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Research Article

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The role Indigenous Knowledge in Agricultural Farming practices: the case of Gonder and Gojam area, Amhara regional state, Ethiopia.

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Abstract

The present study examined community-based practices of continued subsistence farming under small land holding and basically depends on indigenous crop varieties. This paper attempts to review the role of indigenous knowledge in Agricultural Farming practices, to find out the list of most used indigenous knowledge and to find out the sectors of contribution of indigenous knowledge. The study was solely based on primary data. Semi-structured interviews conducted with a sample of 150 participants showed that community members sustain farming through their indigenous knowledge. Community members continue subsistence farming in their home-gardens and ploughing fields through indigenous farming practices. The practices involve improvement of soil fertility, maintenance of crops, harvest and storage of crops, knowledge of crops medicinal and other value. These indigenous practices could be helpful in the achievement of the sustainability of indigenous crop production. Thus, Indigenous knowledge plays role in farming activity, food production, crop storage, medicinal value.

Keywords: Agricultural Farming, indigenous knowledge, crop production..

Introduction

Indigenous knowledge refers to the understandings, skills and theories developed by societies with long histories of interaction with their natural surroundings (Semali & Kincheloe, 2002).This knowledge is integral to a cultural complex that also encompasses language, systems of classification, resource use practices, social interactions, ritual and spirituality. Indigenous knowledge defined as "A body of knowledge built up by a group of people through generations of living in close contact with nature (Kumela, 2007). It refers to the unique, traditional and local knowledge existing within and developed around the specific conditions of society indigenous to a particular geographic area.

Over the centuries, indigenous peoples have provided a series of ecological and cultural services to humankind. The preservation of traditional forms of farming knowledge and practices help maintain biodiversity, enhance food security, and protect the world's natural resources (Melaku et al., 2000).

Effective traditional farming system still very important there are some small scales farms practice in Amhara regional state. These traditional farming systems are important to the community for producing the crops, keeping the products in well storage, to minimise and treat community health care. Traditional farming is preparing the soil, planting the seeds and harvesting the crop. Whether it is by hand, shovel, and rake or it would even account for how the farmer still do it today, with oxe, horses pulling the equipment for rotating the soil and so forth.

Indigenous peoples play a key role in sustainable small holder farming around the world, thanks to their traditional knowledge and understanding of ecological systems and local biodiversity (Heywood, 2011).The preservation and continued evolving use of this knowledge is embedded in recognizing indigenous peoples' fundamental right to follow their own traditional ways of growing food.

The role of indigenous knowledge in food processing, preservation, and storage is ignored in the country and its documentation and dissemination remain a big challenge. Therefore, documentation and dissemination of this knowledge and practices deserve special attention as they encompass knowledge, which may be especially valuable in times of crisis or adaptation to the changing conditions. This could help researchers and development mediators as a gateway to verify, support indigenous knowledge with the latest technology to cope up with the harshness of nature and promote their role in the attainment of food security. In light of the above information, this paper reviews the available literatures on the role of indigenous knowledge in the attainment of food security.

Materials and Methods

Description of the area

Location

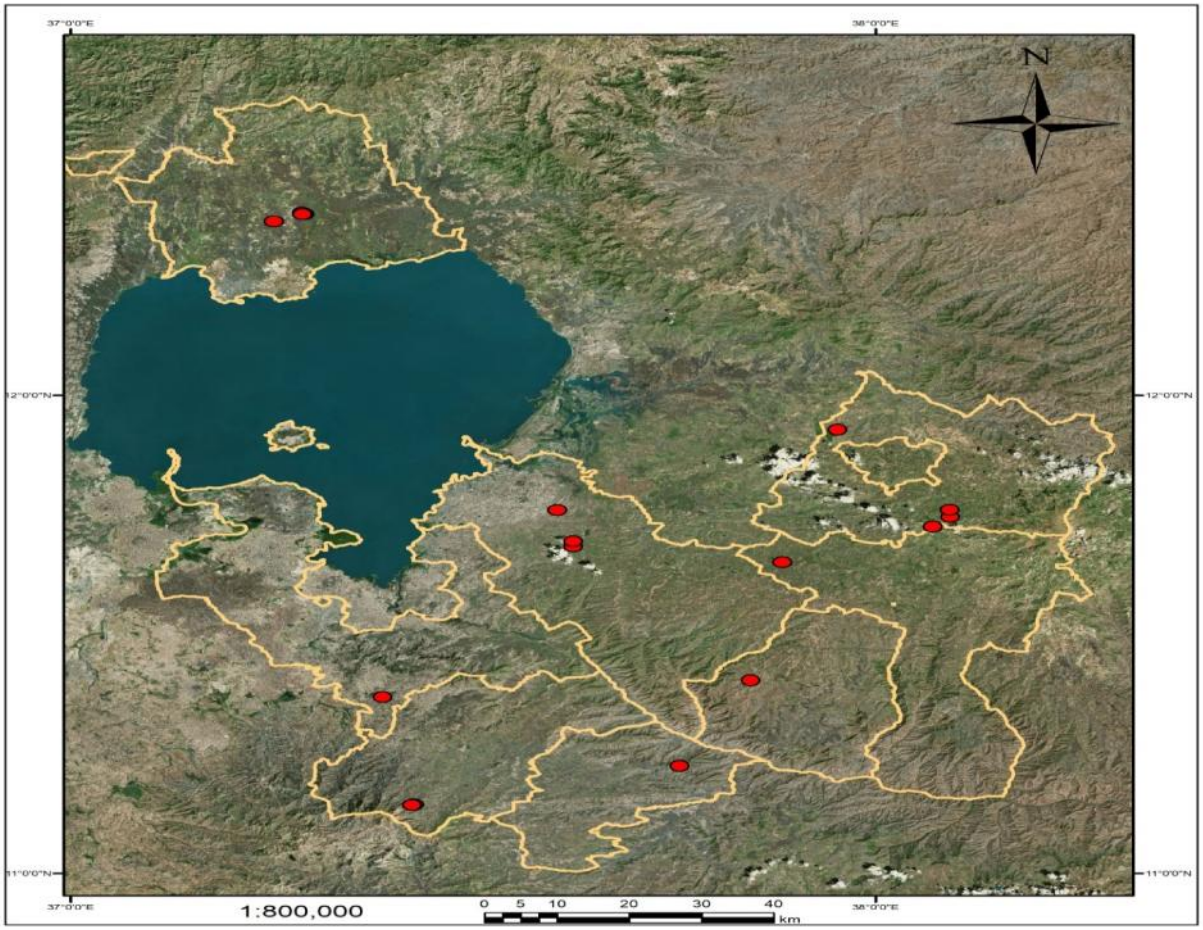

Fig.1 Map of the study area

Method and Approach

Methodology and procedures are the important factors in conducting a research. Appropriate methodology used in research helps to collect valid and reliable data and analyze the information purposively to arrive at correct decision. The study was solely based on primary data. The information was gathered from different farmers gathered the experience and associated Indigenous knowledge with collected crop varieties.

Data gathered from primary sources from the farmers, the type of research used is exploratory type through qualitative description and in-depth narration. The interview and questionnaire was written in English, but it was translated in to Amharic depending on the primary language of the respondents which is Amharic. The researcher selected (Gonder and Gojam), Since the collection of indigenous crop samples for further conservation purpose from Ethiopian Biodiversity Institution crop and Horticulture directorate community seed bank case team. The assessed Weredas were Andabet, Farta, Mierab Dembiya, Misrak Dembiya, Anbesame, Yilmana Densa, Gonji Kolala, Estie, Dera and Bahir dar zuriya.

Results and Discussion

Indigenous practices on grains storage

The study area has major staple crops include a variety of grains, cereals, pulses and oilseeds and spice seeds. Grains are the most important field crops and the chief element in the diet of most Ethiopians. The principal grains are teff, wheat, maize and millet. Oilseed cultivation is an important agricultural activity in the area. The most important oilseed is the indigenous Niger seed (*nuog*), it is found mostly in the area. Flaxseed, also indigenous, is cultivated in the same general area as Niger seed. The third most important oilseed is sesame, safflower and sun flower.

The greater proportion of crops is produced by resource poor farmers in remote villages and they store grains to facilitate the uniform supply of food throughout the year, to save it for unexpected events and to sell on higher prices. During storage, farmers are using a poor postharvest storage facility, which frequently makes them experience high postharvest losses (Sori, 2014). Among biotic factors, storage insects, rats and weevils are the primary causes of loss for crops in storage and constitute a great constraint to the realization of food security. In spite of the use of all available means of crop protection, farmers in the study area uses their Indigenous knowledge to overcome the losses. The farmers in the study area use a number of indigenous practices to ensure a long shelf life of crops after harvesting and attain food security. Some of the indigenous storage practices used by smallholder households are using cultural and physical method like using Lupines (*Gibto*) mixed with crops like lentil, vicia faba and chicken pea stored in order to protect the grains from insects. Farmers traditionally recognized that farm fields close to storage sites were more infected than others and most farmers built the storage isolate from crop fields from storage sites to reduce the level of initial infestations this types of Indigenous knowledge practicing in (Tadesse & Eticha, 2003).

Proper drying is also another cultural control method in which farmers in Ethiopia used to control pest infestation by reducing moisture content and temperature that increase the effectiveness of insecticide protectants. Cleaning the storage, sealing of cracks, gaps, and holes present in the floors and proper hygiene and sanitation in the stores are practices used by farmers. The sacks such as polyethylene bags enveloped with another transparent polyethylene sheets, and also the materials made from mud which is called "*Gota*" are the common choice of the storage materials used to store the crops inside the farmer's home.

Fig 2 .Picture of *Gota* (Photo Taken by Wubshet Teshome Feb, 2019)

The other common cultural practices used by the farmers is storing their maize with cops most farmers store their maize outside from house with cobs as with complete husk covers with covering livestock's dung and store in order to protect the crop from insects like weevils , rats and other physical damages of the maize. It's shown in the figure 3below.

Figure 3.practice of Maize storage (Photo Taken by Wubshet Teshome Feb, 2019)

Traditional farming practices

Almost all farming tools in Ethiopia are traditional and made of from different wood materials. These tools include sickle, pick oxe/horse, plough shaft, ploughshare, plough, beam and animal force as a machine. Oxen provided draft power in crop production. The plough shaft, beam and ploughshare are made of wood and the sickle, pick axe, plough are made of metal. Ploughing the land using these tools is ambiguous and time consuming. Farmers shift their barn from one farmland to another to fertilize the land.

According to Ethiopia farming, this ploughing the land to prepare the soil for sow requires around two quarter of a year. Ploughing the land to soften the land takes three months and from sowing and seedling to the harvesting of the crops requires three to four months.

Farmers plough their land by combining the above tools for such three months to get yearly consumed food. The major draft power in farming practice are Oxen ,and sometimes if there is a shortage of oxen the farmers uses the horse in order to combine.

Fig. 2 Farming with oxe and horse (PhotoTaken by Wubshet Teshome Feb, 2019)

Indigenous Knowledge Systems in Food Production

The indigenous farming system of the selected area is based on hand plaguing. Efforts by the farmers to produce indigenous crop varieties (crops) into this area, these varieties are fit into the farming system or the traditional customs of the local people. Teff, indigenous to Ethiopia, furnishes the flour for enjera, and sour dough pancake-like bread that is the principal form in which grain is consumed in the highlands and in urban centers throughout the country. A major subsistence crop, barley is used as food and in the production of tella, a locally produced beer. The other subsistence crop wheat cooked and eaten as it is and also furnishes the flour for preparing bread.

Pulses are the most important element in the national diet and a principal protein source. They are boiled, roasted, or included in a stew-like dish known as *wot*, which are sometimes a main dish and sometimes a supplementary food major pulse crops grown in the country are chickpea, haricot beans, lentils, faba bean and peas.

The transfer of indigenous knowledge on the crops from one place to another and the need to maintain and develop cultural diversity of the country. Moreover, several participants pointed out that a knowledge system is most often specific to a particular physical, economic, and cultural environment. Traditional knowledge is embedded in a given socio-cultural environment. This implies that it is difficult to transfer location-specific knowledge from one place to another. Further, it was stressed that questions of property rights and markets are relevant to the transfer of knowledge.

Indigenous Knowledge Systems in Traditional Medicine

According to the data collected from the area the collected crops like fenugreek, (for Gastritis) *Nigella sativum* (for stomach ache) Niger seed, (for cough) Lupine for (blood pressure) have a medicinal value. Regarding the distribution of medicinal crops, they are distributed in the area where the farmers live. Each of the community knows how to use about medicinal plants/crops for several purposes they conserve for sustainability of the medicinal crops. Most of the households can use medicinal plants which are available in the communities to heal normal diseases such as gastritis, diarrhoea, common cold, influenza, fever, etc. Many community members especially women's have told that they are acts as herbalists in every community area.

Conclusion and Recommendation

Indigenous knowledge is deeply rooted in the relationship of indigenous peoples with nature and community. Traditional Knowledge loss has been already responsible for increasing the vulnerability and risk for indigenous populations if the indigenous crops are well preserved. It is, therefore, important that the national and regional community starts recognizing indigenous peoples and their knowledge it is clear that Indigenous Knowledge plays an important role in development of agriculture in different farming practices. IK is environ-mentally sustainable in many cases. Also, it is an important source of local subsistence and food security. It has been produced based on local resources and local cultural activities. In addition, to this, it is equitable in terms of access to preserving resources and sustainable use and management. Nonetheless, Indigenous Knowledge has been eroded due to driving forces like climatic factors will lead to loss some crop varieties. This type of crop loss also will lead loss of related Traditional Indigenous knowledge in Agricultural practices. It is really necessary to overcome the IK back to work by undertaking the conservation and protecting practices of crop varieties in relation to their related traditional indigenous knowledge. The role of indigenous knowledge in food processing, preservation, and storage and on the other daily activities of the communities is ignored in the country and its documentation and distribution remain a big challenge. Therefore, documentation and dissemination of this knowledge and practices deserve special attention.

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