

Local livelihood assessment of Tush Shepherds traditionally using Territory of Vashlovani Protected Areas for winter pastures

**Project: Sustainable Management of Pastures in Georgia to Demonstrate Climate Change Mitigation and Adaptation Benefits and Dividends for Local Communities (ID: 00084937)**

***Local livelihood assessment of Tush Shepherds traditionally using Territory of Vashlovani Protected Areas for winter pastures***

***Prepared by the Biological Farming Association ELKANA***

***Dedoplistskaro–Tbilisi***

***December 2013 - April 2014***

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## 1. Introduction

*The present Report, as required by the contract, covers the results of the assessment conducted in Vashlovani Protected Area and the adjacent 2-km zone on the attitude of the holders and users of the winter pastures and local cattle-breeding farms in relation to the pastures. It also contains information on identified problems associated with a conflict between the local population and the nomadic farmers (shepherds, cattle-breeders) and on the possible ways of problems mitigation.*

## 2. Objective of the Survey

**The objective of the Survey** is to conduct study on the attitudes of the holders/users of livestock farms and winter pastures located within Vashlovani Protected Areas and nearby, as well as to analyse the problems existing between the population and the shepherds for mitigation of the conflicts in future.

## 3. Principal Target Groups

- Farmers engaged in wintering the livestock within the Vashlovani Protected Areas (VPAs) and the adjacent 2-km zone
- Farmers engaged in farming within the VPAs adjacent zone
- Heads of the Dedoplistskaro, Akhmeta and Telavi Municipalities
- The population (teachers, school children, farmers growing crops) of the VPAs adjacent villages (Kasristskali, Zemo Kedi, Arkhiloskalo, Sabatlo)
- Rangers of VPAs.

## 4. Survey Progress

The Survey consisted of the following two components:

1. Obtaining information from different target groups of the population in the town of Dedoplistskaro and the adjacent to VPAs villages
2. Collecting information about the socio-economic problems of holders or users of the winter pastures located within VPAs or around them through semi-structural interviews.

The present Report sums up and analyses the information obtained through semi-structural interviews;

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## 5. Methodology

The study has been conducted based on Participatory Learning and Action methodology. This methodology implies full participation of the target groups in the process of the assessment of their needs and capacities, as well as in further decision-making and implementation processes.

Participatory Learning and Action (PLA) is an approach for learning about and engaging with communities. It combines a toolkit of participatory and visual methods with natural interviewing techniques and is intended to facilitate a process of collective analysis and learning. The approach is used in identifying needs, planning, monitoring or evaluating projects and programmes. Whilst it is a powerful consultation tool, it offers the opportunity to go beyond mere consultation and promote the active participation of communities in the issues and interventions that shape their lives. By utilizing visual methods and analytical tools, PLA enables all community members to participate, regardless of their age, ethnicity or literacy capabilities.

The approach has been used, traditionally, with rural communities in the developing world. There it has been found extremely effective in tapping into the unique perspectives of the rural population, helping to unlock their ideas not only on the nature and causes of the issues that affect them, but also on realistic solutions. It enables local people to share their perceptions and identify priorities and appraise issues from their knowledge of local conditions.

Since 1997 Elkana has been using as well as adapting to local conditions PLA methodology in Georgia.

## 6. Short Description of the Target Area

VPAs are located in Kakheti Region, in the extreme south-eastern part of Georgia, in its historic territory - Kizikhi, at a 50 km distance from the Dedoplistskaro regional center, and 180 km from Tbilisi.

Geographically, VPAs are located between the two main rivers of Kakheti – Alazani and Iori, which represent concurrently a line of state demarcation with the Republic of Azerbaijan. The total area occupied by VPAs makes 25,114 ha, the average altitude above sea level varying within 300–600 m.

The Vashlovani Area is notable for its unique biodiversity; light forests, submontane deserts and Alazani floodplains, steppes and shrubs alternate each other within a small territory.

A great number of juniper and Caucasian hackberry (*Celtis caucasica*) trees also deserves mentioning, although the most unique for Vashlovani are the wild pistachio trees of rare species (*Pistacia mutica*) which abound here; the view of scattered, rounded pistachio tree crowns gives the impression of an apple garden; it is probably the reason why these places are called Vashlovani ('apple orchard valley' in Georgian).

In addition to flora, there are many rare representatives of fauna in Vashlovani, which are now critically endangered. The VPAs have every means to preserve and further propagate rare animal species and birds existing in the area.

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Based on the above, much effort should be directed at preserving the wild flora and fauna within VPAs in order to achieve the biodiversity balance and sustainability.

In addition to the unique biodiversity, the areas have long been used as winter pastures, which are of great importance for the population of the Eastern Georgian regions, where livestock breeding is a traditional sector of economy, particularly for the population of Tusheti. Because of their geographical position and climate, the VPAs and the adjacent Shiraki and Eldari Valleys represent a zone of semi-deserts with insignificant amount of precipitation (and rarely as snow) in winters. Thanks to it, the Tusheti population has used these areas as winter pastures for ages.

In the Soviet times too, areas for winter pastures used to be allocated to the state and collective farms of the Akhmeta district, where mass livestock wintering was practiced. The origin of the nearby village Kasristskali in the middle of the twentieth century is associated with these pastures. The population of this village completely consists of the settlers from Alvani. The village Kasristskali is located at a 150 km distance from Akhmeta and belongs to Akhmeta Municipality.

Correspondingly, it is the continuation of the tradition that the livestock farmers of almost the whole Kakheti region still practice to winter their stock on said areas. A part of livestock farms (up to 45) is directly located within the PAs, while another part (32 farms) is located within the adjacent 2-km zone.

### **Short Description of the Target Villages**

#### **Villages in Dedoplistskaro Municipality**

1. **Zemo Kedi** – community center; located in the Shiraki Valley, at 700 m above sea level, at a 30 km distance from Dedoplistskaro. According to the population census (last conducted in 2002) data, the village population makes 2,958 inhabitants. The village Zemo Kedi belongs to the Khornabuji & Hereti Eparchy of the Patriarchate of Georgia.

**Contact person: Bezhan Sukhashvili – *The Governor* (Chief Executive) (Phone: 599-855919)**

2. **Gamarjveba** –community center; located in foothills of the south-west part of Gombori Range, at 700 m above sea level, at a 35 km distance from Dedoplistskaro. According to the population census data of 2002, the village population makes 1,578 inhabitants. The village Gamarjveba belongs to the Khornabuji & Hereti Eparchy of the Patriarchate of Georgia.

**Contact person: Gia Chincharauli – *The Governor* (Phone: 599-855919)**

3. **Arkhiloskalo** - community center; located in the Shiraki Valley, at 700 m above sea level, at a 30 km distance from Dedoplistskaro. According to the population census data of 2002, the village population makes 2,378 inhabitants. Arkhiloskalo is a climatic resort of local significance.

**Contact person: Gocha Kobaidze – *The Governor* (Phone: 599-741799)**

4. **Sabatlo** (former **Tsiteli Sabatlo**) - community center; located on the right bank of the Alazani River, at 210 m above sea level, at a 70 km distance from Dedoplistskaro. According to the population census data of 2002, the village population makes 508 inhabitants.

**Contact person: Karen Muselian – *The Governor* (Phone: 599-855924)**

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### **Villages in Akhmeta Municipality**

1. **Kasristskali** – (before 1966 **Eldari**) - village in Shiraki Valley; community center; administratively belongs to the Akhmeta Municipality; 500 m above sea level, at a 162 km distance from Akhmeta, 45 km - from Dedoplistskaro (territorially is located on this municipality); there is a central settlement of winter pastures of the shepherds from Zemo Alvani and Kvemo Alvani villages. According to the population census data of 2002, the village population makes 352 inhabitants.  
**Contact person: Archil Sulakauri – The Governor (Phone: 599-857906)**
2. **Zemo Alvani** – village in the Akhmeta Municipality; community center (v. Khorballo); located on the left bank of the Alazani River, at a 420 m above sea level. There is in the village a brick-built palace “Tskhrakara” of the King of Kakheti Levan (1520-1574). According to the population census data of 2002, the number of villagers totals 4,985.  
**Contact person: Levan Mancharauli – The Governor (Phone: 599-857913)**
3. **Kvemo Alvani** – village in the Akhmeta Municipality; community center (v. Babaneuri); located in the Alazani Valley, on the left bank of the Alazani River, at a 460 m above sea level, at a 15 km distance from Akhmeta. According to the population census data of 2002, the number of villagers totals 3,407.  
**Contact person: Archil Cholikidze – The Governor (Phone: 599-857912)**

NOTE: Alvani, Aloni, according to historic sources – a valley in Kakheti (in the present Akhmeta district). In the mid-16<sup>th</sup> century, King of Kakheti Levan donated the Alvani Valley to the Tushs as winter pastures. From the gift certificates of Teimuraz II and Erekle II dated by 1757 it is found that by that time the valley was used exclusively as pastureland. It has turned the permanent residence for the Tushs since the early 19<sup>th</sup> century. It is when the village Alvani (present Zemo Alvani and Kvemo Alvani) appeared.

### **Telavi Municipality**

**Laliskuri** – village in the Telavi Municipality (Pshavli Community); located in the Alazani Valley, on the right bank of the Stori River, 440 m above sea level, at a 33 km distance from Telavi. According to the population census data of 2002, the number of villagers totals 657. There is Laliskuri fortress (of about 16-17<sup>th</sup> centuries) in the village  
**Contact person: Zura Otiuridze – The Governor (Phone: 599-857751)**

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## 7. Number of Farms/Lodgings to be surveyed

Target Farms	Number of Farms
<b>Shavi Mta zone</b>	<b>28</b>
Territory of the national park	22
adjacent 2-km zone	6
<b>Central zone</b>	<b>17</b>
Territory of national park	13
adjacent 2-km zone	4
<b>West zone</b>	<b>25</b>
Territory of national park	3
adjacent 2-km zone	22
<b>Total number</b>	<b>70</b>

### *Distribution of Lodgings/Farms*

<b>Location of Farms</b>			
<b>Name of district</b>	<b>VPAs</b>	<b>2 km zone</b>	<b>Total</b>
<b><i>West Part</i></b>	<b><i>1</i></b>	<b><i>24</i></b>	<b><i>25</i></b>
Patara Shiraki district	0	4	4
Eshmakis Khevi district	1	0	1
Vashlovani district	0	2	2
Pantishara district	0	7	7
Samukhi district	0	11	11
<b><i>Central Part</i></b>	<b><i>16</i></b>	<b><i>4</i></b>	<b><i>20</i></b>
Bughamoedani district	6	0	6
Imedasmta district	2	0	2
Lekistkali district	1	0	1
Natlistkali district	3	2	5
Chighoetkhevi district	4	2	6
<b><i>Part of Shavi Mta</i></b>	<b><i>19</i></b>	<b><i>6</i></b>	<b><i>25</i></b>
Shavi Mta district	5	3	8
Tachistkali district	6	0	6
Alfadara district	6	1	7
Sabatlo district	2	2	4
<b><i>On the whole territory</i></b>	<b><i>36</i></b>	<b><i>34</i></b>	<b><i>70</i></b>



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### *Information on respondents*

Information has been collected on 70 farms, although one farm may have 2-4 owners. Since in the interviewing period lambing had not started yet, a part of owners were not on pastures and interviews were mostly taken at home and on pastures, with hired shepherds in some cases.

The average age of the interviewed makes 45 years, the oldest being 75 years old; most respondents belong to the age category from 35 to 65.

### *Lodgings/Farms Distributed in Municipalities*

<b>Farms distribution in municipalities</b>	
<b>Municipalities</b>	<b>Number</b>
<i>Akmeta</i>	<b>54</b>
Tusheti	45
Pankisi	9
<b>Telavi</b>	<b>5</b>
<b>Tianeti</b>	<b>2</b>
<b>Sagarejo</b>	<b>8</b>
Iormughanlo	7
<b>Dedoflistskaro</b>	<b>1</b>
<b><u>Total</u></b>	<b><u>70</u></b>

### *Infrastructure of Farms/Lodgings*

It should be mentioned that the absolute majority of the mentioned farms were built in the Soviet times; at that time collective and state farms were more actively engaged in livestock breeding and the infrastructure of farms correspondingly figured on all the branches of livestock breeding. Therefore, notwithstanding the currently developed livestock breeding sector (mainly sheep breeding), the major part of those engaged in the sector has a privatized farm/lodgings, a land plot from 1 to 3 ha and the necessary for livestock breeding infrastructure (stables, boxes, holding pens).

## **8. Pasture Area and Form of Ownership**

The average area of a farm constitutes 300 ha. The smallest out of them is the farm which has 80 ha pasture; the largest is the farm with 1,000 ha of pastureland.

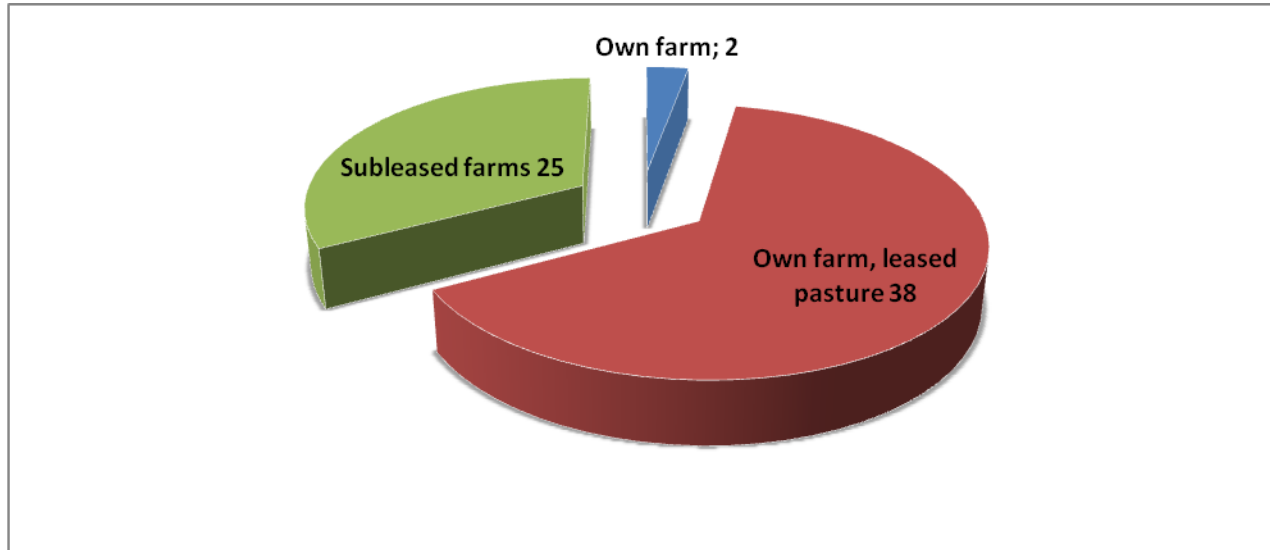
Out of 70 surveyed farms, 40 Tush holders of lodgings (shepherds, livestock breeders) lease pasture (farms they have in ownership - as they say). The lease charge per season varies between GEL 5,000 to

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10,000, depending on the pasture acreage and the farm facilities; the rent per season (4-5 months) in a farm is GEL 10 per head (sheep, cow).

For shepherds the seasonal lease charge for pasture is acceptable in the range of 1, 5-3.0 Gel per ha (Depending on the pastureland quality and watering places).

***Forms of farm and pasture ownership***



**9. Human Resources Employed in Farms/Lodgings**

In the surveyed pastures, there were 217 holders of lodgings & livestock and 266 shepherds, which on average make 7 persons per farm. A part of the holders stays in farms mostly during the lambing period and spring shearing; in other periods shepherds look after animals. The maximum number of people staying in farms is 12, the minimum - 1. Several farms, mostly managed by Azeri, are run by the family members, each having own functions.

**10. Duration of Pasture Use**

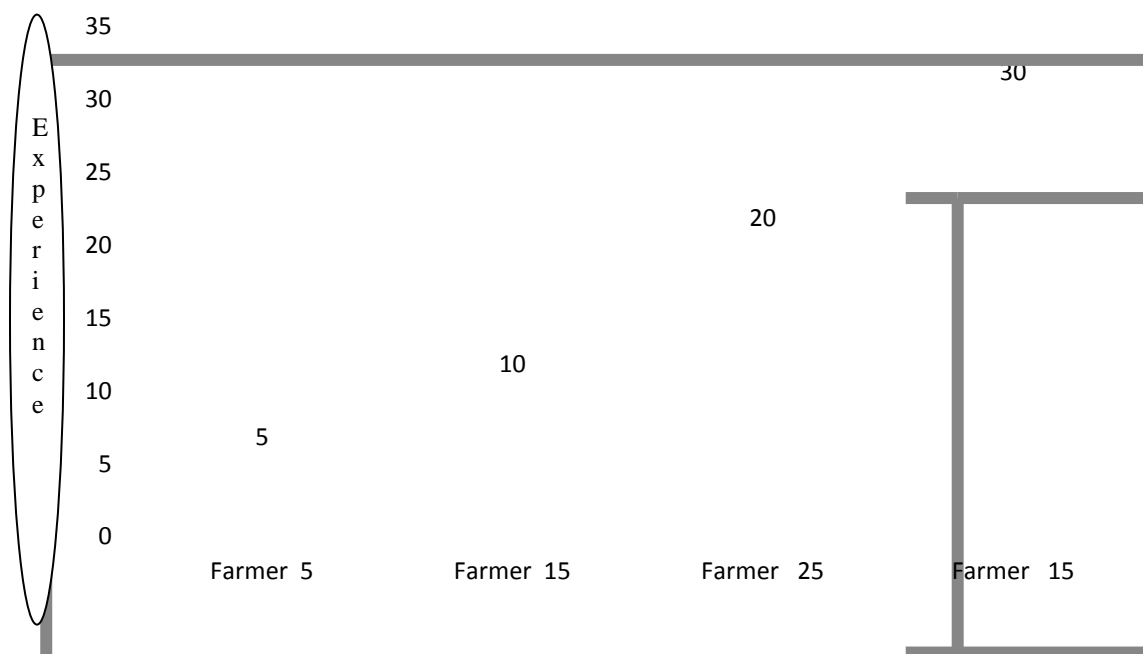
The pastures accommodating private farms of livestock owners are used for much longer time by their holders and an average length of their use makes 20 years. As for those wintering on leased farms, their use varies from one to 5 years. The longest use by the same winterer is 30 years; the shortest is correspondingly 5 years.

Notable that before 2004 some farmers had 49-year lease on pastures; since 2004 such long-term lease has been abolished and pastures can be leased for a 3- and 10-year periods. Now one of the problems is that the rental payments is often changed by government without any real reason. The instability of rental payments (especially increased tariffs) affects the livelihood of Tush shepherds. Although the biggest danger the shepherds find is that the pastures might be sold on auctions held by the government

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as they did not own them. According to the information gathered during the study most of the pastures have been rented by limited liability companies and they sublease these rented pastures to others, although often they lack proper lease documentation. In addition, the lease costs paid to the budget are not spent on improving the sheep-breeding infrastructure; in particular, nobody cares for: drovers' roads, sheep watering and washing places and herder shelters. All these often result in conflicts between herders and the population living along the drovers' roads.

### *Working Experience & Number of Farmers*



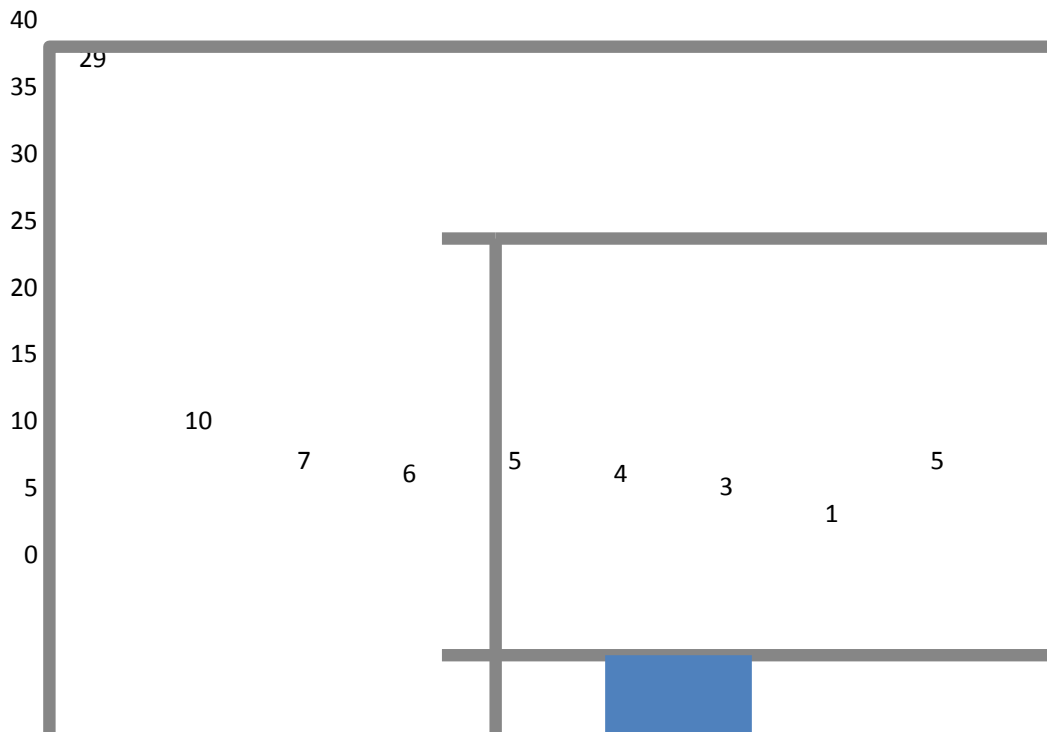
### **11. Summer Pastures**

The surveyed 70 farms go for summer pastures to different regions (this is not dependent on ethnicity/origin of the holders) listed below:

- Mtatusheti –29 farms/lodgings, holders;
- Tianeti –10;
- Ukanapshavi -7;
- Pankisi Gorge – 6;
- Javakheti – 5 (permanently stay and / go for summer pastures)
- Khevsureti - 4;
- Gombori -3;
- Dmanisi – 1
- nearby village Kasristskali – 5

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### Distribution of Herders on Summer Pastures



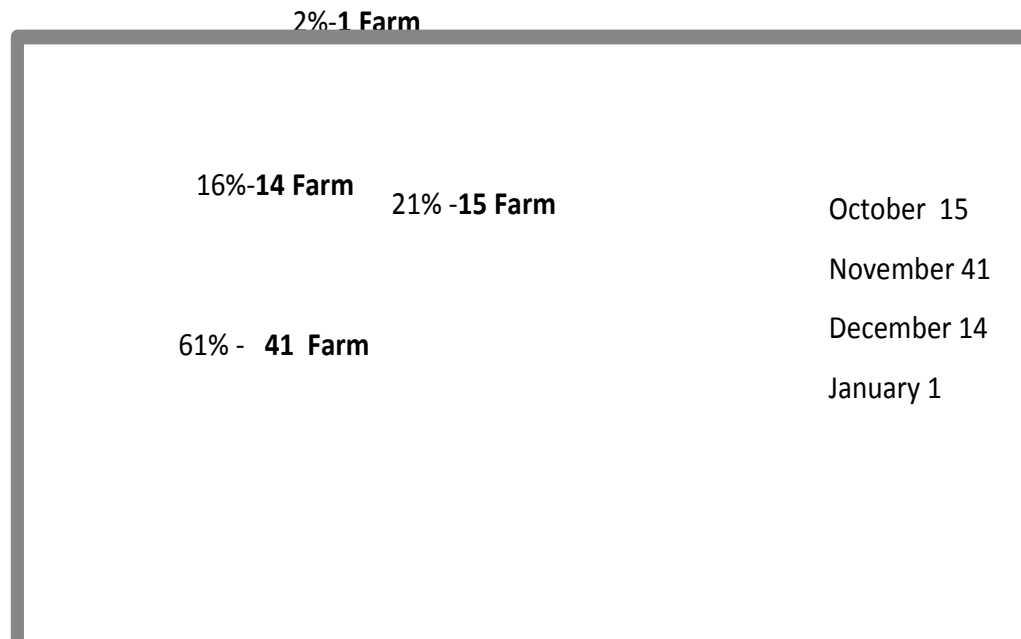
### Using pastures for grazing

The use of winter pastures for grazing starts in October, the most intensive use is in November. Thereafter, the intensity decreases and only solitary farms stay there by January. In the current year, 15 farms were recorded in October, 40 in November, 14 in December and only one farm in January.

The survey results revealed that there are no other alternative places for winter pastures Tush shepherds have no desire to replace the accustomed place of traditional pastures because of their lifestyle.

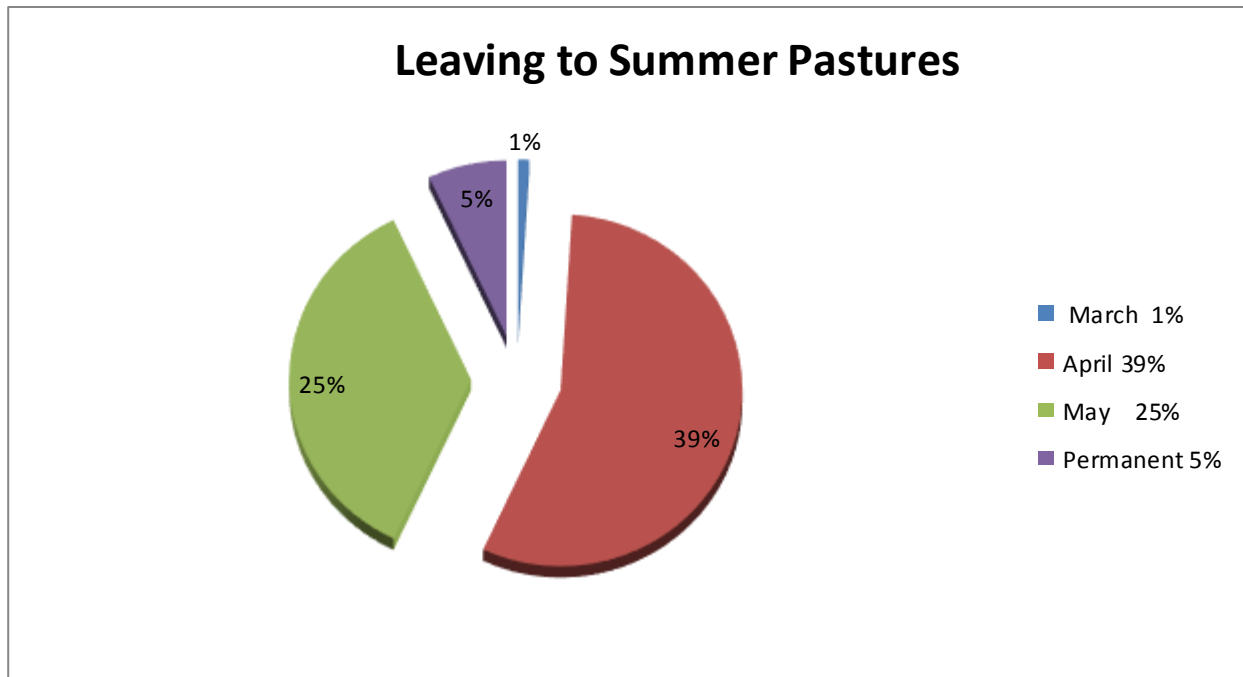
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### Beginning of Wintering (Out of 70 Farms)



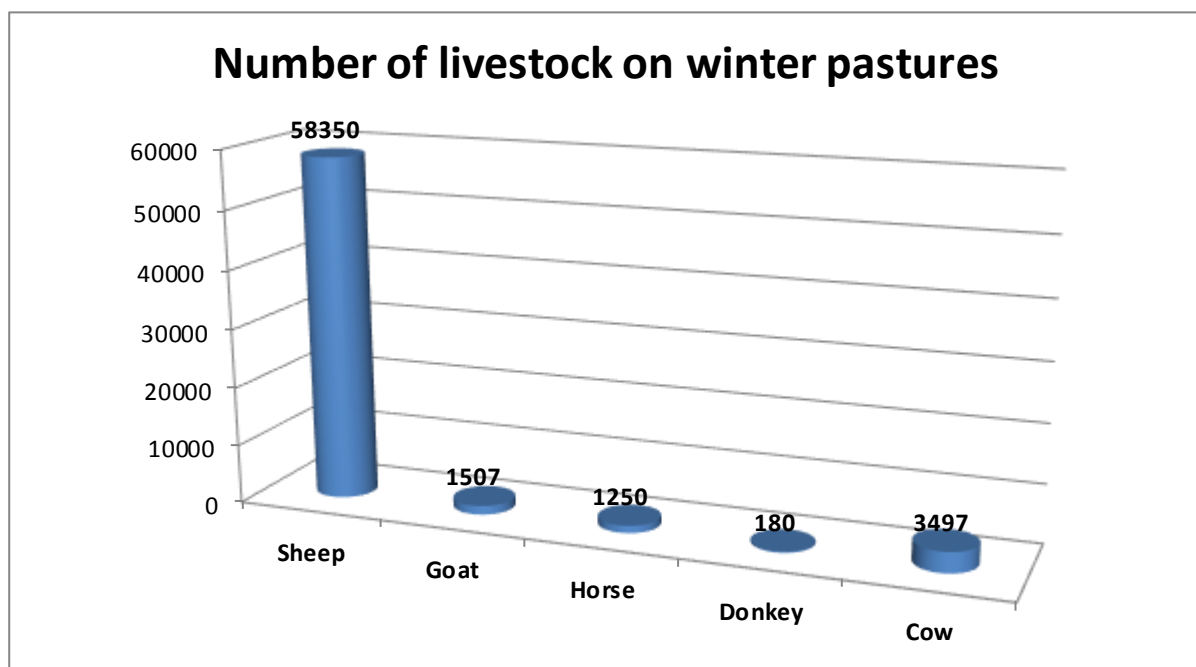
The spring season starts correspondingly in different months. For example, in March only 2 farms leave the pasture; in general, 37 farms leave for summer pastures in April, 30 - in May, and by June only the livestock of 3 farms, which permanently stay there, remain

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## 12. Number of Wintering Livestock

It should be mentioned that most holders and herders do not count goats separately and their exact number is unknown; goats are counted as sheep; therefore we could determine their number only approximately.



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### 13. Seasonal Calendar and Winter Pasture Output

During the period of stay on winter pastures, the main attention is paid to the livestock wintering and initial feeding /strengthening of new-born lambs. Therefore, the commercial use of livestock products is rarely practiced; only a small number of farmers make sheep and cow cheese – up to 1,5 tons and one ton respectively, and all these for own consumption, while the meat (about 15,000 kg) is sold to middlemen. More serious importance has the cow milk – production of about 214,730 litres is mainly supplied to milk plants in the autumn-winter period; in terms of sales, the great role is played by *the Dedoplistskaro Dairy plant*, which receives milk from several farms, mainly from the cattle-breeding farms of central location - Natlistskali, Vashlovani localities and in the west - Patara Shiraki. Meat sales take place generally in Kasristskali village and Dedoplistskaro - only live animals are sold.

Of special attention is the sale of sheep wool. According to herders, 175 tons of wool can be procured during the spring and summer periods; in spring only the sheep, which have no lambs and are physically strong, are shorn; as for ewes, they are shorn when on summer pastures.

#### *Seasonal Calendar of Tush Herders*

Activity	month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Lambing		X	X										
Sheep shearing					X				X				
Lamb shearing								X	X				
Sheep washing					X					X			
Vaccination				X	X					X	X		
The main phases of dehelmentization				X			X		X		X	X	
Preparation for drive				X	X					X			
Driving				X	X	X				X	X		
Additional feeding		X	X	X									X
Sheep milking						X	X	X					
Introduction of a ram into a flock										X			
Number of activities		2	2	4	5	4	1	2	3	5	3	1	1

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### *Sales of Products and Related Problems*

Different products produced on winter or summer pastures have own ways of sales. On the winter pastures, where cattle farms of Natlistskali, Chighoetkhevi and Vashlovani areas are located, milk is collected and delivered to the Dedoplistkaro milk-processing plant; transportation is carried out at the plant's expense. The cattle farms of Shavi Mta, Alphadara and Sabatlo areas sell cheese in Sabatlo, or exchange it for other food products they need. To purchase livestock a part of the population of Kasristskali village and Dedoplistskaro go to the nearby farms (close to Georgian-Azerbaijan border), where frontier control points are not located.

In early spring, during the sheep shearing period, Azeri dealers used to arrive from the Iormughanlo of the Sagarejo district to buy local sheep wool, which is no longer practiced today. Herders no longer can sell the wool and have to leave it on the place of shearing.

Most pastures lack livestock watering places. Every third day farmers have to drive the livestock at a distance of several kilometres in order to water them, or use at best the poodles left after rain for this purpose.

The more accurate and actual picture can be produced by comparing the map (GPS) coordinates of the watering places with those of the farms.

The invasion of pastures by unpalatable shrubs & bushes has been assessed through merely visual observations made by the working group; therefore the findings might not reflect the actual situation accurately. Out of the 96 surveyed farms 22 do not have problems with shrubs & bushes; these are the farms of the Samukhi and Pantishara areas; whereas in the Shavi Mta and Eshmakis Khevi areas 26-50% invasion is observed.

The respondents complain of only two types of losses – these are losses due to predators and diseases. As regards other possible types, no cases of stealing or other losses have been recorded. There was only one case when the livestock was injured and the herders slaughtered the stock for meat. There are some cases when sheep are lost under uncertain circumstances and their remains are found on the next day, which, in the end, is also ascribed to predators.

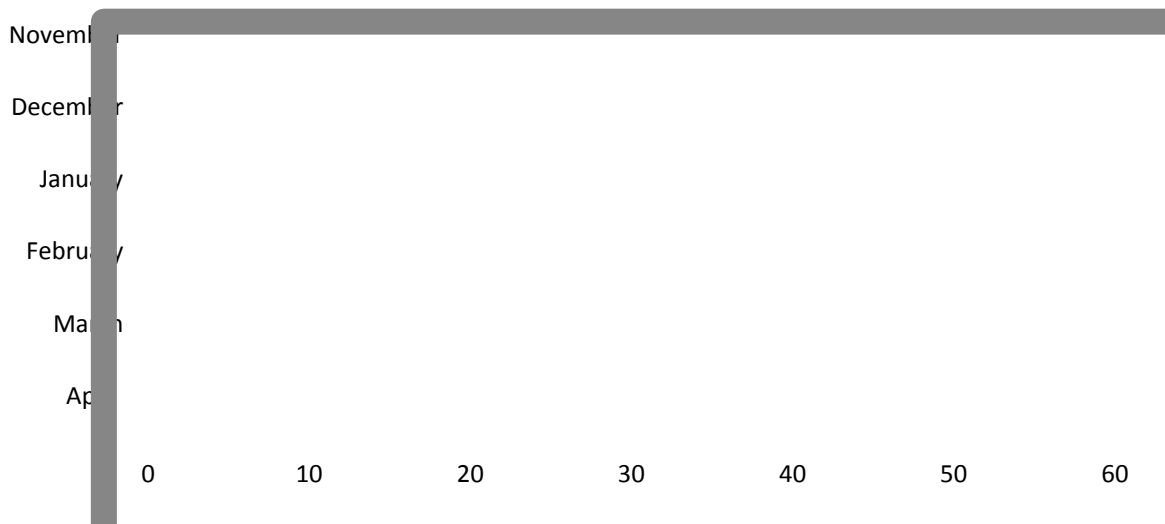
Out of the surveyed farmers, 40 did not report livestock losses due to diseases, the number of those giving reported such losses made 30.

According to the degree of damage, the losses caused by livestock diseases are considered more significant than those caused by the attacks of predators.

The most active months according to the results of losses to predators are considered February and March. It is the wolves' reproduction period, when they move in hordes. According to herders, at that time they may present a danger even to humans.



### Losses of Livestock due to Predators



According to the information obtained from the respondents, the most attacked are the farms where sheep are wintered. The wintering cattle and horse farms suffer from the attacks of the predators less. It should, however, be mentioned that several cattle farms, particularly within the Shavi Mta and Takhistskali localities, experience severe attacks of predators. Since the last year, losses have accounted for 588 heads of sheep and 47 heads of cattle.

To protect farms from wolf attacks herding dogs, shepherds sleeping near the flock, and scaring toy firecrackers are used. According to the interviewed persons, herding dogs are the most effective against wolves. That's why every herder keeps different breeds of herding dogs. Keeping of sheep in pens and sleeping of farm holders or herders near the flock in watch-boxes are also well practiced.

#### 14. Veterinary Service

##### *Which is the most problematic disease in livestock?*

Over half (52%) of the respondents opine that their stock have no diseases. They are more experienced herders who are well aware of the sector and can carry out preventive treatment themselves.

Bradsot (braxy) has been named as the most problematic disease (14 cases); it occurs suddenly and, unless the animals are vaccinated, can annihilate the flock; insect-borne diseases are also widely spread, but herders use to stock up drugs beforehand and every autumn and spring the preventive treatment of livestock is carried out.

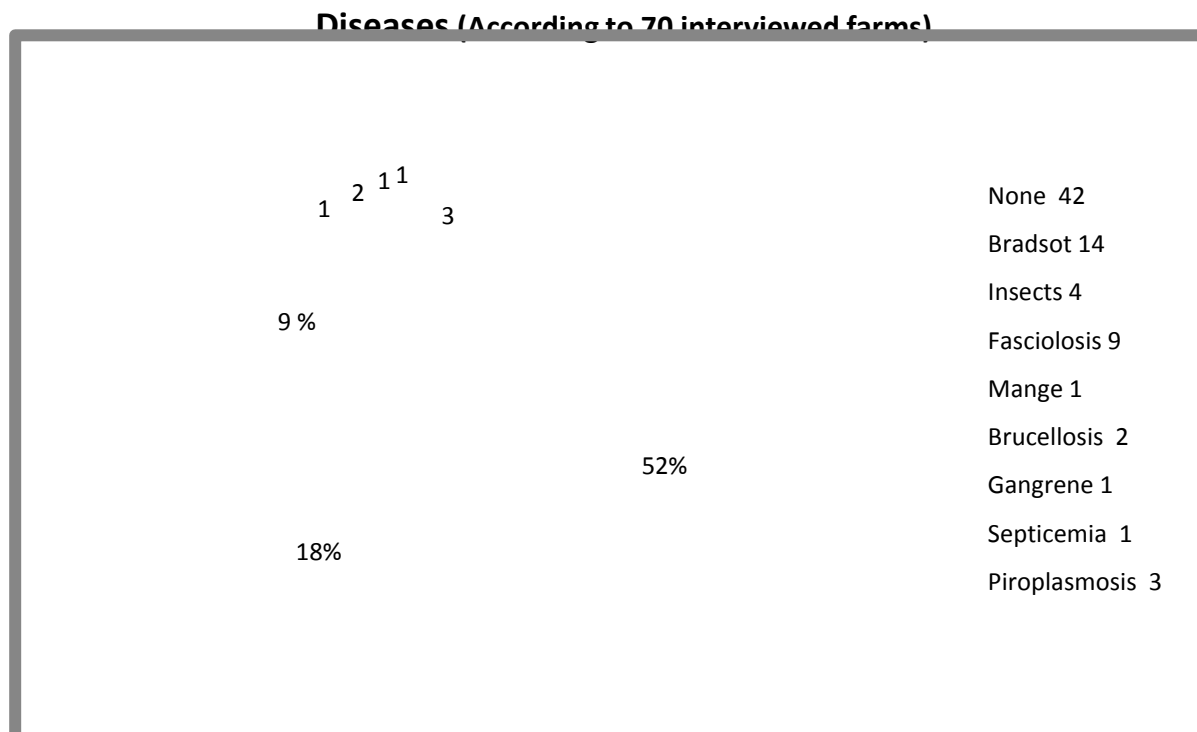
Also worth to mention is brucellosis, which is not so widely spread and was detected only on 2 cattle farms; however if control tests are made in every farm, then animals with this disease might be revealed in more than 2 farms (it should be mentioned that the symptoms of brucellosis are easier to

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detect in cattle, whereas in sheep indications of the disease are hidden); another problematic disease is piroplasmiasis, which causes death of animals. The sheep experiencing the lack of water are disposed to this disease.

All the respondents unanimously mention that vaccination against rabies and anthrax is free, while other vet services are charged. Many of them being rather experienced in sheep breeding, and correspondingly in veterinary sphere, rarely refer to the services of a vet surgeon; they buy the necessary preparations and treat the livestock themselves.

The main dissatisfaction of herders is associated with the quality of drugs; according to them, many drugs are adulterated and they have to treat sheep 2-3 times for one disease. The same problem exists in respect of the bradsot vaccine, which is produced in Russia. Because of the current political situation, the drug is being exported to Georgia from Azerbaijan illegally. This complicates its purchase and greatly affects the price. In individual cases the respondents name the problem of accessibility of vet services. For example, the villagers of Kasristskali, which is quite distanced from the administrative center, have to bear the transportation costs of a veterinary surgeon themselves.



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## 15. Economic Indicators

### Sheep Flock Profitability Calculation

(Using the 1000-head sheep model)

Name of expenditure	Livestock	Norm per head (ha)	Price (GEL/Ha) In case of lease	Price (GEL/Ha) In case of sublease	Total price In case of lease (GEL)	Total price In case of sublease (GEL)
Summer pasture	1,000	0.35	15	15	5,250	5,250
Winter pasture	1,000	0.8	15	30	12,000	24,000
<b>TOTAL COST</b>					<b>17,250</b>	<b>29,250</b>

The following 2 cases are presented here:

1. Leased pastures
2. Subleased pastures

### Maintenance/keeping costs in case of 1,000-head sheep:

Cost	Livestock	In case of leased pastures			In case of subleased pastures			Total (GEL)		
		Rate per head (GEL)	Number	Cost	Rate per head (GEL)	Number	Cost			
Supplementary feed in winter (barley - 60 days)	1,000	0.3	60	0.5	<b>9,000</b>	0.3	60	0.5	<b>9,000</b>	
Vaccination				8	<b>8,000</b>			8	<b>8,000</b>	
Sheep driving (2 routes)				2	1,250	<b>2,500</b>		2	1,250	<b>2,500</b>
Salt		1		1	<b>1,000</b>	1		1	<b>1,000</b>	
Shepherds during lambing (5 months)		6	5	500	<b>15,000</b>	6	5	500	<b>15,000</b>	
Shepherds (7 months)		4	7	500	<b>14,000</b>	4	7	500	<b>14,000</b>	
Milkers (3 months)						0.01	3	1,000	<b>30,000</b>	
<b>TOTAL</b>						<b>49,500</b>				<b>79,500</b>

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**Based on calculations, the stock-keeping costs of a 1000-head sheep flock and, accordingly, of 1 sheep are as follows:**

Annual cost	In case of lease (GEL)		In case of sublease (GEL)	
	With cheese-making	Without cheese-making	With cheese-making	Without cheese-making
Per flock	66,750	96,750	78,750	108,750
Per head	66.75	96.75	78.75	108.75

As it can be seen, the difference in pasture use costs gives a definite change in stock-keeping price of one head of sheep.

**The structure of costs per head of sheep is as follows:**

Cost name	In case of lease (GEL)		In case of sublease (GEL)	
	Without cheese-making	With cheese-making	Without cheese-making	With cheese-making
Summer pasture	5.25	5.25	5.25	5.25
Winter pasture	12	12	24	24
Additional food	9	9	9	9
Vaccination	8	8	8	8
Sheep driving	2.5	2.5	2.5	2.5
Salt	1	1	1	1
Shepherds' costs during lambing	15	15	15	15
Shepherds' costs	14	14	14	14
Milkers costs		30		30
<b>TOTAL</b>	<b>66.75</b>	<b>96.75</b>	<b>78.75</b>	<b>108.75</b>

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The structure of costs and the sources of incomes:

	Without cheese-making			With cheese-making		
	Number of heads	Price	GEL	Number of heads	Price	GEL
<b>Number of livestock in the beginning of season</b>	<b>1,000</b>			<b>1,000</b>		
Including ewes	1,000			1,000		
Including lambs	0			0		
<b>Livestock increase</b>	<b>1,000</b>			<b>1,000</b>		
Including ewes	0			0		
Including lambs	1,000			1,000		
<b>Animal mortality, total</b>	<b>200</b>			<b>200</b>		
Including ewes	50			50		
Including lambs	150			150		
<b>Sold livestock, total</b>	<b>800</b>		<b>108,000</b>	<b>800</b>		<b>166,000</b>
Including milk-dry ewes	200	90	18,000	200	90	18,000
Including lambs	600	150	90,000	600	130	78,000
Cheese sale	0	0	0	7,000	10	70,000
<b>Number of heads at the end of season</b>	<b>1,000</b>			<b>1,000</b>		
Ewes	750			750		
Ewe lamb	250			250		
<b>Income</b>			<b>108,000</b>			<b>166,000</b>

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**The cost/income sheet in both, the lease and sublease cases is as follows:**

	In case of lease (GEL)				In case of sublease (GEL)			
	Without cheese making		With cheese Making		Without cheese making		With cheese Making	
	Per 1000-head of flock	Per 1 head of sheep	Per 1,000-head of flock	Per 1 head of sheep	Per 1,000-head of flock	Per 1 head of sheep	Per 1,000-head of flock	Per 1 head of sheep
<b>Income, total</b>	108,000	108	166,000	166	108,000	108	166,000	166
<b>Costs, total</b>	66,750	66.75	96,750	96.75	78,750	78.75	108,750	108.75
<b>Profit</b>	41,250	41.25	69,250	69.25	29,250	29.25	57,250	57.25
<b>Income tax</b>	0	0	0	0	0	0	0	0
<b>Retained income</b>	<b>41,250</b>	<b>41.25</b>	<b>69,250</b>	<b>69.25</b>	<b>29,250</b>	<b>29.25</b>	<b>57,250</b>	<b>57.25</b>

## 16. Problems and Recommendations

On the basis of the Survey results the working group has revealed a list of problems and prepared recommendations.

### Problems

1. The lack of proper infrastructure:
  - a. No electricity on farms
  - b. No telephone communication
  - c. Bad access road;
  - d. Few drinking and watering places
  - e. Poor state of tourist infrastructure (lack of sanitary/hygiene conditions, poor state of places for overnight stay, lack of a first-aid units).
2. Absence of veterinary service, veterinary preparations and insurance.
3. Overgrazing – pastures are deteriorated as a result of unrestricted grazing (lack of pasture rotation).
4. Predators – wolves, bears, jackals, and caracals (increased risk of attacks due to the lack of control of predators).
5. Desertification due to the unrestricted grazing, which endangers biodiversity.
6. Herders cannot sell wool.

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7. Drove-ways/transhumance routes are not marked; veterinary service is not available along drove-ways; there are no transitional pastures (marking would significantly decrease conflicts between the population living near drove-ways and the shepherds).
8. Damage of pastures as a result of coming of buffalos from Azerbaijan.
9. Interrupted supply of service water from Azerbaijan, which makes sheep watering problematic (it should be found out whether there is an agreement on water supply with Azerbaijan or not).
10. Lack of means of defence from attacks by reptiles (no anti-viper drugs, lack of skilled personnel, and transport).
11. Livestock is not insured (risks: diseases, mortality, predators);
12. Lack of knowledge in livestock farming (veterinary, milk processing, marketing, food safety standards).
13. Public registry documentation is not complete in regard of ownership (land and housing).

## Recommendations

1. Improving the infrastructure
  - Electrification
  - Telephone communication improvement
  - Repair of access roads
  - Supply of drinking water and provision of livestock watering facilities (arrangement of artesian wells, water supply with cisterns)
  - Arrangement of tourist infrastructure (arrangement of places for overnight stay and water supply; setting up of a first-aid unit; development of a touristic products)
2. Establishment of unified veterinary service for Tush shepherds.
3. Introduction of a rotational grazing system (division of pastures into equal parts, rotational grazing; application of a solar electric fences - “electric herders”).

### 4. Insurance

There is a need of development of affordable and effective insurance packages for shepherds in cooperation with insurance companies. Usually availability / price and effectiveness of insurance packages depend on two main factors: the insurance risks and a number of insured individuals.

Therefore, at this stage, the main effort should be made in the following areas:

- a. Make the insurance companies interested in the segment;

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- b. Reduce the risk of animal mortality in the farms through preventive measures (by making maximum use of the existing structures, i.e. veterinary services);
- c. Encourage farmers to use insurance products;
- d. Create effective mechanism for recording/promoting the insurance cases.

According to the above mentioned the following is required:

- Accomplish accurate registration of animals and conduct evaluation of insurance market potential;
  - Achieve obligatory numeration of animals under the strict control at the protected area;
  - Undertake strict veterinary control (mandatory vaccination and creation of an updatable and accessible database on vaccination) on-site and along the entire route;
  - Develop insurance packages in cooperation with insurance companies and communicate information about those packages to shepherds;
  - Motivate the shepherds to purchase insurance packages (at the initial stage a method of direct subsidies can be used for a certain period);
  - Involve rangers and local self-government bodies in registering the insurance cases.
5. Implement a pilot intercropping model (without tillage) on trial plots of absinth (wormwood) and saltwort to conserve biodiversity.
  6. Set up primary collecting stations for wool and look for a market.
  7. Establish drovers' routes; form a mobile group, which will work permanently to provide Tush shepherds with veterinary services.
  8. Arrange electric fences ("electric shepherds") on the Azerbaijan-Georgian border being crossed by buffalos.
  9. Conduct negotiations with Azerbaijani responsible persons and make an agreement on the supply of service water from Azerbaijan.
  10. Set up a first-aid unit and staff it with skilled personnel; provide with transportation means and with anti-viper drugs.

For Tush shepherds sheep is their lifestyle, pride, part of spirit and sacred icon. We all are aware of that both sheep and shepherd needs help, and at first it would be good to establish a permanent group of two or three persons - veterinarians and livestock experts, who will accompany Tush shepherds at winter and summer pastures, and move together with them on the roads when changing the location. This group of experts will supervise preventive vaccinations of sheep, horses and dogs, and in case of need, their treatment, disinfection and sheep washing (against ecto- and endo parasites). It will be good if this group will be equipped with sheep shearing blade – "Dukardi" - to be used by all the shepherds, so they do not have to buy these devices separately.



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11. Conduct training on legal issues

12. Develop Brand of regional products

Cheese Production:

Enactment of the law on food safety may pose a serious threat to one of the most important income source for traditional Tush farmers – Tushetian Guda Cheese. Therefore, regional product branding and standardization is a high priority issue for maintaining traditional Tushetian Sheep breeding. Key objectives of the development of regional product brand and standards should include:

- Ensure the product recognition;
- Stop counterfeits;
- Bring production of Tushetian Guda Cheese in compliance with the food safety legislation.

The latter is especially important as the National Agency of Food Safety of Georgia (NFA) is focused on the control of milk processing, and the conditions of Guda Cheese production do not meet the legal requirements at present.

With the view of filling the above mentioned gap, it is required to establish the obligatory (place of origin, technology, storage conditions, etc.) and minimal standards (processing conditions, sanitary norms, etc.) for this product and to lobby their approval by the NFA. A Switzerland’s standard for traditional Swiss cheese, as an exceptional one, is a good example of the possibility of having different standards and requirements for the production of traditional goods.

Creation of a logo for regional products is a significant requirement to ensure traditional sheep production visibility and achieve market recognition. Special attention should be paid to the elaboration and approval of the procedures related to the assigning logo. Logo should be assigned either by existed (e.g. Association “Tush Shepherd”) or newly created local body, which is capable to control and certify the regional product.

Creation of the logo (not only logo/brand of Tushetian cheese) is recommended in order to reduce advertising costs at the production and market development stages.

Establishment of the wool primary reception center and looking for the market:

A survey has shown that the sale of wool is a serious problem in Georgia despite the fact that the wool is one of the precious natural raw materials. In order to support the sale of Georgian wool, it is necessary to carry out the following activities:

- Make research on market demand and market prices (both local and export markets);
- Establish the wool categories according to market demand;
- Identify Tushetian sheep wool category and needed technology for obtaining of standard goods;
- Develop business plan and make comparison of the estimated costs to market prices in assumption of the current situation (market prices), and in case of positive indicators
- Support establishment of a small primary wool processing shop on the spot.

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### 17. Training Needs Assessment

#	Problem	Solution	Trainings
1.	<p><b>Lack of food safety system</b></p> <p><b>Risk of diseases transferred by the domestic animals (cattle) is quite high in the region.</b></p> <p><b>Care and feeding of domestic animals, usually do not follow any accepted norms, standards and rules.</b></p>	<p>Introduction of a food safety system.</p> <p>The introduction of such a system in villages should start with the setup of a competent veterinary service.</p> <p>Fixing of water supply and other infrastructural problems is also important.</p> <p>All these should be managed by the respective competent government structures.</p> <p>In parallel with holding of training, the target group should be provided (even under conditions of partial co-financing) with modern licensed vet preparations for testing and demonstrating their effectiveness.</p>	<p>In parallel with the setting up of a competent veterinary service system, it would be expedient to conduct the following trainings:</p> <p>Target group: Shepherds, herders and cheese makers</p> <p>Subject: I. Zoo-technics 1. Module <b>Compliance with sanitary standards and personal hygiene when contacting animals and in the cheese-making process</b></p> <p>Issues:</p> <ul style="list-style-type: none"> <li>• Compliance with sanitary standards in cattle stand;</li> <li>• Compliance with sanitary standards when contacting animals;</li> <li>• Hygiene of cheese-making;</li> <li>• Personal hygiene standards.</li> </ul> <p>2. Module <b>Standardized sheep feeding</b></p> <ul style="list-style-type: none"> <li>• Factors affecting sheep productive performance;</li> <li>• Ram feeding;</li> <li>• Milking ewe feeding;</li> <li>• Lamb (up to one year of age) feeding;</li> <li>• Sheep fattening.</li> </ul> <p>3. Module Sheep farming issues:</p> <ul style="list-style-type: none"> <li>• Pedigree livestock</li> </ul>

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#	Problem	Solution	Trainings
			selection/breeding; • Lambing.
2.	<p><b>Overgrazing of pastures nearby Vashlovani protected area and extinction of flora existed at these pastures.</b></p> <p><b>Feed is not sufficient</b> <b>Disadvantage of free-Grazing method</b> is not considered:</p> <ul style="list-style-type: none"> <li>• Pasture yield and load;</li> <li>• Duration of grazing method, animals consume only 67-70 % of total pasture harvest (the rest is trampled by the animals or remain unused);</li> <li>• Botanical composition and nutritional value of herbage;</li> <li>• Grouping of animals in accordance of gender, age and physiological state.</li> </ul>	<p><b>For correct use/management of pastures the following is needed:</b></p> <ul style="list-style-type: none"> <li>• Grazing of animals on such pastures which provides high productivity;</li> <li>• The maximum number of animals should feed on pasture;</li> <li>• Long-term use pastures should maintain high-yield and high-quality composition of herbage;</li> <li>• The conditions for further improvement of pasture productivity should be established through <b>intercropping of certain crops artificially without tilling.</b></li> </ul> <p>Before providing training directly related to this issue a model demonstration plot has to be arranged in order to adjust the method to local conditions and convince the shepherds in its effectiveness.</p> <p>After successful implementation of the demonstration model, it is possible to conduct practical trainings for multiplication of this method.</p> <p><b>For correct use/management of pastures</b> - Rotation of grazing plots: - increases the yield of pasture in 30 %-let grazing animals to get 83-85 % of total pasture yield; gives possibility to sustain 125-140 grazing animals on 100 ha, while using green grazing method, the same plot can sustain only 80 - 100 cow (1 cow</p>	<p><b>Topics:</b> <b>II. Correct use / management of natural pastures</b></p> <p><i>1. Module:</i> <b>Pasture Management</b> Issues: A. Improvement of natural pastures through selection and sorting of animals; B. Rotation of pastures and defining number of cattle; C. Natural pasture use efficiency; D. Arrangement and use of different types of fences.</p> <p><i>2. Module:</i> <b>Artificial improvement of pasture productivity without tilling, through intercropping of certain crops.</b></p> <p>Before arrangement of demonstration plot, it is necessary to introduce shepherds with the objective and content of the trial. It may have the form of one-day training.</p> <p>Issues: A. General principles of organic farming; B. Organic farming in Europe; G. Importance of intercropping in winter pastures; D. Harvest improvement without tillage.</p>

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#	Problem	Solution	Trainings
		/equals 2-3 sheep);- promotes normal vegetation of cenoses, increases the herbage rate and sustainable use of natural pasture areas;- provides opportunities for carrying out pasture improvement measures;- prevents animals from the gastro - intestinal system parasitic diseases.	
3.	<p>As there veterinary services is very weak in Georgia, and particularly in the region, the animals' mortality rate is high. Mortality and its reasons are not studied competently. Registration of cattle does not take place on a systematic base and all necessary vaccinations are not made.</p> <p><i>For the fourth module:</i> Shepherds frequently use veterinary preparations of the unknown origin (sometimes even prohibited ones, e.g., DDT). In frequent cases the dosage requirements and other mandatory standards are not met.</p> <p>All these harm animals and jeopardize both the producer and the consumer and affect</p>	<p>In parallel of trainings it is necessary the existence of veterinary service, which will study the reasons of death, provides a qualified diagnostics and all necessary vaccination and treatment.</p> <p>In parallel with holding of training, it is desired the target group to be provided by (even under conditions of partial co-financing) modern licensed vet preparations for testing and demonstrating their effectiveness.</p>	<p><b>Topics:</b></p> <p><b>III.</b> Mandatory, urgent veterinary service</p> <p>1. Module Compulsory vaccination</p> <p>2. Module Conducting preventive measures</p> <p>Issues:</p> <p>a. General Principles of organic farming;</p> <p>b. Use of organic methods;</p> <p>c. Making bio-preparations under field conditions and their use</p> <p>d. Other control measures</p> <p>3. Module Diseases, existing risks and ways to avoid them</p> <p>Issues:</p> <p>a. Infectious diseases;</p> <p>b. Mechanical injuries;</p> <p>c. Parasitic disease</p> <p>4. Module Modern licensed preparations purchase and use</p> <p>Issues:</p> <p>a. Preparations to strengthen the immune system;</p> <p>b. Effective veterinary preparations;</p>

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#	Problem	Solution	Trainings
	the final product's quality and quantity.		<p>c. Modern production stimulants</p> <p><i>Needed specialists (lecturers) for all topics:</i></p> <ol style="list-style-type: none"> <li>1. Zoo-technician;</li> <li>2. Zoo-technician, pasture management expert;</li> <li>3. General veterinary expert in sheep diseases;</li> <li>4. Veterinary expert in vet preparations</li> <li>5. Organic farming expert;</li> <li>6. Botanist, ecologist.</li> </ol> <p>Target group: Sheep breeders (Owners of the sheep on VPAs)</p>
4.	<p><b>II. Marketing</b></p> <p>Lack of a stable market. Shepherds manage to sell cheese and meat(live) sheep, but this market is highly dependent on middle men</p> <p>The shepherds buy production tools individually and therefore pay higher price.</p> <p>Sheep breeders cannot sell wool because of low price that cannot cover even transportation costs</p>	Cooperation for getting a stable market.	<p><b>Subject</b></p> <p><b>I. Cooperation</b></p> <p><i>1. Module:</i></p> <p>Fundamentals of cooperation, legislation and establishment rules</p> <p>Issues:</p> <ol style="list-style-type: none"> <li>A. The role of the cooperative;</li> <li>B. Why is the cooperation effective;</li> <li>C. Cooperative and its theory;</li> <li>D. The basic principles of the cooperative;</li> <li>E. Necessary conditions for establishment of cooperatives;</li> <li>F. The purpose of the cooperative;</li> <li>G. Cooperative challenges/problems;</li> <li>H. Types of cooperatives;</li> <li>I. Cooperative management;</li> <li>J. Formation of cooperative capital;</li> <li>K. Cooperative audit;</li> <li>L. Shares and profit-sharing principles;</li> <li>M. Cooperative members'</li> </ol>

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#	Problem	Solution	Trainings
			obligations; N. Cooperative legislation and rules of establishment.
5.	Shepherds have low understanding in marketing. Usually they do not have a business plan and marketing strategy.	Existence of properly formulated marketing vision, strategy and proper business splan.	<p><b>Topic:</b>  <b>II. Marketing and business</b>  <i>1. Module:</i>  <b>Marketing fundamentals</b>            Issues:            A. The basic principles of marketing;            B. Situational analysis;            C. Risk analysis;            D. Strategy development;            E. Action plan development.</p> <p><i>2. Module:</i>  <b>Value chain and pricing</b>            Issues:            A. Development of commodity value chain;            B. Meeting Legal requirements in production and sales;            C. Product development;            D. Product labelling / branding;            E. Pricing;            F . Market entry strategy;            G. Food safety requirements;            H. Action plan development;            I. Business plan development.</p>
6.	Mostly shepherds’	Introduction of the proper	<b>Topic:</b>

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#	Problem	Solution	Trainings
	<p>expenses, income and profits cannot be calculated. Shepherds, as a rule, do not run / have proper accounting or do not make their books publicly available. Shepherds are often not familiar with the tax code and usually avoid interaction with tax authorities.</p>	<p>accounting books/records and annual balancedeclaration</p>	<p><b>III. Accounting and interaction with tax authorities</b></p> <p><i>1. Module:</i> <b>Basics of accounting</b></p> <p>Issues:</p> <p>A. Theory of accounting; B. Annual Reporting; C. Communication with the Tax Department; D. Tax Code; E. Primary financial documents; F . The financial analysis of activities.</p> <p><i>Needed specialists (lecturers) for all topics:</i></p> <p>1. Cooperation specialist; 2. Legal expert (with cooperation and entrepreneurship law-related knowledge); 3. Economist, marketing expert; 4. Accountant.</p>
7.	<p><b>III. Human and Nature</b></p> <p><b>Most of the livestock owners and shepherds consider the protected areas as certain imposed restriction for them.</b></p> <p><b>Population usually do not have minimum knowledge in behavior of potentially dangerous animals to plan /undertake safety and preventive measures. There is an evident, classical conflict between humans and predators.</b></p>	<p>For livestock owners and shepherds at Vashlovani protected areas, information about the importance of protected areas, as well as examples of good practices from other regions / countries should be provided.</p> <p>Livestock owners and herdsmen often complain that they do not have the right to kill a wolf. During the Soviet period it was permitted. A good explanation is needed of why it was a wrong practice and what was the consequence of extinction of various species from nature in</p>	<p><i>Target Group:</i> Shepherds (Owners of the sheep and herdsmen at the territory of Vashlovani protected areas)</p> <p><i>Topic:</i> <b>I. Man - wolf conflict</b></p> <p><i>1. Module:</i> <b>Mitigation of conflict between livestock owners, shepherds and predators (mainly wolves) in Vashlovani protected areas.</b></p> <p>Issues:</p> <p>A. The importance of protected areas; B. Conflict and co-</p>

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#	Problem	Solution	Trainings
	For farmers the main problem is the wolf. Wolves' attacks on domestic animals are registered in the region.	other countries.	<p>existence between humans and prey at the shared environment;            C. The reasons of the conflict;            D. Is it possible to co-exist with predators or not;            E. Conflict mitigation ways and methods;            F. Human - predator conflict study results;            G. Time of attacks and their relation to improper behavior of dogs;            H. Abundance of attacks near the farms;            I. Different wolves and their behavior ;            J. The worldwide existed means for protecting of cattle and their use;            K. Calculation, how many sheep costs installation of an electric fence and how many attacks the fence is able to avoid.</p> <p>Needed experts (lecturers):            1. Zoologist, aetiologist, wolves' expert.</p>
8.	<p>One of the most dangerous for humans and domestic animals reptile - Caucasian Viper (<i>Macro viperalebetinaobtusa</i>) is inhabited in the region.</p> <p><b>Numerous lethal outcomes are registered here. The main problem in the region is the availability of needed effective medications to treat the injury caused by reptile bites.</b></p> <p>The problem is also the fact</p>	<p>The Ministry of Healthcare and other relevant competent government authorities should provide the existing in the region clinics, military (frontier) units, houses of shepherds, educational establishments, etc. with a stock of necessary medications.</p> <p>Also important is to ensure the conditions for safekeeping and periodical update of the stock of available drugs and injections.</p> <p>In parallel, a possibility for</p>	<p>In parallel with ensuring the availability of said preparations, it would be advisable to conduct the following training:</p> <p><i>Target group</i>            Medical staff of the clinics existed in the region,            Region's population: herders, frontier guards.</p> <p><i>Topics:</i>  <b>II. Reduction of risks caused</b></p>



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#	Problem	Solution	Trainings
	<p>that the population usually is not informed about the first, urgent measures to be applied in case of bite. Also often the relevant safety rules are not followed. Besides the viper the less dangerous snakes also inhabit in the region. Population usually does not know how to differentiate the viper from other snakes.</p> <p>In addition to snakes there are some potentially dangerous arthropods (spiders and insects) in the region.</p>	<p>urgent delivery of necessary preparations and availability of a respective mobile, operative group of medical staff should be ensured.</p> <p>In particular, such preparations include:</p> <ul style="list-style-type: none"> <li>• “Anti-ophidic serum Anti-giurza (effective max during 1 hour after the biting);</li> <li>• Prozerin (neostigmine A cholinesterase inhibitor) – relatively increases the chances of life-saving (from 77.7% to 95%) if used in combination with the serum;</li> <li>• Dexamethasone (or Prednisolone, Tavegil, Suprastin);</li> <li>• Sedatives (Dimedrol, Diazepam, etc.);</li> <li>• Potent febrifuge;</li> <li>• Drug of a cardiovascular series;</li> <li>• Broad spectrum antibiotic;</li> <li>• Kallikrein-protease inhibitors (Contrical, Gordox, etc.);</li> <li>• Preparations against abrupt fall of blood pressure (e.g., Cefamil, Dopamine, Norexadrin, etc.);</li> <li>• Potent pain-killer (desirable of non-narcotic action).</li> <li>• Blood transfusion equipment</li> </ul>	<p><b>by the wild, potentially dangerous, poisonous animals</b></p> <p><i>1. Module:</i>  <b>The first, urgent aid, further methods of treatment in case of viper and other poisonous animals bite.</b></p> <p><i>Issues:</i></p> <p>A. How to identify viper’s bite (identifying snakes with its bite type);</p> <p>B. First aid;</p> <p>C. How to determine the level of dangerousness of the bite and the dosage of medications.</p>
			<p><i>2. Module:</i>  <b>Possible security measures and protection methods when encountering poisonous snakes, insects and spiders</b></p> <p><i>Issues:</i></p> <p>A. Snakes, insects and spiders diversity and lifestyle;</p> <p>B. Snakes, insects and spiders</p>

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#	Problem	Solution	Trainings
			<p>activity in different seasons;            C. Snakes, insects and spiders behavior when encountering humans;            D. Human movement and security measures at “snake-dangerous” biotopes;            E. The forms and methods of defence when attacked.</p> <p>Necessary experts (lecturers):            1. Physician, resuscitation specialist;            2. Zoologist, herpetologist;            3. Zoologist, ethologist.</p>
9.	In sufficient knowledge of rules of conduct by the local population in the wild.	Local inhabitants need to improve knowledge of rules of conduct in wild life and orientation skills in the field.	<p><i>Target Group:</i>            Local population, youth.</p> <p><b>Topics:</b>  <b>III. Improvement of behaviour in field conditions</b>  <i>1. Module:</i>  <b>Rules of conduct when encountering predators, rules of conduct at protected area, orientation in the field and teamwork</b>  <i>Issues:</i>            A. Protected areas in Georgia;            B. Rules of conduct at protected area on the example of Vashlovani;            G. Conflict between humans and predators;            D. Ethics in the field and team work;            E. The proper behavior when encountering predators;            F. Use of GPS and a map;            G. Identification of animal traces;            H. Arrangement of a camp (site selection, tent set up, light a fire);</p>

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#	Problem	Solution	Trainings
			I. Team Games - finding hidden items using tips and GPS.
10 .		Improvement of rangers' qualification of Vashlovani protected area.	<p><i>Target Group:</i> Rangers of Vashlovani protected area.</p> <p><i>Topics:</i> <b>IV. Improving biodiversity monitoring</b></p> <p><i>1. Module:</i> <b>Training of Vashlovani protected area rangers in biodiversity monitoring issues</b></p> <p><i>Issues:</i></p> <p>A. Research using camera traps - proper planning, sorting of data analysis; B. Establishing of database for monitoring (in Access or Excel) and its updating system; C. Mapping the data; D. Recording of animal traces, recognition and monitoring of key species using indices; E. Key bird species recording methods.</p> <p>Necessary experts (lecturers): 1. Biologist, ecologist, zoologist (in cooperation with NACRES - the most competent organization in mentioned topics, also involved in the project).</p>

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### Proposed Training Schedule for Target Groups

*The average number of participants in each training session - 15*

Name of the subject and module	Target group	Training place	Time and duration of training	The goals and estimated outcomes of trainings
<b>I. Zootechnics, pasture management, veterinary:</b>				
<b>I. Zootechnics</b> <i>1. Module:</i> <b>Compliance with sanitary standards and personal hygiene when contacting animals and in the cheese-making process</b>	Sheep Owners, Shepherds, Cheese Makers.	Alvani	November-January  1 day	A. Shepherds and cheese makers are protected from the risks related to contact with domestic animals; B. Consumers are protected from low quality and potentially dangerous animal products; C. Diseases caused by the domestic animals reduced; D. The production quantity and quality increased; E. Living, social and economic conditions of target group improved.
<i>2. Module:</i> <b>Standardized sheep feeding</b>			1 day	
<i>3. Module:</i> <b>Sheep farming issues</b>			In total 2 days	
<b>II. Correct use / management of natural pastures</b> <i>1. Module:</i> <b>Pasture Management</b>	Owners of the sheep, Shepherds, cheese makers.	Alvani	November-January  1 day	A. The ecosystems of winter pastures nearby Vashlovani protected area preserved and the endangered vegetation recovered; B. Improved pastures; C. The cattle nutritional base, its productivity and socio - economic conditions of shepherds improved.
<i>2. Module:</i> <b>Artificial improvement of pasture productivity without tilling, through intercropping of certain</b>			Model arrangement- Dedoplistskaro  1 day In total 2 days Seeding model- November	

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Name of the subject and module	Target group	Training place	Time and duration of training	The goals and estimated outcomes of trainings
<b>crops</b>				
<b>III. Mandatory, urgent veterinary practice</b> <i>1. Module: Compulsory vaccination</i>	Owners of the sheep, Shepherds	Alvani	November-January  1 day	A. The risks of cattle diseases reduced; B. Consumers are protected from low quality and potentially dangerous animal products (improvement of animal products quality); C. Food safety requirements are followed; D. The productivity increased and therefore the socio - economic condition of the target group improved; E. The target group awareness in veterinary issues improved.
<i>2. Module: Conducting preventive measures</i>			1 day	
<i>3. Module: Diseases, existing risks and ways to avoid them</i>			1 day	
<i>4. Module: Modern licensed preparations purchase and use</i>			1 day	
<b>II. Marketing</b>				
<b>I. Cooperation</b> <i>1. Module: Fundamentals of cooperation, legislation and establishment rules</i>	Owners of the sheep, Shepherds	Alvani	November-January  1 day	A. The target group achieved a stable market for their produce; B. Productivity increased and therefore the socio - economic condition of the target group improved; C. Improved understanding of the target group of marketing and accounting issues.
<b>II. Marketing and business</b> <i>1. Module: Marketing fundamentals</i>			1 day	

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Name of the subject and module	Target group	Training place	Time and duration of training	The goals and estimated outcomes of trainings
2. Module: <b>Value chain and pricing</b>			1 day In total 2 days	
<b>III. Accounting and interaction with tax authorities</b>  1. Module: <b>Basics of accounting</b>			1 day <b>For marketing and cooperation - 4 days</b>	
<b>III. Human and Nature</b>				
<b>I. Man - wolf conflict</b> 1. Module: <b>Mitigation of conflict between livestock owners, shepherds and predators (mainly wolves) in Vashlovani protected areas.</b>	Shepherds and herdsmen	Alvani	1 day	A. Conflict between humans and predators mitigated. B. Number of episodes of predators' attack on domestic animals decreased, therefore the socio-economic conditions of target group improved.
<i>Topics:</i> <b>II. Reduction of risks caused by the wild, potentially dangerous, poisonous animals.</b> 1. Module: <b>The first,</b>	Shepherds and herdsmen, frontier guards, nurses and physicians of local hospitals	Dedoplistskaro	1 day	A. Reduced risks in conditions of poisonous animals co-existence and increased the safety of local population; B. Increased chances of survival in case of poisonous animals' attack.

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Name of the subject and module	Target group	Training place	Time and duration of training	The goals and estimated outcomes of trainings
<p><b>urgent aid, further methods of treatment in case of viper and other poisonous animals bite.</b></p>				
<p><i>2. Module:</i> <b>Possible security measures and protection methods when encountering poisonous snakes, insects and spiders</b></p>		Dedoplistskaro	1 day	
<p><i>Topics:</i> <b>III. Improvement of behaviour in field conditions</b> <i>1. Module:</i> <b>Rules of conduct when encountering predators, rules of conduct at protected area, orientation in the field and teamwork</b></p>	Residents of Dedoplistskaro, youth	Dedoplistskaro	<p>Summer-Autumn  2 days</p>	<p>A. Local inhabitants' knowledge of rules of conduct in wild life as well as their orientation skills in the field improved B. Knowledge and willingness of youth to supporting environment protection increased C. Local population safety increased</p>

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Name of the subject and module	Target group	Training place	Time and duration of training	The goals and estimated outcomes of trainings
<p><b>Topics:</b>  <b>IV. Improving biodiversity monitoring</b>  <i>1. Module:</i>  <b>Training of Vashlovani protected area rangers in biodiversity monitoring issues</b></p>	<p>Rangers of VPAs</p>	<p>Dedoplistskaro</p>	<p>November-January  2 days</p>	<p>A. Rangers' qualification in Vashlovani protected area increased.  B. Biodiversity monitoring in VPA improved</p>