



Dry-Season Agriculture Feasibility Report



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Brief

To examine the desirability and usefulness of ATE support for dry-season agriculture in Lawra District.

Introduction

Globally, more than 1.2 billion people do not get enough food to meet their basic nutritional needs. Africa most especially sub-Saharan Africa is greatly affected. The situation in Lawra District cannot be over emphasized. The majority of children go hungry during the dry-season, and it affects both their health and education.

Agricultural growth can improve global food security, and this growth begins with year round crop production. Dry season gardening or agriculture refers to crop production during the dry season or in an arid or semi-arid climate by planting drought resistant crops or employing moisture enhancing techniques. For areas with especially low food security like Lawra District, dry season gardening can improve both agricultural productivity and household nutrition.

There can be many barriers to successful implementation of dry season gardening. The most two common issues identified tend to be overcoming the negative community mentality as well as abundant water sources. Both short and long term techniques can be used to improve soil quality, increase water retention and grow crops all year round. Many of the long term techniques do involve more physical effort, however, they will have significantly longer lasting effects and can be used on a larger scale. These techniques can include the use of earthworks (i.e. berms and swales) or permaculture (the creation of agricultural ecosystems that are intended to be completely sustainable and self-sufficient). (See Appendix for examples of Berms, Swales, and Permaculture Gardens.)

More short term solutions would include the use of alternative irrigation techniques (i.e. drip irrigation), composting for improved soil quality and water retention and alternative planting methods such as sack and bucket gardens. Such would be used more for household nutrition and not for large scale agricultural production.

This report will examine the feasibility of introducing dry season gardening as an intervention for poverty alleviation and improving the nutritional needs of the people in Lawra District. It will examine the current agricultural and food security situation in the District, community involvement in dry-season agriculture, challenges, the communities perception of the way forward, interest of the community in support, key development institution already working in agriculture and related fields, and finally will provide general recommendations to ATE secretariat.

Current situation of Dry Season Gardening in Lawra District

Lawra is geographically located at the North western point of the region. It is bound to the North by the tributary of the Black Volta River and a vast area of cultivatable land. By virtue of location, Lawra District is agriculturally endowed.

Dry season gardening is historically prominent, especially along the banks of the Black Volta River. Few people also plant backyard dry season gardens. Climatically, Lawra, like the rest of

northern Ghana, has a single rainy season in which large scale cultivation is done (i.e. from May to August). From January to April, there is severe drought causing all available ground water, dams and dugouts to dry completely. The only available water source capable of irrigating dry-season gardens becomes the Black Volta River which is about 2 miles away from central Lawra.

Through surveys it was noted that out of the approximate 92 communities within the District, only 15 communities have men who venture into dry season gardening. The number of men varies depending on the distance of the community to the river. Logically, many people (men) who are into dry-season agriculture are from communities closer to the river.

The results of dry season gardening are generally very positive. Although they have to endure through a number of challenges ranging from finance to physical work and family pressure, they are able to break even, make some profit and save money for fertilizer to be used in the main farming season. They are able to grow enough to eat and do not need to buy a number of basic food ingredients.

At the household level, the nutritional needs of the families are met. This is especially important for their children and pregnant wives, as specified by Ziem Bagrviel from Yikpee. When Senior Consultant, Gabriel Maanibe, was speaking to him, he was actually in the process of harvesting some pumpkin and okro to take home.



At the community level, dry seasoning gardening engages a number of self-motivated and enterprising youth. They have indicated that they have become responsible and respected in their communities because they earn money and are able to financially support community development. Dertuure Raymond, an ATE beneficiary, dry-season gardening and has been very successful.

All working gardens, as indicated by survey findings, are located along the banks of the Black Volta. This is due to the constant availability of water, fairly fertile land and large area of available land for gardening. The nearness of the water source to the gardens enables farmers easily irrigate their crops and the fertile nature of the soil allows farmers to spend less on fertilizer.

Successful farmers are self-motivated. From observations and words from farmers, a lazy person cannot become a dry season farmer because one needs to wake up by 5:30am to go to the river side to either make or repair a garden, water crops or harvest yields. They showed a number of gardens that the owners abandoned because they could not cope with the efforts one needs to make to have a prosperous garden. They are also motivated by the income generated from the sale of their produce and also the nutritional meals the families have at home.

Community Involvement in Dry-Season Agriculture

There are two main reasons why some communities are more engaged in dry season gardening than others. Historically, many people, especially the youth in Lawra, migrated to the Brong Ahafo Region of Southern Ghana, where there are two rainy seasons to serve as farm laborers. They would work, receive pay, and come back home in the farming season to cultivate. This can be described as a back and forth migration. This is especially true for communities such as Tuori, Yagtuure, Zinkaa, Kalsagri, Gbier.

In communities like Orbili, Bagri, Tabieri, Dikpe, Yikpee, Mettow, Kunyukuo and Amburi migration is minimal because of their nearness to the river. These communities are able to practice dry-season agriculture during the off season. The survey still reveals that majority of the gardens are owned by men from Orbili, Bagri, Tabieri, Dikpe, Yikpee, mettow, kunyukuo and Amburi. However, there is an increasing number of youth rising to the challenge.



Challenges

Dry-season agriculture as both an income and household nutritional enterprise is engulfed in a lot of challenges. The practice is highly labor intensive and therefore need a high level of enthusiasm, hard work and commitment. As listed by experienced dry season gardeners, another one of the current challenges hampering their efforts is high pest infection of the most of the crops especially tomatoes, pepper, garden eggs and okro. The infections make the leaves of the crops turn yellowish and wither, fruits rot at premature stages, and the crops remain stunted. Worms sit on the leaves and roots of the plants. For many farmers, the cost of buying insecticides and pesticides during this season is too high, and the plants are left to die.



Another challenge is the distance some farmers travel to reach the river. Dry season gardening requires a heavy time commitment and extreme dedication. This situation requires farmers to go down to their gardeners every day to water and inspect their crops. Many farmers become exhausted and it begins to affect their health and some of their family and community obligations.

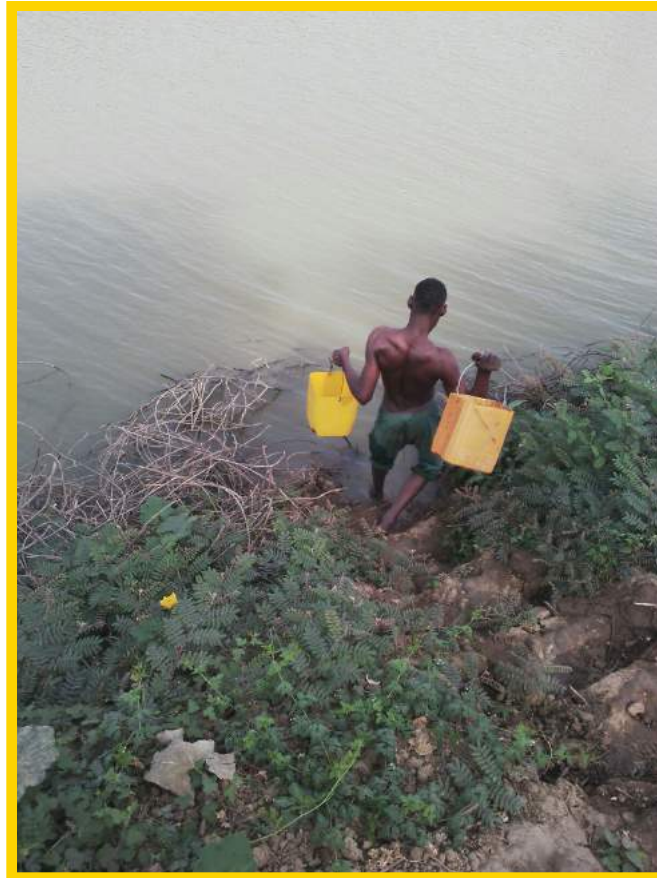
They are also challenged with technical knowledge in disease control using pesticides. Many of the farmers are ignorant of the diseases and their causes and therefore using wrong of fake pesticides to spray the crops. Many cannot also read pesticides labels to know the expiring dates and methods of use and are using too many chemicals or are improperly and unsafely

spraying. For instance, many of the pesticides they use prohibit direct sunlight but many of them spray their crops that are exposed to direct sunlight anyway. Very little or no technical intervention has been introduced by the District Agricultural Department who is responsible for agricultural extension services.



Lastly, many dry season gardeners lack adequate funds to acquire the proper garden tools, equipment and pesticides to farm on a large scale

basis. Many of them still irrigate using watering cans which is very tiring and dangerous. The river banks are very steep and slippery and can easily cause accidents. The processes of watering their crops may take them up to half a day to complete (i.e. from 5:30am to 1:00pm). Common tools include hoes and cutlasses but these alone are not able to do all the required work, especially when it comes to loosening the soil around the crops.



Community Perceptions of the Way Forward

Many are seeking proper coordination between farmers and the District Agricultural Department. With proper coordination, they can easily seek assistance with pest intervention and management as well as other technical advice. They also wish the Agricultural Department to assume their full responsibilities and render the needed services to them.

Some groups of farmers are proposing the formation of farmer groups to enable them access to micro-finance institutions. This will enable them to expand their farms through added capital to buy pesticides, better irrigation equipment like water pumps and drip irrigation kits, and gardening tools. The formation of the farmer groups will also allow them to create a sort of union to better present their needs and suggestions to responsible public institutions like the District Assembly and the District Agricultural Department.

Many farmers are also calling for farmer education programs in the areas of best practices, disease control, disease and drought resistant crops and pesticide use. This they believe will make them masters of their craft. Communities are willing to embrace any support ranging from technical to financial from any organization that recognize their efforts.



Other Supporters of Agriculture and Dry-Season Farming

There are government and Non-government organizations within the Region and the district that directly and indirectly support dry season agriculture. These include the District Assembly, the District Agricultural Department or MOFA, International Development Enterprise (IDE), MEDA Ghana and ProNet north.

Most of these organizations especially the NGOs are using dry-season agriculture as a poverty alleviation tool which enables them to easily source international and domestic funding.

See below for detailed descriptions of these institutions:

The District Agricultural Department/ MoFA: This is the government institution at the district or local level overseen directly by the District Assembly. The Lawra district office like any other offers a variety of services to farmers throughout the district. Extension officers help train farmers on improved farming methods practices and are generally “on call”. The Department has attempted assisting farmers with dry season gardening in the past. In partnership with the Lawra District Assembly and ProNet North (see appendix for contact information), they provided farmers with 10 irrigation pumps to be used for dry season gardening. All the pumps are currently not in use due to damage or inability for farmers to pay for the fuel to use them.

iDE: iDE focuses on smaller holder farmer-centered agricultural growth. Current projects are focusing on irrigation and nutrition (SIN), conservation and drip irrigation (CAD), and jumpstarting the orange fleshy sweet potato (OFSP) for improved household nutrition and innovation for rural prosperity project (IRP). iDE works to form farmer cooperatives and allow them access to microfinance loans. They help farmers to form cooperatives, teach them basic business development skills and help them to find access to micro-finance institutions. iDE also focuses on teaching these farmer groups the technical skills necessary to run successful farms. (see Appendix for contact information).

MEDA Ghana: MEDA is the Mennonite Economic Development Association. They work in variety of areas including investment and financial services for small farmers and agribusinesses, on-farm/post-harvest technology and productivity improvement and technology-enabled information services for farmers. Their current agricultural project in Ghana is limited to a single project; GROW, Greater Opportunity for Women. The project aims to improve food security by assisting women farmers in growing soyabeans and dry season farming using irrigation methods and forging new market linkages. (See Appendix for contact information)

Community Interest in Support for Dry-Season Agriculture

Many people, most especially the youth, are interested in dry season gardening if they are able to receive the necessary support. Some people interviewed whom are not into dry season gardening are more concerned about the available support for them to begin. “Looking at the nature of dry season gardening it involves a lot of hard work, financial and technical support, any of these that is lacking can lead to a total failure, hence the support will be the motivational or the pull factor”. (Puober Maalena, a 26 year old man in Lawra.)

Summary of Findings

- Dry season gardening is a lucrative enterprise that can be used as a major tool for poverty alleviation, enhancing food security and improving the nutritional needs of the community.
- The activity is gradually replacing the migration downside especially by the youth. This is revealed by the increasing number of youth venturing into dry season gardening
- It is observed that yearly the number of youth going into dry season gardening is increasing.
- There is lack of technical and financial support from central/local government for dry season gardening in Lawra District.
- It is also revealed that some individuals and NGOs come deceive them and dash their hopes whiles using pictures of their gardens to develop proposals for funding to enrich themselves.
- Usefulness of the support for Dry Season Gardening
Based on the above findings, support with proper monitoring and supervision will yield useful results for both the organization and farmers.

Recommendations to the ATE Secretariat

For already existing farmers more technical training in disease identification and control measures will be needed. Training on proper usage of pesticides and other disease control chemicals is critical.

The use of organic pesticide such as fermented neem water should be encouraged. The wet leaves of neem tree is pounded and soaked in water over night. This can be used to sprinkle on crops as a free and organic pesticides.

A better and more efficient irrigation method should be introduced to enable farmers to evenly and properly irrigate their farms. This will involve the use of water pumps, hoses, and drip irrigation kits.

For starters, a small amount of start up capital or a drip irrigation kit could be used as an incentive. From the survey, a farmer would need about GHC500 to plant a full garden and keep it well.

Appendix

Development Organization Contact Information

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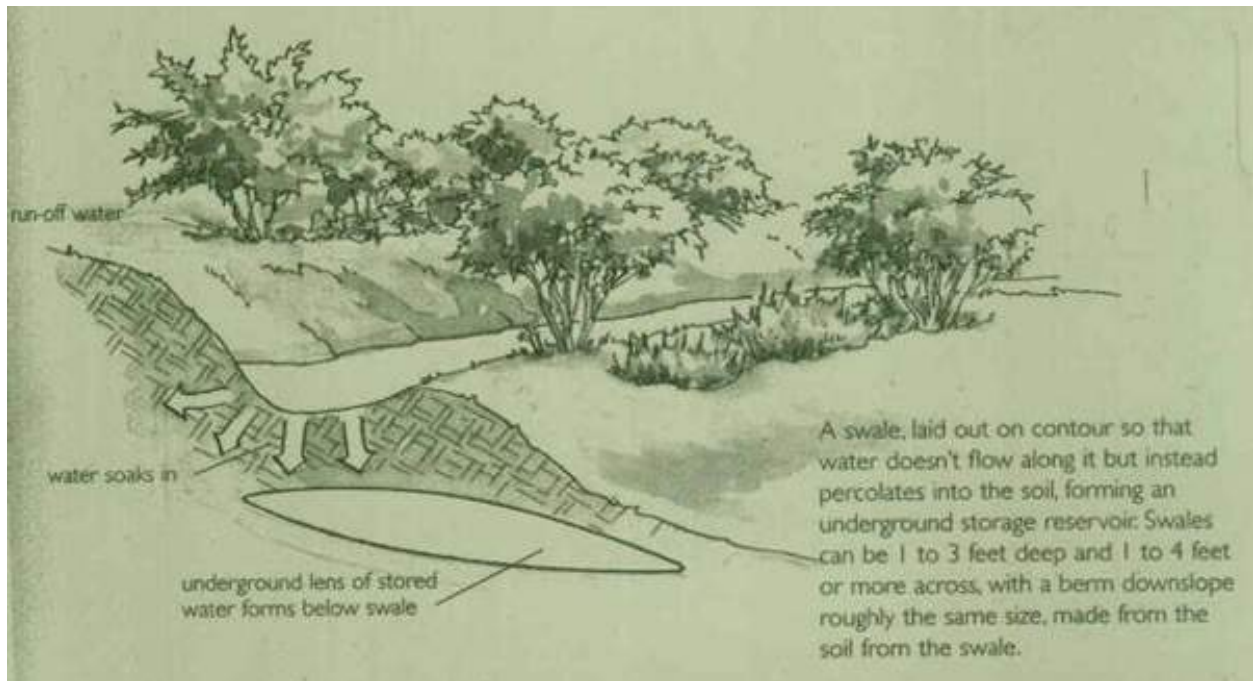
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Examples of Berms and Swales



Composting to Improve Soil Quality

How to make a compost pile:

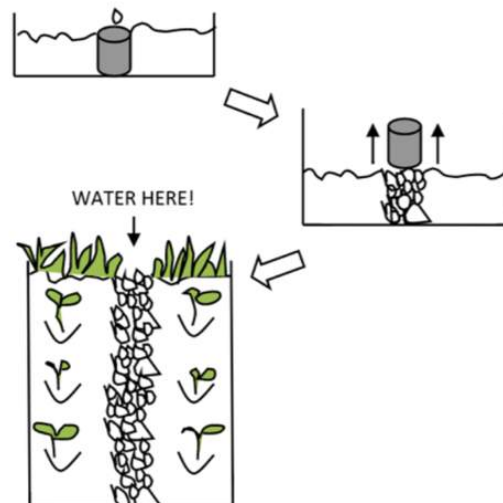
1. Create a 2m x 0.5m bed in a shady location
2. Dig the earth down approximately 8cm and till the soil
3. Layer the following until the heap is 1m high (this height will allow for the optimal composting temperature of 60 degrees Celsius)
 - a. Green Materials: such as leaves, vegetable and fruit peels and rinds, fresh grasses, etc...
 - b. Brown Materials: such as dried grasses, sticks and twigs, groundnut shells, waste paper, etc...
 - c. Wood ash: this will help the pile to decompose properly
- **These should form many small layers, not three large ones.
4. Sprinkle the pile with water
5. Place a stick in the center of the pile (this will help to measure proper decomposition. The center of the stick should be hot when the pile is functioning properly.
6. Cover pile with soil and shade with leaves and grasses
7. Turn the pile once after 14 days and let sit again
8. The compost pile should finish completely in about 6 weeks and will be ready to use



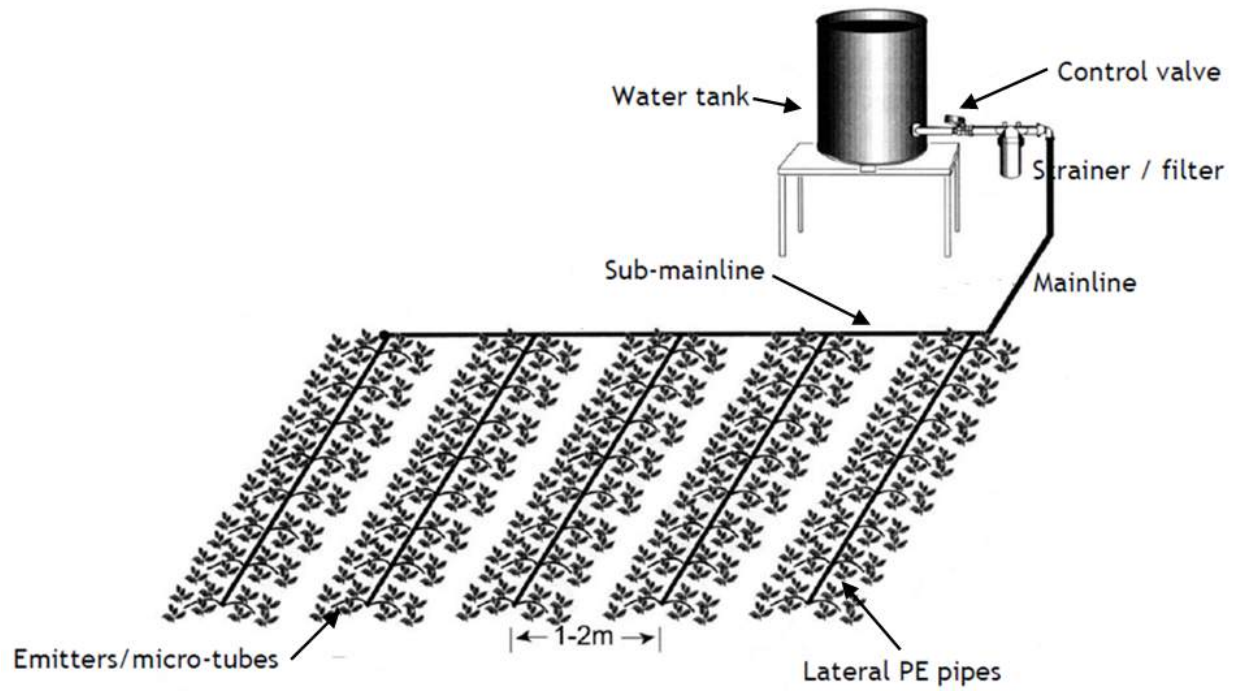
Sack Gardens for Improved Household Nutrition

How to make a sack garden:

1. Put an empty can with the two ends removed in the bottom of a sack and fill the can with stones
2. Pack a mixture of two parts soil and one part compost around the can and remove it
3. Move the can up and repeat stages one and two until the sack is filled with a central column of stones surrounded by a soil-compost mixture
4. Support your bag with two sturdy sticks on either side to prevent it from tipping
5. Cut holes in the sides of the sack about 1 inch in diameter
6. Plant seeds or seedlings in the holes and around the top of the sack
7. Water regularly from the top, directly on the column of stones (This will allow the water to filter throughout the sack garden)
8. Harvest!



Drip Irrigation Model



Other Photographs of Dry-Season Agriculture in Lawra District







