HEBRON UNIVERSITY

College of Graduate Studies

Sheep and Goats Farming Systems Socio-Economics at the Southern Hebron District

By

Ala'eddin Hayel Sadeq Al-Jabari

Supervisor

Dr. Tala't Aburajab –Tamimi

Co-Supervisor

Dr. Ayed Mohammad

This Thesis is submitted in partial fulfillment of the requirements for the degree of Master of Science in Sustainable Natural Resources and their Management, College of Graduate Studies, Hebron University, Palestine.

February 2010

Sheep and Goats Farming Systems Socio-Economics at the Southern Hebron District

By

Ala'eddin Hayel Sadeq Al-Jabari

This thesis was successfully defended on 8 / 02 / 2010, and approved by:

Examination decision:	**Signature**
1. Dr. Tala't Aburajab-Tamimi (Chairman of Committee)	.....
2. Dr. Ayed Mohammed (Co-supervisor)	.....
3. Dr. Nabeel AlJondi (Internal examiner)	.....
4. Dr. Abed Alhamed AlBargothi (External examiner)	.....

Dedication

To Palestinian sheep and goats farmers, who do their best to capture their livelihoods from rearing sheep and goats, despite of harsh environmental and political conditions, and try to conserve their natural resources. To whom do their bests to conserve their land.

Acknowledgement

First, thanks to God for supporting me with power, patience and determination to finish this research. Secondly, I am greatly indebted to Dr. Nabil Al-Ja'bari, Chairman of Hebron University Board of Trustees.

I am grateful to Dr. Tala't Tamimi, my supervisor, and Dr. Ayed Mohammad, my co-supervisor, for giving me the opportunity to undertake this study and for their guidance and understanding. They taught me to simplify complex conditions, to focus on all aspect and to see whole sheep and goats farming systems.

I like to express my sincere appreciation to my wife Lobna Al-Ja'bari and my children for their encouragement and their exceptional patience during my master study.

During the process of carrying out this study many people have been of great help in different ways. Without them this study has never been. I wish to express my appreciation and gratitude to all of them. Thanks expressed to Mr. Monjed Samuh who help in the statistical analysis of the study.

My deepest gratitude is to the farmers whom trusted us and told us about their lives. I have pleasant memories of them and hope that this study supports their needs.

List of Contents

List of figures

List of tables

Glossary

AOAD:	Arab Organization for Agricultural Development
ARIJ:	Applied Research Institute Jerusalem
GIS:	Geographical Information System
GS:	Gaza Strip
JD:	Jordanian Dinar
LRC:	Land Research Center
MoA:	Ministry of Agriculture
NGOs:	Non Governmental Organizations
NIS:	New Israeli Shekel
PA:	Palestinian Authority
PCBS:	Palestinian Central bureau of Statistics
PT:	Palestinian Territories
SPSS:	Statistical Package for Social Science
UAWC:	Union of Agricultural Work Committees
UN:	United Nations
UNDP:	United Nations Development Programme
WB:	West Bank

Abstract

Sheep and Goats Farming Systems Socio-Economics at the Southern Hebron District

This study seeks to describe the types of farming systems of rearing sheep and goats at southern Hebron district. Due to a lack of detailed information on the socio-economic situation and development of farming systems, the identification of the prevalent farming systems and their socio-economic performance is one of the main objectives. It includes evaluation of different types of production inputs and outputs. It also assesses the constraints of production, analyzes the economic achievement of the producers, and defines future development.

The empirical part of the work is based on several informal and formal surveys and participant observation of 158 owners of sheep and goats. The survey period covers the financial year 2006.

The result shows that the family size averaged is 12.39 members, family member age under 15 years old is 63%, the owners age older than 40 years represent 72% and the owners with low education level represent 57.6%. The flock size high average was (145 heads of sheep and 68 heads of goats) the year 2006 and low percentage of newcomer was (3.4%) to rearing animal. The result show high percent of participation of women in the activity of rearing sheep and goats. It also shows the main grazing and movement constraint caused by the Israeli occupation. Moreover, it shows the sheep and goats owners families live under the poverty line.

1. Introduction

1.1 Problem statement

The Palestinian agricultural sector is constrained by being largely dependent on dry lands (marginal areas and steppe rangeland). A large percentage of the small ruminants in Palestine, particularly sheep and goats, are raised in these lands and cropping systems in which forage cereals dominant are also found.
More than 25% of sheep and goats of West Bank are in Hebron district (PCBS 2006).

The prevailing sheep and goats farming systems in the dry areas are primarily shaped by their natural and institutional environments. It depends on native pasture in the rangeland.

The production value of livestock in Palestine for the year 2005 was 10.2%. The share of West Bank was 7.7%, and in Hebron district which rely on sheep and goats husbandry was 7.1% (PCBS 2006).

The cost of sheep and goats feeding in year 2005 formed 78.6% of the total input costs of production (PCBS 2006).

Sheep and goats rearing are the main source of income for the owners in the southern Hebron district, where the livelihoods depend on (ARIJ 1994). The sheep and goats owners considered the poorest groups in West Bank (Janazereh 2007). The majority of the owners live in villages, clusters and

hamlets (kherpa), without basic services, such as health, education, transportation, electricity networks and water networks.

The current development of rangeland areas in Palestine gives reason to realize that the present land utilization in the rangeland may not be sustainable (Dudeen 2009). Moreover, it threatens the long-term social and economic development of farmer families living in these areas.

Rangelands in Palestine are the home base for many families involved in pastoral and rain fed cultivation activities (Dudeen 2009). A variety of factors have led to changes in land use and social systems during the last two decades. This is true in the rangeland areas of Palestine as well as for the Political situation (Dudeen 2009). The main determinants have been the high population growth in the region, an increasing urban consumer demand for livestock products, limited opportunities for intensification in more favored areas and the improvement of the market infrastructure.

The domestic feed resources, native pasture and crop residues are pushed to their limits, it provides less than 20% of the total feed requirement (Janazereh 2007). The main reason is the high demand for animal feed due to increased livestock number and decrease in native pasture available for Palestinians. As a result, Palestine has strongly expanded the import which represents more than 80% of the total feed requirement, as well as the production of feed grains (Janazereh 2007). On the other hand, a further addition to the cropped lands must come from the conversion of natural grazing lands.

There is an awareness of the long-term dangers involved in unstable living condition. However, there is lack of information on the factors influencing these at the farming system level. Hence, there is an urgent demand for the

specific exploration of the reasons, determinant and dynamics of the social and economic situation and the main constraints in the rangeland areas.

A basic condition for any problem analysis is a reliable information base on the farming system development in the area. Technologies, as well as policy measures and strategies for an environmentally stable and socio-economically sustainable development, need to fit into the farm, household and resource management priorities of the farmer families.

Hence, the study seeks to fill the gap of missing information in the following subjects:

- the socio-economic positions of the prevailing farming systems at the Southern Hebron District;
- the dynamics of the socio-economic conditions with a focus on the transition process of farming systems from one system to another;
- the acceptance and possible obstacles of new technologies or management practices, which are in discussion to improve or at least stabilize living conditions; and
- finally, an assessment of potential farming systems development pathways.

1.2. Objectives

The main objective of this study is that it seeks to describe the prevalent farming systems of rearing sheep and goats and their socio-economic performance at southern Hebron district. It aims to:

- evaluate different types of production inputs;
- evaluate different production outputs;
- assess the constraints of production;
- analyze the economic achievements of the producers; and
- define future development.

Consequently, the following key questions are answered as secondary objectives:

1. What kinds of sheep and goats farming systems presently exist in the southern Hebron district, and what are their dominant features of development and change?

2. What are the consequences for the living conditions as a result of the socio-economic situation and the changes involved by farming systems?

3. What are the characteristics of the farming systems socio-economic performance, and their environment?

1.3. The study structure

The study consists of six chapters. The first chapter focuses on the importance of sheep and goats income for the owners whom are living in the rangeland area, the research problem and objectives.

The second chapter focuses on the reviewing literature that deals with the description of the similar studies. Chapter three, discusses the

methodology of the study, and the description of the study area. It explains the methods of information and empirical data collection. It describes the selected sample of the study.

Chapter four deals with the analysis of the results of the study that concerns human resources, livestock resources, land resources, management of resources, the socio-economic of sheep and goats farming systems, economics of the family-farm household systems and market system.

Chapter five deals with the discussion of the results of the study which appears in chapter four. Chapter six includes summarize conclusions and recommendations of the study.

2. Literature Review

2.1. Sheep and goats farming systems

"A system is understood to be an entity composed of individual elements which are related to one another where the relationships among the elements within the system are stronger than to elements outside the system" (Doppler 1995). Family farms are defined as farms on which families completely (or to large extent) manage their livelihood by running the farms themselves (Doppler 1995).

Sheep and goats farming systems are the traditional farming systems which rear sheep and goats.

Migrant farming systems are the most traditional agricultural farming systems. Migrant farming systems are particularly characterized by the migration (Doppler 1995).

Elements related to the defined problems or objectives of a system are more intensely related to one another than to external elements and are therefore an entity. A problem or objective can be understood as the discrepancy between the present situation and the ideal situation. The system concept tries to find a solution for the discrepancy between the present situation and the ideal situation (Rolf Wachholtz 1996).

2.2. Classification of farming systems

In a study of dynamic and potential of farming systems in the marginal areas of Jordan by Martin Maurer (1999), he identified the farming systems into three groups: semi-sedentary bedouin farming systems (semi-sedentary),

sedentary pastoral farming systems (sedentary) and permanent rainfed farming systems (permanent).

In a study of socio-economics of bedouin farming systems in dry areas of northern Syria by Rolf Wachholtz (1996), he identified the farming systems in his study into three groups: sedentary, semi-sedentary and migratory.

- Bedouins (Nomads)

They are migrating shepherd people. They have no fixed abode. They are the most traditional farming systems for keeping sheep and goats. Their predecessors were nomadic hunters who hunted and searched their area for suitable pasture land.

- Transhumance farming systems

It is a form of farming system in which sheep and goats are kept. Families have a fixed dwelling-place, and some of the family members or perhaps shepherds, migrate with the herds of sheep and goats.

- Stationary farming systems

It is a form of farming system in which sheep and goats are kept. Animals and land are both individual property. Fodder is sometimes already managed without having recourse to pastures. Families have fixed place of abode in the countryside.

- Urban farming systems

It is a form of farming system in which sheep and goats are kept. Fodder is bought from the market. Family managed the animals and they have no pastures. Families have fixed place of abode in town.

- Rural farming system

It is a form of farming system in which sheep and goats are kept. They have fixed abode in hamlet (kherpa). Family managed the animals and they have pastures.

2.3. Rangeland

The Palestinian agricultural law for the year 2003 article 2, defines rangelands as: all public lands and fields with vegetative cover used for animal grazing including natural and cultivated rangelands (Ibrigheeth, 2006). The same law defines rangeland plants as all plants grown in rangelands includes herbs, grasses and shrubs regardless whether it is edible by animals or not (Ibrigheeth, 2006). Also the Palestinian agricultural law considers all registered state lands or any lands owned by the state in areas with annual rainfall less than 200 mm as rangelands except for lands under permanent irrigation, lands specified for public use, local authorities' lands, lands specified for the use of the state and its institutions and the natural reserves and forests (Ibrigheeth, 2006).

The Palestinian rangeland has been subjected to sever uncontrolled grazing pressure for long period of time and this leads to decrease forage production capacity (Mohammad, 2000).

The rangelands in Palestine are facing serious challenges that threaten the pastures (Dudeen 2009). These challenges are of human factors which are represented in the Israeli control over Palestinian land that limits the proper management of the rangeland which is mainly classified as C areas (under full Israeli control according to Oslo agreement). The rangelands are also affected by the Separation Wall. In addition, the closure of the Palestinian territories during the last few years has deprived the farmers from their rights of reaching their lands which are declared as closed military areas by the Israeli occupation authority. Overgrazing and the sharp rise in the animal fodder are other important human induced factors. The natural factors are represented in the decline of rangeland due to desertification, successive draught, water scarcity and arid to hyper arid climate (Dudeen 2009).

2.4. Role of livestock

The majority of small ruminants, sheep and goats, are based in the dry areas and dominate farm production. Economically, sheep and goats are the most important livestock in Hebron district; they form more than 25 % of small ruminants in the West Bank (Figures 1&2) (PCBS 2006). The main characteristics of sheep and goats are: low investment costs due to their small size, rapid maturity, high reproductive efficiency and good adaptability to dry areas. Small ruminants provide the owners family with highly flexible management options. They stabilizes income and consumption, improve liquidity and they are a storing means for wealth (Rolf Wachholtz 1996). High consumer preferences for sheep meat and a rapid population growth are the reasons for the tremendous increase in the sheep population over the few last decades. The Awwasi fat-tailed sheep

(local sheep) is, by far, the most important species raised (PCBS 2006). The Awwasi sheep, indigenous to West Asia, is a multipurpose (milk, meat and wool) sheep adapted to dry conditions. In Palestine, it is the main source of meat, milk and wool.

The local sheep breeds (Awwasi) represents 67% of the total sheep number in (2004/2005), while other breeds represents 33% (table 1) (PCBS 2006). In Hebron districts the local breeds are still the majority and represent 80%, while other breeds represents 20% (PCBS 2006). At the same time, the local goats breed represents 80% of the total goats in Palestine for the same period. In Hebron, local goat breeds still represents very high percentage that exceeds 98%, while other breed represents only 2%.

Table 1: Number of sheep and goats in Palestinian Territories and Hebron district 2004/2005.

District	Sheep			Goats			Total sheep & goats	%PT	%WB
	Local	Other	Total	Local	Other	Total			
Palestinian Territory	**534,130**	**269,035**	**803,165**	**295,599**	**75,599**	**371,198**	**1,174,363**	**100%**	
	67%	**33%**	**100%**	**80%**	**20%**	**100%**			
West Bank	**515,617**	**226,882**	**742,499**	**289,953**	**71,290**	**361,243**	**1,103,742**	**94%**	**100%**
	69%	**31%**	**100%**	**80%**	**20%**	**100%**			
Hebron	**170,255**	**41,935**	**212,190**	**80,952**	**1,240**	**82,192**	**294,382**	**25%**	**27%**
	80%	**20%**	**100%**	**98%**	**2%**	**100%**			

Source: PCBS (2006), Agricultural Statistics (2004/2005).

The main kept goats are local or Baladi goats, however Shami goats and cross breeds (hybrid) are found. Goats were considered to be destructive grazers contributing to the degradation of vegetation and soil. While the

demand for goat meat is lower; goat milk and milk-products are highly appreciated as a subsistence supply for the owners, particularly as goat milk is highly digestible at times when sheep do not produce (Rolf Wachholtz 1996).

Small ruminants are kept by owner's families for milk, meat, hides and manure. Marketed products, other than meat, include sheep and goat milk, yoghurt, cheese, jameed, and clarified butter (Arabic butter or ghee). Other milk-by-products are only marketed in small quantities.

Table 2: Milk Production in Palestinian Territories and Hebron district at 2004/2005 (Metric Tons).

	Cows milk	**Ewes milk**	**Does milk**	**Total**
PT	99472	56222	31181	186875
	53%	30%	17%	100%
WB	78022	51975	3044	160341
	49%	32%	19%	100%
Gs	21450	4247	836	26533
	81%	16%	3%	100%
Hebron	27533	14853	6904	49290
	56%	30%	14%	100%

Source: PCBS (2006), Agricultural Statistics (2004/2005).

The majority of small ruminant production in the dry areas depends on diverse feed sources. The availability and costs of feed are the main determinants for its use (Dudeen 2009). Three main categories of feed

sources are employed, namely native pasture, crop residues and supplementary feed-stuffs.

Small ruminant production has been a fragile system, related to climatic variability which gives it a cyclical character. In dry years, the availability of native pasture and crop residues can be drastically reduced. Consequently, the feed intake of the animals is diminished. The drought affects small ruminant production negatively (Agricultural Departments of Hebron 2006).

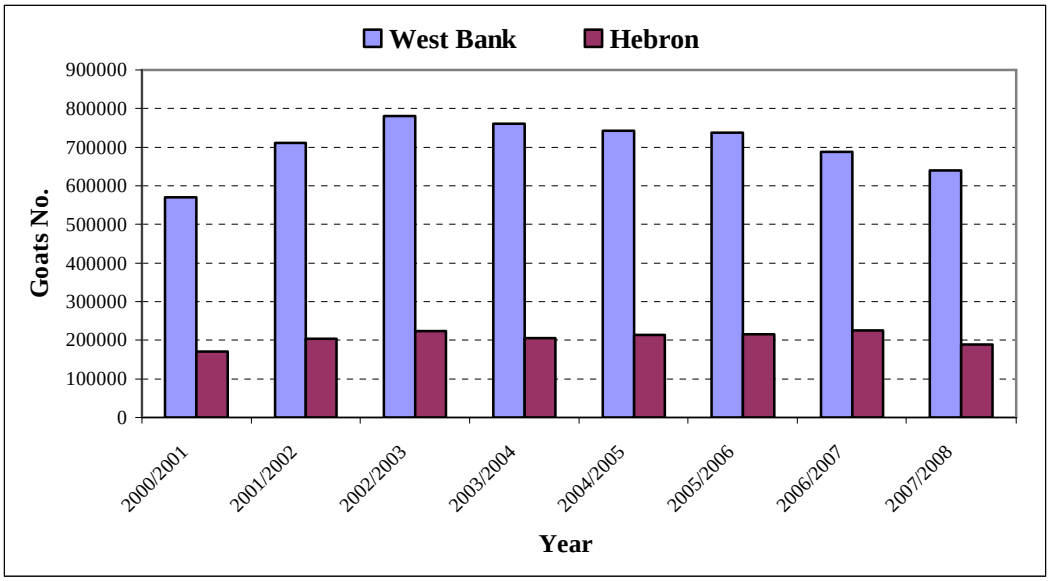

Figure 1: Number of goats in West Bank and Hebron district

Source: PCBS (2002-2009), Agricultural Statistics (2000/2001–2007/2008).

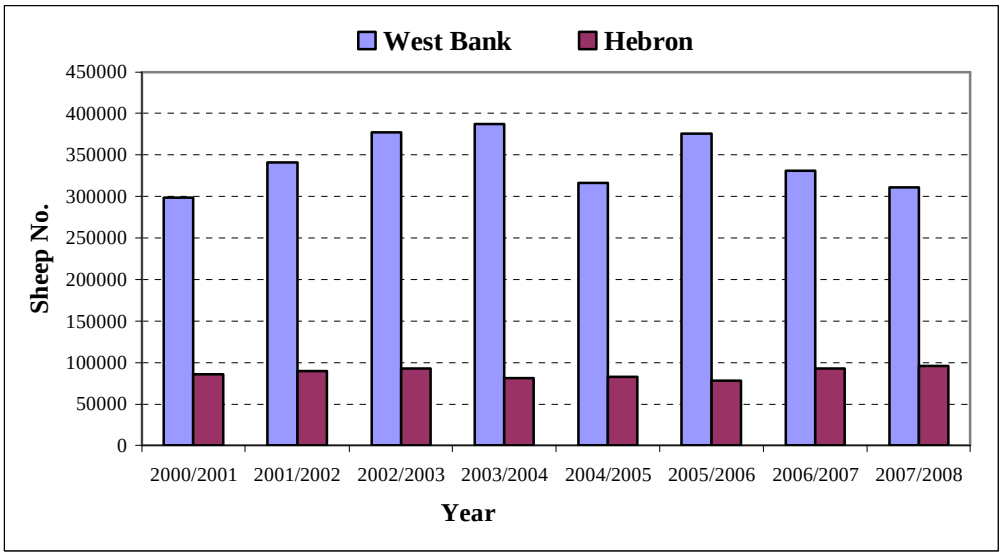

Figure 2: Number of sheep in West Bank and Hebron district

Source: PCBS (2002-2009), Agricultural Statistics (2000/2001–2007/2008).

2.5. History of Bedouin tribes

"Nomads are migrating shepherd people. They have no fixed place of abode. They are the most traditional farming systems keeping livestock. Their predecessors were nomadic hunters who hunted and searched their area for food" (Doppler, 1995).

The migratory lifestyle was a conspicuous feature of different Bedouin tribes in Palestine. The majority of Bedouin tribes in Palestine are based in the dry areas (rangeland), and their main home is the southern West Bank area (Quasmeh 2003). However, rapid changes in tribal life and activities have occurred since 1967 Israeli occupation to the West Bank. Due to the occupation, the rangeland is divided to Military closed areas, Natural reserves and Israeli Settlements. This situation let the migratory movement be restricted within the south and the north of the West Bank. Also after

1987 Intefada, another change happened, where the migratory movements become very difficult (ARIJ 1994).

Bedouins adapted their lifestyle to the new conditions and requirements. They are residence in villages, hamlets, cluster and quarter.

The main Bedouin tribes in West Bank are:

- Arab Al-Jahaleen located to the east of Jerusalem area, Khan al-Ahmar, Jericho and other location.
- Arab Al-ka'abneh (Al-Rowaye'en, Al-Zwaedeen and Al-Frejat) located to the east of Bethlehem, Hebron and Ramallah.
- Arab Al-Saray'a (Hamadeen and Hathaleen) located to the east of Arab Al-Swahera and to the east of Yata.
- Arab Al-Rashayda located to the east of Bethlehem.
- Arab Al-Salamat located to the east of Jerusalem area (Ma'lah Adomien settlement).
- Arab Al- Hanjerh.
- Arab Al-A'zazmeh.
- Arab Al-Ramadeen located to the south of Hebron.
- Other small tribes: Arab Abu-A'abed, Hamdoun, Turkman, Al-Ureinat, Al-Sawarkeh and Al- Amareen (A'arori 2000 and Musa 2001) .

2.6. Characteristics of the rural population

The population is very homogenous in their religion. Almost the whole population belongs to the Arab Sunni Muslims.

The rural population in the West Bank represents 70% of the total population (ARIJ 1994). The percentage of laborers working in villages has shifted from 46.4% to 54% and in the West Bank from 10.1% to 20% during the 1988-1992 period (ARIJ 1994). Livestock production, particularly of sheep and goats, is considered a primary source of income in some villages that located in the less than 400 mm precipitation zone (ARIJ 1994). Farmers in the less than 400 mm zones are based mainly on marginal land for grazing their animals (ARIJ 1994). They are generally more suitable for farming and small ruminants rearing with good commercial relationships with Hebron. About 68% of the members have good opportunities to work in Israel which provides them with high off-farm income (ARIJ 1994). Under these favorable conditions, capital has been accumulated and invested in building and agricultural machinery or sophisticated irrigation systems in the village (ARIJ 1994).

About 90% of the villages are administrated either by village councils or mukhtars. In contrast, about 10% of villages are governed by municipalities, elected locally. Services in these areas are more widely available, especially electricity and water (ARIJ 1994).

2.7. Features of the dry areas

2.7.1. Sedentarization of Bedouin tribes

Until the year 1967, the occupation of West Bank, most of the dry areas were considered to be tribal land. Traditionally tribes used these areas as grazing land for their animal flocks. After 1967 occupation, major dry areas were declared military closed areas and natural reserves. Tribal fixed dwelling were the dynamics behind the establishment of villages and they use some of the formal tribal grazing land for cultivation (ARIJ 1994).

2.7.2. Harsh natural environment

Sheep and goats farming systems in the dry areas are outcome of endogenous and exogenous forces which constitute the systems. The most important natural exogenous forces on the systems include the climate, native pasture vegetation, soil and water resources (Dudeen 2009).

The West Bank climate is of the Mediterranean type with two main seasons, winter and summer; meanwhile spring and autumn are short transitional periods. The summer is from May until October with almost no clouds and marked differences in temperature from day to night. The winter is from December until March with cloudy weather, rain and slight differences in temperature from day to night (Land Research Center – Jerusalem 2002).

Rainfall in the West Bank typically starts in October and ends in April. The total amount of precipitation decreases from the west to the east of the southern West Bank area from 300 mm down to 150 mm, respectively. The effect on agricultural production is a variation of annual rainfall which

increases considerably from west to east. This means the uncertainty of rainfall increases with the decrease in annual average precipitation (Land Research Center – Jerusalem 2002).

Not only the amount of total annual precipitation but also the seasonal and geographical distribution is important for agricultural production (ARIJ 1994).

In summer, the temperature in the West Bank can easily pass 35 C^o, the mean of temperature is 30 C^o. In winter the temperature can fall several degrees, January is the coldest month, and the decrease in temperature starts from November. The mean of temperature is above zero. The temperature has, compared to rainfall, less influence on agricultural production and growth of native pasture (Land research center – Jerusalem 2002).

2.7.2.2. Soil and topography

Based on the study of *Land and Environment in Hebron District* by Land Research Center – Jerusalem, (2002), three principal soil types are found in the area:

Brown Lithosols and Loessial Arid Brown Soils; Brown Lithosols and Loessial Serozems; and Dark Brown Soils.

> These types of soil are located in the southern part of the West Bank in the valley, plains and flat plains. The parent rocks of this soil are chalk, marl, limestone and conglomerate. It consists of sediments (Land Research Center – Jerusalem, 2002).

Four distinctive regions are mainly characterized in the West Bank based on topography: The Jordan Valley Region; the Eastern Slopes Region; the Central Highlands Region; and the Semi-Coastal Region (ARIJ 1994).

2.7.2.3. Water resources

The main source for water in the West Bank is rainfall that supplies wells of ground water, springs and cisterns. Most of the West Bank's natural water resources lie beneath its soil in three aquifers, sometimes collectively known as the "Mountain Aquifer" (Amnesty International 2009 and The World Bank 2009).

The water is not available in sufficient quantities. Most households in the main cities and towns are connected to the public water network in the West Bank. Few villages have water network while most of them rely on cisterns that harvest rainfall or store water transported by tanks. However, in summertime it falls dry in some villages, in these periods; mobile water tanks fill the gap in supply (Janazereh 2007).

The water demands from the growing population and increased number of animals are competing with irrigation for the scarce water resources. However, the sale of this water is often more profitable than any alternative use.

2.8. Land tenure and use

2.8.1. Land tenure

The major part of the land in the West Bank is state land, but the remaining is private land owned by landlords. The land tenure is relatively small (ARIJ 1994).

2.8.2. Land use

Almost all arable land is used for cropping activities. Rainfed agriculture with cultivation of barley, wheat, and lentils prevails (ARIJ 1994). During the last decades olives and almond were cultivated in part of the area. Available grazing land for farmers is very limited in the rangeland of the West Bank. The insecurity of land-use rights reduces land productivity. Another important constraint on the use of land is the Israel ban on cultivation or grazing on the land near the Israeli settlements. The Israeli settlers attack farmers, herders, crops, herds and the family members and they don't allow farmers use their land; also part of the land is considered a military zone by the Israelis (Janazereh 2007 and Dudeen 2009).

The adoption process of agricultural mechanization is out, for some activities like harvesting, as advanced as in other regions. One of the reasons is that a small farm and field size hampers the mechanization process (ARIJ 1994).

The cultivation of barley and wheat is found in depressions where run off water accumulates and soil conditions are better. In slightly higher rainfall areas open plains are also cultivated. Nevertheless, borders between cropland and grazing land are not fixed. Depending mostly on the rainfall pattern of a given year, the area of cultivated land and the availability of pasture land can change considerably (Land Research Center 2000).

2.9 Management of resources

2.9.1. Labour economy

2.9.1.1 Assignment of work to gender

A description of work used in rearing sheep and goats is not a specific system. Men are responsible for the management (ARIJ 1994 and Dudeen 2009). Men carry out buying and selling activities, transportation and external household and family matters. They supervise flock management and do most of the off-farm work. Boys sometimes herd the flocks while girls are assigned to household work and assist in all kinds of farm work done by the women. Female do almost all household work and agricultural hand work such as milking, feeding, milk processing and watering, and these represent more than 90% in dry lands of Palestine (ARIJ 1994 and Dudeen 2009).

2.9.1.2. Employment and unemployment

Information about male employment and unemployment is not available. However, about half of the labor force is working inside their villages, in the West Bank (ARIJ 1994). In some Bedouin communities, sheep and goats husbandry has been supplemented by other activities such as labour in the fields and harvesting particularly in Jericho and in olive production elsewhere in the West Bank, and these have broadened the economic base and given the inhabitants more security (Musa 2001). According to AlQouqa 2006 around 40% of household's labor capacity is utilized on farms while 60% is not utilized.

2.9.1.3. Off-farm activities

Off-farm activities usually stabilize family income and facilitate agricultural production and investment. The total labour capacity spent in off-farm activities is 33% in Israel, and 20% elsewhere in the West Bank (ARIJ 1994). Young and skilled labor are forced under these conditions to seek labor opportunities else where as off activities in Israeli labor market or in other economic sectors (AlQouqa 2006). Reasons for carrying out off-farm activities are:

- the droughts affect on flock size so it cannot sustain a family;
- family has an increased demand for cash;
- capacity of family labour not fully used;
- sheep and goats wages are low compared to off-farm wages;
- instability of sheep and goats income;
- sheep and goats enterprise does not produce enough cash;
- capital for investments is inadequate (Rolf Wachholtz 1996).

The unused labour capacity of the farmers in the dry areas is an important labour reserve for work. High family labour is committed to off-farm activities. A differentiation of off-farm activities in duration, location, kind of work, committed gender and reward is carried out. The percentage of family members committed to off-farm activities is reduced during the 1988-1992 from 42.6% to 33% in Israel (ARIJ 1994).

2.9.2. Management of sheep and goats

2.9.2.1. Flock management and production

The farming systems of sheep and goats are different in herding (control and nutrition), husbandry (growth of herd capital) and marketing techniques. Sheep and goats production is more complex and depends more on management than that of crop production (Musa 2008).

To understand the complexity of sheep and goats production, we must know the relationships with:

- matching fodder supply with feed requirements is a demanding task;
- sheep and goats management affects land productivity in the long run (overgrazing);
- husbandry production decisions have pronounced effects on production in the following years (Dudeen 2009).

2.9.2.1.1. Production and reproduction cycle of sheep and goats

The main production of sheep and goats is meat and milk, contributing around 71% of milk production in the West Bank and more than 85% of red meat production (Musa 2001). Fertility is the percentage of breeding females that give birth per flock. The potential meat production is characterized by the productivity of the breeding females (weaned young per breeding females of flock). The main milk production for sheep and goats occurs between March and June (Bsharat 2005).

The reproduction cycle of sheep and goats is the primary mating time in August – October and gestation of five months. January – March is the main

lambing time (Bsharat 2005). The majority of males are fattened; just only a few are kept for breeding purposes (Bsharat 2005 and Dudeen 2009).

The changing diet due to the season is the reason why the annual reproductive cycle of the ewes matches the annual growth and harvest cycles of range and crop lands. The hand feeding of feed-stuffs includes the period of late pregnancy and early lactation of the sheep and goats, periods with the highest nutrient requirements (winter and spring). The small quantity of green fodder grazed provides the animals with some vitamins that are missing in the hand-fed feed-stuffs (Bsharat 2005 and Mustafa 2003). In view of the high costs of this period and its importance for the productivity of the flock, a correct balance of rations should increase the efficiency of feed use and improve the performance of the flock. A vital contribution to the intake of minerals and vitamins in the later phase of lactation is obtained from the native vegetation. The animals generally mate in summer when they are grazing cereal stubble. During the mating period they can be subjected to wide fluctuations in nutrient intake, through grazing down the stubble as animals entering a new field will first select any fallen grain heads and leaves before eating the cereal stems. In the period of early pregnancy, nutrition requirements are relatively low and grazing of cereal stubble and crop residues can suffice (Mustafa 2003).

Dudeen (2009) found that the herders pay too little attention to animal health; they rarely spend money on veterinary medicine.

2.9.2.1.2. Herd size development

Weather conditions for different years have an effect on sheep and goats resources which impact flock size development (Table 3)

Table 3: Change of flock size over a period of different years (2002/2003 – 2006/2007) in the West Bank and Gaza Strip.

Variable	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007
Number of sheep	828,678	811,864	803,165	793,872	744,764
Number of goats	392,122	398,321	371,198	387,123	343,565
Total	1,220,800	1,210,185	1,174,363	1,180,995	1,088,329

Source: PCBS (2004 - 2008), Agricultural Statistics

Important variables determining herd growth are reproduction rate, mortality and off-take all of which are related to the feed supply of the flock, and hence to weather conditions (Musa 2008). Under bad climatic conditions, native vegetation and crop residues are low and thus reproduction rates decreased, with off-take and mortality high 20% (UAWC 2008). Bad climatic years force sheep and goats owners to purchase supplementary feed and crop residues. The need for such inputs increases cash needs and with it off-take. Animal diets in bad climatic years are reduced in quality and quantity, with a negative influence on reproduction rates and mortality. Droughts aggravate this situation. Changes in age structure, through insufficient replacement of old breeding animals, and animal weight loss are consequences which have negative effects on the reproduction rate in the following years (UAWC 2008).

2.9.2.2. Sheep and goats feed sources and diets

Animal feeds make up, by far, the highest percentage of sheep and goats production costs, from 60% to 70% (Bsharat 2005). This was not the case forty years ago when cost-free rangeland was the main feed resource for sheep and goats. The increasing numbers of sheep and goats, the overgrazing of the rangeland surface, and the reduction of quality and quantity of native vegetation per unit land have led to the present circumstances (Salama and Aljoaba 2008).

2.9.2.2.1 Feed- stuffs

The use of different kinds of feed-stuffs depends principally on their availability and price. For energy supply and structure the most important hand-fed feed-stuffs, in terms of percentage of the total yearly diet of animals, were barley grain, straw, maize and wheat bran (Musa 2008).

2.9.2.2.2. Crop residues and immature crops

Crop residues, immature crops, forage crops and fodder shrubs are the minor feed source for sheep and goats in the West Bank. The animal diet is composed of such feed sources for several months of the year. The majority of these feed resources are not located in the dry areas of the West Bank. Cereal stubble is mainly grazed while other crop residues are found in irrigated areas of the West Bank.

Cultivation of forage crops like vetch or Lucerne was not used. The main reason for not cultivating fodder crops is the low rainfall in the area of the sheep and goats farming systems in the West Bank (Dudeen 2009).

2.9.2.2.3. Feeding and grazing calendar

Managing sheep and goats nutrition, including watering of sheep and goats, is the most complex task in all the sheep and goats farming systems. Purchases of fodder and water are among the highest input costs. Information on diets is a key to analysis of the sheep and goats production system. Information on diets is the identification of dietary feed-sources used and their proportions in the diet (Manasrah 2008). Differences in the yearly animal diet are obvious when feed components are aggregated into three groups; hand-feed feeds, native vegetation and crop residues. Animals graze crop residues particularly and cereal stubble, in summer during June, July and sometime August. Animals depend almost totally upon hand-fed feeds at least for seven months. Only in February, March and sometime in April does the grazing native pasture provide significant proportions of animal's diets (Al-Seikh 2006, and Mohammad 2005).

2.10. Purposes of rearing sheep and goats

In the past it was common for Bedouins to rear sheep and goats for multiple purposes. The multifunctionality of sheep and goats was the backbone of the subsistence systems. Apart from meat, milk, wool, hair and skins, sheep and goats was an unstable resource, provided the herders with dung and had a vital asset and security, as well as, socio-cultural function. Over the last decades however, the importance of sheep and goats and their outputs, have

generally about 45% of the livestock production in the West Bank and Gaza Strip (PCBS 2003).

At present, the sheep and goats products are marketed in order to obtain cash income and for the subsistence demand of the families. Sheep and goats products which are utilized for sale and those used for subsistence purpose are both summarized in the output function. Cash earning outputs comprise mainly live sheep and goats, milk and milk products. Meat from small sheep and goats is rarely consumed by the owner's families. For most of the year, sheep and goats products supplement only a small part of the common owner's food diet of grain, vegetables, tea and sugar. Only in spring, do milk, milk products and meat contribute significantly to the human diet (Rolf Wachholtz 1996).

Sheep and goats products are often temporarily utilized in production process and, therefore, fulfill an input function. Herd offspring are retained in the flock and contribute to the herd growth. Herd growth contributes to sheep and goats assets and the security of the family. Milk suckled by the lambs and dung have an input function (Rolf Wachholtz 1996).

Apart from the output and input functions, sheep and goats fulfill a very important capital and security function. Small ruminants are a relatively safe and resistant form of storing wealth, and are readily disposable and convertible into cash. Small ruminants are relatively drought resistant and represent small units of trade. It is a type of private property with benefits in the form of offspring and their products (Rolf Wachholtz 1996).

Sheep and goats can be an investment which remains under the complete control of the owner and is therefore seen as a more reliable store of wealth than other alternative like a bank account. Under erratic conditions the

investment in sheep and goats is very pragmatic. The demand for cash can be relatively easily satisfied by the sale of animals, but with the disadvantage of the loss of future benefits from the animals (Rolf Wachholtz 1996).

2.11. Migration and interrelationship of sheep and goats systems

In the past, seasonal migration was one of the most striking of the sheep and goats farming system. The main reason for the seasonal migration in the past was the need for feed for the sheep and goats flock over the year. The mobility of the families was an adaptation to the ecological realities of Palestine. The availability of feed for sheep and goats varies from season to season throughout the year and the mobility of the sheep and goats owners families help them respond to this. Such a mobile (nomadic) system allows the land resources of rangeland to be used and, indeed, it was the only way in which they can be used. The owners thus give rangeland resources an economic value. The disadvantages of seasonal migration for the families were often seen in their relatively low living conditions, missing infrastructure and discontinuity of their social and farming activities (A'arori 2000).

Since the Israeli occupation to West Bank in 1967, the general seasonal migration pattern of sheep and goats owner families, with and without cropping activities, has been as follow: At the end of April, when the native vegetation of the rangeland begins to dry up, the summer migration begins. Families move into north of the West Bank, to Jenin District which is a higher rainfall area in order to assist in harvesting and let their sheep and goats graze stubble. Their own farm land is used as a fodder source as long

as possible with their own flocks. First, stubble and crop residues from the winter crops on rainfed land are grazed and later those from summer crops and irrigated land. The manure of the sheep leave on the land, and gifts of animals or animal products, is often the only consideration from the side of the herders. In autumn, from September to November, sheep and goats owner families move with the first rain into the Jordan Valley in order to graze stubble and crop residues from the winter crops from irrigated land (Musa 2001). Some members of sheep and goats owner families move with the first rain into the drier rangeland areas. They cultivate their farm land. Native vegetation from the previous year and new growth are grazing sources sufficient to support the flock through the spring. The sheep and goats owner's families and their flocks move by transport as mentioned by Mukhtars of Arab Al-Najajdeh.

Over the years, there have been changes in the major circumstances which influenced the seasonal migration of the sheep and goats farming systems:

- political situation in the West Bank;
- reduction of the rangeland surface in the dry areas (per unit animal);
- deterioration of the quality of the dry rangeland;
- surface of rainfed farming increased and with it feed resources;
- cash money is now paid for grazing crop residues;
- increased Sedentarization of population in the dry areas;
- numbers of sheep and goats drastically increased.

These changes of circumstances had important impacts on the seasonal migration of the sheep and goats farming systems (A'arori 2000 and Dudeen 2009).

In the last decade, the seasonal migration of the sheep and goats farming systems was in the same area. They moved the flock from the east part to west part of the same area or from the village to the hamlet (kherpa) (A'arori 2000).

2.12. Economic assessment of sheep and goats farming systems

The efficiency of the allocation of the sheep and goats farming systems is evaluated through an economic analysis in which different levels of the family-farm household system are studied in Palestine by Abdul-Hamid Musa (2001). On the production level, a gross margin calculation is usually used to separately assess enterprise performance. On the family level the analysis includes family income, liquidity, and consumption by the household. Given the market orientation of these sheep and goats farming systems, market regulates and promotes their economic progress. Of particular interest are markets for sheep and goats, sheep and goats products and feed-stuffs (Dudeen 2009 and Horizon 2009).

2.12.1. 1 Sheep and goats production

The main revenue from the sheep and goats production unit is generated by lamb and kid production (off-spring) and milk or milk products. The revenue from lamb and kid production is the main determining factor for the gross margins of sheep and goats enterprises. The most important parameters for assessing the success of the breeding female sheep or goat is

the productivity rate, the weight of the lambs or kids sold the milk off-take and the market prices for these products (UAWC 2008 and Horizon 2009).

The main cost factors in the husbandry of sheep and goats are the feeding costs; these represent more than 70%. The replacement cost of a breeding ewe or doe and the mortality cost are variable cost factor ranked second. The minor costs are water consumption, veterinary, shepherd and transportation (UAWC 2008).

2.12.1.2. Milk processing

A gross margin calculation is carried out by Quasmeh, (2003), for the activity of transforming milk into cheese, yoghurt, jamid, and clarified butter (Arabic butter or ghee).

The origin of the milk is mainly from sheep but is mixed with some from goats. The revenue is determined by the quantity of cheese, jamid, and Arabic butter, and their respective prices. The price for high quality Arabic butter and jamid is used. The main variable cost is the forgone opportunity to sell milk. Other costs, for salt, enzymes, energy and transport, are very minor. The main benefit in the production of yoghurt is seen in the fact that it can be kept longer than milk.

2.13. Economics of the family-farm household system

Very little is known about the economic features at the level of the family in sheep and goats farming systems.

To attempts the economic features to assess farm, off-farm and family income and to tackle liquidity, these economic features illuminate in an

aggregated way the reliability of sheep and goats and the standard of living in systems. The analysis displays the contributions of different farm production and off-farm activities to the total family income. It also demonstrates the constraints of liquidity. It is assumed that these economic features have strong influences on farm management and family consumption. The information on economic features and their relevance to other family-farm household variables is a basis for evaluating future interventions for improving the livelihood of sheep and goats owner's families. In this respect not only are the absolute figures of interest, but also the differences in economic parameters among the sheep and goats farming systems.

The main economic features of Bedouin in Palestine depended on sheep and goats, 42% of the Bedouins family depends on rearing sheep and goats as the only resource, 23% of the Bedouins family depends on rearing sheep and goats as the main resource and 35% of the Bedouins family depends on rearing sheep and goats as a secondary resource (Quasmeh, 2003).

Farm income is generated by the farming activities: crop and livestock activities, while the off-farm income is generated from other private business rather than farming (Al-assaf, 2009).

2.14. Market system

The income of the owners generated from sales is a function of efficiency of the market system. The more efficient the markets work, the higher level of off-take of farm production will be. Market prices heavily influence the production systems of the owners. The interrelations of sheep and goats owners and market systems lead to the certainty that markets have a strong impact on owners systems. For better understanding of this impact, general

information about the relevant market system must be obtained. The description of market locations and conditions, in the next section, focuses on sheep and goats and feed markets which are of high relevance to the owners systems, indicating both important opportunities and constraints.

2.14.1. Market locations and conditions

The description of market locations and conditions is restricted to the most frequent input and output markets. The provincial market of these trade volumes of livestock, livestock products and feed-stuffs are by far the main trading centers (Rolf Wachholtz 1996).

The sheep and goats and feed-stuff markets are linked. The marketing places are located in the center of province. Food, household items, clothing, etc., needed by sheep and goats owner's families are also available in this market. The market locations are far from the sheep and goats farming locations and the difficulty in reaching the market makes some difficulty and constraints (Quasmeh, 2003).

2.14.2. Marketing of sheep and goats and their products

Seasonal marketing due to seasonal production, along with seasonal liquidity constraints and dependencies on money lenders, which determines sheep and goats sales by the owners. The marketing of sheep and goats and their products is generally not the result of any interventions. The effects of price fluctuations on sheep and goats marketing activities due to an increased demand during Islamic holidays are surprisingly high. In Palestine farmers sell sheep and goats at the local market, while others sell directly at gate farm or to moving traders. Cheese and milk are sold to

small privet dairy shops or to consumers (Quasmeh, 2003 and Horizon 2009).

2.14.3. Market cycle of sheep and goats

The sale of sheep and goats is closely related to rainfall conditions, and consequently to the availability of native vegetation. In a bad year, when rainfall is poor, the costs of feed-stuffs rise. Increasing expenditures for feed-stuffs have to be counterbalanced by the sale of sheep and goats. In a progressive drought, sheep and goats prices will fall and prices for feed-stuffs, stubble and other crop residues will increase drastically. The quantity of feed obtained for the price of sheep and goats will grow smaller and smaller as the terms of trade worsen for the owners. In Palestine and according to the agricultural departments the flock owners, in order to feed the rest of the flock, could be forced to sell off more than 30% of their flock capital during a dry year. In a good year, with plenty of native vegetation, stubble and other palatable crop residues, cash needs for feed are low. Also a good year gives the owners the opportunity to rebuild their flock. Sheep and goats will be held from sale, and the decreasing supply will increase sheep and goats prices. Fluctuating input and output prices represent difficult production conditions and is, apart from the fluctuation of feed availability, another production risk for the owners. Variability of feed-stuff resources, due to fluctuating rainfall, thus is an important determinant for the annual market cycle (Quasmeh, 2003).

2.15. Infrastructure and agricultural institutions

The infrastructure in the towns and villages is far better developed than in the hamlets and clusters. All-weather paved roads connect the towns and villages, electricity is supplied, schools are found in majority of towns and villages, portable water by water network and regular transportation services are now widely available. Also health centers are exist in the towns and villages. In the hamlets and clusters there is no supply of electricity, no schools, potable water has to be transported from a long distance and regular transportation services do not exist. For medical treatment or consultancy, several hours of rough driving to regional towns are necessary (Janazereh 2007).

All important markets are located outside the area of villages, hamlets, and clusters. However, shops supplying household requirements especially in the towns, petrol stations and traders of all kind of goods and agricultural commodities play a vital role throughout the whole villages, hamlets, and clusters (Janazereh 2007).

Agricultural and veterinary services are established in the towns. In most cases farmers have to come to the service center to describe problems, or bring their animals for vaccinations or health checks. It is worth mentioning that a few years ago, supported by NGOs projects, agricultural services were functioning and mobile veterinary and health services existed for limited period. The situation of sheep and goats husbandry are very difficult (Janazereh 2007).

3. Methodology

3.1. Farming Systems Approach

Little is known about Bedouin farming systems in the marginal areas of Palestine. A system is understood to be an entity composed of individual elements which are related to one another in some way (Doppler, 1995). The farming system approach provides a tool for a holistic analysis of the family farm household system in its natural social and administrative environment. This approach allows an understanding of systems from different points of view. The study deals with the sheep and goats farming systems situation through appreciation of the production system, the farm-household interactions, and the environmental variables which influence the farmer. It focuses on the problems of the farm families, including their perception.

3.2. Study area

3.2.1. Distinction of the study area

The study area for small ruminant (sheep and goats) farming systems research was selected from the marginal zones and the adjacent steppe rangeland (Figure 1). The southern Hebron district area is located between the latitudes 31^{o}20''00 north to 31^{o}30''00 north and longitude 34^{o}50''00 east to 35^{o}20''00 east of Palestine. It consists of dry rainfed farming areas and mountains. The dry rainfed farming areas are regarded as marginal zones. The marginal zone is planted mainly by barley in the South-Eastern of Hebron and Bethlehem Districts, and it is known as the pasture areas. The rainfall is isohyets between 200-300 mm. In the study area the average temperature in summer is 30^{o} C, and in winter it is above zero (Land Research Center 2000).

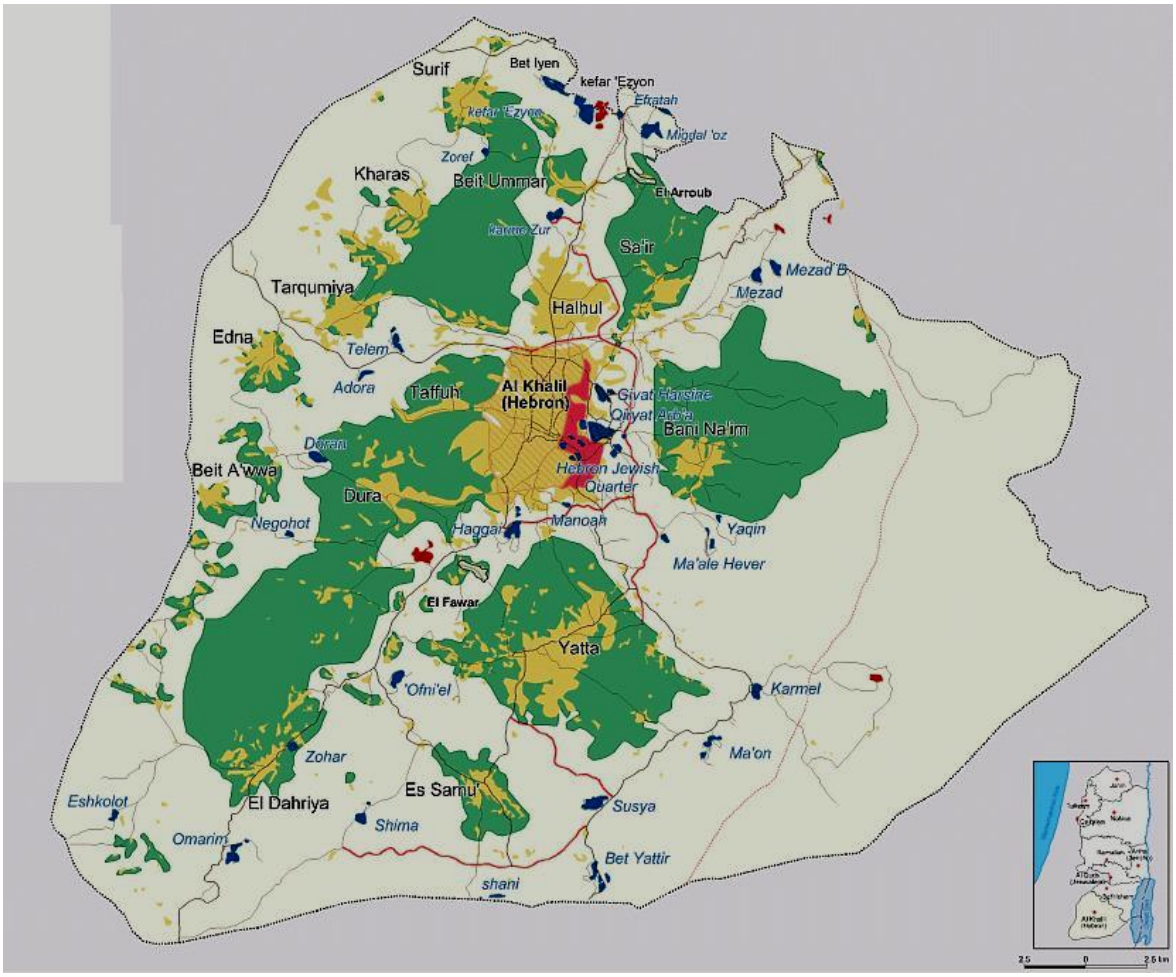

Figure 3: Map of Hebron district

3.2.2. Study area for small ruminant farming systems

The study area for small ruminant (sheep and goats) farming systems research was selected from the marginal zones. More than 25% of sheep and goats of West Bank are in Hebron district (figure 1 & 2) (PCBS 2006), and more than 50% of sheep and goats of Hebron district are concentrated in the study area (figure 4 & 5) (Agricultural Departments of Hebron 2006).

The sites of the study that were selected at southern Hebron district extends from Al Dahriya, Al Samu', to Yatta (Figure 1). The selected study area fulfils the following criteria:

- the mean annual rainfall ranging from 200 to 300 mm. The annual rainfall pattern is highly erratic;
- small ruminant (sheep and goats) and cereal production are the most important farm activities;
- production resources of farmer families differ in quantity, combination and management;
- small ruminant production is the most important farming activity of the farmer families. No cropping activities are done on the winter base land or elsewhere;

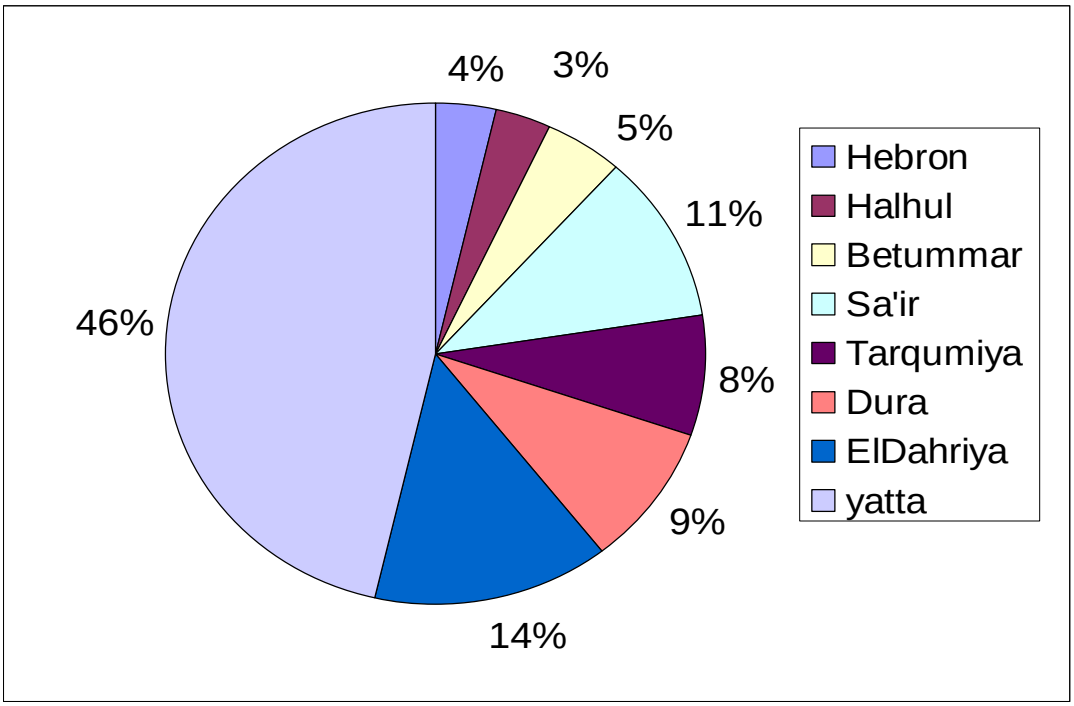

Figure 4 : Percentage of sheep distribution at Hebron District

Source: Agricultural Department of Hebron, 2006.

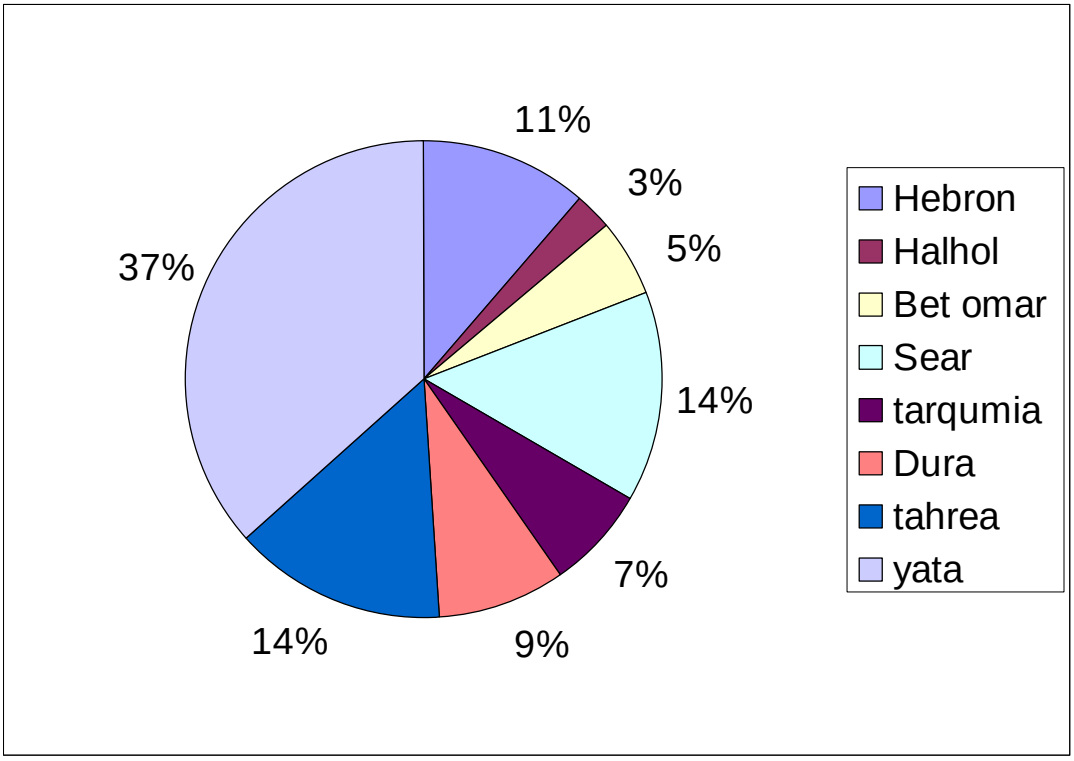

Figure 5: Percentage of goats' distribution at Hebron District

Source: Agricultural Departments of Hebron 2006.

3.3 Survey and collection of information

3.3.1 Informal survey

The information about sheep and goats farming systems was obtained from several national and international institutions, including Hebron University, Palestinian Ministry of Agriculture, Agricultural Departments of Hebron, Veterinary Departments of Hebron, Palestinian Central Bureau of Statistics and Arab Studies Society.

The collection of data was based on a field survey and the complementary collection of secondary information. The use of secondary information covered sheep and goats and general statistics on the national level. The

information about farming systems that was obtained at the institutions and from short visits to farmer in the selected area was often in sharp contrast. An informal survey was carried out in order to get a better understanding of the systems before the final design for the formal survey was decided. This also helped with the interpretation of the collected information.

The objective of the informal survey was to understand the farmer, their perceptions and their behavior, their base and management of resources, constraint and opportunities of production and their environment so the following formal surveys would have a better design.

3.3.2. Formal survey

For the collection of empirical data, questionnaires were used. All questionnaires employed for the formal survey are summarized. Before submitting a questionnaire, a pre-test was carried out. During survey, men generally were the key informants. Men represent the outward face of the family. Men deal with the state administration and do most of the selling and purchasing for the families and the farm.

* Farmer families in the study areas

The formal survey covers the farmer families. The survey done in the year 2006, and it includes questions covered the time period of the agricultural years 2003, 2004, and 2005. In order to get an idea about historical developments of production resources, questions covered a time period frame. The following main topics were surveyed:

- General information of owner and his household;
- Production resources: human, land, and animal;

- Management of production resources;
- Market relations;
- Annual family income and expenses;
- Standard of living;
- Natural and institutional environment;

* Markets:

The survey questionnaire covered the relation ship between farmer and market. It includes feed-stuffs, milk and milk-products, livestock, retailers and tailors. Detailed questions were asked about prices of inputs, outputs for the year 2006.

Main aspects of the questionnaires were:

- function, organization and evaluation of the markets;
- traded items, prices, quantity and profit margin;
- marketing channels;

* Towns, villages, hamlets, clusters:

Town, village, hamlet, cluster conditions do shape farmer farming systems. The survey was conducted in each location.

The survey focused on the following aspects:

- general information;
- the family social status;
- history and reason for stability;
- living conditions in the location;
- yearly migration pattern;
- the family income resources.

3.4. Sample of the study

The survey covered 170 sheep and goat owners who were selected randomly from the study area. However 12 of them were excluded.
This sample represents 20% of the owners in the study area.
The sheep and goats owner are defined in type of animal holding as: the presence of animals controlled by the holder (owner), the holder should have at least five heads of sheep or goats (PCBS 2005).
The population of sheep and goats in the Southern Hebron District is 13% of sheep and goats in West Bank. The sample percentage of sheep and goats of Hebron District is 10%. The sample percentage of sheep and goats in the study area represents 17.5% of the total in WB.

3.5. Primary information base and stages of information collection of the study

The sequence of information collection is given in Figure (6). The collection of primary data was based on consulting several national and international institutions, in addition to village visits and literature review. The findings of reconnaissance phase provided the basis for the selection of the study area.
Information about sheep and goats farming systems of Palestine which allows statistical inference was not available at the beginning of this study. This study is based on original survey data collected. Most of the empirical data rely on informant's replies to survey questions. Only in a few cases did records from farmer's notebooks serve as data sources. Memory and choice of answers of the informants could have biased the information but it is the most relevant data base possible for such a study. Nevertheless, a

relative accuracy and close to reality is presumed. The presumption is based on the following points:

- random selection of locations and farmers;
- confident and friendly relationships were maintained with the sample and farmer;
- observations and experience gained from field work improved the interpretation of empirical data;
- cross-checking questions during and between the survey of sheep and goats farming systems;
- market survey, survey on interaction between sheep and goats farming systems and the village, site, and tent group survey were additional information sources about sheep and goats farming systems.

However, the aim of the study is not necessarily to present absolute values of principal variables about sheep and goats farming systems, it may reveal relative differences, developments and potentials of key-variables among different sheep and goats farming systems. The editing of this study is the final report of the thesis.

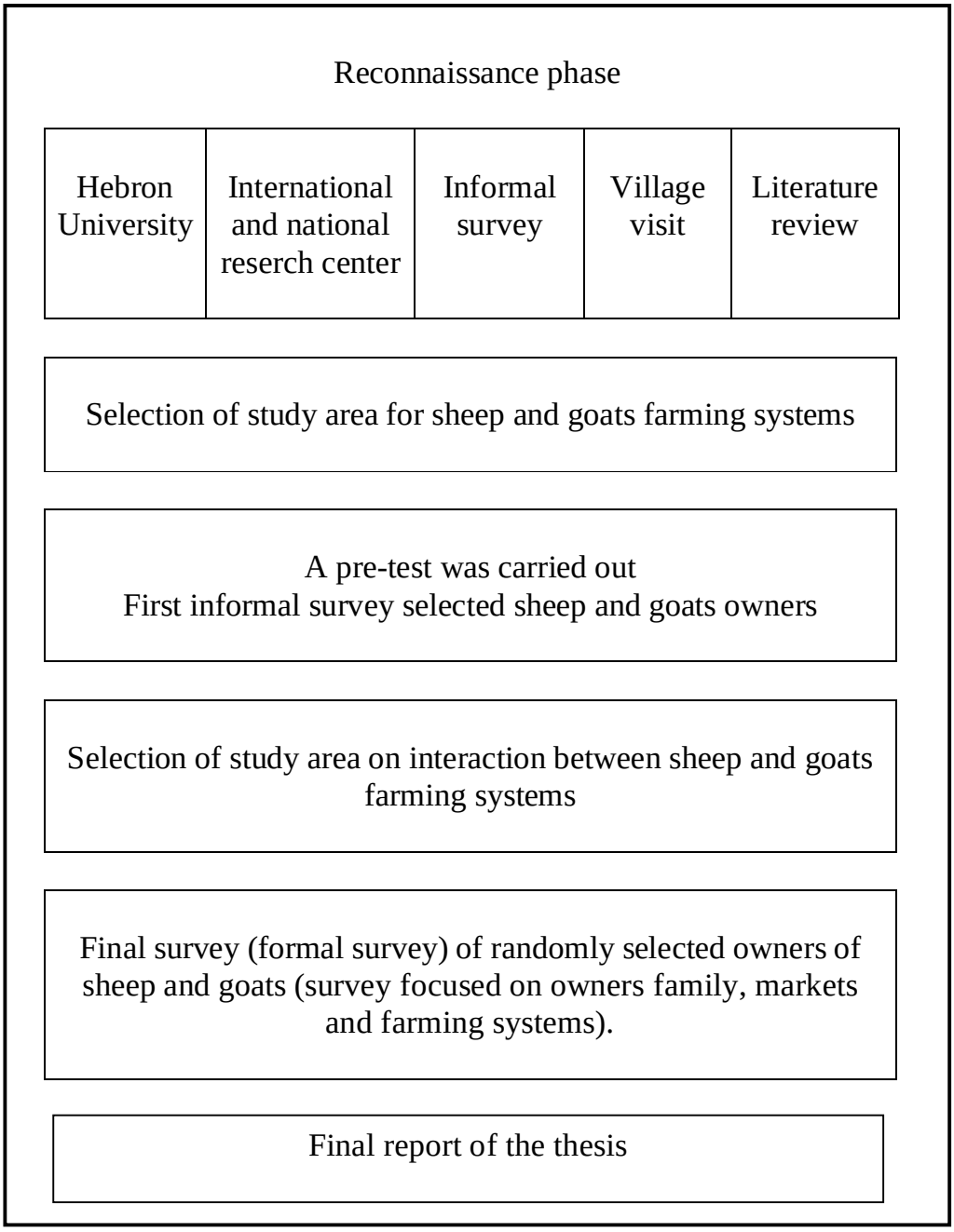

Figure 6: Stages of information collection of the study.

3.6. Data collection

The questionnaire filled in the year 2006 and it includes questions covered the time period of the agricultural years 2003, 2004, 2005. The questionnaire filled in different ways:

- by researcher visiting and interview the sheep and goats owners in the study area in different locations.
- by researcher visiting and interview the sheep and goats owners in the dairy shops.
- by volunteers and friends visiting and interview the sheep and goats owners in the study area in different locations.

The questionnaires were filled by the researcher, the volunteers, the friends and some of the questionnaires were filled by the sheep and goats owners.

3.7 Data processing

The sequence of the data entry and management followed the sequence of its collection. The data was fed to computer and analyzed by the researcher. In this way, the data entry errors checked, by comparing the information entered in the personal computer with the information of the questionnaires was done. Instead of replacing missing data or outliers for a few records and variables, the records were excluded from the analysis.

The economic analysis of the sheep and goats farming systems is based on gross margin analysis of the main enterprises, family income and cash flow calculation. Descriptive statistics, such as the calculation of arithmetic means, standard deviations and percentages, were also employed. For the data analysis the software SPSS Data Editor (Version 15.0, 2006) was used.

4. Results

4.1. Resources of sheep and goats farming systems

4.1.1 Human resources

4.1.1.1. Family size

The average family size for the sheep and goats farming systems is 12.39 family members (Table 4). The average females per family is 5.59, represent 45% and the average of males per family is 6.89, represent 55%.

Table 4: Demographic features of sheep and goats farming systems at the southern Hebron District.

N = 158	Mean	Std. Deviation
Family size (persons)	12.39	6.389
Females per family	5.59	3.320
Males per family	6.89	3.869

4.1.1.2. Family member age

The survey data revealed that more than 63% of the family members are less than 15 years old (the age of family members less than ten years represent 32% and the ages between eleven to fifteen years represent 31%) (Figure 7).

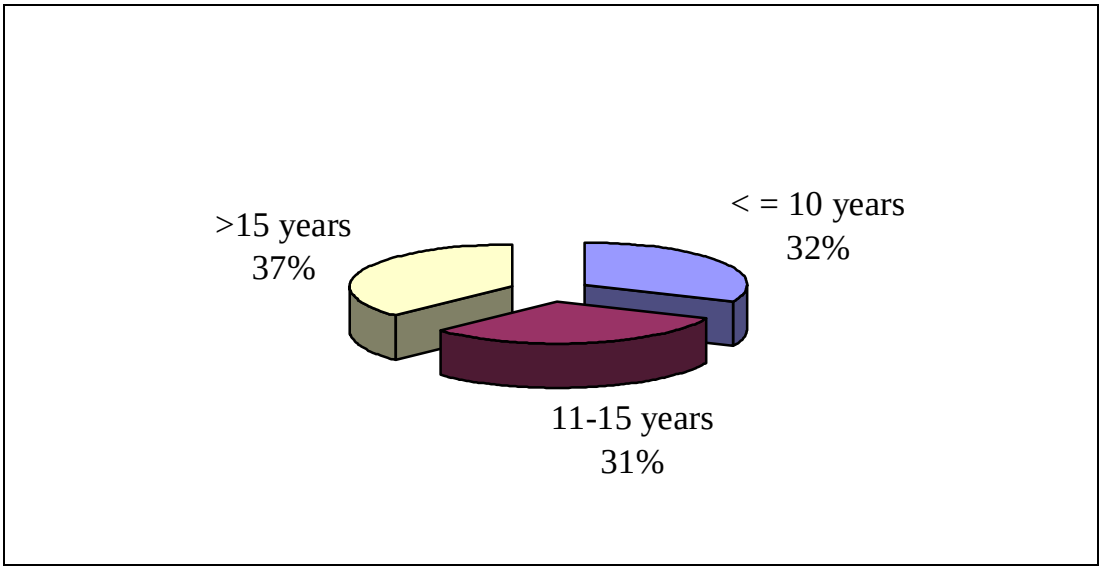

Figure 7: Family member age at the southern Hebron District.

The data show that only 3.4% of the owners are 29 years old or less (Table 5). The percentage of the other age groups of the owners (30-39, 40-49, 50-59, >=60 years) are varies a little. It is similar; it fluctuates between 23.1% to 25.2% of the owners age (Table 5).

Table 5: Sheep and goats owner's age at the southern Hebron district

Age groups	Percent	Cumulative Percent
<=29	3.4	3.4
30-39	24.5	27.9
40-49	23.1	51.0
50-59	25.2	76.2
>=60	23.8	100.0
Total	100.0	

4.1.1.3. Owners main profession

The highest percent of main profession for the sheep and goats owners is farming (plants production and animal husbandry). It represents 58.2% of the sample. This followed by workers which represent 21.5% and then government employees that represent 12% (Table 6). The other professions are low in percent.

Table 6: Sheep and goats owner's main profession at the southern Hebron district

Main profession	Frequency	Percent
Worker	34	21.5
Governmental employee	19	12.0
Privet sector employee	2	1.3
Farmer	92	58.2
Self-employee	1	.6
Unemployed	7	4.4
Retired	2	1.3
Other	1	.6
Total	158	100.0

4.1.1.4. Education

In regard to the education of the owners, there is a large difference in the percentage between the educations of level groups. The highest percentage of education is the elementary level 32.9% (Table 8). Nearly 24.7% of the

owners are either illiterate or can read and write. The percentage of higher education level represents 15.2% of the owners (Table 7).

Table 7: Sheep and goats owners' educational level at the southern Hebron district

Education Level	(%)
Illiterate/ Can Read and Write	24.7
Elementary	32.9
Preparatory	20.9
Secondary	6.3
Intermediate Diploma	3.8
Under-graduate	11.4
Total	100.0

4.1.1.5. Social status

In regard to the social status of household members 50% of family members are student (Figure 8). The worker household members' (labour in the area, or in West Bank, or in Israel) represents 20% of the family members.

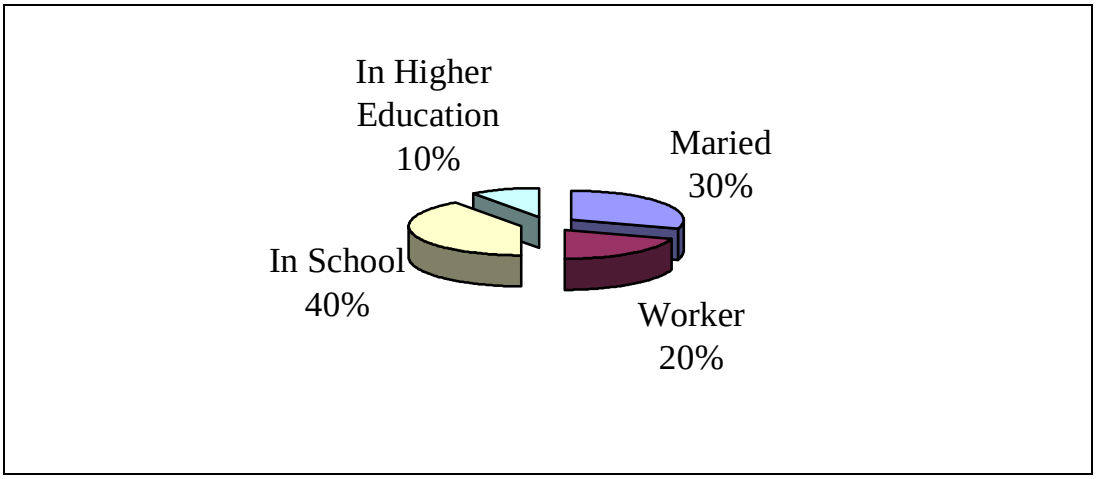

Figure 8: Social status of household members' structure at the southern Hebron district.

4.1.2 Livestock resources

4.1.2.1. Flock size

The average flock size of sheep in the agricultural year 2003, 2004, 2005 and 2006 was 118, 121, 123 and 145 heads, while the average flock size of goats was 60, 64, 68 and 68 heads, respectively (Table 8).

Table 8: The average flock size of sheep and goats structure in the southern Hebron district.

Years	Sheep	Goats
2003	118	60
2004	121	64
2005	123	68
2006	145	68

The flock structure which consists of only sheep forms 45%. However, that consist of only goats is 13% and that have both is 42%, (Figure 9).

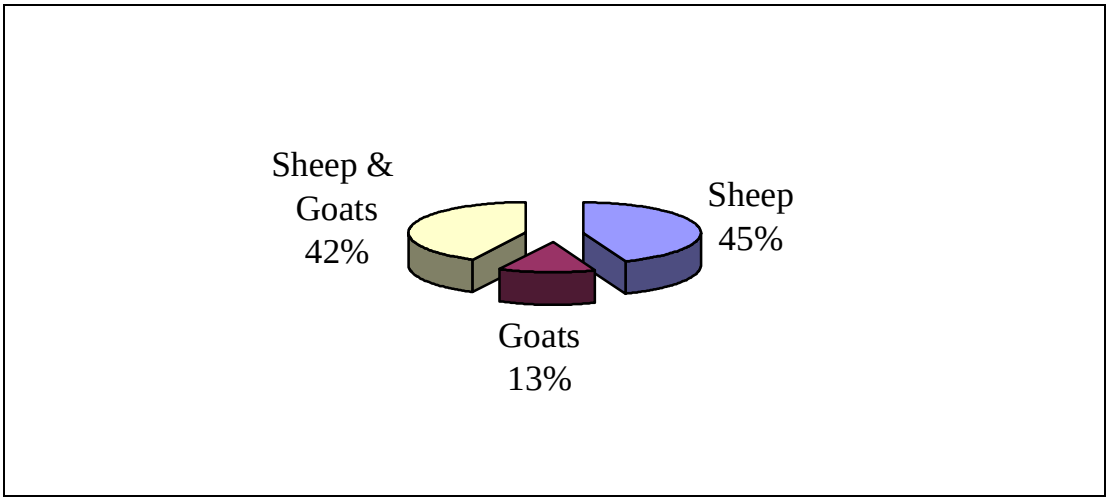

Figure 9: The flock structure in the southern Hebron district.

4.1.2.2. Flock species

The most commonly kept sheep species is the local Awassi breed that represents (55.4%), Assaf breed (17.8%) and cross breed sheep (26.8%). The most commonly kept goats species is the Local Baladi (78.4%), Shami (7.3%) and cross breed goats (14.3%), (Table 9).

Table 9: The flock species percentage at the southern Hebron district

Sheep		Goats	
Breed	Percent	Breed	Percent
Awassi	55.4%	Local Baladi	78.4%
Assaf	17.8%	Shami	7.3%
Cross breed	26.8%	Cross breed	14.3%

4.1.2.3 Flock years owned by the owners (herder)

The percent of owners who have owned the flock for twenty years or less is 57.3% (Table 10). The percent of owners who have owned the flock for other group level of years varies from 4.4% to 14%.

Table 10: Flock years owned by the owners (herder) at the southern Hebron district

Years	Percent
< = 10	27.2
11 to 20	30.1
21 to 30	14.0
31 to 40	8.8
41 to 50	9.6
51 to 60	5.9
> 60	4.4
Total	100.0

4.1.2.4. Other livestock resource

Poultry is a minor livestock resource in the study area. The majority of farmers keep little number of chickens' for meat and eggs, mainly for home consumption purposes. Some farmers keep donkeys for flock herding purposes.

4.1.3. Land resources

The amount of rangeland with access or grazing rights are distributed as the following: 37% owned by families, 24% owned by tribal families, 3% mery land, 17% special owned for others and 19% rented land (Figure 10).

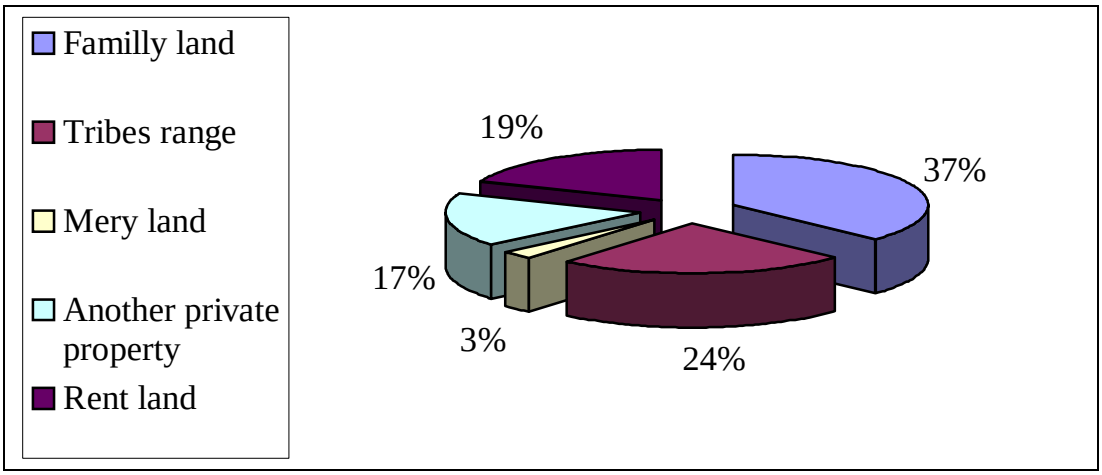

Figure 10: Pasture Land owners at the southern Hebron district.

The majority of land is cultivated by cereals, such as wheat and barley, some land is cultivated by olive trees, and some other land is cultivated by stone fruit trees (almond).

4.2. Management of resources

4.2.1. Labour

4.2.1.1. Assignment of works to gender and age groups

Our study found that the milking and milk processing activity done mainly by females (74% and 93.5%, respectively), (Table 11). The activity of

watering, pasturing and giving veterinary drugs done mainly by male (79.1%, 97.4% and 98.7% respectively) (Table 11).

Table 11: The percent of main activity done at the southern Hebron district

Activity	**Male %**	**Female %**	**Both gender %**
Milking	13.3	74	12.7
Feeding	64.6	13.3	22.1
Milk processing	3.9	93.5	2.6
Watering	79.1	13.3	7.6
Pasturing	97.4	1.3	1.3
Giving veterinary drugs	98.7	1.3	0.0

4.2.1.2. Assignment of works according to age groups

From the main activities which mentioned above, 43% done by family members who are less than fifteen years old, and 57% done by family members older than fifteen years.

4.2.1.3. Labour hiring

In all sheep and goats farming systems the labour capacity of men is apparently not fully utilized. Male labour capacity is available in surplus; shepherds are traditionally hired in a few cases (around 2%). Some of them are hired only seasonal, mostly in spring and summer. More relevant is the fact that rearing sheep and goats, particularly in the study area, is less mechanized than any other agricultural aspects.

The hiring of shepherds corollary positively with the total number of sheep or goats in the family operation. The monthly salaries for shepherds range between 2000 and 2500 NIS.

4.2.1.4. Off-farm activities

The average number of family members committed to off-farm activities has been decreasing in the last few years.

In the study we found that 30% of the family members committed to off-farm activities.

4.2.2. Management of sheep and goats

4.2.2.1. Production and reproduction cycle of sheep and goats

The flocks of sheep and goats are kept for multi-purpose production, such as meat, milk and wool or hair. The number of sheep and goats has been fluctuating over the years. The main production of sheep and goats is meat and milk in the study area. The main milk production for sheep and goats occurs between February and June.

The reproduction cycle of sheep and goats are started in July / August which is the primary mating time, and gestation of five months. December / January is the main lambing time. The sheep and goats owners in the study area reported that the mortality rates for lambs born in the cold period is much lower than in warmer periods, and lambs born at warmer periods are more susceptible to diseases. The majority of males are fattened, only a few are kept for breeding purposes.

The changing diet due to the season is the reason why the annual reproductive cycle of the ewes matches the annual growth and harvest cycles of range and crop lands. The hand feeding of feed-stuffs includes the period of late pregnancy and early lactation of the sheep and goats, periods with the highest nutrient requirements (winter and spring). The small quantity of green fodder grazed provides the animals with some vitamins that are missing in the hand-fed feed-stuffs. In view of the high costs of this period and its importance for the productivity of the flock, a correct balance of rations increased the efficiency of feed use and improves the performance of the flock. A vital contribution to the intake of minerals and vitamins in the later phase of lactation is obtained from the native vegetation. The animals generally mate in summer when they are grazing cereal stubble. During the mating period they can be subjected to wide fluctuations in nutrient intake. Through grazing down the stubble as animals entering a new field they will first select any fallen grain heads and leaves before eating the cereal stems. In the period of early pregnancy, nutrition requirements are relatively low and grazing of cereal stubble and crop residues can suffice. The herders surveyed appeared to pay too little attention to animal health. They rarely spent money on veterinary medicine. They spent less than 5% of the costs on veterinary medicine.

4.2.2.1.2. Herd size development

The flock size of sheep increased in the year 2004 by 5%. In the year 2005 by 8.4% and by 1.4% in 2006 (Figure11).

The flock size of goats increased in the year 2004 by 10.4%. In the year 2005 by 14.5% and by 15% in 2006.

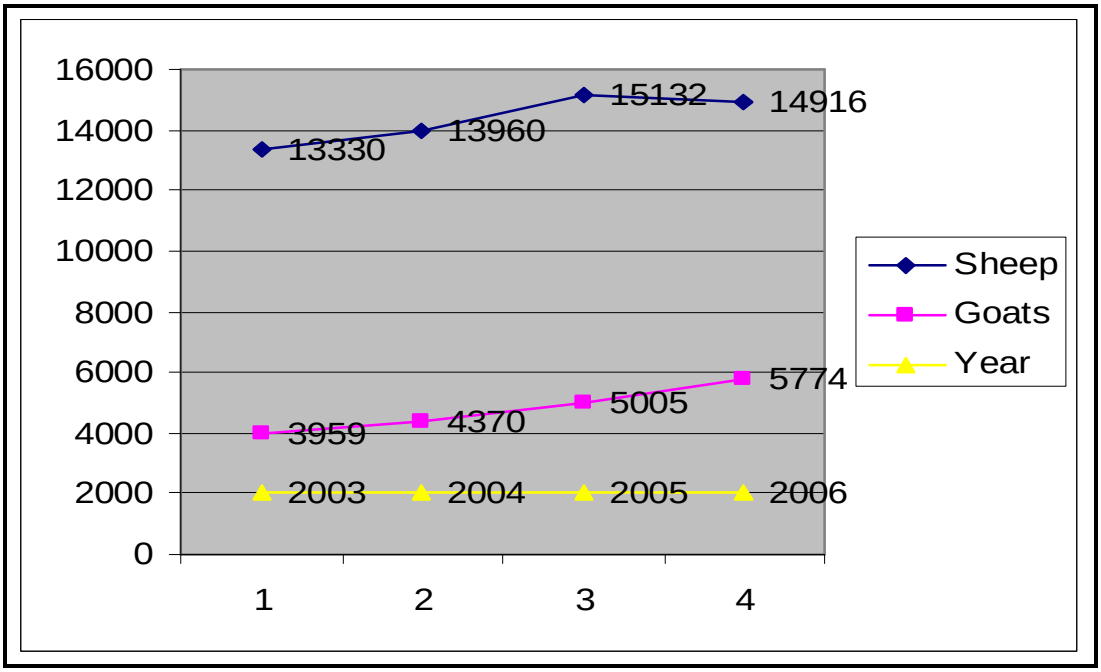

Figure 11: Number of sheep and goats at southern Hebron District from the year 2003 to 2006.

4.2.2.2 Sheep and goats feed sources and diets.

Our results show that 87% of the owners purchase the feed from private merchants from the market, 11% of the owners obtain the feed from the family land, 1% of the owners purchase the feed from

comparative society and 1% of the owners purchase the feed from other sources as the Bedouin Company (Figure 12).

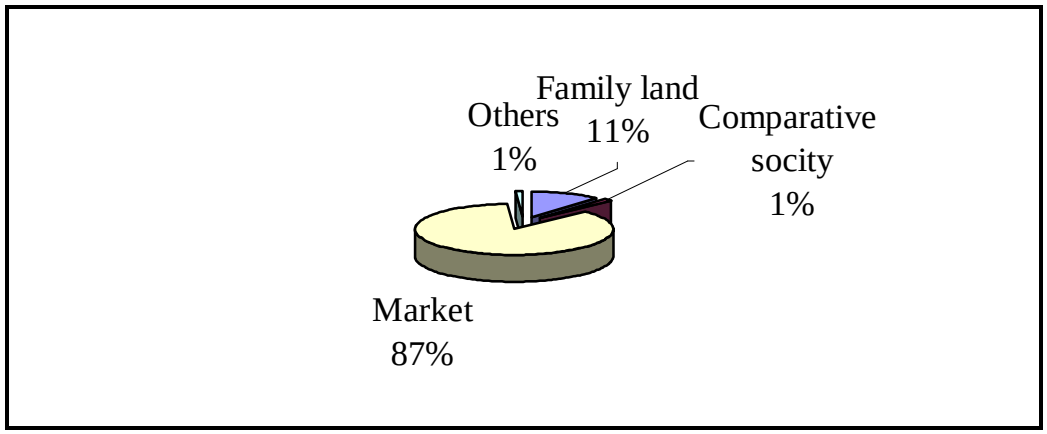

Figure 12: The percentage of the sheep and goats food sources in the year 2006 at southern Hebron District.

4.2.2.2.1 Feed- stuffs

The use of different kinds of feed-stuffs depends principally on their availability and price. For energy supply and structure the most important hand-fed feed-stuffs, in terms of percentage of the total yearly diet of sheep and goats in 2006, were barley grain (29%), wheat grain (13%), maize (16%), wheat bran (26%) and concentrated composed feed (16%) (Figure 13).

The use of other different feed-stuff (roughage) such as straw (barley and wheat straw) represent 55%, straw with grain represent 13%, chickpea straw represent 10%, vetch represent 13%, Lucerne represent 1% and other straw represent 8%. This is reported by sheep and goats owners (Figure 14). Cereal straw and wheat bran was an important ingredient in the diets, where

cereal straw used by 92.2% of the farmers and wheat bran used by 98.2% of the farmers.

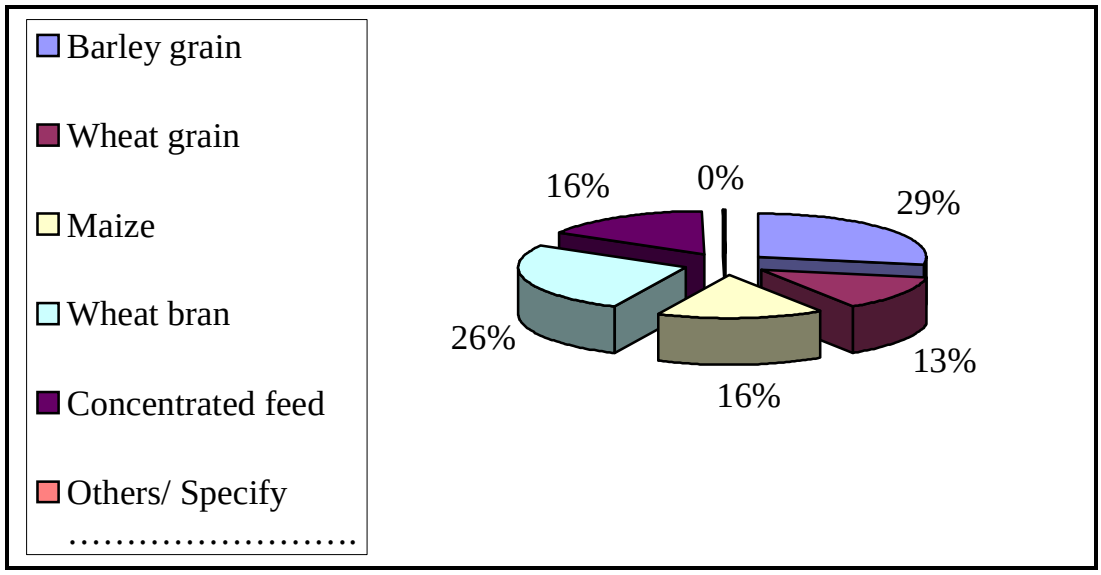

Figure 13: The percentage of the total yearly diet of sheep and goats in the year 2006 at southern Hebron District.

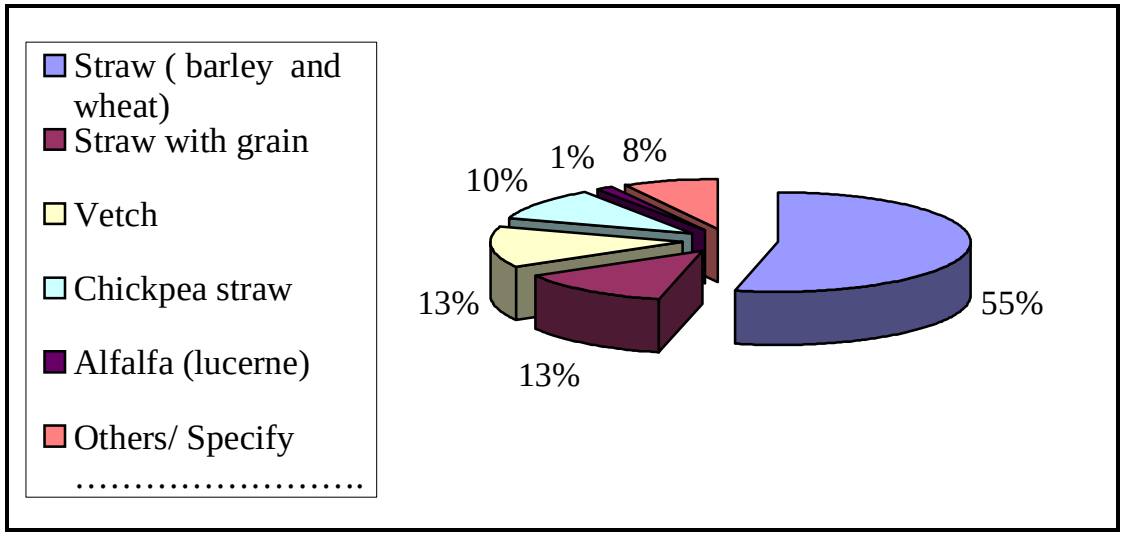

Figure 14: The percentage of the sheep and goats forage feed (roughage) uses in the year 2006 at southern Hebron District.

4.2.2.2.2. Common rangeland

The data show that 44% of sheep and goats owners rely on rangeland and they stopped hand-fed feeds. They felt that the quality and the quantity of the native vegetation had decreased in the last decades.

4.2.2.2.3. Feeding and grazing calendar

There is 89.6% of the flocks grazing and 10.4% not grazing. Sheep and goats graze crop residues, particularly cereal stubble, in summer and autumn, and depends almost totally upon hand-fed feeds in the winter months of December, January and February. Only in March, April and May does the grazing native pasture provide significant proportions of sheep and goats diets.

The flock spends in the pasture 7 hours in spring and 9 hours in summer. The flock starts grazing in the eastern part of the study area before one hour than the western part in spring.

The data show that 70% of owners said there was no system known that give the right to graze and use the pastures and 30% of them said their was.

The data show that 67% of owners said there is no traditional starting date commonly known for grazing.

4.2.2.2.4. The grazing constrains

Israeli settlements form constrains for grazing for 28% of the owners, environmental constrains for 18%, security constrains for 16%, economical constrains for 14%, separating wall constrains for 13% and social constrains for 11% of the owners (Figure 15).

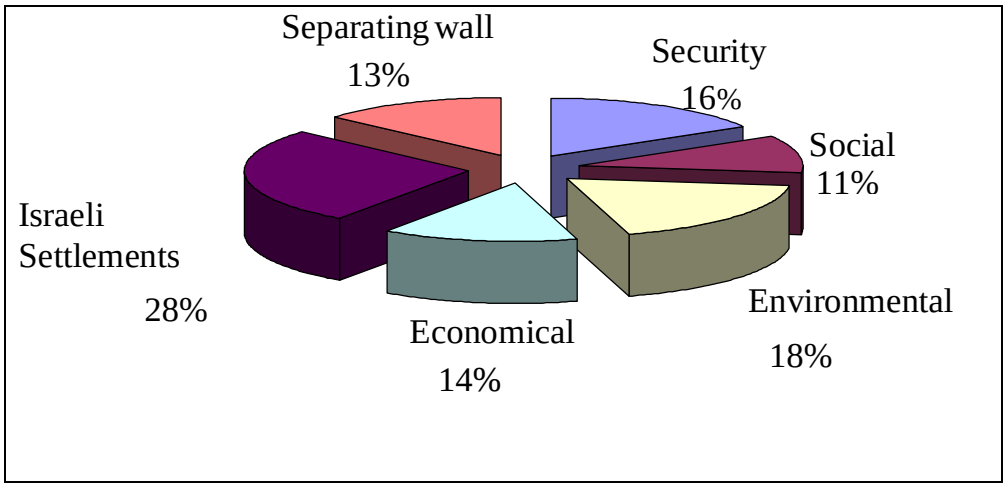

Figure 15: Kind of grazing constrains at southern Hebron District.

4.2.2.3. Sheep and goats products

The data show that 10.8% of the sheep and goats owners sell fresh milk, 21.5% of them make cheese, 5.7% make yoghurt, 44.3% make Arabic butter, 47.5% make jameed, 14.6% make Jerjeb, 75.3% sell lambs or kids, 19% sell cull ewe or doe, 0.6% sell wool or hair and 3.8% of them sell dung (Figure 16).

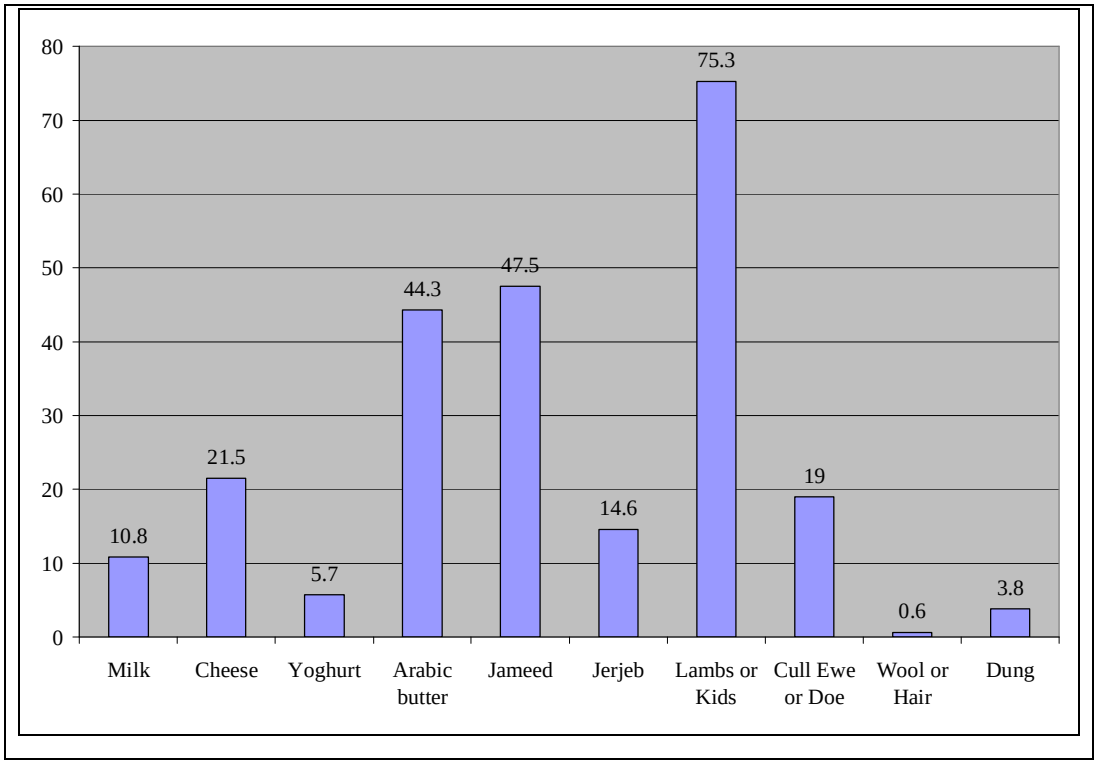

Figure 16: The percentage of the different products of sheep and goats owners at southern Hebron District**.**

4.2.2.4 Migration and interrelationship of sheep and goats systems

At the last decade the seasonal migration of the sheep and goats were in the same area (Figure 17). They moved the flock from the eastern part to western part of the same area or from the village to the hamlet (kherpa). This movement is not a migration. Nearly 62% of the sheep and goats owners moved the flock.

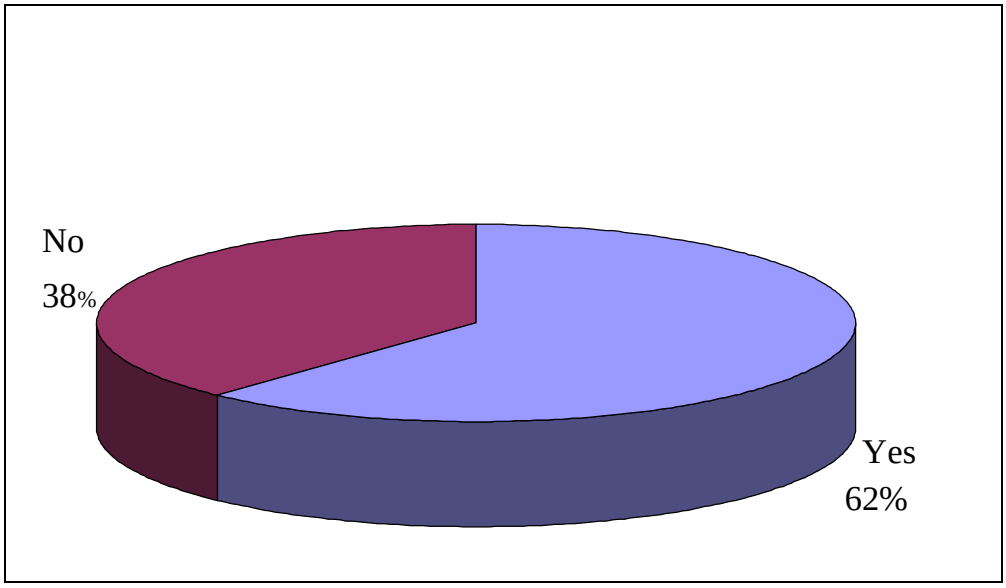

Figure 17: The flock of sheep and goats movement in the same area at southern Hebron District**.**

The survey shows that the cases where all family members move with the flock represent 25%, father and mother only moves with the flock represent 9% and some members of the family move with the flock represent 66% (Figure 18).

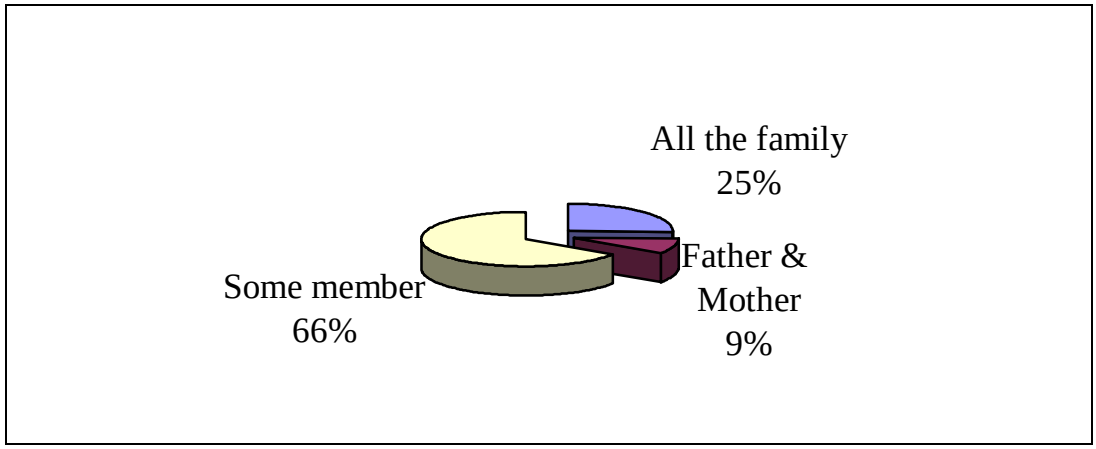

Figure 18: Family members move with the flock of sheep and goats at southern Hebron District**.**

4.3. Socio-Economic assessment of sheep and goats farming systems

4.3.1. Sheep and goats income

The data show that for 30% of the owners, rearing sheep and goats is the only source of income for them, and for 30% of them rearing sheep and goats is the main source of income and for 40% rearing sheep and goats is secondary source of income for them (Figure 19).

When 80% or more of the total income for the owners come from rearing sheep and goats it is considered as the only income (Figure 19). And when from 40% to 79% of the total income for the owners come from rearing sheep and goats it is considered as the main income. And when less than 40% of the total income comes from rearing sheep and goats, it is considered as the secondary income.

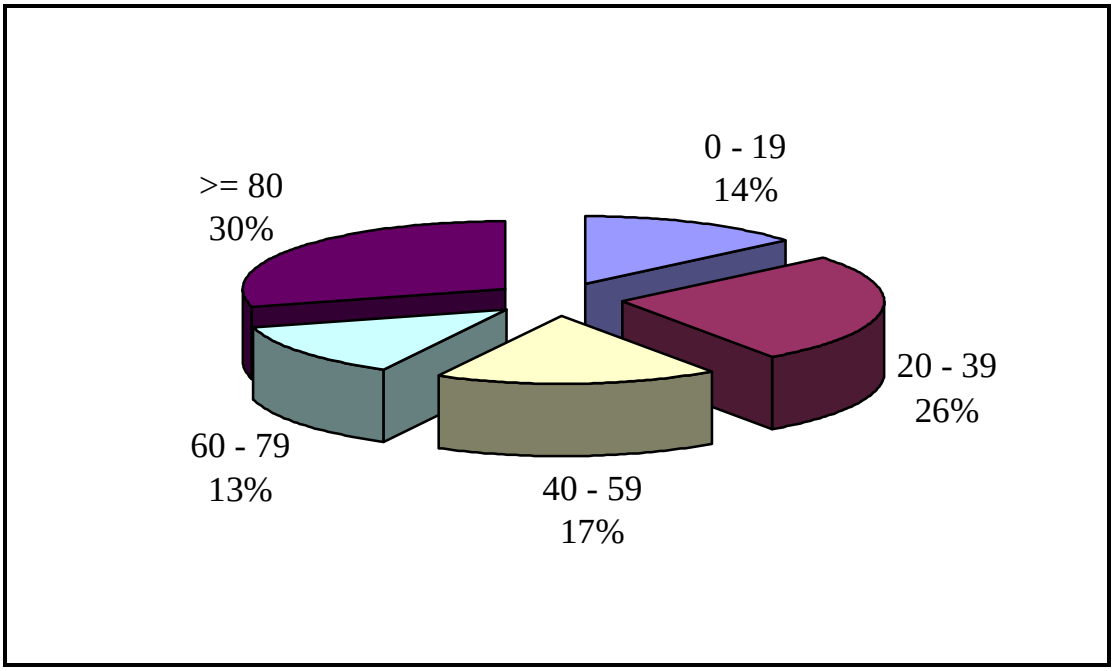

Figure 19: Percent of income from sheep & goats from the total income of the owners at southern Hebron District

4.3.2. Milk and milk products

The data show that 33% of milk products are sold as jameed followed by 31% as Arabic butter (Figure 20). The rest of milk products (36%) is sold as fresh milk (7%), Jerjeb (10%), cheese (15%) and yoghurt (4%).

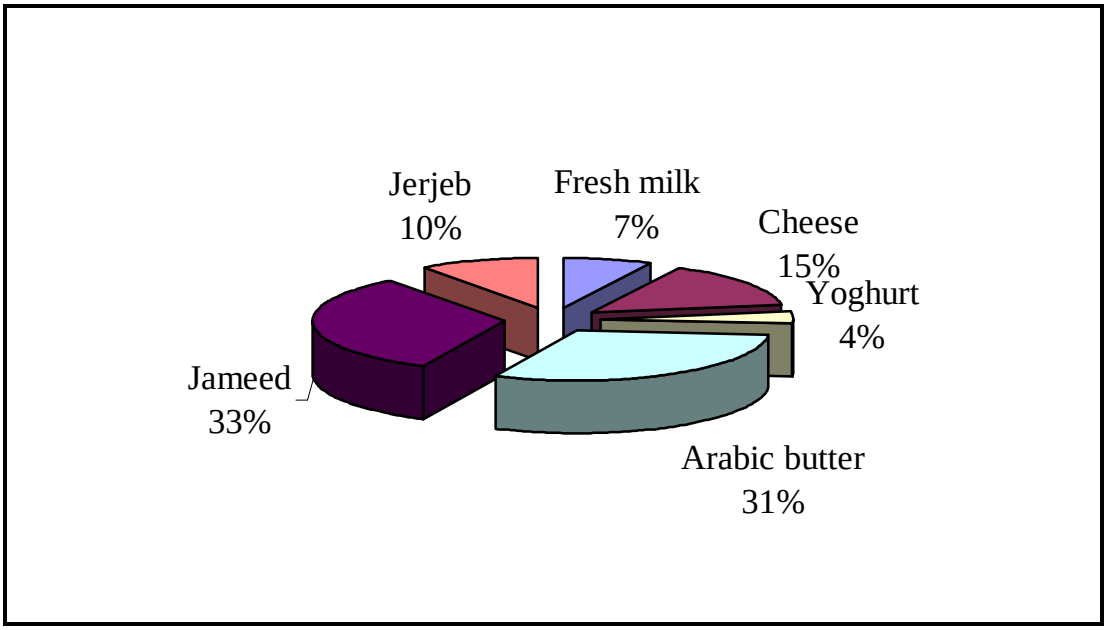

Figure 20: Percent of milk products sales by the sheep and goats owners at southern Hebron District.

4.4. Economics of the family-farm household system

4.4.1. Household Income

For the year 2006 the average monthly household income from rearing sheep and goats is 1730 NIS.

About 39% of household monthly income equal or less than 1500 NIS, 24% of household income from 1501 – 2500 NIS, 16% of household monthly

income from 2501 – 3500 NIS and 21% of household monthly income more than 3500 NIS (Figure 21).

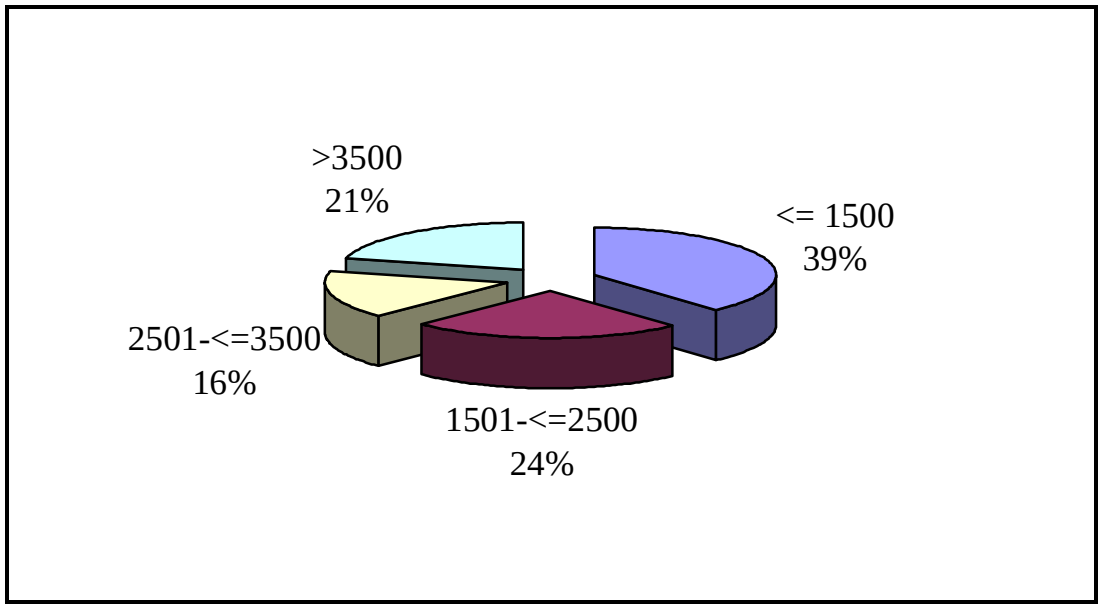

Figure 21: Percent of monthly income of household from all sources to the owners of sheep and goats for the year 2006 at southern Hebron District.

4.4.2. Degree of importance for the sources of income

Based on degree of importance for the sources of income, we found two resources have high percent (Table 12). The first source of income is from farming and animal husbandry. The second source of income is from salary of laboring.

The data about the degree of importance of income from farming and animal husbandry, show that 65% of them depend on it as a first degree, 51% depend on it as a second degree, 3% depend on it as a third degree and 37% of the owners depend on it as a fourth degree (Table 12).

The data of income from salary of laboring show that 19% of the owners depend on it as a first degree, 28% of them depend on it as a second degree, and 24% of the owners depend on it as a third degree (Table 12).

Table 12: Percent degree of importance for the sources of income for the owners of sheep and goats at southern Hebron District

Income source	% Degree of importance			
	First	Second	Third	fourth
Farming and animal husbandry	65	51	3	37
Salary from labor off farm	19	28	24	0
Salary from government	10	8	3	0
Salary from privet sector	5	6	10	9
Projects other than agriculture	1	0	20	9
Local transfer	0	1	7	9
International transfer	0	2	3	9
International donor assistant	0	4	7	9
Social assistant	0	0	23	18
Total	100	100	100	100

4.5. Market system

4.5.1. Market locations and conditions

The description of market locations and conditions is restricted to the most frequented input and output markets. Al Dahriya, Al Samu', and Yatta markets are catchments areas for sheep and goats and their products, like cheese, jamid and arabic butter and main trading for feed-stuffs. Also the Hebron market is in terms of trade volume of sheep and goats and their products is considered as main market. Marketing of sheep and goats and their products has a long tradition in the study area (Table 13).

Table 13: Percent of market locations for product of sheep and goats at southern Hebron District

Market location	Cheese	Jamid	Arabic butter	Lamp or Kids	Culled ewe or doe
Farm	3.1	8.5	4.5	2.6	0.0
Catchments (assembly market)	50.0	74.6	56.1	93.9	100
Hebron city	40.6	14.1	37.9	3.5	0.0
Others	6.3	2.8	1.5	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0

With the growing necessity of owners to purchase feed-stuffs, the feed-stuff market in Al Dahriya, Al Samu', and Yatta also grew. The sheep and goats and feed-stuff markets are linked with developing special veterinary clinic and drug store in the market places. The marketing places are located

in the center of Al Dahriya, Al Samu', and Yatta. Food, household items, clothing, etc., needed by sheep and goats owners' families, are also available in these market areas.

4.5.2. Seasonal production market channels of sheep and goats

Seasonal marketing depends on seasonal production, along with seasonal liquidity constraints and dependence on private money lenders, determine sheep and goats sales by the owners. Marketing of sheep and goats is generally not the result of any interventions. The effects of price fluctuations on sheep and goats marketing activities due to the increased demand during Islamic holidays are surprisingly high.

In the study area, 86.8% of lambs or kids are sold to wholesaler, 9.7% are sold to retailer, and 3.5% sold to domestic consumer (Table 14). Culled sheep ewe and goats doe sales to wholesaler represent 44%, culled sheep and goats sales to retailer form 52%, and culled sheep and goats sales to domestic consumer form 4% (Table 14).

Table 14: Percent of lambs or kids and culled, sheep or goats in the different market channels at southern Hebron District.

% Sales to	Lambs or Kids	Culled ewe or doe
Wholesaler	86.8	44.0
Retailer	9.7	52.0
Middlemen	0.0	0.0
Consumer	3.5	4.0
Total	100.0	100.0

Owners flocks sell their sheep and goats directly on the provincial markets, Al Dahriya, Al Samu', and Yatta. Marketing of breeding stock and slaughter are important on the provincial markets, where the trading unit is per kilo live weight, or per head.

4.5.3. Market channels of milk products

Marketing of milk products has a long tradition in the study area. The quantity of fresh milk sales is limited, 60% of fresh milk sales to the consumer and 26.6% sales to the wholesaler (Table 15). Cheese sales to the wholesaler form 62.4% and 25% are sold to the consumer. Arabic butter sales to the wholesaler represent 40.9%, sales to the retailer represent 30.3%, and sales to the consumer represent 25.8%. Jameed sales to the wholesaler represent 39.5% and 38% to the consumer. The quantity of yoghurt and jerjeb (soft jameed) sales are surprisingly low. There is no sale for wool or hair and dung (Table 15).

Table 15: Percent of milk product in the different market channels at southern Hebron District.

% Sales to	Fresh milk	Cheese	Arabic butter	Jameed
Wholesaler	26.6	62.4	40.9	39.5
Retailer	6.7	6.3	30.3	22.5
Middlemen	6.7	6.3	3.0	0.0
Consumer	60.0	25.0	25.8	38.0
Total	100.0	100.0	100.0	100.0

5. Discussion

5.1. Resources of sheep and goats farming systems

5.1.1 Human resources

5.1.1.1 Family size

The average family size for the sheep and goats owners in the study area is 12.39 members (Table 4). This is typical family size in rural areas in Palestine. This is considered high average of family size comparing with the average of family size of the agricultural holders in Palestine which is 7.9 family members (PCBS 2005). This family size is related to cultural and traditional aspects. AlQouqa (2006) found that the average family size was 11.3 members in Al Dahriya.

5.1.1.2. Family member age

Comparing the number of family member with the family labour capacities, it becomes clear that a large number of the family members are not available for farm and household work. This is mainly due to the absence of male adult family members, and a high percentage of young people. The data revealed that 63% of the family members are younger than 15 years old, but comparing this with Palestine's in general it was 45.8% for the same group of age (PCBS 2006), and it was 68% in AlQouqa (2006) study in both sites Al Dahriya and Dora.

5.1.1.3. Owners age

From the result of the owner's age, it is clear that young people who less than 29 years old are not dealing with rearing sheep and goats. They are looking to work as labour to earn more money. This threats the sheep and goats farming system development in the future (Table 5). The percent of other owner's age groups are similar. These percentages indicate that rearing sheep and goats are inherited. The increase in the percentage of the sheep and goats owners during last few years was due to the constraints by Israeli to entering to work as labor, they retrain to rearing sheep and goats. Nearly about 72% of the owners are older than forty years. While Dudeen (2009) found about 57% of the owners are older than forty five years.

5.1.1.4. Owners main profession

In the study area it is clear that sheep and goats owners depend on farm and on rearing sheep and goats as a main profession, because the condition of the area is suitable for rearing sheep and goats and the opportunity to work as labour in Israel and in West Bank is very limited (Table 6). The data revealed that 58.2% of the owners are mainly farmers, but Horizon for sustainable development (2009) found that full time farmers are only 32% of raisers.

5.1.1.5. Education

From the result of the study it appeared that high percentage of sheep and goats owners have low level of education (78.5% under secondary level), for this reason they deal with rearing sheep and goats (Table 7).

In regard to the education of household members, results show that 50% of household members deal with education. Concerning of household members education, they are interested in education because they feel that there is no future for rearing sheep and goats (Figure 8). The results show that 57.6% of the owners have low education (elementary and illiterate or can read and write). While Dudeen (2009) found that 51% of the owners have no or only elementary educations.

5.1.1.6. Labour capacity

Family labour capacity is an important resource of production and it determines on-farm and off-farm activity. Only 20% of the family members have a work (Figure 8).

It is clear that a large number of the family members are not available for farm and household work, because 63% of the family members are younger than 15 years old (Figure 7). The highest labour capacity for the system is in the age group of more than 15 years. The opportunity to work as labour in Israel and in West Bank is very limited and it has decreased in the last two decades. This is because the political situation in Palestine.

5.1.2 Livestock resources

5.1.2.1 Flock size

The average flock size for sheep and goats in the study area is high, this result is similar to Dudeen (2009). This high average is caused by the fact

that owners depend mainly on rearing sheep and goats, which have negative effects on the pasture. Drought situation affect the flock size, because the majority of the owners depend on the pasture as the main source of feed (Table 8).

5.1.2.2 Sheep and goats species

The most commonly kept sheep and goats' species is the local Baladi breed because it is adaptable to arid and semi-arid area, and they don't need intensive attention for veterinary care. This result is similar to the Dudeen (2009) and the Horizon for sustainable development (2009).

5.1.2.3. Flock years owned by the owners (herder)

The study shows that the percent of flock owners increased after 1987 the first Intefada, after 1994 Oslo agreement and after 2000, the second Intefada. This is because the Israeli constrains for entering labour to work, and the opportunity to work in West Bank became very limited. The labors return to rearing sheep and goats. For these reasons the number of sheep and goats owners increased (Table 10). If we link the owners age result with the result of flock years owned, this result point out that there are no newcomers to this livelihood. In fact, in the study area, there are many quitting from this livelihood.

5.1.3. Land resources

The majority of land is cultivated by cereals, such as wheat and barley; other crops cultivated are olive trees, stone fruit trees (almond) and pasture land.

The bad use of land reduces land productivity. Another important constraint on the use of land is the Israel ban on cultivation or grazing on the land near the Israeli settlements. The Israeli settlers attack farmers, herders, crops, herds and the family members. Moreover they do not allow the farmers to use their own land. The Israeli settlers are usually aggressive and violent against the land, herders, and the farmers. Also part of the land is considered as military zone by the Israelis. This is similar to Janazreh (2007) result.

All these constraints limit the lands available for grazing and for cultivation and yet affect the costs of rearing sheep and goats at southern Hebron District due to the increase in the amount of feed supplementation.

5.2. Management of resources

5.2.1. Labour economy

5.2.1.1. Assignment of work to gender and age groups

A description for work activities in rearing sheep and goats could be that it is not system specific. Men are responsible for the management; men carry out buying and selling activities, transportation and external household and family matters. They supervise flock management and do most of the off-farm work. Boys sometimes herd the flocks while girls are assigned to household work and assist in all kinds of farm work done by the women.

Women do almost all household work and agricultural hand work, like milking, milk processing, feeding and watering. The women participation is mainly between 33% to 40% of the total rearing activities. Dudeen (2009) found the women participation is between 20% to 50% of the total rearing activities. It is clear that women are not participating in herding as before. Also women are not generally involved in marketing (Table 11).

5.2.1.2. Labor Hiring

It was clear that there is a shortage of shepherds. The shepherds left the area in order to work as labour. Also the young persons of the family prefer to work as a labour more than to work as a shepherd, in order to obtain more cash money. This, in spite of the opportunity to work as labour is very limited. This result is clear from the newcomer's age to the rearing sheep and goats.

5.2.1.3. Off-farm activities

The average number of family members committed to off-farm activities decreased during the last years. This is because the Israeli constrains for entering labour to work and the situation in West Bank. For this reason the off-farm activities decreased in the last years, and the opportunity to work as labour in Israel and in West Bank is very limited. This result is similar to the result of ARIJ (1994) after the first Intefada, where the percentage of the labour in Israel reduced.

5.2.2. Management of sheep and goats

5.2.2.1. Flock management and production

5.2.2.1.1. Production and reproduction cycle of sheep and goats

The main production of sheep and goats is meat and milk. Fertility is the percentage of breeding females that give birth per flock. The percentage of fertility is less than 80%, because the feeding of sheep and goats is less than their needs. Also the percentage of mortality for lambs born is high (20%), (UAWC 2008).

The potential meat production is characterized by the productivity of the breeding females (weaned young per breeding females of flock). The main milk production for sheep and goats occurs between February and June. To obtain the milk or milk product to sell, this affects the lamp by early weaning, and the pasture will be good in this period, which splay of feed and give good milk production.

The sheep and goats owners do not give a real fact answers about the fertility and milk production because they thought this situation let them have more support from the donors and the NGOs.

5.2.2.1.2. Flock size development

It was clear that weather conditions for different years have an effect on flock size development. The weather situations in the four years were quite variable. When the rainfed was good in the year 2003 (the average in Hebron was 721.6 mm) the flock size of sheep increased 5% in the year 2004. In the year 2004 the flock size of sheep increased 8.4% (the rainfall average in Hebron was 595 mm), but in 2005 (the rainfall average in Hebron was 412.3 mm), it was dry year, the flock size of sheep decreased by 1.4%

in the year 2006 (Agricultural Department of Hebron, 2006). In dry year the cost of feeding increased, and in order to purchase the feeding, the owners oblige to sell some of the flock (Agricultural Department of Hebron, 2006).

5.2.2.2. Sheep and goats feed sources.

The main source of sheep and goats feed is the market, exactly from private merchants. If the rainfall is good the quantity of feed from the market reduced in that year, depending on the quality of native vegetation pasture. When contribution of natural pasture reduced the use of feed grains and other concentrates increased. Dudeen (2009) found that farmers depend 100% on buying fodder from the market.

5.2.2.2.1. Feed stuffs

The majority of sheep and goats owners depend on two kinds of concentrate feed-stuffs barley grain and wheat bran. Also they depend on straw of barley or wheat, because of their cheap prices (Figure 12 and Figure 13). This is similar to the case in Syria, the most important hand-fed feed stuffs, were barley grain, straw and wheat bran (Rolf Wachholtz 1996). Also in Jordan market feed from private sources had a considerably higher share, with barley, barley-sorghum mixture and bran, cereals are the main fodder (Maurer 1999).

5.2.2.2.2. Common rangeland

Nearly 56% of sheep and goats owners do not rely on rangeland because the quality and the quantity of the native vegetation had decreased in the last decades. Also the overgrazing deteriorates the rangeland.

The low values in total vegetation cover attributed to sheep and goats grazing (Salahat 2007). The plant cover of pasture in the eastern slopes of Palestine is enough for only 10% of livestock population (Abed 2003). The overgrazing induced vegetation retrogression and reduced the length of the grazing period for two months only (Salama and Aljoaba 2008), and Musa (2001) found that the grazing period drop to two months only in drought years.

The limitation and the overgrazing cause the deterioration of the rangeland. Policy, economy and Israeli settlements have a strong influence on the development of rangeland.

5.2.2.2.3. Feeding and grazing calendar

Patterns will vary from year to year according to weather and price conditions. Diet changes occur from year to year with differences in weather. Wet years shift the proportion towards native vegetation and dry years towards hand-fed feed-stuffs and crop residues.

The herders start grazing in the east part of the study area one hour before that at the west part in spring because the sunrise is earlier in the east part which let the native vegetation drier and to avoid causing trouble to the sheep and goats from wet vegetation. The feed calendars are affected by

overgrazing which reduced the length of the grazing period to two months only (Salama and Aljoaba 2008 and Musa 2001).

5.2.2.2.4. The grazing constrains

The main constrains are caused by the Israeli Occupation. The important constrain for the use of grazing land is the Israeli ban on grazing on the land near the Israeli settlements. The Israeli settlers attack herders. Also part of the land considered as military zone by the Israelis and the separating wall (Figure 15). These constrain on grazing affected feeding cost and let the owners to heavily and extensively use the available area. The same constrain mentioned by Janazreh (2007).

5.2.2.3. Sheep and goats products

The main products of sheep and goats are milk products such as Arabic butter, jameed and cheese and lambs or kids (Figure 20). This is because there is no market for fresh milk in the study area, and because the location of market for lambs or kids and milk products is far from the flock's resident (Table 13). The owners like to produce Arabic butter and jameed more than other products because it is easy to store without refrigerator for long time until marketing. The same result found by Musa (2001).

5.2.2.4. The flock movement

Because of the constrains, Israeli bans and Israeli closure, the flock movement from the south to the north of West Bank were restricted.
The flock moved from the east part to west part of the same area or from the village to the hamlet (kherpa), looking for pasture (Figure 17). This situation was different before Israeli occupation to West Bank, it was easy to move between districts and at that time the owners depended on pasture for animal feed. This result is similar to the result of Musa (2001), Bedouins become sedentary as a result of political situation after occupation to Palestine.

5.3. Socio-Economic assessment of sheep and goats farming systems

5.3.1. Sheep and goats income

The result shows that 60% of the owners depend mainly on rearing sheep and goats for income (Figure 19). This is because the Israeli constrains for entering labour to work, and the opportunity to work in West Bank is very limited. Therefore the number of sheep and goats owners increased and the income depend more on sheep and goats rearing. This may be as a result of turning back to rearing sheep and goats after part of owners abandoned it for many years.

5.3.2. Milk products

The main milk products are Arabic butter, jameed and cheese. These products do not need refrigerator to keep because the location of market is

far from the flock's resident (Figure 20). There is no dairy factory in the area, or refrigerator tank, or society dealing with collecting milk products from the sheep and goats owners for marketing. This may indicate the need for such infrastructure to be established in the area.

5.4. Economics of the family-farm household system

5.4.1. Household Income

For the year 2006 the average monthly household income from rearing sheep and goats is 1730 NIS.

Household income is subjected to large fluctuations (Figure 21). Hence, an average household income taken over many years would be more adequate to give indication about the income situation and the development of the standard of living of household. In addition, it should be mentioned that the coefficient of variance for the household income is high, indicating the heterogeneity among household (Figure 21). That figure show that 79% of household had incomes of less than 3500 NIS. While the poverty line in Palestinian Territory for the family size more than eleven members is 3764 NIS and the extreme poverty line is 3007 NIS (PCBS 2007). This means that these families live under the poverty line.

5.4.2. Degree of importance of sources of income

Based on degree of importance of sources of income, there are two resources that have high percentage of importance. The first source of income is farming and animal husbandry. The second source of income is salary from laboring. This means that sheep and goats owners depend on

farming and animal husbandry for their income, then looking for laboring income as a second source of income (Table 12). This depends mainly on the political situation in Palestine and the work opportunity available off-farm. However available in the study area rearing sheep and goats is the only opportunity.

5.5. Market system

5.5.1. Market conditions

The market locations and conditions affect sheep and goats production system. Al Dahriya, Al Samu', and Yatta markets are catchments market for sheep and goats and their products, such as cheese, jamid and Arabic butter. These markets are far from the sheep and goats residents and the transportations to them are very limited, difficult and high cost. Also the Hebron markets are the same situation and some owners said when the old markets in Hebron (Alhesba and Alsehla) are closed by Israeli military the sheep and goats and their products deteriorated. This means that before twenty years the sheep and goats owners depended on Hebron markets (Table 13). These products are sold to the consumer or by middlemen. The owners are usually collecting the products and selling them once a week, because the high cost of the transportations.

We find from the data that there is no marketing for hair or wool and for dung. This causes a great lose of an important source of revenue for the owners.

5.5.2. Marketing of sheep and goats

Seasonal marketing depends on seasonal production, along with seasonal liquidity constraints and dependent on private money lenders. These factors determine sheep and goats sales by the owners. Marketing of sheep and goats is generally not the result of any interventions. The effects of price fluctuations on sheep and goats marketing activities due to increased demand during Islamic holidays and summer occasion are surprisingly high. The sale of sheep and goats is closely related to rainfall conditions, and consequently, to the availability of native vegetation. In low rainfall year, the costs of feed-stuffs rise. Increasing expenditures for feed-stuffs have to be counterbalanced by the sale of sheep and goats, it is clear in the flock size development. In a progressive drought, sheep and goats prices fall and prices for feed-stuffs, stubble and other crop residues increase drastically. This was clear from the owners description to the sheep and goats situation. The quantity of feed obtained for the price of sheep and goats will grow smaller and smaller as the terms of trade worsen for the owners. Survey responses indicated that flock owners, in order to feed the rest of the flock, could be forced to sell off some of their flock capital during a dry year. In a good year, with plenty of native vegetation, stubble and other palatable crop residues, the cash needs for feed are low. It gives the owner the opportunity to rebuild his flock. Sheep and goats will be held from sale, and the decreasing supply will increase sheep and goats prices. Fluctuating input and output prices represent difficult production conditions and is, apart of the fluctuation of feed availability and this is another production risk for the owners. Variability of feed-stuff resources, due to fluctuating rainfall, is an important determinant for the annual market cycle (Table 14).

6. Conclusion and recommendation

6.1. Conclusion

6.1.1 Human resources

We can deduced from the result of the study that the household members labour capacity was low because the high percentage of young members. Also the average family size was high. These factors affect the level of livelihood.

From the low percent of the owners age, less than (29) years old, we deduced that the newcomers to this kind of livelihood is low. This is because the profit from rearing sheep and goats is very low compared to other works.

6.1.2. Livestock resources

From the result of the study sheep and goats are dominate in livestock keeping in the study area, also the flock size average is more than other areas in West Bank.

The local species of sheep and goats are adapted to grazing in the pasture.

6.1.3. Management of resources

The result indicates that there is heavy involvement of women in rearing sheep and goats activities.

The shepherd work is inconsistency from the family member of the sheep and goats owners, inspite of the opportunity to work labour is very limited.

The fertility is low in percentage because the low level of education of the owners, the bad feeding, no extension services and low veterinary services.

The overgrazing deteriorates the pasture, therefore, sheep and goats rearing cost high mainly because of the cost of feeding.

From the result there is no migration because the situation in Palestine and the constrain facing the owners.

The sheep and goats owners prefer to product jameed and Arabic butter because they do not need refrigerator to be kept until they being marketed.

6.1.4. Sheep and goats owner income

We can deduced from the result of the study that sheep and goats owner families are in the low income group, and live under the edge of poverty line and have little ability to buffer droughts or other income losses. The sheep and goats owners are the poorest in Palestine.

6.1.5. Market system

The market system depends on catchments (assembly) market in Al Dahriya, Al Samu', and Yatta markets. Also the market system depends on retailer for sheep and goats while depends on wholesaler and consumer for milk products.

6.1.6. Farming system

We can deduce from the result of the study this classification of the farming system in the study area:

- Transhumance farming systems (Bedouins),
- Urban farming systems and
- Rural farming systems.

6.2. Recommendation

The sheep and goats husbandry threatened by many factors therefore we recommend helping the owners through:

- establishing an extension and veterinary governmental centers in the different locations of the study area,
- establishing station for improving the breeding,
- support the feeding costs,
- rehabilitation the rangeland,
- establishing small dairy factory and
- find charitable and cooperative societies to deal with the problems of the sheep and goats owners.
- conducting further research that deals with more specific aspects of this issue, such as marketing, breeding, ……..etc.

7. References

1. A'arori, A'mer. (2000). The forgotten Palestinians. Bedouin purification ethnical. Jerusalem. Jun 2000.
2. Agricultural Department of Hebron, 2006. Number of sheep and goats in Hebron district. Hebron, Palestine. (In Arabic).
3. Al-assaf, Amani. (2009). The impact of resource use on family income in different ecological environments in Jordan. Doppler, W. et al. Economics of resources use and farming systems development in the Middle East and East Africa.
4. AlQouqa, Ibrahim (2006). Rural farming systems and socio-economic impacts of rain-water harvesting techniques in the southern parts of Hebron governorate. Master Thesis, Hebron University, Palestine.
5. Al-Seikh Saleh Hassan (2006). The effect of different water harvesting techniques on runoff, sedimentation, and soil characteristics. Master Thesis, Hebron University, Palestine.
6. Amnesty International (2009). Troubled waters Palestinians denied fair access to water. Israel-Occupied Palestinian Territories.
7. Arij, 1994.Dryland farming in Palestine, Applied Research Institute – Jerusalem Bethlehem, Palestine.
8. Bsharat Wajdi (2005). Consult program for sheep. MoA and AOAD. Palestine.
9. Doppler, W. (1995). Farming systems approach.
10. Dudeen, Basim (2009). Horizons for the small ruminant sector sustainability in Hebron governorate. Land research center. Palestine, Jerusalem. Unpublished study.

11. Horizon for sustainable development (2009). Impact and responses of Palestinian herders to soaring prices. Ramallah- Palestine. Unpublished study.
12. Ibreigheeth (Abu-Ayyash), Adel. (2006). Natural Rangelands in Palestine, Inventory of high nutritional value grazing plants in the West Bank of Palestine. (ARIJ – Jerusalem).
13. Janazereh, kayed (2007). Means of developing sheep and goats sector in the eastern slopes of Hebron and Bethlehem districts. Master Thesis, Bethlehem University, Palestine.
14. Land Research Center. (2000). Land System Classification of the West Bank and Gaza Strip-Palestine, Jerusalem, June 2000.
15. Land Research Center. (2002). Land and environment in Hebron district, Palestine, Jerusalem, may 2002.
16. Maurer, Martin. (1999). Dynamics and potential of farming systems in the marginal areas of Jordan. Farming systems and resource economics in the tropics; Vol. 32.
17. Mnasrah, Jawad (2008). Rearing sheep in Hebron district. Unpublished report. Hebron, Palestine. (In Arabic).
18. Mohammad, Ayed. (2005). Rangeland condition at southern West Bank. *Hebron University Research Journal* 2: 42-54.
19. Mohammad, Ayed. (2008). Growth and development of range plants in southern West Bank. *Hebron University Research Journal. Vol. (3). No.(2), 2008:* 1-21.
20. Mohammed, Ayed. (2000). Vegetation cover and productivity of the rangeland in the southern part of West Bank. *Bethlehem University Journal* 19, 75- 87.

21. Musa, Abdul-Hamid (2001). Socio-economic and agricultural needs of the Bedouins in the West Bank development proposal. East Jerusalem. West Bank.
22. Palestinian Central Bureau of Statistics, (2002). Agricultural Statistics 2000/2001. Ramallah-Palestine.
23. Palestinian Central Bureau of Statistics, (2003). Agricultural Statistics 2001/2002. Ramallah-Palestine.
24. Palestinian Central Bureau of Statistics, (2004). Agricultural Statistics 2002/2003. Ramallah-Palestine.
25. Palestinian Central Bureau of Statistics, (2005). Agricultural Statistics 2003/2004. Ramallah-Palestine.
26. Palestinian Central Bureau of Statistics, (2005). Area Statistics in the Palestinian Territory 2005. Ramallah-Palestine.
27. Palestinian Central Bureau of Statistics, (2005). Farm structure survey, 2004/2005: main finding. Ramallah-Palestine.
28. Palestinian Central Bureau of Statistics, (2006). Agricultural Statistics 2004/2005. Ramallah-Palestine.
29. Palestinian Central Bureau of Statistics, (2006). Metrological Conditions in the Palestinian Territory Annual Report 2005. Ramallah-Palestine.
30. Palestinian Central Bureau of Statistics, (2007). Agricultural Statistics 2005/2006. Ramallah-Palestine.
31. Palestinian Central Bureau of Statistics, (2007). Poverty in the Palestinian Territory, 2006. Main Finding Report. Ramallah-Palestine.
32. Palestinian Central Bureau of Statistics, (2008). Agricultural Statistics 2006/2007. Ramallah-Palestine.

33. Palestinian Central Bureau of Statistics, (2009). Agricultural Statistics 2007/2008. Ramallah-Palestine.
34. PCBS (2006). Palestine in figures 2005. Ramallah- Palestine.
35. PCBS. (2003). Palestinian central bureau of statistics. Agricultural statistics 2001/2002 (August -2003). Ramallah- Palestine.
36. PCBS. (2004). Palestinian central bureau of statistics. Statistical Abstract of Palestine number 5. (October -2004). Ramallah-Palestine.
37. PCBS. (2004). Palestinian central bureau of statistics. Statistical monitoring of the socio-economic conditions of the Palestinian Society, (Second quarter, 2004). Ramallah- Palestine.
38. PIALES, (1996). A preliminary investigation of biodiversity in Palestine: problems and prospects. Hebron, West Bank.
39. Première Urgence and the Palestinian Livestock Service Centre for Palestine, (2005). Market research: The dairy products of small ruminants in the occupied Palestinian territories a potential under exploited.
40. Quasmeh, Khader (2003). Economics of Palestinian Bedouin Company. Program of Bedouin development. Hebron Palestine.
41. Salahat, Ammar (2007). The impact of grazing and land reclamation on natural plant biodiversity in Al-Fara'a area. Master Thesis, An-Najah National University, Palestine.
42. Salama, Ayed, and Aljoaba Osama. (2008). Influence of Excluding Grazing on Vegetation Attributes at the Eastern Slopes of West Bank. *An - Najah Univ. J. Res. (N. Sc.) Vol. 22, 2008*: 43-66.
43. The World Bank (2009). West Bank and Gaza. Assessment of restrictions on Palestinian water sector development.

44. UAWC (2008). The general situation of animal husbandry in the east Yatta area. Unpublished report. Hebron, Palestine. (In Arabic).
45. UAWC (2008). The situation of animal husbandry in Hebron district. Unpublished report. Hebron, Palestine. (In Arabic).
46. Wachholtz, R., (1996). Socio-economics of Bedouin farming systems in dry areas of Northern Syria. Farming System and Resource Economics in the Tropics Vol.24.

Index

بسم الله الرحمن الرحيم

الدراسة الاقتصادية الاجتماعية لتربية الأغنام والماعز	**جامعة الخليل – كلية الدراسات العليا**
في جنوب محافظة الخليل، 2006	**الباحث علاء الدين هايل الجعبري**

البيانات التعريفية

ID01: الرقم المتسلسل للاستمارة: ☐☐	ID02: المنطقة: ..... ☐☐
ID03: التجمع:..... ☐☐☐☐☐☐	ID04: رقم التلفون: ☐☐☐☐☐☐☐☐☐☐
ID05: اسم المزارع:.....	

سجل المقابلة			
IR01: تاريخ جمع البيانات	يوم ☐☐	شهر ☐☐	سنة 2006
IR02:اسم جامع البيانات:.....	ID03: رمز جامع البيانات ☐☐	التاريخ: / /	2006
IR04:اسم مدخل البيانات:.....	ID03: رمز مدخل البيانات ☐☐	التاريخ: / /	2006

الخصائص الاجتماعية والاقتصادية لمربي الأغنام والماعز

	عمر المربي؟ (بالسنوات) ☐☐
	جنس المربي؟ 1. ذكر 2. أنثى ☐
	ما هي مهنتك الرئيسية ؟ 1. طالب 2. عامل 3. موظف حكومي 4. موظف قطاع خاص 5. ☐☐ موظف في منظمة أهلية/دولية 6. مزارع 7. صاحب مصلحة 8. لا يعمل 9. ربة بيت 10. متقاعد 11. أخرى/حدد.....
	ما هو آخر مستوى تعليمي لك؟ 1. أمي/ملم 2. ابتدائي 3. أعدادي 4. ثانوي 5. دبلوم متوسط 6. ☐☐ بكالوريوس 7. دراسات عليا 8. أخرى/حدد .....
	ما هو عدد أفراد أسرتك حسب التقسيم التالي 1. العدد الكلي 1. ☐☐ 4. الأفراد اقل من 10 سنوات 4. ☐☐ 2. أجمالي الإناث 2. ☐☐ 5. الأفراد 11-15 سنة 5. ☐☐ 3. أجمالي الذكور 3. ☐☐ 6. الأفراد اكبر من 15 سنة 6. ☐☐

الوضع الاجتماعي للأفراد الأسرة الذين يعيشون معا"

1. عدد المتزوجين	1. ☐☐	2.عدد الأفراد العاملين	2. ☐☐	
3. عدد الأبناء الملتحقين بالمدارس	3. ☐☐	4. عدد الأبناء الملتحقين بالتعليم العالي	4. ☐☐	

ما هو عدد أفراد أسرتك الذين يقومون بالعمل في تربية الأغنام والماعز حسب التقسيم التالي

1. العدد الكلي	1. ☐☐	4. الأفراد اقل من 10 سنوات	4. ☐☐	
2. أجمالي الإناث	2. ☐☐	5. لأفراد 11-15 سنة	5. ☐☐	
3. أجمالي الذكور	3. ☐☐	6. الأفراد اكبر من 15 سنة	6. ☐☐	

من يقوم بالأعمال التالية من أفراد أسرتك في تربية الأغنام والماعز حسب التقسيم التالي

1. الحلابة. 1. الذكور. 2. الإناث.	☐	4. السقاية. 1. الذكور. 2. الإناث.	☐
2. تقديم الأعلاف. 1. الذكور. 2. الإناث.	☐	5. الرعي. 1. الذكور. 2. الإناث.	☐
3. تصنيع الحليب. 1. الذكور. 2. الإناث.	☐	6. إعطاء العلاجات واللقاحات. 1. الذكور. 2. الإناث.	☐

ما هو نوع السكن الذي تعيش فيه الأسرة؟

1. بناء حجري. 2. بناء باطون. 3. بناء طوب. ☐
4. خيمة أو بيت شعر. 5. كهف أو مغارة. 6. أخرى.

ما هي مساحة السكن الذي تعيش فيه الأسرة؟ ☐

1. اقل من 100م^2 2. من 100م^2 – 150م^2 3. من 150 – 200م^2 4. أكثر من 200م^2

ما هو معدل الدخل الشهري للأسرة بالشيكل الإسرائيلي **(من جميع المصادر)؟** ☐☐☐☐☐

رتب حسب درجة الأهمية مصادر دخل الأسرة على أن يكون المصدر الأكثر أهمية **أولاً**، وهكذا

الزراعة وتربية الحيوانات	☐☐	تحويلات من داخل الأراضي الفلسطينية	☐☐
مشاريع للأسرة (غير الزراعية)	☐☐	تحويلات من الداخل	☐☐
أجور ورواتب من الحكومة	☐☐	هيئات دولية	☐☐
أجور ورواتب من القطاع الخاص	☐☐	مساعدات اجتماعية	☐☐
أجور ورواتب من قطاعات العمل الإسرائيلية	☐☐	أخرى (حدد)	☐☐

ما هي النسبة المئوية لمساهمة الدخل من عمل تربية الأغنام والماعز من إجمالي دخل الأسرة السنوي؟ ☐☐

ما هو نوع نظام التربية المستخدم في تربية الأغنام والماعز؟

1. مفتوح 2. مغلق ☐

قطيع الأغنام والماعز

	1. كم عدد الأغنام الإجمالي ؟ ☐☐☐☐ 2. كم عدد الماعز الإجمالي ؟ ☐☐☐☐
	1. النعاج (أكبر من سنتين) 1. ☐☐☐ 6. العنزات (أكبر من سنتين) 6 . ☐☐☐
	2. الجذع (من سنة إلى سنتين) 2. ☐☐☐ 7. الثنايا (سنتان) 7 . ☐☐☐
	3. الطليان (أقل من أربع أشهر) 3. ☐☐☐ 8. الفطايم (أقل من أربع أشهر) 8 . ☐☐☐
	4. الحملان(المقلول) (من 4 إلى سنة) 4. ☐☐☐ 9. الجديان (من 4- سنة) 9 . ☐☐☐
	5. الكباش (أكبر من سنة) 5. ☐☐☐ 10. التيوس (أكبر من سنة) 10. ☐☐☐
	ما هو نوع الحظائر المستخدمة في تربية الأغنام والماعز ؟ ☐ 1. حظائر ذات مظلات. 2. حظائر نصف مظللة. 3. حظائر مغلقة. 4. حظائر غير مسقوفة. 5. غير ذلك حدد .....
	ما هي مساحة الحظيرة المستخدمة في تربية الأغنام والماعز ؟ ☐☐☐☐
	3. كم عدد الأبقار ؟ ☐☐☐☐
	4. هل يوجد حيوانات أخرى؟ الاجابة (1. نعم 2. لا) ☐
	5. إذا كانت الإجابة في السؤال السابق نعم حدد نوعها وكم عددها؟ ☐☐☐ ☐
	6. هل يوجد سجلات للقطيع؟ الإجابة (1. نعم 2. لا) ☐
	7. في حالة عدم وجود سجلات كيف يتم حفظ المعلومات ....
	7 . كم عدد القطيع في كل من الأعوام التالية؟

الأغنام		الماعز	
1. عام 2003	☐☐☐☐	4. عام 2003	☐☐☐☐
2. عام 2004	☐☐☐☐	5. عام 2004	☐☐☐☐
3. عام 2005	☐☐☐☐	6. عام 2005	☐☐☐☐

	8. منذ كم سنة تمتلك هذه الحيوانات ؟ ☐☐☐

8 . ما هو عدد القطيع حسب نوع السلالة :

الأغنام		الماعز	
1. عواسي	☐☐☐☐	4. بلدي	☐☐☐☐
2. عساف	☐☐☐☐	5. شامي	☐☐☐☐
3. هجين	☐☐☐☐	6. هجين	☐☐☐☐

تغذية قطيع الأغنام والماعز

هل تقوم برعي القطيع؟ **الإجابة (1. نعم 2. لا)** ☐

أين تقوم برعي القطيع؟ ☐

1. في القرية وما حولها 2. داخل الغابات 3. في المناطق الجبلية/ التلال 4. في البساتين
5. في المزارع أو الحقول المزروعة 6. في الوديان 7. على جوانب الطرق 8. مناطق أخرى (حدد) .....

من يملك أراضي الرعي؟ ☐

1. ارض مملوكة للأسرة 2. ارض مشاع عائلي/عشائري 3. ارض أميرية/حكومية/وقف
4. أملاك خاصة للغير 5. ارض مستأجرة 6. أخرى(حدد).....

هل يوجد غيرك يستخدم المرعى؟ **الإجابة (1. نعم 2. لا)** ☐

هل يوجد نظام متعارف علية من حيث حق الرعي واستخدام المرعى؟ **الإجابة (1. نعم 2. لا)** ☐

هل يوجد عرف حول البدء بعملية الرعي؟ **الإجابة (1. نعم 2. لا)** ☐

عملية الرعي اليومية	في الصيف	في الربيع
في أي ساعة تبدأ الرعي في الفترة الصباحية؟		
في أي ساعة تبدأ الرعي في الفترة المسائية؟		
في أي ساعة تعود الحيوانات من المرعى؟		
مجموع عدد ساعات الرعي باليوم		

ما معدل عدد أشهر الرعي في السنة؟ ☐☐

ما معدل إجمالي عدد أيام الرعي في السنة ؟ ☐☐☐☐

هل تقوم برعي القطيع : ☐

1. لوحدك 2. برفقة احد من الأسرة 3. ضمن مجموعة غير الأسرة 4. بالأجرة 5. أحد أفراد الأسرة

هل يوجد معوقات في عملية الرعي؟ **الإجابة (1. نعم 2. لا)** ☐

ما هي معوقات عملية الرعي؟ ☐

1. أمنية. 2. اجتماعية. 3. بيئية. 4. اقتصادية. 5. المستوطنات. 6.جدار الفصل.

هل تتوقف عن التغذية الإضافية أثناء فترة الرعي؟ **الإجابة (1. نعم 2. لا)** ☐

ماذا تقدم للحيوانات كعلف؟ ضع دائرة حول رقم الإجابة

	الأعلاف المائئة		**الأعلاف المركزة**
1.	قش أبيض (قش قمح أو شعير)	1.	شعير
2.	قش أبيض مع سبله	2.	قمح
3.	بيكا	3.	ذرة صفراء
4.	بازيلاء	4.	نخالة
5.	برسيم	5.	خلطة مركزة
6.	أخرى حدد	6.	أخرى حدد .....

ما هي المصادر العلفية المستخدمة في التغذية الإضافية؟ ☐

1. من الأرض المملوكة للأسرة 2. الجمعية التعاونية 3. السوق 4. أخرى حدد.....

هل تقوم بنقل القطيع من منطقتك إلى منطقة أخرى طلبا" للرعي؟ **الإجابة: 1. نعم 2. لا** ☐

في أي شهر من السنة تقوم بنقل القطيع؟ ☐☐

من يقوم بالانتقال مع القطيع من أفراد الأسرة؟ ☐

1. جميع أفراد الأسرة 2. الأب والأم فقط 3. بعض أفراد الأسرة

إلى أي منطقة يتم نقل القطيع؟ ☐

1. داخل المحافظة. .2. إلى منطقة الغور. 3. إلى منطقة الشمال.

حدد أسم المنطقة التي تم نقل القطيع إليها؟ .....

ما معدل عدد أشهر الرعي في المنطقة التي انتقلت إليها؟ ☐☐

ما هي أسباب الانتقال إلى منطقة الرعي الجديدة ؟ ☐

1. سياسية. 2. اجتماعية. 3. بيئية. 4. اقتصادية.

ما هي حالة المرعى الجديد الذي تم الانتقال إليه؟ ☐

1. ممتازة. 2. جيدة. 3. متوسطة. 4. رديئة.

وضح معوقات عملية الرعي وتربية الأغنام والماعز ؟

.....

.....

.....

كيف ترى مستقبل تربية الأغنام والماعز وعملية الرعي ؟

.....

.....

ما هي مقترحاتك لتحسين تربية الأغنام والماعز وعملية الرعي ؟

.....

.....

.....

تكاليف الإنتاج للقطيع للسنة الأخيرة

الأعلاف التي تم شراؤها خلال السنة الماضية؟

الأعلاف المالئة	الكمية	السعر	الأعلاف المركزة	الكمية	السعر
قش أبيض (قش قمح أو شعير)			شعير		
قش أبيض مع سبله			قمح		
بيكا			ذرة صفراء		
بازيلاء			نخالة		
برسيم			خلطة مركزة		
أخرى حدد			أخرى حدد.....		

ما مقدار مصاريف العلاجات البيطرية خلال السنة الماضية؟ ☐☐☐☐

ما هي قيمة أجور النقل خلال السنة الماضية؟ ☐☐☐☐

ما هي قيمة المصاريف على مياه الشرب خلال السنة الماضية؟ ☐☐☐☐

هل يوجد مصاريف أخرى؟ **الإجابة: 1. نعم 2. لا** ☐

ما هي قيمة المصاريف الأخرى؟ ☐☐☐☐

تقييم عناصر الإنتاج للقطيع للسنة الأخيرة

نوع المنتج	الكمية	الثمن	مكان بيع المنتج	لمن تم بيع المنتج	ملاحظات
الحليب السائل					
الجبنه					
اللبن الرايب أو اللبن المخيض					
الزبدة					
اللبن الجميد					
اللبن الجرجير					
المواليد المباعة					
النعاج أو الماعز المستبعدة					
الصوف أو الشعر					
الزبل					
أخرى حدد					

Arabic Abstract

ملخص

دراسة الواقع الاقتصادي والاجتماعي لمربي الأغنام والماعز في جنوب محافظة الخليل

تبحث هذه الدراسة في وصف أنماط تربية الأغنام والماعز ونظمها في جنوب محافظة الخليل، نظراً لنقص المعلومات التفصيلية عن وضع الاقتصاد المجتمعي، وتطوير نظم التربية المتبعة، وكان الهدف الرئيس للدراسة هو إعطاء وصف لنظم التربية السائدة وكفاءة العوامل الاقتصادية والإجتماعية، حيث تم تقييم العوامل المختلفة التي تدخل في عملية الإنتاج، وتقييم المنتجات المتعددة للأغنام والماعز في منطقة الدراسة، وتحديد معيقات ومحددات الإنتاج، وقد تم أيضا تحليل الوضع الاقتصادي للمربين وبحث وسائل التطوير المستقبلي.

إن الدراسة اعتمدت على المسح غير الرسمي وكذلك على المسح الرسمي من خلال الاستبانة الذي شمل 158 مربياً للأغنام والماعز، وركزت الدراسة على العام الزراعي 2006م.

أظهرت النتائج ان معدل حجم الأسرة عالٍ حيث بلغ 12.39 فرداً، ونسبة أفراد الأسرة التي أعمارهم دون 15 سنة كانت 63%. وكانت نسبة المالكين الذين أعمارهم تزيد عن أربعين سنة 72%، ونسبة المالكين الذين تلقوا تعليما منخفضا 57.6%. كما أظهرت النتائج ان معدل حجم القطيع مرتفع نسبيا (145 راساً من الأغنام و68 رأساً من الماعز) للعام 2006، وإنخفاض نسبة المربين الجدد الذين أعمارهم تقل عن 29 سنة (3.4%). وأظهرت النتائج إرتفاع نسبة مشاركة المرأة في الأعمال والنشاطات المختلفة في تربية الأغنام والماعز. كما أظهرت النتائج أن أهم معوقات الرعي وانتقال الأغنام والماعز من منطقة الى أخرى هو الاحتلال الاسرائيلي. ولقد أظهرت النتائج تدني مستوى دخل عائلات مربي الأغنام والماعز، وانهم يعيشون تحت مستوى خط الفقر.