AN ASSESSMENT OF FACTORS DETERMINING LAND USE COMPETITION BETWEEN ENSET (PERENNIAL) AND CEREAL (ANNUAL) CROPS IN HADIYA ZONE THE CASE OF LEMO WOREADA (SNNPR)

Alemu Ersino Ersedo

College of Social Science and Humanities, Department of Geography and Environmental Studies Wachemo University (Hossana, Ethiopia)
** Corresponding author: e-mail: alemuersino@gmail.com*
ORCID: https://orcid.org/0000-0002-6663-0609

Article history:
Received: 14.11.2020 **Accepted:** 22.12.2020 **Published:** 31.12.2020
JEL Classification: Q 1, O 10 , N 27

Abstract

This study is about assessment of factors determining land use competition between cereals and enset crops in Hadiya zone, Lemo Woreda. The main objective of the study was to assess changes in land use and cropping pattern, farmers' perception on land use and cropping pattern as well as factors that determine land use competition between cereals and enset crops. A substantial section of this paper discussed the trends of land use and cropping pattern changes since 2000 and the determinant factors of the changes. Attempts are also made to explore the responses of peasants on causes of land competition between cereals and enset. The findings indicated that there are changes in land use and cropping pattern in the study area. It revealed that land use changes in the study area in the last 20 years, 2000 to 2019, specifically cultivated land and residential area expanded by 0.34% and 0.019% annually respectively. On the other hand, grazing and wood lands has decreased by 0.143% and 0.11% annually respectively. There were changes in the cropping pattern. The land use competition in dega area was among barely, wheat, enset and bean, whereas, in woinadega area the competition was amongst wheat, teff, chats and enset. These crops were dominant crops in dega as well as woinadega areas. The major determinant factors of the changes in land use and cropping pattern were population pressure, farm size, profit maximization, access to market, access to extension services, damages caused by wild animals, distance of plots from home, pests and diseases, land fragmentations, physical infrastructure and crop specific input requirements.

Keywords: *Land use pattern, cropping pattern, farmers' perceptions, determinant factors*

Statement of the problem in general outlook and its connection with important scientific and practical tasks

Agriculture is the base of the Ethiopian economy, contributing to a large extent contributing to rural employment, foreign export markets, raw materials for industry, and the GDP. However, the agricultural sector is largely characterized by small holding subsistence farming and low productivity.

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889

This low productivity is detrimental to the economic development and growth of the country. The Government of Ethiopia therefore, puts great emphasis on increasing the production and productivity of small-scale farmers [14].

Ethiopian agriculture is characterized by subsistence farming and small landholdings. Per capita, landholdings are smaller in high potential but densely populated areas than in areas of lower potential and sparsely populated. The national average for annual crops is only 0.8 ha. Individual plots are fragmented into several smaller parcels with an average of three parcels per holding. Most farmers in the northern and central highlands own even smaller areas and grow diverse crops and varieties [14]. Shortage of per capital land holding size of the individual leads to search of additional agricultural lands.

Land-use and land-cover change (LUCC) is a key driver of global environmental change and has important implications for many national and international policy issues. Netsanet, (2007) indicated that the impacts of land use and land cover change are critical to many government programs like documenting the rates, driving forces, and consequences of change [11].

Rapid population growth, especially on the high lands, has already created critical shortage of cultivated land, pastureland and fuel wood sources. According to several studies [12], [2], [4] a combination of rapid population growth, bad land use practices, technological stagnation and poverty have brought about environmental degradation, retarded agricultural growth and thus contributed to the decline of per capita income. Furthermore, reduced land productivity and yield are reflected in per capita consumption of food articles [14].

The influence of high population growth rate and high density of population on the agricultural system of Ethiopia at large and Hadiya zone and Lemo woreda, specifically, is far reaching. Among other things, increasing population pressure has resulted in land scarcities, which are the major challenges to Hadiya people found in Lemo woreda. This lead to fragmentation of farm lands, reduction of fallow periods, shifts in cropping pattern, reduced time spent in farming, acceleration of land use conflict and competition and land degradation [10]. As the result of scarcity of agricultural lands peasants prefer annual crops rather than perennials. Because, to feed large member of their families within the fragmented agricultural land rural households twice in year.

The nature of agriculture and farming practices in any particular location are strongly influenced by the long-term mean climate state and infrastructure of local farming communities are generally appropriate to particular types of farming and to a particular group of crops which are known to be productive under the current climate. Changes in the mean climate away from current states may require adjustments to current practices in order to maintain productivity, and in some cases the optimum type of farming may change [7].

Cereals are the dominant staples for the majority of Ethiopians and are the source of 62% of average Ethiopians' daily calorie intake, and account for about 45% of food expenditure for an average household. Thus, cereals, including barley, maize, teff, wheat and sorghum, are the most important crops for Ethiopia's agriculture. While 64% of agricultural value added comes from crops, more than 70% of crop land is devoted to cereal production [3]. Maize, teff, wheat, sorghum, finger millet and barley are the leading cereal crops grown in the SNNPR. Based on the report of Muhammed Hadiya, Guraghe, Kembata Tembaro, Siltie zones and Halaba special woreda are the major cereal producing areas in the region as reported by [11].

Enset is cultivated as a food crop only in southern and southwestern Ethiopia. It is a multipurpose crop and affords also forage for livestock, construction material, fuel and traditional medicine, ornamentation amongst others. Moreover, enset cultivation improves soil by permanent soil tillage due to its high demands to soil fertility and soil structure. Enset is not a monoculture, but rather grown together with cereals, pulses, vegetables, fruit bearing trees and animal husbandry. Climate and cultivation system both have a strong impact on enset cultivation in each particular region.

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889

However, regarding traditions connected to enset, enset has a strong impact on the cultivation system and the everyday life of the people. Therefore, often it is referred to as "enset culture".

In Hadiya zone, enset is the major staple food crops. However, as the result of natural and socio-economic factors, enset land coverage has been decreasing and shifting to other cereal crops. Generally, prevalence of bacterial wilt diseases in the study area is one of the obstacles for enset crops and it affects at every stage of growing. As the result of different factor land use competition is an economic concept which is defined as a process by which a given pieces of land can normally put to a number of uses but farmers will shift to grow crops which generate better benefit per unit of land [5], [1].

According to Hackett, land use competition may take place at different spatial scales including: on farms held by one individual holder, among farmers at different agro-ecological zone, between farmers and pastoralists as well as between pastoralists and wild lives. There are natural and socio-economic factors that determine the land use pattern at different agro-climatic regions. This is true for the study area where there is land competition between annual and perennial crops. Especially, some natural and social factors aggravate land competition between cereals and enset crops [6].

In the Lemo woreda the change in land use pattern brought changes in cropping pattern of the area. As most of the scholars stated perennials particularly, enset crop which grow with in the smaller area can support a large number of population. It is part of subsistence cropping in the study area. Now days in the area it appears enset crop is losing its dominance in the pattern of cropping.

Competition between cereals and perennial crops for land results in a change of cropping patterns and types of crops produced from an area. Therefore, it is very essential to assess human factors that cause and accentuate land use competition, and identify factors that affect enset crops in the area. It is also important to assess the type of crops that can improve crops that can improve subsistence household food access situation, the comparative advantage of competing land uses and other related problems which may come up with land use competition between enset and cereal crops.

Analysis of latest research where the solution of the problem was initiated

General Objective

The general objective of this research is to assess determinant of land use competition between enset and cereal crops in the study area.

The specific objectives of the study are to:

- Assess changes in land use and cropping pattern over time in the study area.
- Investigate farmers' perception on land use competition between enset and cereal crops in the study area.
- Identify factors that drive changes in land use and cropping pattern in the Lemo woreda.

Research questions

Based on the above objectives, this thesis aims at answering the following main research questions:

- Are there changes in the land use system and cropping pattern of the study area?
- How do peasants perceive and note land use competition between enset and cereal crop productions?
- What are the driving forces of change in land use and cropping pattern, of the study area?

Significance of the study

The finding of this study would have some significance. This study focuses on determinants of land use competition between cereals and enset crops and the land use patterns as well as trends and identifying cropping pattern and constraints of enset crops in Lemo woreda. Since no research has been conducted in this issue in the study area, this study is expected to provide information for

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889

governmental officials at different level and policy makers with awareness of understanding determinant factors in order to take measures to reduce the factors that affect productivity on both perennials and annual crops and to use appropriate crop type in appropriate time and place. The study also would serve as reference for researchers to embark up on similar or related work in other part of the country.

Background of the Study Area

Hadiya zone is situated roughly at the western margin of the central Ethiopia rift valley, north western part of SNNPR of Ethiopia. In the Northwest it shares common boundaries with Oromiya region and Yem special woreda, Hadiya zone neighbors are Halaba special woreda and Silte zone in the east and northeast respectively and kembata – Tembaro zone at its immediate south. But Wolaita zone at the near far is the neighbor of detached two woreda's, Misrak and Mirab Badawacho. It also share common boundary in the north and North West with Gurage zone. Or astronomical Latitudinal and longitudinal extension of the zone is roughly between in 7°3′19″-7°56′1″N and 37°33′14″-38°52′12″ E.

Aims of paper. Methods

For achieving the objectives of the research both primary and secondary data sources were used. Therefore, the researcher was interested to assess the factors that affect land use competition between enset & cereal crops. Due to limited time and financial resources, including all kebeles was difficult. Therefore by considering the intensity of land use transition between cereals and enset crops, population pressure, shortage of farm land, enset crop diseases and the personal acquaintance of the researcher to the locality helped to get access to valuable information. The researcher selected two kebeles (Ambichogode and Shurmodacho) by using purposive sampling, because, the woreda has two different types of agro-ecological zones which have been used as units for sampling. Two representative sample Kebeles (one from each agro-ecology) were selected by consulting the woreda agricultural officers who had extensive experience and knowledge of the area. In these two kebeles land use competition seemed very intensive.

Instruments

Semi-structured interview, questionnaire with sufficient room for inquiring a detailed interview guide with a complete list of topics to be filled and structured interview, survey questionnaire after all organized in a logical order of presentation was used as instruments of data collection. The semi-structured interviews were used for key informant interview whereas the interview guide for focus group discussion and the structured questionnaire were employed for the household interview survey.

Sampling techniques

For this particular study, purposive sampling and two stage stratified sampling techniques were employed. In addition random sampling methods were used to draw sample households for interview survey from the two stages stratified sampling frame.

The purposive sampling technique was employed for the selection of the two kebeles, key informants and focus group discussion members. The selection of schemes depends on the data from survey results. From 33 rural kebeles, two kebeles, namely Ambichogode and Shurmodacho were selected in the 1st strata using purposive sampling techniques, owing that in these two kebeles there were strong land use competition between cereal and enset crops and the two kebeles represent the two agro climatic conditions of the woreda, all the farmers could follow the same farming system that mostly traditional subsistence agricultural land use, selected households expected to what they could know the long living experiences with regards to change of land use and cropping pattern in the study area. Moreover the accessibility was also another thing which was taken into consideration.

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889

Sample Size Determination

There are several approaches to determine the sample size at house hold level. These include using a census for small population, using sampling to represent a large population, using published tables and applying formulae to calculate a sample size.

This study applied random sampling technique to get 6% of sample population from the total population of the two urban kebeles and total female population of the Hossana female and children affair office and Hossana 1st Court office. Because, the total population of female employed in both sector is small in size.

Recent demographic data available at the Lemo woreda Finance and Economic Development office (WFEDO 2019) revealed that there are households in Shurimo dacho male headed house hold 917 and female headed 103 totals of 1020 and Amibicho gode, duly there were 643 male headed households and 132 female headed in 2018/19. Therefore, a total of 1795 households are the sample frame of the study. From the total house hold heads of the two PAs, due to observable homogeneity in the back ground characteristics of the target kebele population, and resource constraints, the researcher used 6% households were as sample size for this study. Before the selection all households were categorized, according to their socio economic status. First of all to categorize sampled population, kebele officials, DAs and elder peoples tried to identify the terminologies for three local level wealth categories and accordingly 'godanicho', 'lanibeanicho' and 'butichoo' terms are used for such categories. The group supposes that the highest socio-economic class locally called 'godanicho' which is equivalent as better-off; the next class termed as 'lanibeanicho' and equivalent as middle economic class and finally the least economic class termed as 'butichoo' and equated as poor. Following the identification of socio-economic category, the group moved to set local wealth ranking criteria. Accordingly, the local proxy indicators of wealth are elaborated as agreed by the group.

Therefore, 47 household from Ambichogode and 61 households from Shurimodacho were selected. Selection started point from the farmers list of kebeles officials by a lottery system. Therefore, the respondents were selected by a fixed interval nth value until the desired sample size would have been obtained. During the reconnaissance visit, the researcher had discussed with agricultural experts, development agents and kebele officials.

Methods of Data Analysis

The data were summarized and analyzed by employing different methods. In the course of analyzing data obtained qualitative description and descriptive statistics such as mean, standard deviation, sum, and percentages and frequencies were computed. Part of the data gathered that was readily quantifiable (information from the close-ended questions of the questionnaire) was entered into the SPSS program and the output was discussed using tabulation and cross-tabulation of variables with percentage values in descriptive statistics. Chi-square test was used to see whether there was a significant association between responses provided by farmers of different socio-economic level and land holding size and family size with their land use and cropping pattern changes, and perception on climatic change and land use and cropping pattern changes and determinant factors for land use competition between cereals and perennials. Correlation coefficients were used to identify whether there is correlation between variable or not. The significance was determined at P-value less than 0.05 or 0.01. Readily non-quantifiable data (information from open-ended questions, key informant interviews, and focus group discussions) discussed through qualitative description.

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889

Exposition of main material of research with complete substantiation of obtained scientific results. Discussion.

- In the study area there were large number of population growth were observed. The household size on average 7.8 person/HHs
- The survey result indicated that the educational attainment disparity observed on the basis of different wealth groups. The differences on socio-economic level caused differences on educational status.

  Cropping pattern
- Major grown crops in the study area were: wheat, enset, teff, barley, chat, bean, maize, sorghum, pea, and some other less dominant crops.
- The dominant crops in both agro-ecological areas were wheat and teff covered ¾ of the cultivated land in Amibichogode and wheat, enset and barely covered ¾ of Shurimodacho kebele.
- In both kebeles wheat has attained supremacy. It indicated that the study area agro-climate was suitable for wheat crops.
- Variation on cropping pattern in both kebele indicated that climatic influences of cropping patterns in areas.
- In the study area there were changes on cropping pattern temporarily and spatially between 2000 and 2018/19

- annual crops with perennials,
- annual crops with annual crops and
- Perennials with perennials.

Furthermore, there is transition of land from one to another (see table 1 and table 2).

Table 1. Transformational probability matrixes for different crops in the study area.

Crops Type	Wheat	Barely	Maize	Teff	Sorghum	Bean	Pea	Enset	chat	**1990 area in%**
Wheat	**35.5**	-	-	-	-	-	-	-	-	35.5
Barely	5.64	**8.01**	-	5.6	0.25	-	-	-	-	19.5
Maize	-	-	**3.44**	1.16	-	-	-	-	-	4.6
Teff	-	-	-	**2.4**	-	-	-	-	-	2.4
Sorghum	-	-	-	-	**1.25**	-	-	-	-	1.25
Bean	-	-	-	4.67	-	**3.43**	-	-	-	8.1
Pea	-	-	-	2.33	-	-	**0.78**	-	-	3.11
Enset	4.03	-	-	0	-	-	-	**17.18**	0.83	22.04
Chat	-	-	-	0	-	-	-	-	**2.97**	2.97
2012/13 area in%	45.17	8.01	3.44	16.46	1.5	3.43	0.78	17.18	3.8	100
Total area in ha.81.5ha										79.8ha

Source: own survey 2018/19.

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889

Table 2. Distribution of respondents by ways of farm land acquisition.

Frequency of respondent	Ways of acquisition					
	Through inheritance	Land re-distribution	By rent	By sharing	Other	Total
No	52	36	7	8	5	108
%	48.15	33.33	6.48	7.41	4.63	100

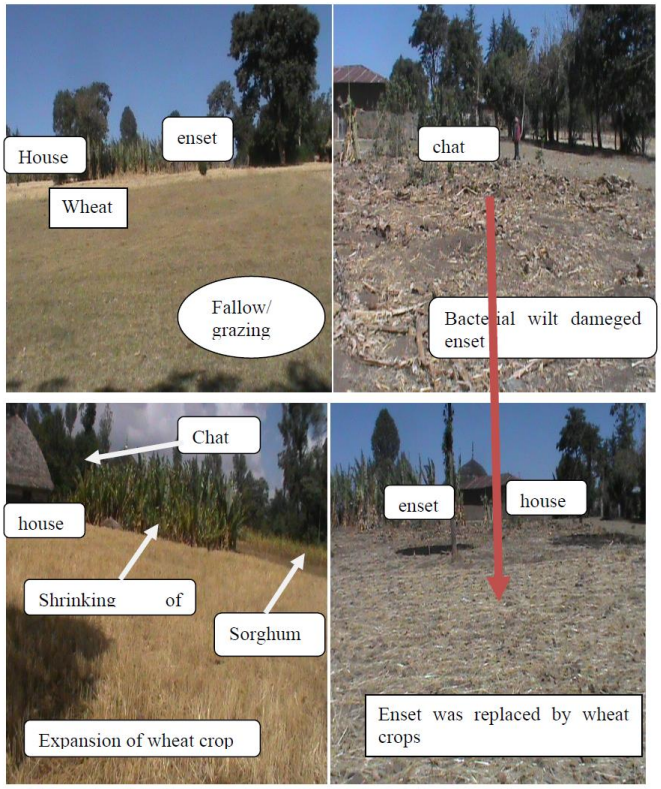
Source: own survey 2018/19.

– There could be a number of constraints that adversely affect enset crop in different parts of enset growing areas. For instance in the study area:

- bacterial wilt 'alloya' 48%
- rain fall variability 27.8%
- attack by wild animal 24%
- mole rate 1.9%

Changes in the land use pattern and cropping pattern in the study area aggravated by the expansion of bacterial wilt (see figure 1 and figure 2).

Figure 1. Photo showing that the existing land use competition in the study area.



Sources: own survey 2018/19.

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889

Figure 2. Showing the how bacterial wilt affecting enset in Ambichogode kebele.

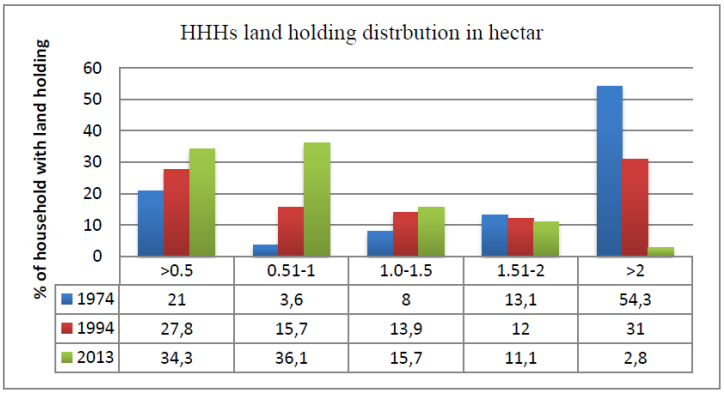
Sources: own survey 2018/19.

Causes of changes in land use and cropping pattern
Land use as well as cropping pattern can be influenced by several factors.
Some of them are: profit maximization, distance of plots, farm size, attack by peats and disease, extension services, household size, climate variability, access to market were some of the determinant factors for the change of land use and cropping pattern.

Household size

In the study area household size is higher than zonal as well as regional level of household which averagely 7.8/household heads.71.3% respondents have more than 5 household sizes (see figure 3).

Figure 3. Temporal land holding size changes in the study area.



	>0.5	0.51-1	1.0-1.5	1.51-2	>2
1974	21	3,6	8	13,1	54,3
1994	27,8	15,7	13,9	12	31
2013	34,3	36,1	15,7	11,1	2,8

Sources: own survey 2018/19.

Agricultural land fragmentation increase in the study area time to time

Climate variability

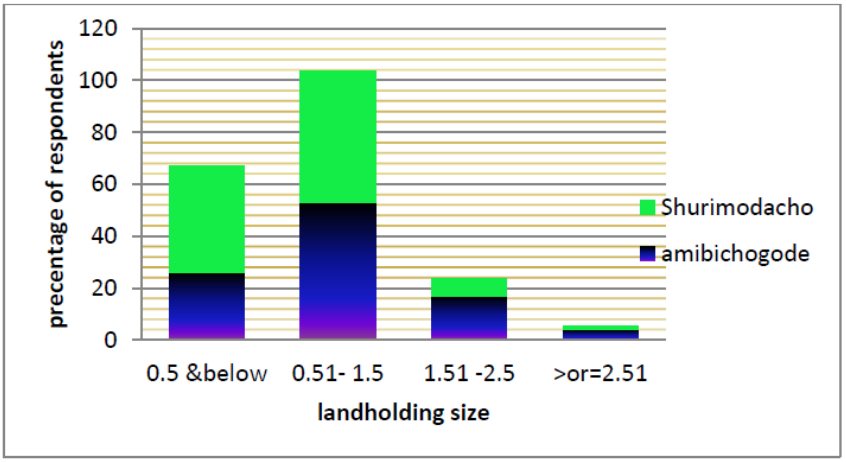
In the Lemo woreda temperature increases average in 0.05 and rainfall decreases 10mm annually. Generally, seasonal variability of i.e. lately coming and early stopping rainfall one major problem in the study area.

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889

During land preparation, sawing and wedding time disappearance of rainfall and during harvesting time occurrence of rainfall affecting crop production and cultivation as well (see figure 4).

Figure 4. Landholding size in the study area in 2018/19.



Sources: own survey 2018/19.

Conclusions

- In the study area one can infer that there is a remarkable change on land use and cropping pattern.
- On the other hand land use competition between cereals and enset crops were aggravated.
- The climatic variability was observed in the study area hence, it became one determinant factor for the change of land use and cropping pattern of the area.
- In the study area farmers were shifting towards valuable crops in terms of yield and marketability.(teff, wheat, chat)
- Most of the respondents were aware of on the change of land use and cropping pattern in the study area.
- In general it may fair that to conclude that there is temporal and spatial variation and changes of cropping pattern in the study area.
- The determinant factors for the change of land use and cropping pattern were: population pressure, socio-economic factors, political and institutional factors, physical factors accessibility, technological factors, attack by pests and diseases, land fragmentation
- Challenges of enset crop production are: land shortage, unreliability of rain fall, prevalence of bacterial wilt, long time of maturity, lack of improper technology, lack of improved clones.

Recommendation

- The training program in FTC which provided for farmers by DAs should be modified by considering the existing environmental and climatic changes.
- Enset based research center might be needed to be established in the area.
- The fast growing population in the study area needs promotion of family planning and more creating of awareness for the farmers to reduce population pressure.
- Diversification of food crops is also essential in the study area.

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889

References:

1. Dereje G., (2008). *Thesis on Land use competition between coffee and food crops and its implication for food security in Lalo Asabi woreada west wellege zone Ethiopia*.
2. Dessalegn R., (1996). *Land, Population, Environment: What is at issue paper prepared for panel discussion on population and Emvironment In Ethiopia, national office of population* (unpublished)
3. Diro M., Tabogie E., (1994). *Enset (enset ventricosum): Surveying base cropping systems in some enset growing regions of Ethiopia.* Paper presented at the Second Ethiopia Horticultural Workshop, 1 to 3 Dec., Addis Ababa, Ethiopia. (ed.). Arnold, London.
4. FAO-UNEP (1997). *Negotiating a sustainable future for land*. FAO/AGLS, Rome, 61p. [Presents the results of a stakeholder consultation process on new land use planning approaches].
5. Found W.C., (1971). *A Theoretical approach to rural land use pattern*. Great Britain, Bristol.
6. Hackett C.S., (2006). *Environmental and natural resources economic, Theory, policy and sustainable society* (3rded) London, England
7. Gornall J., Betts R., Burke E., Clark R., Camp J., Willett K., Wiltshire A., (2012). *Implications of climate change for agricultural productivity in the early twenty-first century*
8. LWFED (2018). *Annual report of the office* (unpublished paper) Hossana
9. Urgessa M., (2011). *Market chain analysis of teff and wheat production in Halaba Special woreda*, Southern Ethiopia
10. Woldetsadik M., (2003). *Impact of Population pressure of land use /land cover change, agricultural system and income diversification in west Gurage land, Ethiopia* (Un published thesis) Norwegian University of Science and Technology (NTNU), Trondheim.
11. Morie N.D., (2007). *Land use and land cover changes in Harenna forest and surrounding area, Bale mountains national park, Oromia national regional state, Ethiopia* (unpublished thesis Addis Ababa).
12. Hawando T., (1982). *Problem of soil and its implications on crop improvement program on Ethiopian context*.
13. Tofa T., (1994). *Impacts of population pressure thesis on land, land cover and land use patterns in Roi catchment Northern Shewa.*
14. Thijssen M.H., Bishaw Z., Beshir A., De Boef W.S., (2008). (Eds.). *Farmers, seeds and varieties: supporting informal seed supply in Ethiopia.* Wageningen International.

ISSN 2450-2146 / E-ISSN 2451-1064

Ersedo A.E., (2020) An Assessment of Factors Determining Land Use Competition Between Enset (PERENNIAL) and Cereal (ANNUAL) Crops in Hadiya Zone the Case of Lemo Woreada (SNNPR);
International Journal of New Economics and Social Sciences 2 (12) 2020: 59 - 68
DOI 10.5604/01.3001.0014.6889