

Issue 7 • April 2021

---

# ean

## ECHO East Africa Notes

---

A regional supplement to ECHO Development Notes



### **FAMILIES BENEFITED WITH DAIRY GOATS PROJECT**

*ECHO East Africa has worked with a partner organization in Ireland to improve families' diets and help families earn income through dairy goat production.*



### **PACKED BIOGAS IN BAGS**

*A biogas research project has taken another step of innovation whereby owners of biogas digesters can now package surplus gas and sell to non-owners of the biogas digester.*



### **GREEN MANURE/ COVER CROPS**

*Many gmccs restore soil health, but they also allow us to grow our maize and other food crops along with them on the same land and at the same time.*

also

Programs and Projects  
Invitation to Contribute

Newsletters from  
Network Organizations



This issue is copyrighted 2021. Individual issues of EAN may be downloaded from our website ([www.ECHOcommunity.org](http://www.ECHOcommunity.org)) as pdf documents in English as well as some in Kiswahili.

For further resources, including networking with other agricultural and community development practitioners, please visit our website: [www.ECHOcommunity.org](http://www.ECHOcommunity.org). ECHO's general information website can be found at: [www.echonet.org](http://www.echonet.org).

ECHO Regional Impact Centers share information and resources on sustainable agriculture and appropriate technologies in the surrounding region. ECHO interns, volunteers and advisors who work to achieve its mission of sharing resources are provided with mutual advantages and opportunities.

**ECHO East Africa Office**

PO Box 15205

Arusha Tanzania

[eastafrika@echocommunity.org](mailto:eastafrika@echocommunity.org)

# Families Benefited with Dairy Goat Project

by Sophia Kasubi

Through the existing strong relationship between ECHO East Africa and Bothar Ireland, ECHO East Africa has been able to implement projects of distributing dairy goats in the districts of Karatu and Arumeru in Arusha and Morogoro in Southeast Tanzania. The objectives of this project are to assist families with low income to improve their diets and earn an income as well as to sustain their surrounding environment. This project is implemented through the provision of dairy goats, trainings, follow up and technical support to more than 200 smallscale farmers. In this project, farmers are given a chance to build their capacity and involve themselves as ECHO East Africa partners in other related matters like project sustainability, strategic planning, inputs and service supply, marketing and gender and family cooperation awareness and provide for information exchange and networking between farmers, partners, NGO's and government offices.

This project promotes food security and environmental improvement by assisting low income families with zero-grazed dairy goats in those targeted areas of the project. The project has enabled affected small-scale households to get milk and the sale of goat offspring provides a means to short term economic improvements. Passing on dairy goats has started to provide means of expansion to new farmers who have never owned dairy goats but with the strong need and desire to do so.

Prior to the small-scale farmer being provided with a dairy goat, they are equipped with training on how to care for the dairy goats, how to grow fodder crops to feed their goats and other best practices that promote food security to make the dairy goat project a success. With the establishment of contours to prepare a planting base for fodder trees, small-scale farmers were also able to conserve their environment and restore fertility of the soil, which acts as a multifaceted process to improve the lives of the poor people in those targeted areas.

The project has enabled ECHO East Africa to strengthen its partners that work toward enabling small-scale farmers to improve their lives from day to day. The feedback for this project has shown that a number of small-scale farmers have changed their lives by improving food and nutritional security by keeping dairy goats at their households.



**Figure 1.** Charles Bonaventure; ECHO East Africa Technical Advisor in a picture with beneficiaries of a dairy goat when he visited the household for follow up.

A biogas research project which ECHO East Africa is implementing in collaboration with [CREATIVenergie UK](#) has taken another step of innovation whereby owners of biogas digesters can now package surplus gas and sell to non-owners of the biogas digester. This step aims to enable people who do not own a biogas digester to access clean and affordable energy in order to improve their livelihoods and for biogas digester owners to generate income from the digester. Below is the testimony of Evelyn Maguo who has been impacted by the technology of packed biogas in bags.

Evelyn Mguo's family is a consumer of bagged biogas who participated in phase one of the research project - 'Peer to peer', a business model to test the viability of retailing methane gas in portable bags, from the farm gate of a biogas digester owner for distribution/sale to a neighbor. Evelyn says,

I don't have a biogas digester but my neighbor Charles Kirimbai has one. I have been using different types of energy sources mainly bottled (liquified petroleum) gas (LPG), charcoal and firewood. LPG cooks fast but it is expensive. One bottle of 10kg lasts one month while the small bottle of 6kg lasts two weeks.

Both charcoal and firewood are difficult to access during the rainy season. I rarely use charcoal and firewood to cook local foods such as Makukuru and Ndizi. I grew up in a family that used firewood as the only source of energy and hence I used to believe that certain local foods taste better if they are cooked using firewood. I have now used the bagged biogas for three weeks and in my opinion it is a good option. I have managed to cook all types of foods that I used to cook using LPG. One (1m<sup>3</sup>) bag lasts 3 to 4 days and if it can be obtained for Tsh 2,000 per bag, it means I will cut down the cost used for LPG and other sources by almost 50%. My only request is for the project team think about how to package it in larger quantities so that it can last longer for at least seven days or more.

For more information about biogas technology and to learn more about this research project please reach out to Harold Msanya, ECHO East Africa Innovation Coordinator through e-mail: [hmsanya@echocommunity.org](mailto:hmsanya@echocommunity.org)

## A Research Project: Packed Biogas in Bags

by Harold Msanya



**Figure 2.** Herry Charles, ECHO biogas technician interviews Evelyn Maguo, a consumer of bagged biogas, at her home in Arusha.

# Green Manure/ Cover Crops

by Sophia Kasubi

Most farmers know very well that in a forest many plants grow all the time, but the soil never wears out. The soil in a forest also never gets so hard that someone has to plow it. Even more amazing, the plants in a forest do not suffer from droughts. In other words, forest soils stay productive, soft and moist for thousands of years all by themselves. Green manure/cover crops, like jack beans, are some of the plants from the forest that have done the best job of keeping the forest soils healthy for thousands of years. Mankind have selected these plants as green manure/cover crops because they keep the soil healthy, but they also allow us to grow our maize and other food crops along with them on the same land and at the same time.

Once we learn how to grow green manure/cover crops in our fields, we can grow food and at the same time, make our soils more fertile, softer, and more moist. Therefore, after a few years, our soils will stay fertile and soft just as the soils in the forest, but we will still be able to grow our crops. Basically, it will be like following the land, just as our grandfathers did, but in a way that allows us to continue to grow food in the same fields at the same time.

## Jack beans (*Canavalia ensiformis*)

Jack beans are the most drought-resistant of all the bushy-type green manure/cover crops. They grow very well in the poorest of soils—even where maize will no longer grow. They also fix a huge amount of nitrogen (up to 240 kg per hectare—more than anyone would ever apply as fertilizer), which means that they improve the fertility of the soil more than any other plant known in Africa. Furthermore, neither cattle nor locusts will eat jack bean plants. Jack beans are the best plants of all the green manure/cover crops for improving soils/land that have lost their productivity. They can even improve the fertility of highly damaged land that no longer produces anything. Bushy-type jack beans can be intercropped very well with maize, sorghum, millet, or cassava to start restoring the soil without losing any of the production of our normal crops. Sometimes, if we intercrop jack beans with other crops, our crops will suffer up to a 15% decrease in yields for the first year (or 25% if there is bad drought), but our crops will enjoy at least 50% increase in yield by the second year. This is a good reason for always trying out a new technology on a small scale the first year. That way, the second year, the increase in yields of that plot will make up for the 25% decrease on a larger piece of land. Therefore, we never have to suffer a 25% decrease in yield on all of our land in any one year.



**Figure 3.** Charles Bonaventure inspects a Jack bean plot.

## How to plant jack bean

Jack beans should be planted at a rate of 3 to 4 seeds per square meter, right in our maize fields, and at the same time as we plant the maize. Then they should be left to grow through the dry season, because the leaves fertilize the soil much better if they are green when they are applied to the soil. Dead, dry leaves have lost most of their fertilizer. Then, just before the rains come, the jack bean plants are cut down and their leaves left on top of the soil. At that time or before, new jack bean seeds are harvested, then planted again along with the maize.

## Jack bean pods and seeds

The thin, immature pods of the jack bean plant are edible. However, we recommend eating them only in small quantities and as a famine food—when people have nothing else to eat. The rest of the jack bean plant cannot be eaten without a lot of extra preparation. Therefore, within one, two, or three years, when the land has become more productive, we usually quit using jack bean on that land, and instead use some other green manure/cover crop that is edible, such as lablab beans or pigeon peas. We may prefer not to use these plants the first two or three years, because they may not grow well in worn-out soils—they do much better in soils that have already been improved by the jack beans. In areas where firewood is extremely scarce, the large jack bean pods can also be used as firewood.

You may learn more about Jack bean and other green manures / cover crops to fertilize the soil and overcome droughts from the book ["Restoring the Soil" Second Edition \[http://edn.link/edrmne\]](http://edn.link/edrmne) by Roland Bunch. For more information, please reach out to Sophia Kasubi through email: [skasubi@echocommunity.org](mailto:skasubi@echocommunity.org)



## Newsletters from Network Organizations:

[Conservation Agriculture newsletter - September, 2020 \[http://edn.link/zmfafa\]](http://edn.link/zmfafa)

[Conservation Agriculture newsletter - December, 2020 \[http://edn.link/43m6a\]](http://edn.link/43m6a)



The COVID 19 pandemic is an external factor that has recently affected many programs and projects across the world. ECHO East Africa's different programs and projects seek to impact our mission of Hope against Hunger, a mission fulfilled through different training programs and projects that are implemented among different target groups. The COVID 19 pandemic has caused tension not only in Tanzania but all over the world. Many businesses and projects have closed temporarily or permanently due to the effects of COVID 19. Many people have had to stay at home in order to escape the risk of exposure to the virus. The virus has affected the socio-economic condition of people adversely, and mitigation measures will take time before everything can return back to a new 'normal' such as was previously known. This needs more analysis from different development actors.

**ECHO East Africa has responded by adapting to the new environment created by the pandemic in order to continue to serve people while adhering to the necessary cautions and preventive measures to reduce the spread of infection.**

The following are activities conducted by the ECHO East Africa team in order to continue serving various beneficiaries amidst the COVID 19 pandemic situation:

# ECHO's Programs and Projects amidst COVID 19

---

*by Sophia Kasubi*

- ECHO East Africa partnered with Radio Habari Maalum Radio to educate the general public about various best practices promoted by the center such as green manure/ cover crops, perennial vegetables, agroforestry, compost making and its use, water harvesting in a farming catchment and the importance of water harvesting technology, seed saving and banking and environmental conservation.
- ECHO EA translated different materials which were previously available only in English and enriched the Swahili resources by a number of links created that can be accessed online at [www.ECHOcommunity.org](http://www.ECHOcommunity.org). These resources are available for free to all who access the network, and can easily be shared with ECHO East Africa's wider network members who may not be conversant in English. These materials describe different best practices taught and promoted by ECHO East Africa.
- ECHO EA team has managed to respond to various requests for training raised by partner organizations, thus helping their teams or beneficiaries to continue to sustain their lives under the COVID 19 situation and its consequences. In this, we were able to conduct trainings for the Kilimanjaro Mountain Crews (Mountain Guides, Porters and Cooks) who had nothing to do due to border closures which shut down tourism activities. The fall of tourism has affected many people with uncertain livelihoods and economic hardship. The mountain crews were trained on self-reliant food production, such as the importance of producing and using perennial vegetables due to their high nutrient density and other advantages including a long life compared to annual vegetables.
- ECHO has been able to facilitate perennial vegetable trainings in 24 Secondary Schools in Meru District by two different campaigns in 2020 and 2021 amidst the COVID 19 situation.
- It is our hope that the re-designing of ECHO's activities and other partners will help to make people see hope against hunger even during the difficult times that Tanzania and the world at large are facing.



**Figure 4.** The Plaster House which rehabilitates youth post-operation engaged ECHO again for 6 afternoons of training of caregivers on nutrition, gardening and small livestock. Above, women trainees prepare perennial vegetables.

- ECHO EA was able to conduct trainings in perennial vegetables and chicken management among caregivers of post-operative children under rehabilitation at the Plaster House in 2020 and 2021.
- The biogas project was suspended for about two months with precautions, but two Creative Capacity Building trainings were conducted with precautions including wearing face masks, maintaining social distancing and avoiding crowded areas.
- Local gatherings like the Arusha Conservation Agriculture Forum (ACAF) and Farmers' Fairs brought different stakeholders together for learning purposes; meetings were also suspended in the second quarter of 2020, but when the situation seemed better, meetings resumed.
- ECHO US' Appropriate Technology fair was

conducted online on 3<sup>rd</sup> September 2020, and ECHO EA team (Harold and Erwin) presented on Creative Capacity Building, a training methodology which inspires innovation and development of various technologies to solve community challenges. This fair was conducted through Zoom, an Information Communication Technology (ICT) tool which helped in facilitation, coordination and management of projects

- The ECHO EA team conducted 21 trainings on the importance of perennial vegetables which targeted women and youth groups in urban areas. This training was enabled by the Australian Community Outreach Fund which was released to tackle the effect of COVID-19 for dwellers of urban areas. Specifically this has benefitted youth and women of Arusha City.
- ECHO EA's Pastoralist Symposium 2020 was cancelled, but now the team is organizing the 6<sup>th</sup> Biennial ECHO East Africa Online Symposium to be held from 28<sup>th</sup>-30<sup>th</sup> September 2021. Look for more news on this event online at [ECHOcommunity.org](https://ECHOcommunity.org) under Education and Events → East Africa.



**Figure 5.** Sophia Kasubi demonstrates how to use a simple Tippy tap constructed by ECHO's Appropriate Technology staff, Venance Mollel, to enable hand washing without touching any surface as a way of preventing the spread of COVID 19.



**Figure 6.** ECHO's Simon Sabora, led ECHO EA interns in the work of sowing seeds in polyethylene tubes in the ECHO East Africa tree nursery for distribution to farmers in villages above ECHO's Impact Center.



**Figure 7.** With assistance of interns, ECHO EA Staff unload over 25,000 trees from ECHO EA's nursery for distribution to farmers in four targeted villages.

# Invitation to Contribute

---

## Do You Wish to Announce a Training Opportunity

Let Us Know and We Will Post it on [www.ECHOcommunity.org](http://www.ECHOcommunity.org)

### East Africa Blog

Do you need a consultation? (For pay or free): ECHO RICs provide opportunities for other agencies to obtain consultations for free or pay, according to the nature of the request. Please write to [ekinsey@echocommunity.org](mailto:ekinsey@echocommunity.org).

Are you a member of ECHO community? If not please register yourself to become a member of ECHO East Africa through [www.echocommunity.org](http://www.echocommunity.org) or reach out to Sophia Kasubi if you encounter any difficulty while registering yourself at [skasubi@echocommunity.org](mailto:skasubi@echocommunity.org)

ECHO East Africa is currently preparing a Virtual ECHO East Africa Biennial symposium on Sustainable Agriculture and Appropriate Technologies from 28<sup>th</sup> - 30<sup>th</sup> September, 2020 for more details and information please go through this link <http://edn.link/pd7eje>.