical and student-centered, which may be a new approach for participants accustomed to traditional lectures and rote memorization. Facilitators should actively teach and model the approaches they are teaching, as is further explained in the below recommendations.

- *Pause occasionally and explain* why a particular strategy is effective. Describing why certain techniques or pedagogies are being modeled will increase participants' likelihood of adopting them.
- *Start each session with an icebreaker or activity*, ideally one that is connected to the upcoming lesson. Conducting icebreaker activities boosts participant engagement and sets the stage for learning. It also keeps the training lively and energetic. Remember, SBAE is fun!
- *Begin on time* even if the participants have not all arrived. Share the mantra: "If you are early, you are on time; if you are on time, you are late; if you are late, you are left behind."
- *Consider the resources to which participants have access*. This includes the physical resources they have to teach lessons, such as chalkboards, paper, and other classroom materials, and the resources they have available to plan and prepare their lessons, such as web applications, content, or websites. Using resources similar to those the participants can access will make the content more relatable and applicable to their specific teaching environments.
- *Elect mock ASO club officers* at the beginning of the weeklong training event. This allows field officers or teachers to practice parliamentary procedure, which they are then expected to introduce to the students.
- *Conduct ASO rituals* at the start and end of each training day. Doing so will make participants more comfortable with the ceremonies, increasing their likelihood of implementing them within their school and ASO club.

Each lesson in the SBAE training curriculum includes an element of experience or experiential learning. Sometimes, these activities may seem purposeless or time-consuming. This is why facilitators should prioritize these experiences and activities, as they will help participants understand that learning involves more than lectures, notes, and memorization. Facilitating the activities and allowing time for reflection and application will result in a positive learning experience for participants and has the potential to be the most impactful learning moments for them.

Training Outcome Evaluations

As the training unfolds, it's important to monitor participants' engagement and enthusiasm and their ability to recall and apply the content. However, to accurately assess whether the training has met its expected outcomes, it is important to implement some form of formal evaluation.

Evaluations take many forms and can be as simple or complex as needed. For example, consider incorporating feedback from participants at various points throughout the training, such as after each session or at the end of each day, to make real-time adjustments to the chosen approach.

Here are some ideas for evaluating trainings:

- *Measure changes in knowledge and skills* with pre-and post-training assessments.
- *Observe participants and take field notes* during the training to assess engagement and understanding.
- *Gather feedback* on the training content, facilitators, and overall experience with participant feedback surveys.
- *Undertake follow-up assessments* to measure whether participants have implemented what they learned.
- *Conduct in-depth interviews with a sample of participants* to glean more detailed feedback about their experience during the training and how they have applied what they learned.

- *Set up group discussions* with participants to get feedback about their experience during the training and glean suggestions for improvement.

When developing evaluation tools, consider the following:

- *Write survey questions* at a reading level commensurate with participants' reading skills.
- *Ensure questions align* with the training objectives.
- *Use both open-ended and close-ended questions*, and ensure they align with the training objectives.
- *Ensure evaluations are culturally appropriate* and easy to understand for all participants.
- *Consider using a third-party evaluator to increase objectivity.*
- *Use evaluation findings* to make improvements for future trainings.

It's also important to conduct a more comprehensive evaluation at the end of the training, which can include both qualitative and quantitative data. Demographic questions, such as age, gender, and the highest level of schooling, can provide important context for understanding participants' backgrounds and experiences.

To assess knowledge gains, administer a pre- and post-training test that uses multiple-choice, true/false, and short-answer questions. This will help determine whether participants have a solid understanding of the content and whether they have made progress throughout the training.

In addition to assessing participants' knowledge, it's important to ask about their intentions to implement what they've learned. Answers to these questions can increase understanding of how likely participants are to use the knowledge they've gained and specific strategies they plan to use in their work.

Overall, evaluations are a crucial component of any training program. They can help assess the effectiveness of the chosen approach, identify areas for improvement, and ensure that the needs of all participants are being met.

Follow-up and Monitor Schools

Conducting a training without follow-up is like planting a seed without applying nutrients or water. For the content of training to take root, it must be followed by continuous monitoring, mentoring, and support. As the trainings' facilitators, field officers are well equipped to mentor teachers in the field and ensure they practice what was taught.

The success of this approach relies on an effective Monitoring, Evaluation, and Learning (ME&L) framework. Through ME&L, the ASO gains valuable insights from data, making it possible to fine-tune agricultural methods and tailor training programs for greater relevance. This data can also shed light on what works and what doesn't in areas such as school demonstration farms, home entrepreneurship projects, and leadership activities, as well as practical or logistical issues such as replacing an advisor or building a fence around the school farm.

As the main data gatherers, field officers should have access to user-friendly data collection tools, whether those are digital tablets or paper forms. Overly complex tools and procedures can lead to flawed or incomplete data. Field officers can submit their monthly findings to the M&E officer, who will compile and scrutinize the data to guide decision-making at the national level.

Field officers should schedule visits to SBAE sites once every two weeks and engage the community in three ways.

1. **Engage with teachers.** The field officers engage in one-on-one discussions with teachers and observe them teaching in the classroom and at the school demonstration farm. This allows field officers to make observations and offer guidance or recommendations on specific areas of focus or improvement. Field officers should provide constructive feedback, reinforce effective teaching

practices, and suggest refinements where needed.

2. **Engage with students.** Beyond classrooms, field officers connect with students to gauge their understanding of SBAE concepts and their practical application. Field officers acknowledge student efforts, provide any needed clarifications, and inspire them to embrace hands-on learning. The recurring presence of the field officers establishes a sense of familiarity and trust, motivating students toward more active participation and investment in their agricultural education.

3. **Engage with the broader community.** Field officers should engage with the broader community, collaborating with farmers and parents to extend the reach of SBAE principles beyond the classroom. These interactions facilitate the integration of SBAE practices into local agricultural activities, ensuring that students' practical learning transcends theoretical knowledge and directly benefits their families and communities.

Consistent supervision by field officers is a dynamic cycle of learning and improvement. It elevates the SBAE experience from a one-time training event to an ongoing partnership, through which field officers serve as mentors, facilitators, and champions of positive change. By closely collaborating with teachers, students, and the community, field officers bridge the gap between theory and practice, contributing to the sustainable growth of agricultural education and community development.





Section 4. Implementing SBAE in the School

Establishing a national agricultural student organization (ASO) and recruiting and training national staff and field officers are essential steps toward implementing SBAE in local communities. Once a national structure has been developed, it is time to launch the local ASO club, such as 4-H, Future Farmers or Young Farmers Clubs.

Recruit ASO Club Members

ASO club members are at the center of SBAE. In order to join the club, students must be enrolled in junior high school. Ideally, SBAE would be hosted in secondary schools, but many senior high schools in developing countries are boarding schools located in larger communities far away from family farms. Junior high schools are the most senior level of education in rural communities where students still live at home.

Optimal club size is 25; under no circumstances should it exceed 40 students. Gender should be equitable, with approximately the same number of boys and girls. Teachers, administrators, and field officers should recruit students through school-wide advocacy programs and personal invitations to those students interested in agriculture. Often, many students will sign up for a new organization on campus simply because it is new or in hopes of receiving a handout or special treatment. ASOs require hard work and are not for the unmotivated. After recruitment activities, it is suggested to wait until after students have started work on the school demonstration farm before formally registering as a member. This self-selects the students most interested in active participation.

In order to be held in good standing, members must be enrolled in a junior high school and also:

- show interest in agriculture as a field of study
- attend and actively participate in all ASO meetings
- work on the school demonstration farm weekly
- manage a home entrepreneurship project and keep financial record
- memorize the Agriculture Creed (see Appendix E).

Implement the Four Components of the Agricultural Education Model

Once students have joined the ASO club, it is time to begin the SBAE program. The remainder of this section outlines the activities necessary for the four-component agricultural education model at the local level. As Figure 5 illustrates, the model links classroom content, school demonstration farm, home entrepreneurship projects, and leadership development.

In the classroom, students acquire abstract agricultural knowledge, including an understanding of agricultural language; core agricultural science; the principles of science, technology, engineering, and math (STEM); agricultural economics; and local government structures. This knowledge is essential – helping students solve complex agricultural problems and, in turn, enabling them to reflect on their experiences accurately.

Student-led school demonstration farms enable students to develop and adopt sound agricultural practices by combining classroom instruction with hands-on experiences and scientific experimentation. It offers a bridge from the new and improved agricultural methods to the broader farming community, often demonstrated through farmer field schools.

Home entrepreneurship projects allow students to learn and earn while receiving personalized instruction from their agriculture teacher. Through these projects, students can share knowledge with their parents and farmers in the community, increasing their understanding that agricultural education is relevant to their entrepreneurial interests.

Leadership development, a critical component of ASO clubs, equips students with essential life skills and confidence for success in civil society. Through participation in an ASO, students engage in

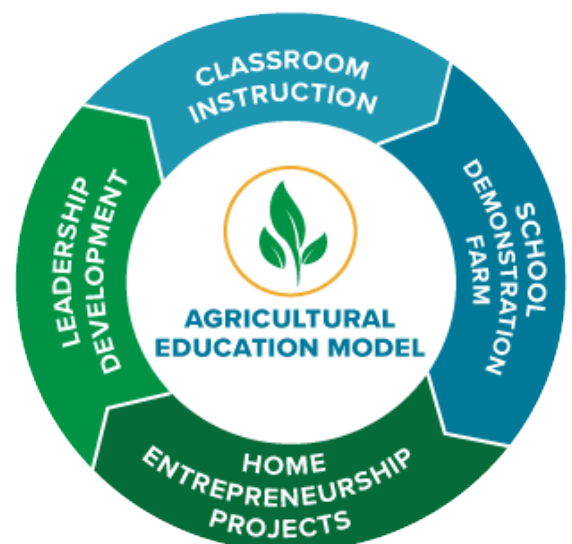


Figure 5. The four components of the Agricultural Education Model

leadership activities, elect club officers, practice public speaking, and learn parliamentary procedures. These experiences foster motivation and provide students with a community that recognizes their achievements, offers awards, maintains traditions, and provides leadership opportunities.

Classroom Instruction

Schools that don't offer agriculture as a distinct subject often integrate its content into conventional science curricula. While a robust agricultural curriculum and separate coursework advance the cause of agricultural education substantially, it is not required. SBAE is a pedagogy, not a curriculum. It can expand almost any agriculture or science curriculum into a robust experiential learning system filled with practical life and livelihood skills. This learning begins with the understanding of abstract concepts and foundational theories through student-centered classroom instruction.

Student-centered classroom instruction guides students to formulate their own theories and concepts and, in turn, enables them to tackle complex agricultural issues as well as grasp agricultural language, core science, STEM principles, economics, and an understanding of local agricultural infrastructure. The classroom provides a learning environment for students to label and reflect on their experiences through active learning, experimentation, and decision-making.

Student-centered methodology rests on the belief that students are not passive learners; instead, they play an active role in the dynamic construction of knowledge. Engaging students in the learning process, beyond direct instruction or lectures, enables them to think critically and problem-solve. Table 1 compares student- and teacher-centered instruction.

Student-Centered Instruction	Teacher-Centered Instruction
<ul style="list-style-type: none"> • Makes students responsible for their own learning • Focuses on skills and practices that enable lifelong learning and independent problem-solving • Uses teaching that builds on students' prior knowledge and experiences • Encourages students to discuss what they are learning • Includes activities and practical experiences in addition to teachers' lectures 	<ul style="list-style-type: none"> • Focuses on teachers lecturing • Calls for students to learn passively rather than encouraging them to talk about or discuss what they're learning • Gives students the information to learn rather than enabling them to discover it themselves • Asks students to memorize information for exams while failing to prepare them for long-term knowledge retention

Table 1. Student-centered vs. teacher-centered instruction

Shifting to a student-centered, experience-based approach offers the major advantage of increasing students' enjoyment of learning and content while leading to increased motivation, better task engagement, and a genuine interest in agricultural science. In the big picture, it dignifies the subject and discipline of agriculture.

Depending on the context and country, making the shift towards a more student-centered approach to teaching is challenging and should be adapted slowly. Field officer and teacher trainings should be thorough on experiential learning and student-centered instruction and, when possible, provide ready-to-use resources and curricula. Existing curricula developed by AgriCorps is available at www.sbae.org.

The "teach-do-reflect" model is a simple framework to lead teachers toward a more student-centered and experiential approach. It highlights the importance of sharing new knowledge, conducting hands-on activities, and leading critical-thinking discussions with students. This model promotes active learning and critical thinking in the classroom, helping students understand how new knowledge relates to their lives.

Teach

To help teachers shift towards a more student-centered, experiential teaching approach, it's beneficial to delve into the five senses and various learning modalities. Teachers should think about employing

teaching methods that engage different senses—such as see, hear, touch, taste, or smell — as well as various learning styles, such as writing, reading, speaking, listening, playing, or hands — on experimentation. Refer to Table 2 for detailed guidelines on how these sensory inputs and learning methods can be aligned with specific learning objectives. This exercise prompts educators to critically evaluate their subject matter, intended student outcomes, and the most impactful ways to convey the information, all while reducing dependence on conventional lecture formats.

This approach proves beneficial even when resources are limited or resistance to change is present. Integrating modalities into existing lecture-heavy lessons is straightforward and can yield significant benefits. For instance, if a teacher is conducting a lesson on composting, she might lecture about composting (students hear the content), present a diagram on the chalkboard illustrating the necessary ingredients for compost (students see a visual representation), encourage students to repeat key points to their peers (students recall information and speak it), and then take the class to the school's demonstration farm to collect materials for starting a compost pile or pit (students engage in physical activity).

Employing layered modalities provides four primary advantages for students. First, it presents the content in multiple ways, which bolsters memory retention. Second, it caters to individual learning preferences. Third, it makes the content relevant and applicable. Finally, it engages students both cognitively and physically. Together, this creates a learning experience that extends beyond the traditional confines of the classroom.

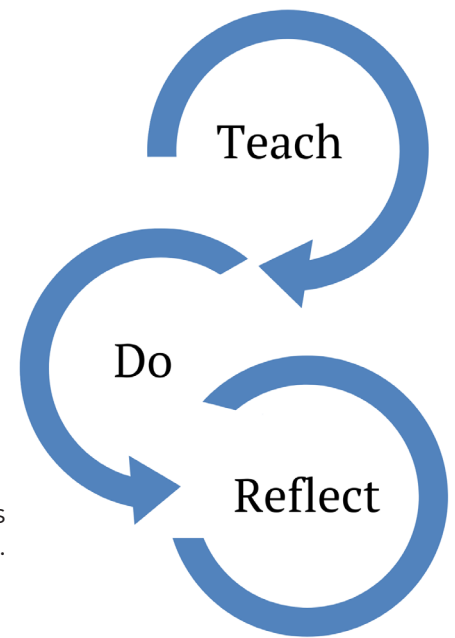


Figure 6. Teach, Do, Reflect



Senses Students Engage in Learning	Teaching Strategies that Use the Sense	When to Use
<i>Hear</i>	<ul style="list-style-type: none"> · Listen to radio · Listen to lecture · Listen to peers 	<ul style="list-style-type: none"> · Conveying facts
<i>Read</i>	<ul style="list-style-type: none"> · Read factsheets 	<ul style="list-style-type: none"> · Conveying facts, such as formulas or directions, for later use and recall
<i>See</i>	<ul style="list-style-type: none"> · Go on field trips/tours 	<ul style="list-style-type: none"> · Observing farms and businesses
<i>Hear and See</i>	<ul style="list-style-type: none"> · Observe a demonstration 	<ul style="list-style-type: none"> · Showing a new technique, such as how to treat a plant disease
<i>Say</i>	<ul style="list-style-type: none"> · Discuss a case study · Debate · Play a game · Give a report 	<ul style="list-style-type: none"> · Topics that address how we feel about certain issues, like gender roles in farming · Processing information for greater understanding
<i>Do/Touch</i>	<ul style="list-style-type: none"> · Practical exercises · Co-lead · Present a drama · Exhibit or show · Role-play 	<ul style="list-style-type: none"> · Planting the farm · Preserving production · Agriculture fair · Training others

Table 2. Guidelines for aligning learning methods with objectives

Do

Through the inclusion of experiential activities in the learning process, teachers can initiate simple yet engaging experiences that immerse students in the practical dimensions of new material. These activities don't have to be intricate or require costly resources; the emphasis is on offering students a hands-on learning opportunity.

Activities and strategies that engage students require them to activate different parts of their brains and leverage their physical, social, and emotional sides. Engaging activities, sometimes called engaging moments or e-moments, also incorporate a variety of senses. These activities can be used to introduce a new concept at the beginning or middle of a class or for reviewing a concept, which is typically done at the end with the whole class. They also help ensure that 100% of students participate.

Incorporating moments where students “do” offer a transformative learning experience for students. Here are some examples:

- *Field trips*, such as visits to local farms, markets, agricultural research centers, food processing facilities, or input dealers, provide hands-on exposure to real-world agricultural practices, bridging the gap between theory and reality.
- *Drama* engages students in role-playing scenarios related to agriculture, fostering creativity and making abstract concepts relatable. Integrating agricultural themes into songs and chants enhances memory retention and learning enjoyment while reinforcing vital concepts.
- *Educational games* develop teamwork and critical thinking, presenting agricultural challenges in an interactive and engaging manner.
- *Demonstrations* simplify complex agricultural techniques through visual understanding, creating a direct link between theory and application.
- *Hands-on experiments* encourage students to actively explore scientific principles in agricultural contexts, fostering critical analysis and practical skills.
- *Art* infused into the learning process allows students to creatively express their understanding of

sustainable farming practices and related themes.

- *Peer teaching* empowers students to share knowledge and build confidence, while group activities cultivate teamwork and problem-solving abilities, reflecting real-world agricultural challenges.
- *The “think-pair-share” technique*, where participants think to themselves, pair up with a peer to discuss their thoughts, and then share with the group at large, encourages active participation, communication skills, and sharing diverse perspectives.

Reflect

Utilizing dynamic teaching methods and hands-on activities is important, but the true reinforcement of learning occurs when students get the chance to step back and contemplate their experiences. Teachers guide students to link the concepts they’ve been taught with their practical applications, fostering critical thinking.

To tailor reflection to the subject matter, teachers can pose open-ended questions after an activity or assign students to write essays that reflect on their educational journey. Students can also express insights through poetry, share their new knowledge with school authorities, or teach younger students. Reflection can occur individually or in group settings and be integrated into assessments. Key reflection questions might include intended learning outcomes, observations during the activity, challenges faced, effectiveness of the approach, real-world applications, comprehension difficulties, and any eureka moments. The crucial step is to not overlook this essential phase. This model enables students to actively engage with, apply, and deeply consider their learning experiences, bridging the gap between theoretical understanding and practical application in agricultural science.

Best Practices for Classroom Instruction

When field officers start training agriculture teachers in student-centered classroom instruction, building support mechanisms becomes crucial. These mechanisms should include ongoing practices for teacher development, accountability measures, and commitment protocols, along with establishing clear channels for communication to create robust support structures.

Instructional Support

Continual instructional support must be provided in order for effective teaching practices to stick. Regular field officer visits are key, but other teaching resources could also be provided to teachers. For instance, visually engaging instructional posters for classroom display could serve as visual aids for students on topics such as composting or the water cycle. Comprehensive, easily accessible lesson plans and activities that align with the curriculum empower teachers with practical resources to offer dynamic, effective agricultural education.

Community of Practice and Teacher Development

To enhance agricultural education, prioritize communities of practice and ongoing teacher development. Communities of practice are cohesive groups of individuals who share common objectives and seek opportunities to learn and progress collectively. Start a dedicated WhatsApp group for agriculture teachers to share tips, updates, and valuable insights that, in turn, foster collaboration and knowledge exchange. Create social media groups as another space where teachers can connect, share experiences, and access resources. Form an “Agriculture Teachers Association” to promote professional growth through networking, workshops, and best practice sharing. Conduct regular training sessions that align with the local curriculum to continuously improve teachers’ skills, ensuring they remain well-equipped to deliver high-quality agricultural education.

Accountability, Recognition, and Commitment

Promoting accountability, recognition, and commitment among agriculture teachers strengthens the effectiveness of the educational system. Acknowledge outstanding teachers with certificates to honor their dedication and contributions to agricultural education. To emphasize the importance of practical, student-centered methods, ask teachers to sign a “pre-commitment agreement” that they will teach experientially. Create peer accountability mechanisms to cultivate a supportive environment where teachers encourage each other to excel. Reinforce institutional commitment to quality agricultural education by establishing a memorandum of understanding (MOU) between the school administration and ASO.

Communication and Follow-Up

Sustain effective agricultural education practices through efficient communication and consistent follow-up mechanisms. Field officers should regularly supervise teachers in the classroom, offering valuable feedback and guidance to ensure that the instructional quality aligns with goals. Train school administrators in student-centered methodology and encourage them to supervise and mentor teachers. Use diverse communication channels to connect with teachers and schools, such as making phone calls or sending SMS text messages, WhatsApp messages, formal letters, reminders, and updates to keep teachers informed and engaged. Offer continuous support and timely feedback to boost teacher growth and confidence, thereby enhancing the agricultural education experience for students.

School Demonstration Farm

The school demonstration farm (SDF) is a valuable bridge from the classroom to practice, creating a low-risk learning environment in which students can actively apply newly acquired knowledge through active experimentation. While many schools across developing countries maintain school gardens or farms, they are primarily used as a food source for school feeding or tools for punishment. The SDF should not serve as the food source for school feeding, at least not primarily, nor should it be viewed as a place where misbehaving students go to be punished. Rather, the SDF should serve as an exciting, innovative, experimental, entrepreneurial hub for the local ASO club and SBAE program.



Four principles make SDF distinctive.

1. **Student-led.** Under the guidance of their agriculture teacher, students take the lead in making all key decisions for the school demonstration farm. These decisions include choosing crops, setting labor schedules, securing resources and help from PTA members, and determining the use of both the produce and the income generated from the farm.
2. **Learning laboratory.** Classroom instruction is brought to life through practical application and experimentation, emphasizing the scientific method. This experience transforms students' views on agriculture, presenting it as an exciting and dynamic field.
3. **Community demonstration farms.** The SDF is a hub for demonstrating improved agricultural innovations to parents and local farmers that can improve food security for the community.
4. **Entrepreneurial.** Serving as a revenue stream for the ASO club, the SDF offers students the

opportunity to learn skills in market research, marketing principles, financial literacy, and record-keeping.

Student-Led

The student-led nature of the SDF radically changes traditional power dynamics in many educational settings. This approach is vital for developing future community leaders skilled in critical thinking and problem-solving. Students must actively participate in all aspects of the SDF, from its initial concept and evolution to decisions about crop choices, farming methods, marketing strategies, and profit allocation.

Roles on the SDF

The student-led SDF explicitly assigns roles that prioritize student learning and empowerment. This structure helps spread innovative agricultural practices while highlighting the ASO club's critical role. By setting clear responsibilities, the approach minimizes external influence, keeping control and direction firmly in the hands of students.

Students: Making Decisions. Students actively engage in decision-making and take primary responsibility for various farming tasks. This hands-on involvement not only builds practical skills, it also instills a strong sense of ownership and accountability for the farm.

Teachers: Guiding the Way. Teachers serve as advisors, offering guidance and encouragement to students. They facilitate learning, bridge theoretical concepts with practical application, and ensure a supportive learning environment to enhance the students' understanding of agricultural and scientific principles.

PTA: A Contributing Force. The PTA actively contributes labor to essential, labor-intensive tasks for the SDF, lightening the workload and exemplifying a collaborative spirit to the entire school community.

The 4-H Way of Doing Things...

When Mr. Baba arrived at Zaharia JHS, in Ghana, he struggled with implementing a successful school garden. Students lacked motivation and their crops constantly failed. The following year, Mr. Baba was introduced to 4-H and things began to turn around. "The 4-H way of doing things is quite different. We were taught that students learn better by doing."

The Zaharia 4-H Club has a half-acre farm during the rainy season that is managed by 24 members (out of 103 students in the school). They use the farm as a learning laboratory for students and local farmers, often conducting experiments such as comparing organic fertilizer, chemical fertilizer, and no fertilizer. They grow maize, vegetables, and orange-fleshed sweet potatoes (OFSP), carrots, lettuce, and eggplant.

The money from the school demonstration farm is deposited into an MTN Mobile Money account and managed by the 4-H treasurer. To start the farm, 4-H took out a loan from teachers, and then, at harvest, they paid off their debt and voted to use their profits to help the farm grow. Roaming livestock destroyed a lot of the school demonstration farm in the first year, so they used some of their funds to build a fence.

Before they started the club, Mr. Baba called a PTA meeting to inform them of the purpose of 4-H. Originally, many parents resisted because they saw it as extra schoolwork that took their children away from working on the family farm. But, after they saw the success of the school farm, they changed their perspective and even began contributing funds and in-kind donations for the school farm.

Laboratory for Learning

Agriculture teachers can use the SDF as a learning laboratory to actively bridge classroom instruction with hands-on application. The SDF serves as a dynamic platform for conducting experiments, demonstrating practical exercises, and showcasing scientific principles. It integrates multiple scientific disciplines and subjects, enabling students to grasp core concepts through direct experience. For specific examples of how the SDF can incorporate diverse scientific disciplines, refer to Table 3.

Subject	Examples on the SDF
Agronomy	Crop rotation. Monoculture. Cover crops.
Biology	Plant nutrients. Photosynthesis.
Chemistry	Nitrogen, phosphorous and potassium in fertilizer. Carbon and nitrogen in composting. Chemicals in pesticides (organic and synthetic).
Ecology	Types of ecosystems. Relationship of bugs, animals and microorganisms to crops.
Entomology	Role of insects in pollination. Integrated pest management.
Environmental Science	Environmental protection while farming. Agricultural sustainability. Climate change's effects on agriculture.
Food Preservation	Microorganisms and food spoilage prevention.
Genetics	Plant breeding. Crop varieties and their traits.
Geology	Soil types. Rock types. Minerals in the soil.
Horticulture	Vegetable cultivation.
Mathematics	Measure produce. Calculate garden bed dimensions.
Nutrition	Nutritional content of certain crops. Vitamins and minerals essential to human health.
Physics	Topography's influence on water movement and gravity.
Plant Pathology	Fungal diseases. Plant viruses. Plant disease. Disease prevention strategies.
Plant Science	Plant life cycles and growth patterns.
Soil Science	Soil composition and properties. Soil management practices.
Water Science	Water cycle. States of matter. Water pollution's effects on crops.
Weed Science	Identify and manage weeds.

Table 3. Integrating scientific disciplines into the SDF

Orange-fleshed sweet potatoes take off through the SDF...

Several international programs struggled to diffuse orange-fleshed sweet potatoes (OFSP) in Ghana's Northern Region until Tuskegee University partnered with 4-H Ghana to introduce the highly nutritious tuber through 4-H clubs.

At the Woribogu Junior High School, OFSP became a local success. With approximately two-thirds of the student body enrolled in 4-H, students do 100% of the work on the farm and keep all labor and financial records. To encourage adoption, students experimented with OFSP in traditional recipes and shared the food with family members. Students took vines home to propagate, and OFSP began selling at local and regional markets.

After three years of operating the school farm, the club had made enough money from OFSP and other vegetables to hire a tractor to till the soil. It was the first time many of the students had been exposed to mechanical agriculture, and each year, the farm gets larger.

Community Demonstration Farm

The SDF actively showcases innovative agricultural techniques. Community members, particularly farmers, can witness the differences among various agricultural approaches through conversations

with students, casual observations of the SDF, and direct involvement in its activities. These tangible comparisons, supported by accessible experimental data, strongly encourage farmers to consider adopting new practices. This not only elevates the community's appreciation for the ASO club but also bolsters the broader SBAE model.

The following effective strategies can be implemented to enhance student learning, amplify SDF utilization, and bolster its community presence.

Side-by-side experiments. Conduct side-by-side experiments on the SDF to compare traditional and improved planting methods, crop varieties, or harvesting techniques. Use marked signs to differentiate between the modes, publicly post the findings on a display board, and share them in community forums. This approach educates students on effective agricultural practices while disseminating this knowledge to the broader community.

Community quiz bowl. Organize an engaging quiz bowl competition to test students' knowledge and boost agricultural awareness in the broader community. This interactive event can provide a platform to display agricultural expertise and build connections between students and community members interested in better farming practices. See Quiz Bowl under Camps, Fairs, Contests, and Awards.

Successful school farm visits. Facilitate student and farmer visits to established SDFs that have effectively integrated agricultural practices into their curriculum. These firsthand experiences provide participants with tangible insights, motivating them to explore innovative approaches in their own farm projects.

Farmer field school training. Conduct targeted training sessions at Farmer Field School events to advance local agricultural progress. Enrich local farmers' skills by sharing valuable insights, techniques, and practical knowledge, reinforcing the SDF initiative's collaborative nature. These events encourage a dynamic exchange of ideas and cultivate a community centered on better farming practices.

Best practices at community fairs. Extend the reach of SDF achievements and innovations by participating in community fairs and exhibitions. Set up informative booths and displays that highlight best practices, emphasizing the impact of student-led agricultural initiatives. This presence not only educates the community about improved farming practices but also reinforces the connection between the SDF and broader community development.

Safety posters for chemicals and livestock. Promote safety and responsible practices by prominently displaying informative posters regarding the proper handling of chemicals and livestock. These visual reminders ensure that SDF activities are conducted in a secure and responsible manner. They also communicate the importance of safe agricultural practices to both students and the community.

Diffusing cassava mounds in Bellamu Town...

For centuries, farmers in Liberia had grown cassava using the same methods. Cut a hole in the hard ground using a cutlass, place two or three sticks inside, and cover it with soil. 4-H began introducing an improved method – using mounds and ridges – that could improve yields by as much as one-third.

Mr. Patrick, a junior high agriculture teacher from Bellemu Town, attended a 4-H training at the Central Agriculture Research Institute (CARI). Local agriculture scientists taught him the new methods. The idea is simple: by tilling the soil and reducing compaction, the tuberous roots have a greater capacity to grow. Because the soil is less compact, cassava is easier to harvest, reducing the chances of chipping or breaking the tubers in the process.

Mr. Patrick brought these new ideas to his school and began organizing a 4-H club and school demonstration farm. He hand-selected 20 students to participate and involved community leaders and the PTA. The school farm produced so much cassava that the students voted to use the money earned from the farm's harvest for an end-of-school gala day. The students bought refreshments and even paid for the transportation of another school to come to play a friendly football match. They never asked anyone in the community to contribute, and parents were naturally curious about where these students got the money. When they heard it came from the school demonstration farm, they wanted to see it and learn more.

Entrepreneurial

The SDF strives to operate not only as an educational hub but also as a profitable business venture. By adopting innovative practices, farmers can boost their yields, revenue, and profit margins. This multifaceted approach not only enhances agricultural education but also teaches students that agriculture is a viable economic endeavor as well as a scientific pursuit.

To instill these principles in students, agriculture teachers play a pivotal role by engaging in the following activities:

Market research. Introduce students to the fundamentals of market research and take a field trip to a local market to conduct the research. This involves understanding consumer preferences, demand trends, and competition. By involving students in market research activities, they learn to analyze data, make informed decisions, and align their farming strategies with market needs.

Financial literacy. Every entrepreneur must understand the fundamentals of financial literacy, and the SDF is the perfect place to teach this to students. Train students on the formulas to calculate financial concepts such as income, expense, profit, and loss.

Budgeting. Teach students the importance of budgeting in agricultural enterprises. Guide them in creating budgets that encompass expenses, revenue projections, and potential risks. Budgeting empowers students to make informed financial decisions in real-world scenarios.

Farm record-keeping. Emphasize the significance of accurate record-keeping in running a successful agricultural business and its impact on informed decision-making. Teach students how to log activities, expenses, and yields. This habit instills accountability, tracks progress, and guides subsequent decision-making. See Appendix B for more information on record-keeping.

The four Ps of marketing. Provide students with a comprehensive understanding of marketing techniques that extend beyond the farm gate through the four Ps of marketing: product, price, place, and promotion.

- **Product** meets the demands and wants of customers.
- **Price** is what the consumer is willing to pay for the product.
- **Place** involves where the product is stored, manufactured, and sold.
- **Promotion** strategy shows customers why they need to buy this specific product over other products through advertising, branding, and packaging.

Six key steps to implement a School Demonstration Farm

The agriculture teacher should guide students in tailoring each SDF to the unique agricultural needs and economic context of the community. This involves aligning the selection of crops and value-added products with local demands. To make informed choices, the teacher should lead students in a thorough research initiative before establishing the farm, covering topics from land availability to agricultural innovations and market analyses.

With this crucial information at hand, students can engage in insightful discussions about diverse topics such as tool usage, crop selection, fencing needs, and labor allocation. Empowering students in the decision-making process allows them to have a significant impact on the farm's direction.

There are six key implementation steps to developing a SDF.

1. **Select the Site.** Choose the appropriate location for the SDF.
2. **Prepare the Site.** Get the chosen site ready for agricultural activities.
3. **Plant the Farm.** Cultivate crops or raise livestock on the prepared land.
4. **Tend the Farm.** Maintain and care for the growing crops and animals.
5. **Harvest the Farm.** Reap the rewards of these efforts by collecting the produce.
6. **Post-Harvest Activities.** Engage in tasks such as processing, selling, storing, and consuming the harvested crops.

Each step is described below and accompanied by important factors to consider when developing an SDF.



Step 1. Select the Site. To maximize the use, efficiency, and success of the SDF, it is important to consider location. Table 4 presents factors to consider when choosing a SDF site.

Water	Locate the SDF site as close as possible to a natural water source, such as a well or stream. The closer the SDF site is to the water source; the less labor is required to carry it.
Traffic Patterns	Put the SDF site in a spot near the school where people can easily see it so it can be monitored and easily accessed by students and staff. Create an entrance/exit and paths to accommodate many people at once.
Security	Consider erecting a barrier, such as a fence, around the SDF site to repel animals and deter theft or vandalism. Establish a schedule for students, staff, and community members to monitor the SDF site, especially during school breaks.
Topography	SDF sites on flat land are easier to start and maintain than sites on sloped land. If the SDF site is on a slope, use techniques such as level beds or ridges to reduce soil erosion and water runoff. If the land is flat, make sure that it does not flood in the rainy season.
Ownership	Ensure the school owns the land or it has been leased, in writing, to the school. Ask parents, staff, and community members to donate land, tools, seeds, or their time so they feel as they are a part of the SDF site.
Safety	Analyze the site for potential hazards that could cause injury, such as an uncovered well or a nearby busy road. Minimize hazards, such as covering the well, and establish safety protocols for people working in the SDF site. Avoid leaving dangerous tools such as cutlasses and rakes lying on the ground where students may step on them and injure themselves. Use personal protective equipment (PPE) and follow all safety measures when handling agrichemicals.
Sun	The site needs at least six hours of sunlight per day to be productive. Remember that a light-shaded area may be needed because some plants do better in the shade.
Soil	Which type of soil does the site have: clay, sand, loam, or silt? Loam is typically the best type of soil for most crops, especially vegetables. Other soil types can still be productive or amended as needed.

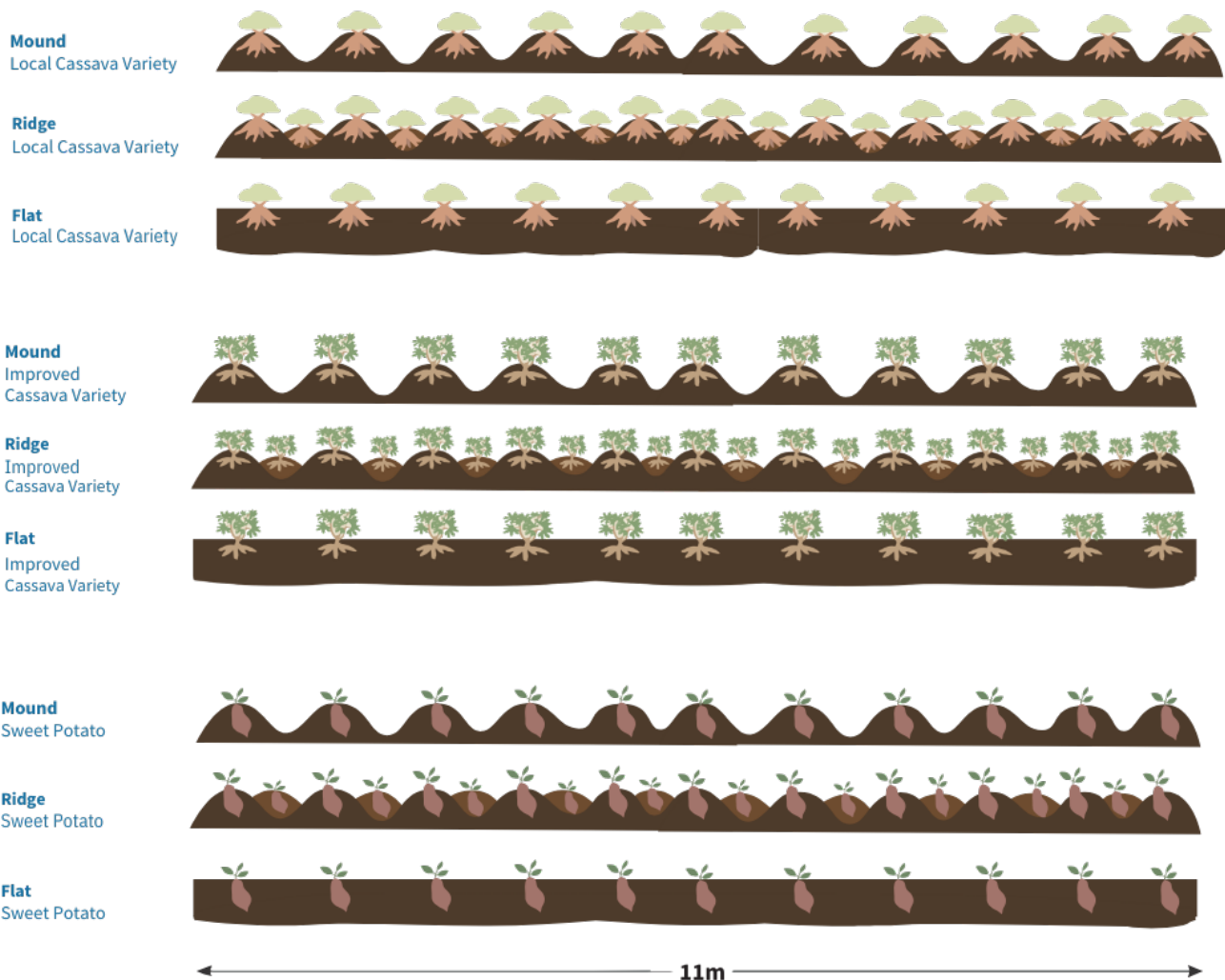
Table 4. Factors to consider when choosing a school farm site

Step 2. Prepare the Site. Once a suitable location for the SDF has been identified, the next phase involves getting the site ready for cultivation. Begin by selecting a design that aligns with the agreed vision for the farm. There are various farming systems to choose from, including monoculture, crop rotation, no-till, and intercropping. Consider the specifics of the chosen site to determine the layout plan, which can include raised beds, trench beds, terraces, mounds, ridges, or bunds (for lowland rice).

Additionally, assess whether an irrigation system is necessary and whether constructing a fence is appropriate. Fences communicate the boundaries of the farm and who or what is permitted on the farm. Fences can be cost-effective, especially when made from a combination of local and purchased materials such as thorny hedge rows, bamboo, sticks, barbed wire, or mesh wire.

Make a comprehensive list of the required tools and implements. This may entail crafting tools like levels, measuring instruments, dibbles, rain gauges, drip irrigation systems, and trellises, among others. To ensure a well-prepared site, it's crucial to map out the farm's design as an integral part of this preparation process.

Be sure to draw out the design of the farm as part of this preparation. Here are some examples:



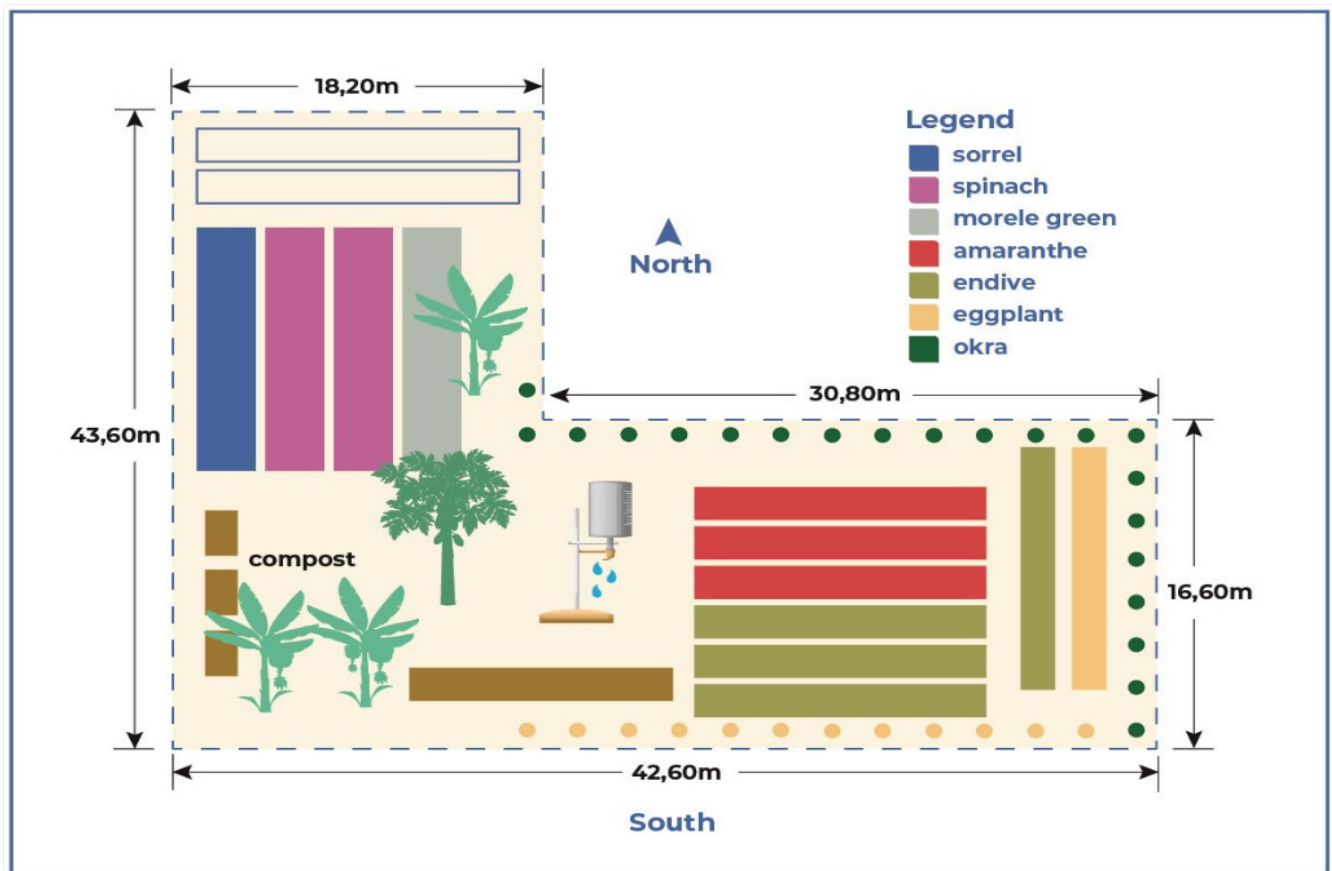
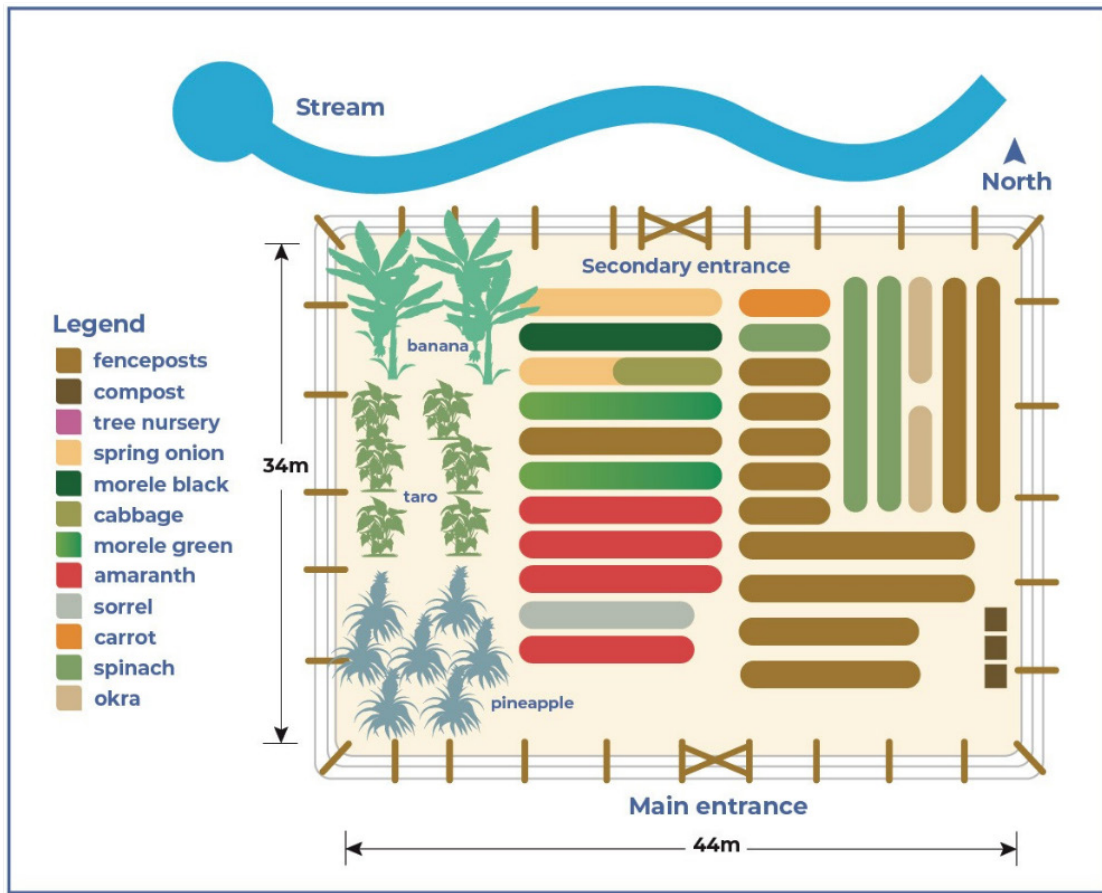


Figure 7. Examples of school demonstration farm designs (adapted from Crave et al., 2013)

Step 3. Plant the Farm. The process of planting an SDF involves a diverse selection of crops or livestock tailored to the local community, agricultural ecosystem, and cultural context. Table 5 below demonstrates a variety of possible selections for the farm.

Category	Examples
Animals	Snails, Poultry, Pigs, Rabbits, Sheep, Goats
Fruit & Vegetables	Tomatoes, Lettuce, Cabbage, Cauliflower, Amaranth, Spinach, Cucumber, Pumpkin, Squash, Watermelon, Melon, Eggplant, Sweet Pepper, Hot Pepper
Roots & Tubers	Cassava, Sweet Potato, Orange-Fleshed Sweet Potato (OFSP), Edo, Yam, Carrots, Beets, Onions
Legumes	Soybeans, Green beans, Cowpeas, Groundnuts, Peas
Grains/Cereals	Corn, Rice
Tree Crops	Banana, Palm, Citrus
Fungiculture	Mushrooms

Table 5. Possible crop and livestock selections for the farm

For easier management and enhanced student learning, label all crops with small signs that include the plant's name with a simple illustration. This visual aid not only helps students and parents but also assists the agriculture teacher in tracking the crops. Attach these labels to sticks and place them at the ends of rows or near individual plants. This is especially useful for side-by-side experiments that compare various agricultural methods or crop varieties.

Evaluate the need for constructing a nursery like an elevated-scaffold nursery or raised-bed nursery. Identify which plants need nursing and plan accordingly. Become familiar with the specific requirements of crops or varieties – such as crop spacing, seed depth, germination period, time to maturity, and water and nutrient needs.

If the SDF includes animals, plan for structures such as piggeries, rabbitries, or poultry houses, remembering to factor in security and accessibility. Be sure to account for veterinary care, safe animal handling, and sourcing feed.

Let's do it well...

In 2021, three 4-H moms – Edith, Ruth, and Lydia – didn't merely observe the success of the 4-H School Demonstration Farm (SDF) at Beadatu JHS, they saw an opportunity. Inspired by the exceptional yields their children helped produce, they approached the agriculture teacher for advice, eager to replicate the school farm's success. Their ambition and drive quickly drew others from the community, culminating in the formation of a farmers' cooperative they called "Kwakesor," aptly translating to "let's do it well."

Together, they cultivated a 500-square-meter plot and applied advanced 4-H planting techniques. Each harvest surpassed the previous, reflecting their dedication and commitment – but they didn't stop with the cooperative farm. Each woman introduced the new methods on their personal farms, elevating their individual harvests and family incomes.

By 2022, Kwakesor began selling its surplus, turning the mom's passion project into a profitable venture. Their hard work, unity, and innovative approach resulted in \$10,000 LD (approximately \$52.00 USD) in earnings by 2023. Kwakesor stands as a shining testament to community-driven change inspired by students on the school demonstration farm.

Step 4. Tend the Farm. Empower students to view the farm as an extended scientific experiment that treats every farm visit as an opportunity for teaching and learning. For example, if students observe some cassava plants are turning yellow and others are not, the agriculture teacher can utilize these observations as a means for students to ask questions, such as: Are the plants healthy? Is the soil healthy?

Do they lack nutrients? They can then propose potential solutions, such as adding organic matter or applying fertilizer. Approaching farm maintenance activities with inquiry fosters student curiosity, nurtures a mindset of experimentation, and enables students to become adept problem solvers and lifelong critical thinkers.

The agriculture teacher should work with students to develop a work schedule that outlines farming tasks, such as weeding and watering, and know who engages in those tasks, including students, PTA members, and other volunteers. This not only nurtures a sense of responsibility and ownership among students, it also guarantees the farm's lasting development.

Engage students in discussions about pest management and soil health protocols. Choose an integrated pest management program, weighing the merits of options such as organic or chemical pesticides, and set clear guidelines for responsible and safe chemical handling. Plan a strategy for soil enrichment, considering methods such as composting, chemical fertilizers, mulching, watering, thinning, and weeding. Prioritize actions for weed management, pest control, and disease prevention.

Step 5. Harvest the Farm. In a student-led SDF, students should decide well in advance what to do with harvested produce, which will reinforce their ownership over their labor. The agriculture teacher can guide students in deciding the outcome of harvested produce and help oversee the entire harvesting process. This guidance includes scheduling regular harvests, assigning roles for each harvesting stage, and strategizing for post-harvest challenges – all key actions to maximize farm productivity.

Practice gentle handling techniques during harvesting to avoid produce damage or bruising, and harvest at the optimal maturity stage to ensure yield quality. Maintain cleanliness in harvesting materials and carefully sort out any dirty or unhealthy produce. Keep accurate records of all harvest activities, thus enabling students to calculate overall farm productivity and inform future decisions.

Invite parents and farmers to attend harvest day, where students can showcase their efforts and highlight variations in yield resulting from different methods and crop varieties.

Step 6. Post-harvest Activities. After the harvest comes the need for processing, selling, storing, and consuming. A significant portion of food loss occurs after harvest, so teachers should actively engage students in a variety of post-harvest activities that preserve food and minimize waste. These range from processing and selling to storing and cooking the produce.

Teachers can equip students with crucial information on how to prevent food spoilage by managing moisture, oxygen, pH levels, and temperature. This will enable students to apply food processing methods that can prolong shelf life and tackle issues in harvest, storage, processing, and distribution that contribute to food and financial losses.

Students can investigate value-adding techniques such as utilizing solar dryers for fruit and vegetable preservation or using hermetically sealed bags for grain and legume protection. Post-harvest technologies, such as the homemade tent solar dryer in Figure 8, don't need to be expensive. Post-harvest lessons should include nutritional education, cooking demonstrations, and recipes that utilize nutrient-rich crops, thus empowering students to make sustainable and healthy dietary choices.

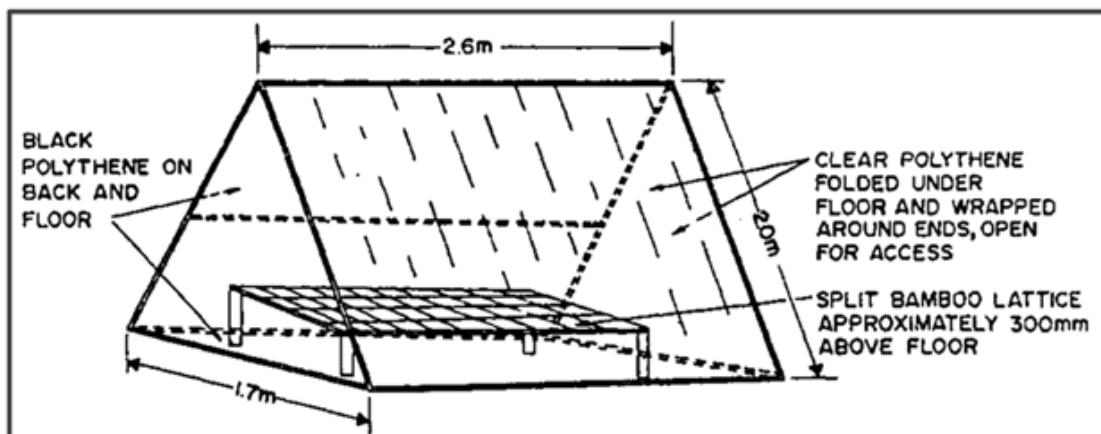


Figure 8. An example of a homemade solar dryer

Field trips to food processing plants serve as great experiences that stimulate creativity and provide inspiration to students to think beyond the farm. These trips not only enrich students' hands-on engagement, it also paves the way for a more resourceful and well-rounded understanding of agriculture value chains.

Home Entrepreneurship Projects

Home Entrepreneurship Projects (HEPs) actively engage students in every step of an agricultural venture, from preparation to successful completion. These income-generating projects can range from vegetable gardens to small farms and even specialized ventures like rabbitries. HEPs provide a hands-on learning entrepreneurship platform through which students both “learn and earn.” By rooting the instructional model in students' interests and experiences, the learning process not only gains a motivational framework, it also strengthens the link between education and practical, real-world agricultural activities. Individual projects usually outnumber group efforts in HEPs because they offer financial rewards, but group projects are not unheard of. HEPs often occur on family land, community plots, or backyards and aim to generate income to be reinvested in future projects or cover educational costs.

Getting Started with Home Entrepreneurship Projects

All SBAE students are required to complete HEPs. Project options range from poultry and livestock rearing to vegetable, grain production, and regenerative agriculture. Projects often start small and grow over time. Two brothers in Ghana began growing tomatoes in old grain sacks and, within two years, saved enough money to purchase a pig for reproductive purposes.

Securing the backing of parents and community leaders is essential for obtaining the necessary land, tools, and supplies for projects. Students may borrow land from their parents, petition town elders for community land, or implement smaller “backyard gardens” or “sack gardens” at home. The HEP's location also plays a key role. Placing projects in high-traffic areas such as family farms or common pathways boosts visibility and promotes community and family engagement. Successful HEPs result from collaboration among educators, parents, and motivated students eager to convert their agricultural know-how into entrepreneurial gains.

The promise of earning income motivates students, and many reinvest a portion of their profits into their projects to fuel ongoing growth and continuity. Some students, particularly girls, direct a portion of their earnings towards school expenses such as pens, notebooks, or school fees. Others allocate profits for household necessities or items such as bicycles, backpacks, athletic shoes, or football jerseys.

To launch their HEPs, students work closely with agriculture teachers to create detailed project plans and budgets. These plans act as blueprints that specify objectives, activities, and success strategies. Business plans often guide the projects, providing clear direction for ventures.



The Six Components of a Home Entrepreneurship Project

1. Project Plan

- a. The project's goal is to make money.
- b. Students write a general project plan with guidance from the agriculture teacher.
- c. Students create a budget of expenses and probable income.

2. Project Location

- a. Projects should be located in an area visible to parents or others in the community. This could be on the family farm, near the home, or on a well-trodden path.

3. Project Income

- a. The student should develop a plan for acquiring funds to start the project.
- b. Marketing must be incorporated into the project plan, even if most of the agricultural produce is consumed at home.
- c. A home project is not a one-time experience but the development of a long-term enterprise. Students should plan to reinvest a portion of their earnings in future projects.

4. Project Activities

- a. Students engage in activities involving every aspect of the process, from preparation to successful results.

5. Project Record

- a. Simple records should be kept identifying the work activities, hours of labor, and financial income and expenses.

6. Project Supervision

- a. The teacher must visit each student's project at least twice during the project activities.
- b. The purpose of these visits is to learn more about the student by devoting quality time to their interests, observing their home environment, and discussing with parents the activities that might be included in the student's project.
- c. The teacher should discuss any problems with the student's project and evaluate the student's progress toward meeting their goals.
- d. The teacher should assist students with records and help students identify ways to expand their operation.

Table 6. The six components of a home entrepreneurship project

Amos' new planting methods...

Amos's parents were traditional Liberian farmers, mixing seeds such as pepper, corn, and rice in a bucket and broadcasting them over the ground before "scratching" the seeds into the soil with sticks. In contrast, through 4-H, Amos learned how to drill seeds into the ground down well-plotted rows. His advisor taught him on the school demonstration farm, and Amos decided to use the same methods on country corn for his home entrepreneurship project. The result proved successful, and in his first year, Amos harvested three large bags and earned LD\$4,500 LD.

Seeing their son's success, his parents approached Amos and began asking questions. "I told them that the birds will not eat the seeds if they drill the seeds into the ground." Recalling his childhood, Amos mentioned the days he spent guarding the farm with a sling to fend off birds from the seeds scattered on the surface. Eager to introduce a more efficient method to his parents, he emphasized, "This is how my agriculture teacher taught me." The new approach proved successful, yielding an extra 1.5 bags of harvest for the family. In appreciation, his parents awarded Amos LD\$500 for introducing them to the innovative technique.

Promoting Effective Record Keeping for HEPs

Encouraging students to keep accurate records boosts the success of HEPs. Using simplified record book templates, such as those provided in this guide, makes tracking easy and fun. Students should actively log details of their work activities, labor investment, expenses, and income. These records provide valuable insight into the project's progress and results.

As with school demonstration farms, accurate record keeping in HEPs:

- teaches financial skills and the importance of money management
- sharpens planning and execution skills for projects
- facilitates the calculation of production profits or losses
- tracks yields
- aids in comparing outcomes with peers or across different agricultural practices or crop varieties
- helps identify mistakes and the causes of failure, facilitating improvement in future projects
- offers tangible proof of a student's contribution to the family and community
- allows for annual tracking of project progress and growth
- cultivates an appreciation for farming as a business.

See Appendix B for more information.

Effective Supervision of HEPs

Supervising HEPs through regular home visits allows teachers to offer tailored instruction to students while deepening their understanding of students' interests and home environments. During these visits, teachers may also speak with parents to clarify project goals and engage families. Home visits provide guidance, tackle challenges, assess progress, and help maintain project records while spotting opportunities for growth. Teachers must visit each project at least twice, with additional visits for students who need more support. Using a standardized supervision template ensures consistent evaluation.

Amplifying the Diffusion of Innovation through HEPs

HEPs serve as conduits for diffusing agricultural innovations to the home and community. This diffusion process starts with students who bring newly acquired innovations from their school experience to their home projects. As these innovations prove successful, interest is piqued among adult farmers, often parents or family friends, prompting them to adopt the same practices. Through an interplay of student-driven initiatives, teacher guidance, and community engagement, HEPs emerge as effective channels for the diffusion of agricultural innovation, especially with strategic initiatives that enhance visibility.

One effective approach is through agricultural competitions, exhibitions, and quiz bowls that create platforms for students to showcase their projects, exchange innovative practices, and disseminate agricultural knowledge to a wider audience. These competitions not only celebrate students' achievements but also encourage them to actively participate and gain exposure within the community.

Offering students the opportunity to discuss their projects on radio broadcasts amplifies their voices and insights, enabling them to share their experiences, challenges, and achievements. To maximize visibility, situating home projects along well-traveled pathways ensures that others may witness the efforts and progress of these student ventures. Public recognition of high achievers not only reinforces their accomplishments, but also serves as an inspiration to others, spurring them to strive for excellence on their own farms.

I will go home and teach my parents...

For her home entrepreneurship project, Princess cultivates cassava, eddo, and pineapple. “These crops are my sole effort. While we gain theoretical knowledge in school and apply it on the school demonstration farm, I also implement these learnings in my home garden. Over the past two years, it has produced well.”

Through 4-H, Princess has acquired hands-on skills, including rice nursery cultivation, swamp transplantation, garden bed construction, and vegetable farming. She shared, “There are certain planting techniques unfamiliar to my parents. I will go home and teach my parents on these methods, and we will do it together on the farm.” Her parents now seek her advice regularly.

Before planting her HEP, she goes to the local market to assess demand. She elaborated, “If there’s no demand for my crops, I switch to crops the buyers want. I then take orders, ensuring I have committed buyers come harvest time.” This strategic approach earned her US\$35 last year. After securing her earnings, she reinvested a portion back into her HEP and used the remainder to support her family and pay for school expenses.

Princess’s agricultural expertise, cultivated through 4-H, not only impressed her parents, but also made her a sought-after advisor in her community. Her experience with 4-H has fueled her aspiration to pursue higher education in agriculture. She envisions returning to her community, both as a proficient farmer and an educator, to uplift and refine local farming practices.

Leadership Development

Leadership development is the motivational drive behind SBAE, making agriculture engaging and exciting for students. It builds confidence, hones life skills, and fosters a sense of community among students. Public speaking serves as an ASO cornerstone, developing students into influential leaders who can persuade, inspire, and effect change. In ASO structures such as 4-H, Future Farmers, or Young Farmer Clubs, students develop their leadership capacities through a number of distinct opportunities.





ASO Officers and Responsibilities

Electing student leaders ensures that the work and decisions of the ASO club are initiated and enacted by student members. Student officers actively manage and coordinate meetings, in much the same way as a farmers' cooperative. Typically, there are five positions, but these can be altered depending on a particular country and its culture. The club advisor, who is also the agriculture teacher, guides students and ensures the club has continuity from year to year.

Below are the general responsibilities of each officer.

President. The president oversees meetings according to the accepted rules of parliamentary procedure. The president appoints members to committees and serves as a non-voting participant on each. Coordinating the club's activities is a fundamental responsibility. The president represents the club in matters of public relations and official functions within the community.

Vice President. The vice president is responsible for assuming all duties typically held by the president when the latter is absent. The vice president oversees and coordinates all committee work as assigned by the president. Collaboration with the president and advisor ensures progress toward the club's goals.

Secretary. The secretary prepares and distributes meeting agendas (see Table 8), records and presents minutes (see Appendix B), and organizes committee reports. The secretary manages club correspondence and maintains detailed records of member attendance, activities, and membership cards.

Treasurer. The treasurer handles all financial aspects of the club, including receiving, recording, and depositing ASO funds and issuing receipts. The treasurer maintains financial records originating from the school demonstration farm and presents a monthly financial report during club meetings for

transparency. Collecting membership dues and special assessments contributes to financial stability.

Chaplain. The chaplain opens meetings with prayer and respects the diverse religious affiliations within the ASO club. Modeling good character and overseeing the well-being of club members are key responsibilities.

Advisor. The agriculture teachers act as ASO advisors and supervise the club's activities throughout the year. They recruit members, educate parents about the ASO club, and train students in enhanced agricultural techniques, leadership skills, organizational strategies, and parliamentary procedures (further details on additional responsibilities are presented in Section 2).

ASO Rituals, Creeds, Mottos, and Songs

Nations, religious groups, and civic organizations across the world unite through shared customs and traditions that promote the group's values and sense of belonging. At each ASO meeting, officers honor agrarian values, such as hard work, unity, stewardship, wisdom, and citizenship, through an opening and closing ritual. Using culturally significant symbols as officer stations, the ritual dispels negative perceptions of agriculture and instills a sense of pride and dignity in the sector.

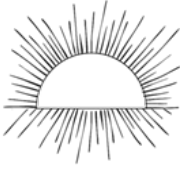





Office	Station	Marker	Meaning
President	Rising Sun		A new era in agriculture
Vice President	Cutlass		Labor and farming
Secretary	Flag of Liberia		Freedom and independence
Treasurer	Palm Tree		Resourcefulness
Chaplain	Image of Rainfall		God's blessing
Advisor	Rabbit		Knowledge and wisdom

Table 7. Liberia 4-H officer stations

For example, in 4-H Ghana, the vice president is seated by a cutlass and hoe – the basic tools “required to properly maintain a farm” – metaphorically representing the hard work necessary for the vice president to support the president. The secretary commits the club to follow the example of maize farmers who “keep a record of their harvest” (4-H Ghana, 2017). Parents and local farmers often attend meetings, and the ritual forges a bond of respect between generations. It creates what Rufus Stimson (1932), an early twentieth-century agricultural educator, called “dignified agriculture,”

These rituals offer valuable opportunities to cultivate essential life skills, including public speaking. They serve to captivate attention, establish order, and refresh the club’s memory about officer duties. ASO rituals are to be committed to memory, practiced, and carried out with pride and respect. When speaking, officers should project their voices clearly and distinctly to ensure that the entire membership can hear and engage (see Appendix D for an example of these rituals). Videos of students from around the world conducting ASO rituals can be found online.

Psychologically speaking, rituals, creeds, and songs can unite members of an ASO across cultural, regional, and religious divides in a shared sense of “agrarian solidarity.” This solidarity is critical for youth who have been taught to view agriculture as menial and monotonous. The Agriculture Creed, as adapted from E.M. Tiffany, starts with “I believe in the future of agriculture, with a faith born not of words but of deeds...” and goes on to enumerate beliefs that reflect the spirit and vision of progressive agriculture. By studying, reciting, and internalizing the creed, members connect with the organization’s foundational beliefs and with the broader agricultural community. It also acts as a great vehicle for students to practice public speaking (the Creed, adapted from Tiffany, is presented in Appendix E).

Songs play a pivotal role in fostering unity, conveying shared values, and making the learning process fun. They act as aural symbols, encapsulating the essence of a group’s identity, beliefs, and purpose. Through communal singing, ASO members feel a profound sense of belonging, evoking shared emotions and reinforcing communal bonds. Songs also serve as powerful mnemonic devices, helping members internalize and share leadership or agricultural teachings and lessons.

ASO mottos and pledges highlight a blend of personal growth, healthy living, continuous learning, community service, and preparation for future careers that these organizations seek to instill in their members. They serve as guiding principles, succinctly capturing the essence of what each organization stands for and the values it aims to instill in its members.



In 4-H, the purpose of the motto is to inspire members to constantly improve, to take the skills and knowledge they've gained, and to use them to improve themselves, their projects, and their communities. It encourages a continuous cycle of learning, growth, and improvement. By aiming "To Make the Best Better," 4-H members strive for excellence and seek ways to contribute positively.

Equally, the 4-H Pledge emphasizes the core values and goals that 4-H members strive for in both their personal development and their contributions to their communities. Each of the four "H's" in the pledge stands for a particular aspect of a member's development. By reciting and internalizing the pledge, members are reminded of the broader purpose of their involvement and the values the organization holds dear.

*I pledge my Head to clearer thinking,
My Heart to greater loyalty,
My Hands to larger service, and
My Health to better living,
For my club, my community, my country and my world.*

Club Meetings

Student-led meetings, held either monthly or fortnightly, actively energize the organization's rhythm. Structured around three key components – business, education, and recreation – each meeting aims to deliver a comprehensive experience for all members. Club meetings are run by the club president and follow a prepared meeting agenda. In club meetings, the importance of transparency and accountability within the organization, as well as in entrepreneurial ventures, is underscored by a commitment to accurate record-keeping.

Club Meeting Agenda

1. Opening ceremonies
2. Prayer by chaplain (optional based on culture)
3. Minutes of the previous meeting read by the secretary
4. Financial report read by the treasurer
5. Unfinished business from the last meeting that was left undecided
6. New business to discuss, plan, and vote
7. Education activity: guest speaker, demonstration, etc.
8. Closing ceremonies
9. Recreation

Table 8. Suggested agenda for a club meeting

Parliamentary Procedure

In the ASO club, as in any democratic society, members learn to use parliamentary procedures to influence decisions effectively. These rules embrace key democratic principles such as open debate, majority rule, and the protection of minority viewpoints.

ASO members actively apply parliamentary procedure to govern club meetings, decide on SDF activities, and allocate funds. While mastering these procedures initially takes time, students come to value the structure it provides. The agriculture teacher teaches the importance and purpose of parliamentary procedures, including lessons on main motions, amendments, and motions for adjournment. During meetings, the president leads, members stand when speaking, and motions pass by majority votes.

Camps, Fairs, Contests, and Awards

Under the national ASO framework, students engage in friendly competitions. Competitions offer a platform for motivation by combining practical skill development with real-world applications of knowledge. The competitive environment fosters a desire for excellence, driving students to refine both their technical and soft skills. The prospect of winning awards or receiving public recognition provides a tangible goal, instilling their efforts with a sense of purpose. Competitions require students to engage in problem-solving and creative thinking, which can be intrinsically motivating. Competitions also provide the added benefit of bringing classroom learning to life by integrating competition topics into the school curriculum, making education more interactive and engaging.



Networking also plays a significant role in boosting motivation, as competitions provide opportunities for students to meet like-minded individuals and professionals in the agriculture sector. These connections offer emotional support, but can also lead to future opportunities such as internships or scholarships, adding an extra layer of incentive. The responsibility of representing their community or school instills a sense of pride and responsibility in students, pushing them to give their best. By providing students with varied experiences, including public speaking, presentation, and even national exposure, competitions serve as catalysts for both personal and academic growth, making them powerful tools for motivating students to excel in agriculture.

Leadership Camps

Multi-day camps bring together students from clubs across the country to participate in recreational activities and workshops that cover a variety of agriculture and leadership topics. Students play games, sing songs, attend field trips, meet industry and political leaders, and form bonds with fellow students of agriculture. Workshop sessions may include topics such as public speaking, teamwork, communications, problem-solving, gender education, home entrepreneurship projects, improved agricultural innovations, record keeping, safe farm practices, and field trips to nearby commercial farms or food processing facilities. Guest speakers motivate students to pursue their academic studies, build agricultural businesses, and engage in civics and politics.

Agriculture Fair

Agriculture fairs highlight ASO members' accomplishments and underscore SBAE's importance to policymakers. At these events, often held in major cities or capitals, selected clubs display their crops, engage in marketing, hear from inspiring speakers, and demonstrate their mastery of farming techniques. These fairs offer an extensive platform where students exhibit and compete with their school-grown produce and interact with guests and dignitaries, answering their questions about farming practices.

Adding a creative twist, the fairs often feature drama contests or skits performed by students to advocate for agriculture. Speakers from government agencies and NGOs contribute their expertise on the benefits of agriculture and potential career paths. Networking sessions and farm evaluations serve as learning opportunities and foster idea exchanges among participants. Prizes reward outstanding achievements in various aspects, from produce quality and quiz performance to speeches and entrepreneurial ventures. Through these multifaceted activities, agriculture fairs evolve into exciting spaces for skill display, knowledge sharing, enthusiasm building, and ongoing engagement in the agriculture sector

Public speaking contest winners earn scholarships...

Ben and Samuka from Bolahun Public School won first place in the national 4-H Liberia method demonstration contest with their presentation on constructing a compost pile. Method demonstrations are instructive visual presentations showcasing the process of performing an agricultural task, and the boys gave an entertaining and informative demonstration on every step required in garden composting.

The Ministry of Education's District Education Officer learned of their achievement and invited the young winners to a groundbreaking ceremony for the Ministry of Education's new office building in Bolahun Town. During the event, Ben and Samuka were asked to give their method demonstration to the gathered dignitaries and community members. Proud of the acclaim brought to the school by the two boys, the school administration granted LD\$6,000 scholarships to each of the two students.

LEAD Contests and Awards

Leadership Education, Agriculture and Development (LEAD) contests are designed to make classroom instruction practical with real-world applications. They instill pride in students, promote understanding of a topic, and provide opportunities for new student experiences. LEAD contests consist of a series of individual and group competitions that build strengths and leadership potential through knowledge quizzes, public speaking, parliamentary procedure, debate, and essays. Through these contests, students can engage in friendly competition to bring pride to themselves, their community, and their country.

Students begin competitions at the school level, with winners given the chance to progress to regional and national matches, culminating in the selection of a national winner and runner-up for every contest.

To organize a LEAD contest effectively, planners need to determine the scale of the contest, whether it will be at school, regional, or national levels. They should finalize dates in advance, coordinate with schools to estimate the number of participants, and pick a venue that can accommodate everyone and any parallel events. Thorough understanding the contest rules is crucial, as is assembling a panel of impartial volunteer judges. Involving local officials as judges can add value. Preparations must also include gathering essential supplies such as copies of the rules, scoring rubrics, awards, and refreshments.

Below is a list of potential awards and competitions with a brief description of each.

ASO Club of the Year Award

The foremost ASO recognition – the ASO club of the year – is achieved through a sequence of collaborative competitions that enhance teamwork in agricultural activities, leadership, agribusiness, and group public speaking. This prestigious contest underscores the execution of both the ASO school demonstration farm and home entrepreneurship projects. Clubs vie for top honors based on their achievements in categories including the school demonstration farm, home entrepreneurship

initiatives, farm record-keeping, adopted innovations, leadership structure, club attendance, parental involvement, and annual planning.

The selection process for the ASO club of the year involves multiple stages, starting at the regional level and culminating in a national showdown. Regional field officers first identify the top three clubs, who are then assessed by officials from the Ministries of Agriculture and Education to select a winner. These regional winners proceed to the national competition held at the National ASO Agriculture Fair. The final contest comprises three specific challenges: showcasing produce, competing in drama, and taking a comprehensive quiz on various subjects including agriculture, spelling, ASO history, and leadership roles. The prestigious title is ultimately awarded to the club that demonstrates exceptional teamwork, agricultural expertise, and leadership.

Home Entrepreneurship Project of the Year Award

The home entrepreneurship project of the year represents the highest individual distinction in an ASO. This contest aims to offer ASO members a platform to showcase their exceptional HEPs, agricultural knowledge, record-keeping skills, and income generated through their projects.

Teacher of the Year Award

The ASO Teacher of the Year recognizes educators who embody excellence in the core roles of an ASO club advisor. Teachers must supervise year-round ASO club activities, engage in student-centered teaching methods, and skillfully train students in advanced agricultural practices, leadership, and parliamentary procedures. They must foster the inclusive participation of all club members in activities, assist students in record-keeping for home entrepreneurship projects, and prepare them to engage in agricultural events and contests. They must actively collaborate with students on the school demonstration farms, liaise with the PTA for club support, and extend their expertise to the broader community by training farmers in enhanced agricultural practices endorsed by ASO.

Nominees for this distinction should be chosen by the Ministry of Education, Ministry of Agriculture, and the regions' ASO field officer. Award recipients should be recognized before their communities and among peers. Selections of winners should take place at both the regional and national levels.

Principal of the Year Award

The Principal of the Year award is designed for school administrators with ASO clubs who demonstrate exemplary support for the ASO Club and SBAE program. Principals are nominated for this award and selected through a joint decision by the Ministry of Education, Ministry of Agriculture, and ASO field officers serving the region. Award recipients should be recognized before their community and peers at teacher meetings and fairs. Regional and national winners should be selected.

Parent of the Year Award

The ASO Parent of the Year award honors parents of ASO members who actively support the ASO club and exhibit exemplary qualities as PTA members: guardians, outreach supporters, organizers, and dedicated workers. Awardees should also demonstrate an active adoption of new farming methods and technologies on their farms, if applicable. They should serve as equipment stewards, encourage community engagement, facilitate communication, organize resources, and actively contribute through hands-on work. Nominees are selected collaboratively by the school principal, agriculture teacher, and ASO field officer, with winners acknowledged at regional and national levels.

Method Demonstration Contest

Method demonstrations are planned presentations in which one or two ASO members teach steps related to a project or activity. A demonstration entails the act of performing a task or showcasing a process through props and the use of necessary equipment. It involves providing a visual representation of how something is accomplished, accompanied by verbal explanations that explain

the steps involved. The demonstration typically culminates in the creation of a tangible outcome or the completion of a task. An effective demonstration inspires and instructs others in how to replicate the demonstrated actions. Simply, they are ways of showing and telling others how to make or do something.

The Agriculture Creed Speaking Contest

The Agriculture Creed outlines the ASO's beliefs regarding the industry of agriculture and the value of citizenship. The purpose of the Agriculture Creed speaking contest is to provide students with the opportunity to practice and develop their public speaking and leadership abilities while advancing their self-confidence. Each participant must recite the Agriculture Creed from memory. It is suggested that participants take advantage of all available training resources in their school to develop their speaking ability. For example, participants can practice and receive tips and pointers from teachers, fellow students, and community leaders.

Gifty's remarkable transformation...

Gifty, once a shy student at David Fajue Junior High School, took everyone by surprise when she volunteered for the Agriculture Creed Speaking Contest. With dedication, she tirelessly memorized and rehearsed her piece, absorbing guidance from her teacher and field officer. On competition day, she didn't just recite the creed; she owned it, shining with a newfound confidence.

As her self-assurance grew, Gifty was elected an officer of her 4-H club and took on more responsibility on the school demonstration farm. She innovated on her family's cassava farm with experimental plots, comparing mounds and ridges with traditional flatland techniques. The demonstration spoke for itself, transforming her family's agricultural practices and increasing their income.

Gifty originally anticipated a career in nursing, but after 4-H fueled her passion for agriculture, she charted a new path. Setting her sights high, she now aspires to be Liberia's Minister of Agriculture, with a vision of women leading the sector. Gifty is not just dreaming of change; she's actively forging it.

Prepared Public Speaking Contest

The prepared public speaking contest is designed to develop communication skills and promote interest in leadership and citizenship. Participants select a topic from a predefined list developed by the national ASO. Example topics may include utilizing gender empowerment for community development, the role of the ASO in the local community, the impact of entrepreneurial skills on individuals and communities, the distinction between life skills and livelihood skills, the use of leadership positions to combat corruption, identifying the qualities of effective leaders, and the role of agribusiness in rural community development, among others. Once a topic is chosen, participants must deliver a prepared speech between two and three minutes. Speeches must adopt a problem-solution format, focusing on one of the listed topics and be submitted to the judges in advance. Props or equipment are not permitted but participants may use notes pending scoring deductions if it hampers the presentation's effectiveness.

Parliamentary Procedure Contest

The parliamentary procedure contest aims to familiarize ASO members with the principles of parliamentary procedure, sharpen their meeting management abilities, and improve their collaborative communication. Through this contest, teams demonstrate their skills in conducting efficient, rule-abiding meetings and making team-based decisions. A team consisting of a president, vice president, secretary, treasurer, chaplain, and student advisor executes the contest. They must follow a given agenda within an 18-minute timeframe, starting and ending with the ceremonial gavel raps of the ASO

rituals. After the meeting concludes, the secretary submits the meeting minutes for evaluation.

Individual Debate Contest

The individual debate contest within ASO aims to foster effective communication and advocacy skills among members. This contest provides a platform for participants to engage in debates on annually selected topics related to key areas such as the ASO, gender, life skills, health education, agriculture, and community development. Students must present both sides of an issue, with their stance assigned shortly before the debate begins. Structured into two rounds, the competition entails affirmative statements, cross-examinations, and rebuttals. Judges evaluate these debates, considering components such as problem identification, cause analysis, solution proposals, and their implications. With a focus on clear expression, critical thinking, and persuasive communication, this contest contributes to participants' growth as effective communicators and informed debaters within the ASO community.

Written Knowledge Quiz Contest

The knowledge quiz aims to give students a platform to showcase and apply the knowledge they've gained through their SBAE experience. In this individual competition, participants take a prepared exam that tests their ability to recall information and apply knowledge in practical scenarios. The quiz may cover a range of topics, from general agriculture and crop science to life skills, leadership, and ASO history. Winners are identified based on the highest exam scores.

Quiz Bowl Competition

The objective of the quiz bowl competition is to provide students an opportunity to develop and demonstrate the knowledge they have acquired in their time in SBAE and compete in a fun and lively competition. Quiz bowl competitions can be held at the club level in front of an audience of teachers, parents, and farmers. It is a way to demonstrate the students' knowledge of agriculture to the community.



In the quiz bowl competition, questions are developed and maintained by the ASO. Topics may include but are not limited to, general agriculture, crop science, life skills, livelihood skills, leadership, general ASO knowledge, and ASO history. Teams consist of three members, and up to four teams can compete against each other, although two or three teams are also possible. Seated together, teams face the moderator, judges, and audience. The moderator asks one question at a time, and the first team to stand up to their feet has three seconds to respond. Team members can confer to discuss the answer. The judge keeps time and score, with each correct answer earning one point and each incorrect answer resulting in a deduction. The quiz bowl consists of a predetermined number of questions per round, usually around 25. The team with the highest score wins, and in the case of multiple teams, a tournament-style competition may be held, with winners advancing to the final round. The team with the highest points in the final round is declared the overall winner.

Essay Contest

The objective of the essay competition is to provide students the opportunity to express their beliefs and opinions on a given topic in written form. Topics may include opinions on gender empowerment, the purpose of SBAE in the local community, ways in which entrepreneurial skills benefit an individual or community, the difference between life skills and livelihood skills, traits of a good leader, how agribusiness can develop rural communities, among others.

The essay must include a cover sheet with the student's full name, school, grade level, and the chosen theme. Essays should be between 500 and 700 words, with disqualification for essays that fall below 500 or exceed 700 words. Any essays found to be similar to others will be disqualified as cheating. A panel of three competent and impartial judges will evaluate the essays anonymously, as cover sheets will be removed and essays numbered to ensure impartiality during the judging process.



Final Remarks

This manual outlines a roadmap for implementing school-based agricultural education (SBAE) in developing countries, aiming not only to instruct but also to inspire and empower young individuals and their communities. It's important to approach the guide's structured advice for launching SBAE with flexibility, tailoring a strategy to the unique context, culture, and conditions of each specific country. Success and sustainability in implementing SBAE hinge on genuine enthusiasm and commitment from within the community, not merely on external aid or the imposition of foreign ideologies. This initiative is not about enforcing a top-down strategy; instead, it's about applying a proven model that has achieved global success with deep sensitivity and respect for local dynamics.

Invest time in establishing a robust infrastructure, recruiting dedicated individuals, and securing government support as foundational steps. Without these pillars, SBAE initiatives in local communities won't realize success or sustainability. Since the SBAE model may be unfamiliar to many, avoid rushing or neglecting the training process for field officers, agriculture teachers, and school principals. Continuous, consistent training is essential, providing opportunities for follow-up and additional learning as needed.

The goal is to empower local individuals and teams to take ownership of the program. SBAE leverages existing educational systems and structures, making the active engagement and support of national ASO staff, field officers, and agriculture teachers crucial. Stay engaged, curious, and observant during the SBAE implementation, analyzing the feedback and data that is gathered. Be prepared to offer thoughtful interventions to facilitate adoption and support local teams in overcoming challenges and navigating through obstacles.

Throughout the journey, actively identify, celebrate, and replicate success. Find out what works and clone it. Even small successes build momentum, so share your story and progress widely, inviting others to learn from and join in your success. Embarking on the SBAE journey is both challenging and rewarding. With careful planning, genuine commitment, and respectful engagement with local communities, you can contribute to a brighter, more sustainable future for young people in developing nations.

We wish you every success in your endeavor.

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Appendices

Appendix A: Interventions & Nudges for the Agricultural Education Model

	Classroom Instruction	School Demonstration Farm	Home Entrepreneurship Projects (HEP)	Leadership Development
Defaults¹	<ul style="list-style-type: none"> ▪ Train headmaster / principal before training teachers to create buy-in for SBAE ▪ Automatically enroll headmasters in SBAE overview training. ▪ Train two teachers per school in case one moves ▪ Enroll girls and boys equally in SBAE, to promote gender equity 	<ul style="list-style-type: none"> ▪ Prepare a work schedule for students' farm activities ▪ Invite a parent-farmer from the community along with the ag teacher to attend the agriculture innovation training of the MoA or a research institute, in order to create buy-in from the community ▪ Keep students' labor records ▪ Build an inexpensive fence around the school farm to protect it from livestock and thieves ▪ Invite students to local farmer field schools held at the school demonstration farm ▪ Host an agricultural-knowledge quiz bowl and invite all students to participate 	<ul style="list-style-type: none"> ▪ Ensure every student has a Home Entrepreneurship Project (HEP) 	<ul style="list-style-type: none"> ▪ Hold opening ceremonies to start every meeting ▪ Require every student to memorize the agriculture creed ▪ Maintain student attendance records for meetings ▪ Host leadership contests at each school to involve more students, and enable winners to move to next level ▪ Arrange field trips for ASO clubs

¹ Defaults: Automatically enroll people in certain programs

	Classroom Instruction	School Demonstration Farm	Home Entrepreneurship Projects (HEP)	Leadership Development
Simplification²	<ul style="list-style-type: none"> ■ Prepare easy-to-read visual instruction posters ■ Provide a motorbike driving course, as strong motorbike skills are required for field officers ■ Use songs, activities and games to energize the classroom 	<ul style="list-style-type: none"> ■ Undertake experiments at the demonstration farm that compare improved methods with traditional methods ■ Align school farm activities to classroom curriculum – not to be seen as added work but to show teachers how it helps students learn science ■ Create songs with lyrics that will help students remember steps for farming practices (such as lyrics that follow composting steps) 	<ul style="list-style-type: none"> ■ Prepare templates for HEP and for record keeping 	<ul style="list-style-type: none"> ■ Require every student to give one presentation per year at a club meeting ■ Divide students into small working groups which allow more students to lead and engage

² *Simplification: Reduce confusion for complex programs and choices*

	Classroom Instruction	School Demonstration Farm	Home Entrepreneurship Projects	Leadership Development
Uses of social norms ³	<ul style="list-style-type: none"> ■ Create “Ag Teachers Association” for professional development with regular teacher-led meetings ■ Ensure that field officers come from the area they serve, speak the local language and have a genuine interest in the area’s development ■ Create hype and excitement so teachers want to participate, such as preparing membership cards or certificates for ASO advisors and ag teachers 	<ul style="list-style-type: none"> ■ Offer parent training at the school farm and encourage parents to join by implying that “Everyone is doing it” ■ Encourage participation of town chief and local government officials ■ Train stakeholders from the Ministries of Education and Agriculture to create buy-in ■ Promote SBAE activities and technologies on local radio 	<ul style="list-style-type: none"> ■ Post photos of national HEP winners on campus ■ Promote HEP as integral to SBAE, proclaiming “This is what ASO members do around the world.” ■ Recognize an outstanding HEP with a HEP-promoting ceremony in front of the community 	<ul style="list-style-type: none"> ■ Focus on positive peer pressure: “Everyone is joining the ASO.” “Everyone is participating on the school farm.” ■ Establish ASO member exchanges with different clubs in region ■ Invite guest speakers to ASO meetings ■ Hold leadership camp and national leadership programs and events ■ Promote the ASO as a national and global organization with students joining from around the world ■ Produce videos to recruit ASO members ■ Work with respected community/ government officials who can then promote SBAE activities

³ Use of social norms: Inform others that most people are engaged in specific behaviors

	Classroom Instruction	School Demonstration Farm	Home Entrepreneurship Projects	Leadership Development
Increases in ease and convenience⁴	<ul style="list-style-type: none"> ■ Create ready-to-use lesson plans and activities ■ Add practical, experiential student-centered teaching methods to lesson plans ■ Align teacher training with local curriculum to make it relevant ■ Train teachers in how to give good directions ■ Host teacher trainings at a convenient and strategic time of year, and at the same time, remove barriers to participation ■ Empower field officers with problem solving skills so they can solve their own problems by training them in behavioral change methodology 	<ul style="list-style-type: none"> ■ Host farmer field schools at the school farm and allow teachers to train farmers alongside field officers ■ Conduct farmer trainings in the local language ■ Align agriculture curriculum with the MoA and extension practices ■ Participate in community fairs and exhibitions in order to display best practices to local farmers ■ Develop and distribute manual on how to start a school demonstration farm, including the agronomic curriculum that includes the improved methods taught during the agriculture innovation training ■ Create simple record-keeping templates ■ Produce or download videos of agriculture techniques that can inform students, teachers and farmers 	<ul style="list-style-type: none"> ■ Host local HEP competitions and invite parents and farmers to observe as a form of diffusing knowledge ■ Create simple record-keeping templates that ag teacher can aggregate and use for reporting ■ Set up HEPs on paths near homes or in town, where parents and other farmers can see the success of new methods 	<ul style="list-style-type: none"> ■ Host local leadership and speaking competitions ■ Provide a manual that covers leadership activities and directions ■ Distribute the ASO manual on how to run an ASO meeting ■ Set up regular club meetings for the first Monday of every month ■ Make videos of leadership contests and then show them to promote and demonstrate the contests ■ Teach parliamentary procedure to make meeting decisions easier

⁴ Increases in ease and convenience: Make the right choice easy and “in-your-face”

	Classroom Instruction	School Demonstration Farm	Home Entrepreneurship Projects	Leadership Development
Disclosures, promotions & warnings⁵	<ul style="list-style-type: none"> ■ Hang posters in the classroom that remind the teacher of the experiential learning model: Teach, Do, Reflect ■ Train teachers in modern, psychologically sound, classroom management skills 	<ul style="list-style-type: none"> ■ Produce and disseminate posters warning of the dangers of improper use of chemical applications ■ Post livestock and garden safety posters around school ■ Disclose to parents the positive impact of the program on students ■ Promote a “student quiz bowl” in front of the entire community, where students demonstrate their agricultural knowledge to parents and local farmers ■ Erect a signboard for the entrance of the school farm ■ Produce and present videos that introduce village elders to the practices on the school demonstration farm ■ Present opening ceremonies at farmer field school through which students display their knowledge and training ■ Note that students lead and organize the school farm while the ag teacher advises – it is not child labor when students own their labor 	<ul style="list-style-type: none"> ■ Design garden safety posters that the students can take home ■ Create a poster that presents a star youth farmer for the entire country ■ Design posters presenting HEPs or a related value chain ■ Present students on local radio programs to talk about their HEPs ■ Promote the benefits of HEPs in each school with individually designed posters 	<ul style="list-style-type: none"> ■ Present a group of successful and smiling farmers from around the world on a poster, with each one saying “I am a proud farmer.” ■ Design and distribute posters showing women in agriculture ■ Erect SBAE welcome signboards at the community entrance off the main road ■ Use dramas to demonstrate and promote the importance of agriculture and, for example, put on a drama competition

⁵ Disclosures, promotions & warnings: Disclose, promote or warn people of the positive and negative consequences of their actions or inactions

	Classroom Instruction	School Demonstration Farm	Home Entrepreneurship Projects	Leadership Development
Incentives⁶	<ul style="list-style-type: none"> ■ Award certificates for teachers who undergo training ■ Allow universities and government to certify teacher trainings ■ Certify qualified teachers with certificates from official institutions, such as land grant universities, local universities and the Ministry of Agriculture ■ Use positive reinforcement from teachers to students ■ Recognize successful teachers on social media or radio ■ Recognize high performing teachers throughout the year and in front of the local community 	<ul style="list-style-type: none"> ■ Ensure community recognition of successful adult farmers through, for example, bestowing an ASO honorary farmer degree ■ Enable hardest working students on the school farm to earn money or receive scholarship to high school/ university ■ Establish and maintain a point system for attendance and participation on the school farm ■ Participate in MoA fairs, competitions and national agriculture holidays ■ Host regional and national agriculture fairs with school farm competitions ■ Provide seeds/tools/ cash to top school farm 	<ul style="list-style-type: none"> ■ Promote the “learning and earning” aspect of HEPs that allow students to make money ■ Set up HEP competitions ■ Seek ways to increase HEP recognition before the entire community ■ Provide travel reward for top HEPs to national competitions, field trips, etc. ■ Set up social interaction activities with students in other towns ■ Reward successful students with agriculture inputs or athletic equipment such as soccer balls ■ Provide seeds/ tools/cash to top HEP owners 	<ul style="list-style-type: none"> ■ Set up competitions that test leadership, knowledge of the agriculture creed and parliamentary procedure ■ Involve college students in activities of young people, because the young like being around “cool” college-aged students ■ Establish a point system for attendance and participation in 4-H meetings ■ Allow students to run their own meetings and determine what to do with the proceeds from the school farm ■ Schedule icebreakers, songs and games for every meeting ■ Recognize outstanding students, teachers and parents in front of the local community ■ Award outstanding participants and groups such as the top club, top student, top teacher, top principal, and top parent ■ Offer cash rewards for leadership contest winners

⁶ *Incentives: Incentivize good behaviors*

	Classroom Instruction	School Demonstration Farm	Home Entrepreneurship Projects (HEP)	Leadership Development
Precommitment strategies⁷	<ul style="list-style-type: none"> ▪ Support teachers as they agree to hold each other accountable after training ▪ Encourage teachers to pre-commit to use experiential teaching techniques before they leave the training ▪ Take photo of teachers during training in front of "I will be a caring ag teacher" sign and present it to them to hang in their classrooms ▪ Obtain signed agreements from teacher, principal and PTA that illustrate a commitment to work with ASO club 	<ul style="list-style-type: none"> ▪ Establish farm plan voted on and decided by students. ▪ Invite parents to school farm at beginning of the year for meeting and ask them to commit to support the youth ▪ -Set milestones to be achieved for the year ▪ Create a plan upfront for dealing with theft from the school farm including public announcements from town elders and public punishment of offenders if it occurs 	<ul style="list-style-type: none"> ▪ Support students to develop a business plan for their HEPs ▪ Support students to set annual milestones to be achieved for their HEPs ▪ Set up student field trip to visit a local successful farm and assist them in developing a set of personal strategies to achieve that level of agriculture success ▪ Encourage parents to publicly commit to provide land, seeds and tools to their children for HEP 	<ul style="list-style-type: none"> ▪ Schedule a goal-setting workshop as part of the ASO meeting ▪ Undertake an agenda-setting activity at the beginning of the year with participation of representatives from individual clubs, field officers and national staff ▪ Set milestones to be achieved for the year under the heading: Program of Activities ▪ Require that members sign a pre-commitment letter to actively participate in SBAE all year ▪ Invite parents to every ASO meeting

⁷ Pre-commitment strategies: Set pre-commitments to deliberate actions and increase the likelihood of achieving that action

	Classroom Instruction	School Demonstration Farm	Home Entrepreneurship Projects	Leadership Development
Reminders⁸	<ul style="list-style-type: none"> ■ Use multiple forms of reminders to teachers for all SBAE activities and experiential teaching practices, including: <ul style="list-style-type: none"> • SMS text / WhatsApp • Phone call • Official letters to school from Ministry of Education • WhatsApp group for teachers • Tip of the Week for teachers via WhatsApp • Facebook group for teachers • Field officer supervision every two weeks • Quarterly, regional teacher meetings held at top SBAE school for teachers to share best practices 	<ul style="list-style-type: none"> ■ Provide field officer supervision every two weeks ■ Promote SBAE activities through town crier 	<ul style="list-style-type: none"> ■ Use all means, such as SMS and WhatsApp, to remind students and parents to establish HEP 	<ul style="list-style-type: none"> ■ Send reminders from club officers to members of upcoming ASO events ■ Rely on services such as SMS and WhatsApp texts to remind students and parents of meetings

⁸Reminders: Do not let people forget

	Classroom Instruction	School Demonstration Farm	Home Entrepreneurship Projects (HEP)	Leadership Development
Provide feedback	<ul style="list-style-type: none"> ■ Recognize teachers as “caring ag teacher” who shows interest and provides constructive feedback to students ■ Follow up with teachers after their training, providing encouragement and troubleshooting ■ Offer quarterly professional development trainings for field officers ■ Replace disengaged teachers early ■ Schedule field officers to observe teachers in their classroom and provide feedback on their teaching techniques 	<ul style="list-style-type: none"> ■ Maintain data transparency with a signboard in front of the school farm monitoring progress (harvest data, etc.) ■ Include crop information on farm signs, such as variety, planting date and inputs ■ Set up opportunity to make side-by-side comparisons of different varieties / methods ■ Conduct public experiments on the school farm and share the results 	<ul style="list-style-type: none"> ■ Provide feedback on the success of a project through quality record keeping ■ Recognize that money made from the HEP is the ultimate form of feedback ■ Arrange twice-a-month supervision of HEPs by the ag teacher ■ Arrange for weekly reporting from student to teacher on HEP 	<ul style="list-style-type: none"> ■ Establish opportunity for community and government members and leaders to observe and comment on workshops / events / etc. ■ Reward students who achieve certain levels of education and completion with certificates such as beginning farmer degree, club farmer degree, and national farmer degree ■ Provide constructive feedback from judges to participants in public speaking competitions

Appendix B: Sample Farm Budgets and Cash Records

Farm Budget. In budget planning, students generate a list of both their potential income, such as the sale of cassava, and their expected expenses, such as costs of tools, labor, seeds, and fencing. This enables them to predict profit or loss. Farm budgets should be realistic, focus on achievable figures, and emphasize reinvesting profit for the following season.

Farm Budget	
Item	Amount
Income	
Sale of	
Sale of	
<i>Total Income</i>	
Expenses	
Cost of	
Cost of	
<i>Total Expenses</i>	
PROFIT or LOSS (<i>Total Income – Total Expenses</i>)	
<i>Total Saved for Next Year's Project</i>	
<i>Total Disbursed to Owner of Project</i>	

Cash Transaction Record Book. Students keep track of all income and expenses for the farm in real-time. This includes when goods and services were bought and sold, for how much, and by whom. A running balance is captured in the cash transaction record book. If the record book is used for the SDF, it should be kept in a visible, secure location so students can add entries conveniently.

Example of Cash Transaction Record Book				
Date	Description	Income	Expenses	Balance
June 1	Opening balance	--	--	LD\$1,000*
June 2	Purchased one watering can	LD\$0	LD\$300	\$700 LD
September 14	Sold: 20 cassava roots for LD\$30 each. Sold 20 sweet potatoes for LD\$10 each.	LD\$800	LD\$0	LD\$1,500
September 14	Bush taxi for two members to the market at \$40 LD ea.	LD\$0	LD\$80 LD	LD\$1,420
September 16	Sold 5 sweet potatoes for \$5 LD ea.	LD25	LD\$0	LD\$1,445

*In 2023, 1 Liberian Dollar (LD) is approximately \$0.005USD

Non-Cash Labor Record Book – Farmers obtain labor for their farms in three primary ways: hired labor, cooperative or work-group labor, and unpaid (non-cash) farmer and family labor. Even when personal or family labor is unpaid, it still has economic value for the farmer. Calculating the value of non-cash labor determines the effectiveness of various techniques that require different amounts of labor. Students should learn to value this non-cash labor and how to calculate it. (Total Profit ÷ Hours of Labor = Value of Hourly Labor). Unpaid labor is captured in the non-cash labor record book, while hired labor is kept as an expense in the cash transaction record book.

SDF Non-Cash Labor Record Book				
Date	Name	Task	Student Labor Hours	PTA Labor Hours

Example of HEP Non-Cash Labor Record Book		
Date	Task	Labor Hours
April 2	Planted a small plot of tomatoes with mother	6 total (3 for Precious and 3 for her mother)
July 23	Harvested tomatoes	1 hour
August 5	Harvested tomatoes	2 hours
April-July	Weeding for about 1 hour per week	16 hours

Harvest Record Book. Records each harvest, including date, item, and quantity.

Example of Harvest Record Book		
Date	Item	Quantity
July 23	Tomatoes	Large crate
August 5	Tomatoes	4 small crates

Home Consumption Record Book. Tracks produce that was not sold for cash but consumed by the students, a student's family or traded in-kind. By tracking the cash value of consumed produce, students can acknowledge the value such produce adds to the farm.

Example of Home Consumption Record Book			
Date	Description	Cash Value	Remarks
August 5	4 Cucumbers	LD\$10	Food for family
August 7	1 Cup of peppers	LD\$15	Food for family
August 8	Small crate of tomatoes	LD\$65	Pay back farmer who lent tomato seeds

Appendix C: ASO Club Meeting Minutes Template

The meeting of the _____ club was called to order by _____ (*person presiding*). The meeting was held at _____ (*location*) on _____ (*date*) at _____ o'clock. The minutes from the previous meeting were read and approved.

Number of members present: _____. There were _____ boys and _____ girls.

Others attending, including adults, guests and new members, were:

Business included: (*committee reports, old and new business, decisions*)

Education included: (*talks, demonstrations, working in the school farm, etc. and by whom*)

Recreation/social included: (*activity, sports, teamwork games, etc.*)

The next meeting of the club will be held at _____ (*location*) on _____ (*date*) at _____ o'clock.

Respectfully submitted by: (*signature of club secretary*): _____

Appendix E: ASO Rituals

4-H Liberia Opening and Closing Ceremonies

Rituals emphasize the purpose of meetings, the duties of officers, and the significance of recognition given to individuals.

All official ASO rituals are to be memorized, rehearsed, and conducted with pride and dignity. A “walk-through” in the room where the meeting, banquet, or special function is to be held will ensure a smooth performance if proper physical arrangements are complete and all parties know their responsibilities and speaking assignments. Never forget that you and your club are on display. Your performance should reflect sincerity and leadership. Speak loudly and clearly while standing up straight. Slouching is not a dignified posture for a leader.

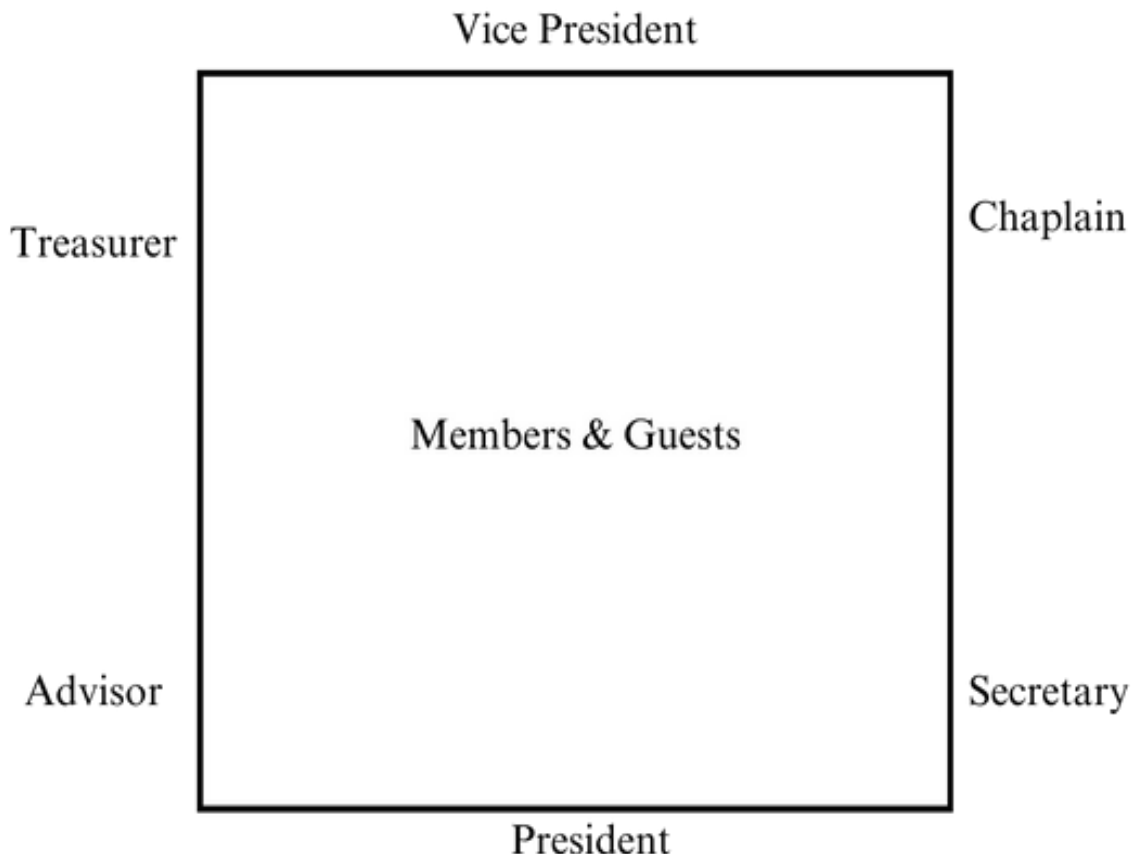
Use correct terminology according to gender. For example, use “madam president” in addressing a female president or “mister president” in addressing a male president.

Gavel Rules:

- One rap signifies passage or failure of a motion, calls the members to be seated, and adjourns the meeting.
- Two raps call the meeting to order.
- Three raps call the members to rise. The membership rises in unison on the third rap.
- Successive rapping calls the members to attention.

Location of Officers:

Officers should be placed around the membership with the President at the front. The below diagram illustrates the location of officers. Officers should speak loudly and clearly so the entire membership can hear.



Opening Ceremony

When the time set for the opening of the meeting arrives, the president, after quietly arranging for any necessary officer substitutions, rises, raps the gavel for attention, secures order, and proceeds as indicated below. The other officers rise as called upon by the vice president, and remain standing until seated by the president.

President: "The meeting room will come to order. We are now holding a meeting of the (insert school name) 4-H Club."

"Mr./Mdm. Vice President, are all officers at their stations?"

Vice President: (Rising and facing the president) "I shall call the roll of officers, determine if they are at their stations and report back to you, Mr./Mdm. President."

Vice President: (Calling roll of officers) "The chaplain."

Chaplain: "The chaplain is stationed by the image of rainfall."

Vice President: "Why by the image of rainfall?"

Chaplain: "Rainfall represents the blessings of God for all of life. I, too, will seek God's blessings for our club and be a model of good character and upright living."

Vice President: "The treasurer."

Treasurer: "Stationed by the Palm Tree."

Vice President: "Your duties there?"

Treasurer: "The Palm Tree is a symbol of resourcefulness. Just as we find both food and shelter from the Palm Tree, so I will strive to seek and steward financial resources for our club."

Vice President: "The secretary."

Secretary: "Stationed by the flag."

Vice President: "Your duties there?"

Secretary: "Upon our flag stands the Lone Star. The Lone Star is a symbol of freedom and independence. Just as our forefathers recorded their deeds to create the first, independent African nation, so I will keep an accurate record of all meetings."

Vice President: "The advisor."

Advisor: "Here by the rabbit."

Vice President: "Why stationed by the rabbit?"

Advisor: "The rabbit is a traditional symbol of knowledge and wisdom. Being older than the rest of you, I am asked to advise you from time to time, as the need arises. I hope that my advice will always be based on true knowledge and ripened with wisdom."

"Mr./Mdm. Vice President, why do you keep a cutlass at your station?"

Vice President: "The cutlass is the symbol of labor and the first step to making a farm. Without labor, neither knowledge nor wisdom can accomplish much. My duties require me to assist at all times in directing the work of our organization. I preside over meetings in the absence of our president, whose place is beneath the rising sun."

Advisor: "Why is the president so stationed?"

Vice President: "The rising sun is the token of a new era in agriculture, dawning a Green Revolution of abundant food supply. If we will follow the leadership of our president, we shall be led out of the darkness of selfishness and into the glorious sunlight of brotherhood and cooperation. Mr./Mdm. President, all officers are at their stations."

President: (Rises and faces the vice president) "Thank you, Mr./Mdm. Vice President." (All take seats at tap of gavel.) "The secretary will call the roll of members."

Secretary: "There are ____ members and ____ guests present, Mr./Mdm. President." (The secretary may call the complete roll if necessary and report on that basis. However, it is a time-consuming procedure. It is recommended that the secretary quickly consult and check beforehand the attendance based on members' names in the Secretary's book.)

President: "Thank you. 4-H members, what is our motto and pledge?" (All members stand at 3 taps of gavel.)

All members in unison:

"To make the best better."

"I pledge my head to clearer thinking, My heart to greater loyalty,

My hands to larger service,

And my health to better living,

For my club, my community, my country and my world." (All are seated at 1 tap of gavel.)

President: "May we fulfill our motto and pledge, I now declare this meeting of the (insert school name) 4-H Club duly opened for the transaction of business, or attention to any matters which may properly be presented." (Proceed with the regular order of business)

Appendix F: The Agricultural Creed As adapted from E.M. Tiffany

I believe in the future of agriculture, with a faith born not of words but of deeds—achievements won by the present and past generations of agriculturists; in the promise of better days through better ways, even as the better things we now enjoy have come to us from the struggles of former years.

I believe that to live and work on a good farm, or to be engaged in other agricultural pursuits is pleasant as well as challenging; for I know the joys and discomforts of agricultural life and hold an inborn fondness for those associations which, even in hours of discouragement, I cannot deny.

I believe in leadership from ourselves and respect from others. I believe in my own ability to work efficiently and think clearly, with such knowledge and skill as I can secure, and in the ability of progressive agriculturists to serve our own and the public interest in producing and marketing the product of our toil.

I believe in less dependence on begging and more power in bargaining; in the life abundant and enough honest wealth to help make it so—for others as well as myself; in less need for charity and more of it when needed; in being happy myself and working fairly with those whose happiness depends upon me.

I believe that Liberian agriculture can and will hold true to the best traditions of our national life and that I can exert an influence in my home and community which will stand solid for my part in that inspiring task.



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