



Research Article

Demonstrating Improved Vegetable Crops with Production Materials by Using Participatory Approach to Women Farmers at Welmera District, Ethiopia

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ABSTRACT

This activity was conducted from 2015-2017 during off season with the objective of demonstrating improved vegetable crops with production small scale drip irrigation by using participatory approach to women farmers which was conducted in Robi Gebeya Welmera District in Finfine surrounding special zone of oromiya regional state in Ethiopia .women farmers have been selected From the identified frame of the sample, a mixture of 15 farmers (by gender & social status) per Peasant Association and farmers selection approach were made joint venture team composed of the researcher from agricultural extension, water resource and vegetable case team, district SMS and locally decentralized institution (Peasant Associations' chairperson) ,as Method of Technology Implementation at Field Level Material resources supplied were Rope and washer small scale water pump, Improved seeds of onion, carrot, Cauli flower, cabbage and tomato vegetable seedling supplied for each farmer on 20 cm x 20 cm plot of land where allotted for demonstration of the technology with system drip irrigation at each farmers field at the due time of working and The demonstration hosted women farmers has adequately trained during the course of the growing seasons to play a critical role in the use of the vegetable in the HHs and the Demonstration as promotional tool. data were collected through Group and individual discussions, Joint field and home visits, Semi-structured interviews, Continuous interaction (monitoring and evaluation) and Data were analyzed qualitatively from field notes and semi-structured interview guide, organized and summarized after being incorporated into the computer. As a finding from the total demonstrated vegetables tomato beats by all evaluation parameters followed by hot pepper and cabbage while the other are less preferred. Therefore, these three Vegetable crops are highly demanded and demand also already created in the area and its recommended to be scaled up/out in the demonstration sites and similar agro ecologies of the stud districts/zones.

Key words: Demonstration, Improved technology, Vegetable, Irrigation. Rope .Washer

INTRODUCTION

Women farmers produce over 50% of food that is grown worldwide and more so in most developing countries .women farmers in Africa play important role in agricultural production but they are more often considered as family assistants on farmland "belonging" to their husbands who have a correspondingly enhanced status .in sub Sahara Africa ,women farmers produce 80% of food ,both for household consumption and for sale .in Ethiopia ,over 85% of women reside in rural areas ,where peasant families are engaged primarily in subsistence agriculture .but there have been few studies concerning rural women farmers in Ethiopia and many observers have commented on the physical hardship that women farmers experience throughout their lives .such hardship involves carrying

loads over long distances ,grinding grain manually ,working in the homestead ,raising children ,cooking among others .they are usually responsible for food processing and make a major contribution to food storage, transportation and marketing through they seldom control the revenue generated (FAO,1998).women farmers for instance play reproductive ,productive and community management roles through their contributions to later roles are not well valued (Berhanu *et al.*,2006).cognizant to this fact ,in traditional Ethiopia ,women's worth is measured in terms of her role as a mother and wife .

Moreover, women farmers have little access to modern technology, which in turn contributes to limited growth in agricultural production as most farm activities such as weeding, planting, harvesting, etc are borne by women farmers improving women farmers livelihood through

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accessing labour saving, high nutritional value crop and appropriate modern technologies like vegetable crop is believed to be ameliorate to their current situation.

Objectives of the study

- ✚ To Strengthening women FRG through demonstrating improved vegetables crops with rope and washer small scale water pump technologies
- ✚ To increase women’s farm income by production at off season time
- ✚ To raise women’s awareness on the advantage of vegetable crops production

MATERIALS AND METHODS

Description of Study Area

The study was conducted in Robi Gebeya Welemera District in Finfine surrounding special zone of oromiya regional state in Ethiopia. It is located about 40km west of Addis Ababa on the road to Muger Cement factory. Geographically, The test location is located at 90 30' N and 380 30' E with altitude range from 2300-3800m above sea level, and the average temperature is 21°C and annual rainfall is 900-1100 mm).The farming system of the areas is mixed crop livestock production system. In this selected area there was low vegetable production and practice but high potential to grow vegetable.

Site and Farmers Selection

Districts were randomly selected among the mandate area of Holetta Agricultural Research Center. From each kebeles, one kebeles and among each kebeles one Peasant Association were picked out purposively based on ground/river water facilities possessed. From the identified frame of the sample, a mixture of 15 farmers (by gender & social status) per PA selection of Peasant Association and farmers were made joint venture team composed of the researcher from agricultural extension, water resource and vegetable case team, district SMS and DAs and locally decentralized institution (Peasant Associations’ chairperson) and Before demonstrating the technologies by using questionnaires and PRA tools and intensive training have been made on vegetable production by using drip irrigation technology west Shoa part of Ethiopia during the off cropping seasons of 2015-2017 and The experiment was conducted under 15 demonstration plot conditions at Welmera districts so as to give women farmers an opportunity to practice new crop and new methods in obtaining for new farming innovation.

Method of Technology Implementation at Field Level

On farm demonstration method were used and Material resources supplied were Rope and washer small scale water pump, Improved seeds of onion, carrot, Cauli flower, cabbage and tomato vegetable seedling supplied for each farmer on 20 cm x 20 cm plot of land where allotted for demonstration of the technology in the first phase with system drip irrigation at each farmers field at the due time of working season. The total demonstration plots was 10 with the plot size (area) 5x3=15 m² and the spacing was 0.3cm b/n plant and 0.6 b/n rows during 2017/2016 cropping season.

Data Collection and Analysis

Data collection methods

- ✚ Group and individual discussions.
- ✚ Joint field and home visits.
- ✚ Semi-structured interviews.
- ✚ Continuous interaction (monitoring and evaluation).

Data were analyzed qualitatively from field notes and semi-structured interview guide, organized and summarized after being incorporated into the computer.

Table 1: Demonstration materials and Sources

Sr. No.	Materials	Source
1	Rope and washer small scale water pump	Market
2	Vegetable seed	Melkasa Agricultural Research Center
3	Seed nursery	Holetta Agricultural Research Center/farmers field

RESULTS AND DISCUSSION

Qualitative data's has been collected based on the interview mad using semi structured questionnaires on farmers evaluation of different vegetable crop and small scale drip irrigation demonstrated at robe gebeya Kebele women FRG. More than Five evaluation standards has been used during the interview to evaluate the overall performance of the crop as listed below:

Interims of Adaptation to their locality

1. Interims of using as a food source
2. Interims of income generation
3. cost benefit analysis among the demonstrated vegetable crops
4. Most preferred vegetable crop among the demonstrated
5. Disease and pest tolerant

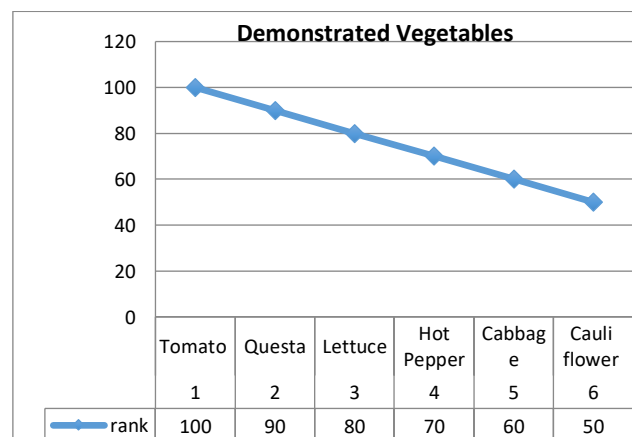


Fig. 1: The total demonstrated vegetables to Robe Gebeya women FRG.

As indicated the demonstration was run by women farmers at the result they were more impressed by the results obtained in terms of nutritional and income they obtained including by their peers. The demonstration plot receives a due amount of attention by the surrounding farmers from the result they seen and changed over to use of the new practice that are demonstrated with minimum farther assistance for sustainable and continuous use.

Generally, From the total demonstrated vegetables tomato beats by all evaluation parameters followed by hot pepper and cabbage while the other are less preferred .Therefore, These three Vegetable crops are highly demanded and demand also already created in the area and as a recommendation popularization need to do for next assignment. The growers (women FRG) highly preferred the three vegetable crops based on importance order but as the challenge women FRG have been raised about disease problem epically pest, termite and frost problem is there and need to consider in the future endeavors.

Training of Farmers and Extension Workers

Farmer training is one of the important components in the technologies pre-extension demonstration. It is meant to introduce a new way of doing things and/or to fill observed gaps in performance or undertaking some research activities. In the course of demonstration, farmer participants, development agents and experts working for the agricultural and horticulture development offices Has adequately trained during the course of the growing season to play a central role in the use of the demonstration as promotional tool by providing testimony to practical methods effectiveness both on theoretical and practical trainings on benefit, utilization and general aspects of managing the vegetable technology at different time in Farmers' field. Total number of farmers participated in technical training of operation of vegetable were Fifteen farmers but More than two hundred (65) surrounding farmers have now had exposure to improved vegetables technologies to grow in the off season.

The Benefits of using rope and washer technologies for vegetable production in Farming Practices

Its advantages are saving water; it requires less water to use from their own borehole even to transport water using horse car, it does not require large water sources, reduce drudgery, saves their time as compared to bucket Irrigation and women farmers able to save their time by using small scale water pump technology It also helps for rearing seedlings at nursery site for those who irrigate a large area of land. The technology itself is Easy to women and youth farmers. In addition to this, it contributed to economic, social and cultural changes, where women operate without any traditional or religious constraints considering it as an opportunity for economic empowerment since they able to generate income from vegetable sale and this in turn increase household income and they were able to feed a vegetable recipe dish to their own family member and strongly contributed to malnutrition status of improvement of household Due to this demand has been created on this technology from neighboring of the hosting farmers to the surrounding smallholder farmers.

Finally Rope and washing pump irrigation technology is being demonstrated to women farmers using their own borehole .The selected women farmers are able to produce vegetable off season time and able to access to their family and they were harvesting Questa every 15 day to their household consumption and saving their expense .Around 65 farmers are able to visit the demo site farmers at robe

gebeya attitude is changed while they see how vegetable can be produced at off season using small scale rope and washer technologies and the advantage of growing vegetable at homestead and regarding the crop stand, time and amount of water required on 24 hours farmers as advantage of growing vegetable at their homestead during off season.

Farmers' perception and feedback on the introduced technology

In order to improve the technologies, there was a need to elicit the perceptions of the farmers and almost all farmers gave their feedback to modify certain functionalities of the delivered technologies. Furthermore, farmers figure out that the introduced technologies produce positive feature of improving gender role distribution among households in a way that more boys, girls, and men are involved in vegetable production activities by using drip irrigation.

Frequent field visit was made on vegetable growing farmers and filed Red ant and aphid was seen on most plots as a result the whole plot attacked by red ant and for the remaining plots chemical was applied to minimize the damage by applying (diazole).On site individual training and follow up was made continuously and Farmers are advised to use the vegetable in their day to day meal .Interims of adapting the locality all demonstrated vegetables are good and Questa has good disease resistance as compared to other vegetables .Tomato has many advantages interims of frequent harvest due to its short period of maturity and better price because of its high demand in the market where as cabbage requires long period until it reached to harvest but it is good interims of other parameters. Lettuce is very rapid to reach for harvest but it requires seedling in every planting period and that create another burden to farmers as a result of this farmers have less demand it . Hot pepper is highly susceptible to disease but requires long duration to ripe or market.

Conclusions and recommendations

As conclusion and recommendation demonstration of vegetable using their borehole water source in the form of drip irrigation technology in this village is found to be very vital.

According to farmers feedback disease and pests were reported as a major problem Therefore, intensive training on protection is recommended for further pre-scaling up of the technology and sources of technology should be as close as possible to the farmers. Plastic shade is highly needed; the water amount and drip lines are not satisfactory to produce vegetable in large scale unless water tanker changed and respective district Irrigation Development Authority should facilitate for farmers who need these technologies by providing alternative pump technologies from the sources. Irrigation Development Authority at Zonal and district level should give training and facilitate supply of the small scale irrigation materials for farmers and development agents. Nongovernmental Organizations (NGOs) who are working in the area of irrigation development should consider this alternative irrigation facilitate for farmers on credit basis.



Fig. 1: Demonstration of improved vegetables with drip irrigation system.



Fig. 2: Photos of drip line installation and rope and washer pump.

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