

**A woman who Transformed Stones into Fruits in the Lowlands of Tigray, Northern Ethiopia: Haregu's Organic Farm at Mereb Leke, Tigray, Ethiopia**



*Haregu when she was presenting her farm experience in an international conference*

Source: Photo from the GSTS (Global Society of Tigrean Scholars) 2<sup>nd</sup> Conference, Mekelle

“There is nothing that makes you happy more than seeing a young woman being owner of thousands of Fruit trees in the lowlands of Tigray and also committed to help others”

Dawit G.



Part of the organic farm



Organic Mango fruit of Haregu Rama Farm

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**Personal Profile:** Mrs. Haregu Gobeza is a young woman who lives in Merebleke district, in Central Zone of Tigray region. She is 44 years old. She is married and her family size is eight. Where five of them are females and three are males. Haregu's educational background is grade 4.

### **Haregu from where to where?**

Haregu, among other women farmer in Tigray was basing her livelihoods on small-scale agriculture and salary of her husband. Haregu, similar to the other females who live in the rural areas of Tigray, was confronted with a challenging life. The reason that her husband is employed and became the only source of income, and being the salary not enough to support the family, enable her to magnify her dependence greatly. This has challenged her to find other livelihood options that can enable her to support sustainable livelihoods for her family.

One day she started to think that "this type of livelihood is from hand to mouth," and she wanted to make paradigm shift on her livelihood and she started to list a number of livelihood options that she can engage with and finally something came to her mind, "Haregu? Can you see the degraded area over there? She replied, yes, yes! If you are able to work not only hard but also systematically, the area will be productive for you." This has immediately changed her mind! Nevertheless, the idea that originated from her mind took her sometime to think if it is doable or not. However, the mind that initiated this noble idea also made another breakthrough. She has managed to clear the tremendous stones in the farm. She hired a number of students to clear stones for her; in addition to her involvement in the stone clearing.

### **Establishment of the farm**

The farm was established in 2005 at that time she was practicing irrigation on 1.5 hectares and now she is practicing on 12 hectares of land. During the first five years, she was able to engage on cash oriented vegetables such as tomato, onion, paper, and she found out

that the soil was not anymore fertile to support future agricultural productivity with the same or improved productivity even with the use of inorganic fertilizer.

Then, she came up with other novel ideas that is strange not only for woman famer like her but also for researchers like me and for other established scientists. The noble ideas she come up with were 1) she has decided to replace the top soil by other fertile soil from somewhere else. Moreover, she also made a shift from vegetables to fruits like Mango (with Apple, Kent, Tommy, Kit, Dado, and local varieties), Avocado, Orange, and Mandarin. Currently there are more than 6000 fruit trees in her farm. Side by side, she has also planted fodder grasses like Desmodium, elephant grass and a tree called True neem (to be used as biological pesticide/insecticide) and many others. The other breakthrough she did was that she has decided to ban use of any inorganic material, including fertilizer, pesticide, herbicide, insecticide and much more.

### **Construction of Cement irrigation Canals**

Furthermore, she has constructed cemented irrigation canal with a cost of 1.2 million Ethiopia birr investment and this helped her to get adequate water for her farm without leakage. The total size of the farm is 12 hectares of land. Moreover, this canal is used not only to irrigate her farm but other farmers who are near to her farm are also using this canal to irrigate their farm.



**Cement Canal**

### **Construction of Bridge**

Moreover, she has also constructed bridge to let vehicles enter to her farm for both visiting purpose and transporting the produce directly from the farm gate. This bridge was constructed with a total cost of 820,000 (Eight hundred twenty thousand) Ethiopian Birr. More than 80 households, who were struggling with the big gully in between their residents and the woreda town, were able to get relief because of the establishment of this bridge. This is community services she is delivering to the community in addition irrigation canal.



**Bridge**

She has transformed her traditional farm to organic farm, now she has fulfilled the entire requirement that an organic farm can have according to the scientific literature.

**Dairy farm:** Haregu's organic farm also consists of dairy farm; there are 10 cows and 4 calves in the farm. Animal fodder grasses for the dairy grows within the farm this include Desmodium, elephant grass, Rodes grass, and alfalfa. The milk produced from these dairy cows is used both for own consumption and source of additional income for the household by selling the surplus milk produced. She has also poultry farm and the produce are used both as source of nutrition for her family and income source from selling. She has more than 100 chickens both local and exotic breeds. Moreover, she is also engaged with fattening of small ruminants and oxen.



### **Dairy farm**

**Small-Scale Biogas Digester:** Moreover, she also has small-scale biogas digester and this biogas uses fresh manure obtained from the dairy cows as an input to the biogas digesters. The permanent employees use biogas to prepare their food and lighting services. It is also one of the mitigation strategies that are used to reduce greenhouse gas emission.



### **Small-scale biogas digester**

**Investment on the improvement of soil ecosystem:** In order to improve the soil ecosystems she has replaced the top soil with the other fertile soil from other place. She has also performed a number of activities to enhance the health of the soil or to combat the soil related problem that are common in the area. These problems include soil salinity,

rocky landscape, Striga infestation and low organic matter. To address these problems she currently has 53 compost pits and 13 Vermi compost and the compost is applied to fruit trees. Compost produced from these pits is applied to the farm and it greatly improves the productivity and health of the fruit trees. Moreover, she also owns two pits for bio-slurry coming from the small-scale biogas digesters and this is mainly applied to plants that are deficient with nutrient and have yellowish leave color. She has proved to change the color of the leaves of the plants from yellowish to deep green in two weeks. She is also reclaiming the gully using soil bank. she use contour part of the gully at the top she uses filter that is used to trap other materials other than the top soil and the top fertile soil enter to the contoured gull and it fills it and after sometime it is used for planting fruits such as papaya. In addition, if the amount of top soil collected is more the top soil is taken to the other part of the farm requires more top soil.



**Soil bank with papaya trees**



### **Vermi compost**

Vermi compost is a process of converting unavailable organic substances into available form or readily available for use by plants. Culturing red earthworms (*Eisenia fetida*) carry out this process. Haregu is using weeds from her farm as an input for the vermi compost. Shire Endaslassie Agricultural TVET College Natural Resource Department has given training. Haregu was one of the trainees and willing to establish her own vermi compost. As a result, they agreed to give her the worms, she established a medium to reproduce them, and now she is using the compost for her fruit trees.

**Biological control for diseases and pests:** After she ban using inorganic materials including pesticide and insecticide, she has developed her own method to develop biological pesticide or insecticide. She started to use leaves of true neem trees and she mixed this leaves with Urine of oxen. The mixture will be fermented for 15 days after that the liquid could be applied as an Integrated Pest Management (IPM). Moreover, the leaves of Desmodium is also used for similar purposes. Desmodium was introduced in 2008 as livestock feed by Relief Society of Tigray (REST), however, Haregu was able to

use this grass to eliminate Striga and she has presented about this in a conference and she remained to be known for using Desmodium as feed, seed, IPM and more.



**True neem tree as biological pesticide and insecticide**

**Job creation opportunity of the farm:** since the time she started farming she has employed a number of individuals, especially those who are school dropouts, those who are affected by poverty. When hiring she is targeting these two segments of the society. Unlike the other farm owners, Haregu did not want to have an employee to stay with her for his/her lifetime rather she wanted them to have future plan to get out of poverty. As a result, she has greatly contributed towards reduction of school dropouts and poverty in the area. She also told them either to help their family, to save from what they got and to develop their own farm in the future. She gives especial support for females to establish their own farm. For this reason, females who want to be hired on her farm are not only envisioned for getting money but also for their own future development plan. She is using working schedules that are not common in developing countries. She hires students on shift or hourly basis and this has helped students a lot to get income without missing their classes. As a result, many of the students who were working in her farm are now able to complete their high school and some of them became University lecturers in the Ethiopian Universities. She is also a source of seed and seedlings for the individuals who wanted to establish their own agricultural farm and beyond. She is distributing seedling of fruit trees with affordable prices to different stakeholders in the region and beyond.



**Seedlings of different fruit trees employed women in the farm**

**Contribution of the farm to Sustainable Development goals (SDGs):** The farm also greatly contributes to a number of Sustainable Development Goals such as to SDG 4, which deals with fostering Education through creating job opportunities (along the value chain) for the students who are not able to continue their education because of the shortage of income for their survival. Moreover, there area was severely degraded area but now it becomes green and rehabilitated and this contributes to the SDG 15 that deals to protect, restore and promote use of ecosystems through reversing land degradation and halt biodiversity loss. Her work has also greatly contributed towards SDG 2, which is “end hunger, achieve food security and improved nutrition and promote sustainable agriculture”. Moreover, her work also contributes to ensure healthy lives and promote the wellbeing for all at all ages, because the produce is organic and the produce from this farm have more contribution towards ensuring healthy of lives. She is also motivated to achieve gender equality and empower all women and girls. She considers gender equality when hiring labor and she in turn contributes for the gender equality thinking in the area. As one component of the organic farming, she also has dairy farm and this contributes towards employment creation and thereby economic growth (SDG 8). Moreover, she is also using the manure as input for biogas. Using biogas contributes towards two SGDs. One is SDG 13, which is “take urgent action to combat climate change

and its impacts”, this is done through reduction of methane from the atmosphere (that could be emanated from the fresh dung). The second is the biogas contributes to achieve the SDG 7, by “ensuring access to affordable, reliable and sustainable and modern energy for all.” Moreover, using biogas digester is also contributing to wards the SDG 2, which promotes sustainable agriculture through enhancing agricultural productivity using the bio-slurry that produced from the small-scale biogas digesters.

In summary, the work that Haregu is engage with contributes not only for development of land uses through rehabilitation of degraded area thereby improve the natural capital, but also this contributes to secure the livelihoods of Haregu and many others, who are involved along the value chain in one way or the other. Furthermore, the practice also contributes to enhance the ecosystem services and combating the climate change impacts. Moreover, her engagement has contributed to a range of SDGs such as SDG 4, which deals with fostering Education through creating job opportunities. SDG 15 that deals to protect, restore and promote use of ecosystems through reversing land degradation and halt biodiversity loss. SDG 2, which is end hunger, achieve food security and improved nutrition and promote sustainable agriculture; dairy farm and the thousands of fruits, contributes toward employment creation and thereby economic growth (SDG 8). Using fresh manure as an input for the biogas digester contributes for two sustainable development goals. i) SDG 13, which is take urgent action to combat climate change and its impacts through reduction of Methane from the atmosphere. ii) Biogas will contribute to achieve the SDG 7, by “ensuring access to affordable, reliable and sustainable and modern energy for all.”

### **Existing challenges of this organic farm**

Eventhough there is much produce of fruits it is not possible to engage value chain actors, because the fruits as sold as raw. Market should be created for the produce and value should be added for the produce. Therefore, conducive environment should be created to add value of these fruits through agro-processing industries. Moreover, stakeholders in this type of activities should engage on facilitating certification of the organic produce. Moreover, value chain should be established to engage stakeholders as producers, processors, suppliers, distributors (whole sellers and retailers), and consumers with fair price.

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Haregu you are the Tiger of Tigray, and we are proud of you and your works and we promised to help you in a way we can!!!