

Model for Calculating Agri-environment Payments in Natura 2000 sites

Introducing Nature Friendly Farming
in Natura 2000 sites in Bulgaria

Henk Zingstra (CDI; final edit)
Warmelt Swart (DLG)
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Final Report



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Despite the fact that modern agriculture can be destructive for the biodiversity agriculture plays at the same time an important role in maintaining the landscape and biodiversity. The manual provides information about the way agriculture has shaped the landscape and biodiversity of Bulgaria and how agriculture can help to maintain this landscape and biodiversity for the future. It provides insight in the EU agriculture and rural development policies and informs about the policies of the Bulgarian government with respect to rural development and environmental protection. Finally it provides guidance to those who want to apply for support to adjust farming to the requirements of nature conservation in areas that have been designated under the Birds and Habitats Directives in Bulgaria.

Photos

Henk Zingstra: front page and page 30
Nikula Gruev: page 6

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Preface

This manual is an important contribution to sustainable rural development in Bulgaria and builds a bridge between the interests of the environmental sector and the agricultural sector.

In recent years we have come to realize that farming means more than producing food products. Farmers also are responsible for managing and protecting the landscape and biodiversity. And we have come to realize that we can not make farmers responsible for this important task without paying them for this important service provided. The Common Agricultural Policy of the European Union and the policies of the Bulgarian government offer farmers the opportunity to get paid for performing this important task.

Designing agri-environment measures and developing a methodology for calculating the level of financial support that farmers can receive when implementing these agri-environment measures are important aspects of rural development policies. The model has been developed using knowledge and experiences from the Netherlands. The model has been tested for a limited number of areas. Training however has helped the Bulgarian experts to gain insight in the methodology developed and allows them to apply this in other Natura 2000 areas.

This project has contributed significantly to increase the awareness and capacities of the NGO sector and of the relevant government organizations in Bulgaria on how to support the development of sustainable agriculture that both benefits the environment and the rural population.



Dr. A.J. Woodhill
Director Wageningen UR Centre for Development Innovation

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Executive summary

By the end of 2006, just before the date of entrance to the European Union, Bulgaria has submitted the list of proposed Sites of Community Interest. The decision of the government of Bulgaria has aroused significant public opposition and early 2007 across Bulgaria thousands of people took to the streets to protest against the proposals of the government. There is a general attitude among farmers, foresters and tourist entrepreneurs in Bulgaria that N-2000 will significantly limit the development of their enterprises in particular and of rural economies in general.

The model shows that N-2000 does not only impose limitations for farmers but also offers opportunities to develop their farm in a more sustainable and nature friendly way. The model developed can serve as an example for other new and candidate EU member states to calculate compensation payments for farmers that intend to provide environmental services next to the production of food.

The design of the agri-environment measures and the calculations of the level of financial compensation are done in two pilot areas; one in the north (Nikopol area) and one in the south (Kresna area). The two pilot areas are selected bearing in mind that the project outputs need to be representative for other Natura 2000 sites in Bulgaria in order to replicate the project outcomes across Bulgaria. The agricultural situation in the two pilot areas plus the analyses of the N-2000 habitats and species as well as the description of the required management to maintain or restore favourable conservation status of these habitats and species are described in the agriculture report. This report is the most important output of the project.

Other important outputs of the project are:

- A manual for farmers and representatives of local administrations and agriculture extension services to help farmers to apply for agri-environment measures;
- A brochure explaining the role of farming and farmers in maintaining the landscape and biodiversity to be distributed to local and regional authorities, schools employees of Regional Environmental Inspectorates, County Directorates, Local Agricultural Advisory Services, Local Forestry boards;
- Management and development plans for the two pilot areas.

List of abbreviations and acronyms

BBI	Policy Plan Biodiversity International (Beleidsplan Biodiversiteit Internationaal)
CAP	Common Agricultural Policy of the European Union
CDI	Wageningen UR Centre for Development Innovation
DLG	Government Service for Land and Water Management
HD	Habitats Directive of the European Union
N-2000	Natura 2000; network of areas protected under the Birds and Habitats Directives
NRSDP	National Rural Development Strategic Plan
MATRA	(Sociatal Transistion Middle and Eastern Europe) Maatschappelijke Transitie Midden en Oost Europa
LFU	Livestock Unit
RDP	Rural Development Plan
Wageningen UR	Wageningen University & Research Centre
WWF	World Wildlife Fund

1 Introduction

1.1 General

The following presents a methodology for calculating compensation payments for farmers for supporting the management of habitats and species in N-2000 areas. These payments come on top of payments farmers can receive when participating in the agri-environmental program. The methodology is developed in the frame of the pilot project aiming to introduce nature friendly farming in N-2000 sites in Bulgaria funded by the BBI Matra program of the Dutch government.

Providing clarity on the level of compensation payments for farmers in N-2000 sites addresses one of the main impediments for a successful implementation of N-2000 in Bulgaria. The work is based on relevant Bulgarian policy documents including National Rural Development Strategic Plan 2007-2013 (NRDSP) and National Rural Development Programme 2007-2014, measure 214 Agri-environmental Payments. These two plans together with the Operational Program Environment 2007 – 2013, National Environment Strategy 2005 – 2014 and National Biodiversity Conservation Strategy formulate and set out a policy for sustainable development based on the protection and management of the outstanding Bulgarian natural resources.

Unfortunately Bulgaria lacks experience with the implementation of agri-environment schemes due to late accreditation of national authority for the implementation of agri-environmental measure under SAPARD Program. In Bulgaria agricultural areas like meadows, pastures and extensive gardens host important biodiversity values and are often included in the list of potential Sites of Community Interest.

In the frame of a preceding twinning project in which the Dutch Service for Land use was involved an agri-environment scheme was produced which provides good starting materials for detailing of the principles of the agri-environment measures on site level.

1.2 Introduction to the pilot areas

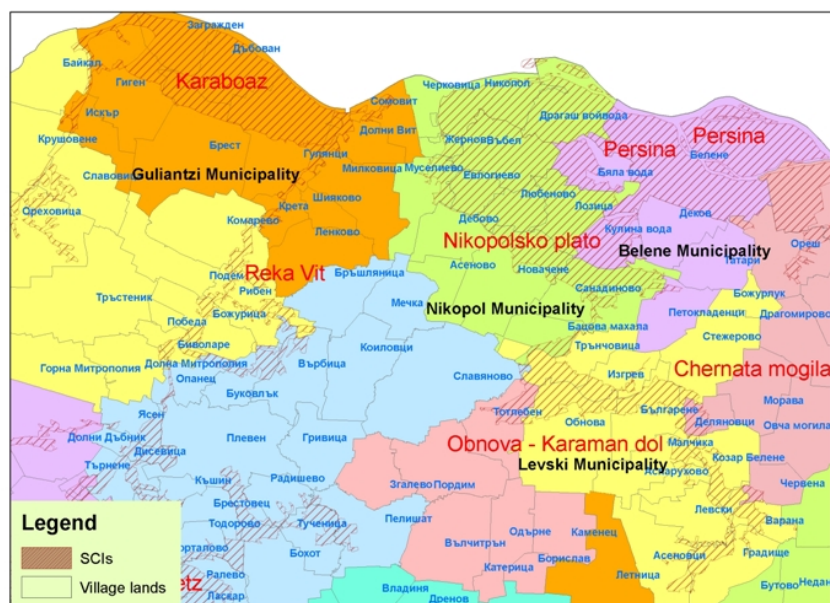
The methodology for calculating financial compensation levels has been developed in two pilot areas; Kresna and Pirin in the southern part of the country and Obnova-Karaman dol and Nikopolsko plato in the northern part of the country.

The selected pilot sites are proposed by the Bulgarian Government to the European Commission as potential Sites of Community Importance. In addition they coincide to a big extent with the proposed Special Protected Areas.

The two pilot areas are selected bearing in mind that the project outputs need to be representative for other Natura 2000 sites in Bulgaria in order to replicate the recommendations across Bulgaria.

The northern pilot site includes the following N-2000 sites:

- "Obnova – Karman dol" (BG0000239) – municipalities of Pavlikeni, Svishtov (Veliko Tarnovo district), municipalities of Levski, Nikopol, Pleven, Pordim (Pleven district);
- "Nikopolsko Plato" (BG0000247) – municipalities of Belene, Guliantsi, Nikopol (Pleven district);
- "Chernata Mogila" (BG0000516) – municipality of Svishtov (Veliko Tarnovo district);
- "Karaboaz" (BG0000335) – municipalities of Guliantsi and Dolna Mitropolia (Pleven district).



The surface of the sites is as follows:

Name of the area	Total territory (ha)
Obnova Karman Dol	10,748.67
Nikopolsko Plato	18,500.69
Chernata Mogila	13.07
Karaboaz	12,200.36

“Obnova – Karaman dol” and “Nikopolsko plato” are situated along the valley of river Osam in the central-northern Danube plane. The bio-climate is continental steppic. The area is characteristic for the region: high density of population and settlements, big portion of intensive agricultural lands and natural and semi-natural habitats placed mainly along river valleys and on more steep slopes of hills. Most of NATURA 2000 species and types of habitats present in north Bulgaria are present in the both sites, including characteristic semi-natural habitats:

- Dry pastures and sparse shrublands, which are presented with several protected grassland habitat types and among them priority or rare ones;
- Wet meadows along river valleys;
- Wetlands;
- Riparian forest galleries – a priority habitat;
- Small patches of termophilous oak forests and related shrubs;
- Number of NATURA 2000 species specially related to semi-natural circumstances – two species of land tortoises, four-lined snake, steppe polecat, marbled polecat, European ground squirrel (souslik), number of bat species etc.

Kresna and Pirin in the Southern region are situated along the steep and deep valley of river Struma in south – western corner of the country. The area is mountainous with altitudes ranging from about 200 m a.s.l. to almost 3,000 m a.s.l. in the Pirin Mountain and with bio-climate belts ranging from north to south and from bottom to higher parts from Sub- and Meso-Mediterranean to Alpine and Oro-Mediterranean. The area has typical social and economical structure for mountainous parts of Bulgaria – abandoned small traditional mostly shepherd settlements in the mountains and concentration of people in the recent times in surrounding mountain villages. The traditional land use was livestock grassing predominantly sheep and goats, mowing of mountain meadows, forestry and small gardens and vine-yards in the bottom of narrow mountain valleys. International road and railway is passing through Kresna Gorge in the area. The two NATURA 2000 sites are “Kresna – Ilindetzi” (BG0000366) and the adjacent slopes of site “Pirin” (BG0000209). The biodiversity of the chosen sites is among the highest in Bulgaria – they present a big number of habitats and species listed in Appendix 1 and 2 of the Habitats Directive.



The surface of the southern sites is:

Name of the area	Total territory (ha)
Kresna Ilindentzi	48397.27
Pirin	40356.00

1.3 Approach

In the following chapters the methodology for the calculation the levels of compensation for various measures will be elucidated. The information about the habitats and species in the pilot areas and the management requirements to protect these habitats and species are described in a separate document produced by the biodiversity working group.

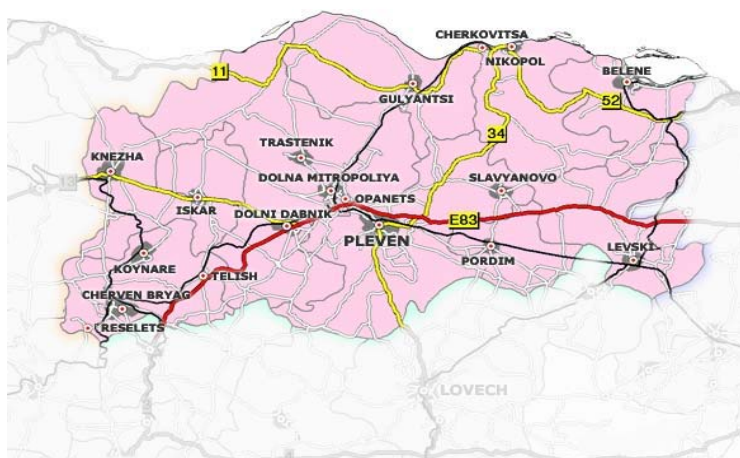
The information about the Nikopol pilot site will be presented in the first section and in the second section the information about the Kresna. The method for the calculations will be presented in the third section and applied to the habitats in question for the whole of Bulgaria. For Kresna we propose the implementation of the agri-environment measure to support the herds. This measure is already included in the National Agri-environment Programme and is not a specific additional N-2000 measure.

2 Description of the pilot areas

2.1 Nikopolsko

2.1.1 Socio economic Information

This chapter presents general information about the northern pilot site as far as relevant for the project for defining the methodology including information about surface, number of inhabitants, main economic activities, land use and land ownership.



Map: Pleven district

The territory of municipalities and number of settlements in the Pleven region are as follows:

Municipality	Territory, sq. Km.	Settlements, number
Nikopol	415.9	14
Belene	285	6
Levski	414	11
Gulyantsi	458	12
Dolna Mitropolia	675	16

The population on the territory of the municipalities by December 31, 2009, according data of National Statistical Institute:

Municipality	Population
Nikopol	10 602
Belene	10 908
Levski	21 487
Guliantsi	13 561
Dolna Mitropolia	21 304

The active population in the municipalities ranges from 45% in Belene municipality to 63% in Levski municipality and about 20% below the active age, while it is with trend of getting older, which is typical for the most rural areas in the country, respectively for the Natura 2000 sites.

More than 40% of population owns land, but only a small part possesses pastures and meadows. Greater part of agricultural producers are registered, but yet there is a significant number who develop activities without being registered. These are mainly small family farms (peasants), working for their own consumption while they place small part of production on the market. As a whole, they don't receive any support and they would not be eligible for compensations under Natura 2000 measure, but in all cases they could influence the favourable conservation status of the habitats and species in the Natura 2000 network.



The whole area is characterized by a diversity of relief forms - from typical lowlands to hilly plateaus. The hydrology is shaped by the lower parts of rivers of Osam, Vit, Iskar which all discharge into the Danube river flowing along the northern border of the pilot area. The soil types are generally good for agriculture apart from the sandy river dunes which are poor in nutrients and vulnerable for drying out.

The main land uses in the area are distributed as follows (data provided by Municipal Services "Farming and forestry", July 2008):

Municipality	Agricultural land /ha/	Forestry /ha/	Urbanized territories and settlements /ha/	Water areas /ha/	For transport needs /ha/
Nikopol	34699,7	3211,1	1448,3	2356,3	115,1
Belene	23131,9	3459,7	1210,8	2419,5	84,5
Levski	35324,4	2114,5	-	1243,4	233,4
Guljantsi	38517,0	2731,2	1869,2	2660,3	-
Dolna Mitropolia	59097,3	2367,6	2622,5	1816,5	246,9

As is shown in the table, farmlands occupy the biggest share of municipalities' territory, which together with the climatic conditions and relief predetermine the state and development of the local economy. Priority sectors for economic development of the municipalities are agriculture, hunting, forestry, light and processing industries and also trade. Typical for the district is, that there is almost no abandoned or desolated farmlands.

Agriculture in the municipalities is well developed, especially arable farming which grow mainly cereals and oil-yielding crops with wheat as the dominant crop. Other crops are sunflower, barley, maize and other cereals. Basic precondition for a good result is the constant market but this is not always the case as in some years the prices of realization are comparatively low for some crops.

Distribution of farmlands by form of property is as follows:

Municipality	Farmland /ha/	Private /ha/	Municipal /ha/	State /ha/	Under common utilization /ha/
Nikopol	34699,7	24749,9	5799,6	5124,7	3119,8
Belene	23131,9	8532,8	27,5	10239,3	1279,9
Levski	35324,4	29344,2	4,4	2842,4	124,5
Guljantsi	34699,7	28506,8	1013,9	302,5	1013,9
Dolna Mitropolia	59097,3	27964,6	22021,2	4860,7	1858,6

Typical for the Pleven district are rental relationships with several big leaseholders and co-operatives, which cultivate the greatest part of utilized agricultural land. There are also some land investing funds, which buy up land lately in order to consolidate greater plots. The ownership of a large part of the land is strongly fragmented because it was given back to a large number of owners. This causes difficulties in legalizing leasing contracts and to the impossibility for part of the farmers to apply for support, because they can't sow a legal leasing contract.

Pastures and meadows are mainly owned by the state or the municipality and are in use as common (grazing) areas. The municipality has the right to rent its property to stock-breeders in the region. In most of the cases, rental relationships are contracted for 1 year, which makes the farmers refuse to apply for the agri-environment measure of RDP 2007-2013¹, because they feel uncertain whether the municipality will renew their contracts for the same grasslands. The attitude of the farmers to refrain from entering into contracts is understandable since the contract period for agri-environment measures is 5 years.

Even farmers who have taken this risk during the last year are facing the problem that the municipality refuses to rent the pastures they managed again with the result that they can not adhere to the conditions set in the contract with the paying agency.

Lease of farmland in 2008 for the district is (MAF, annual report 2009):

District	Number of leasing contracts	Size of land in ha	Size of lease payment
Pleven	39 156	80179,8	0,3-3 lv/ha

In the area surrounding the N-2000 sites arable lands prevail, more than 70% of the land use in municipalities is arable land and less than 14% is semi-natural grass lands areas and perennial plantations. Pastures have the greatest share among grasslands totally, followed by meadows and some arable lands (orchards and vineyards).

Land uses of farmland is allocated in the following way:

Municipality	Arable farmland /ha/	Artificial meadows /ha/	Semi-natural meadows, common lands and pastures /ha/
Nikopol	25568,4	-	4837,1
Belene	19949,7	40,0	882,2
Levski	30557,3	-	3217,1
Guliantsi	23422,1	25,7	3771,6
Dolna Mitropolia	48434,4	-	5124,7

¹ Sub-measure HNV 1 – Restoration and maintenance of non-grazed grassed areas – 97Euro/ha/annually;

Sub-measure HNV 2 – Restoration and maintenance of overgrazed grassed areas – 155 Euro/ha/annually.

2.1.2 Condition of the agricultural lands and recent changes

After the accession of Bulgaria to the EU there is a trend of transforming semi natural meadows and pastures into arable land to become eligible for receiving single area payments from the CAP. This has led to the further decline of this habitat and the consequent loss of the specific flora and fauna connected to these semi natural habitats. The biggest part of commonly used pastures and meadows are included in Natura 2000 network and are also identified as lands with High Nature Value.

Increasingly also the commonly used pastures and meadows are being abandoned because of the ongoing decrease of the number of cattle. This aggravates the downward trend of the area covered by semi natural habitats and leads to a significant loss of valuable species and habitats as the lack of grazing causes the vegetation to become more general and the areas are taken over by bushes.

Farmers who intended to use the grasslands and applied for financial support from the CAP should observe the cross-compliance and standards of Good Agriculture and Environmental Conditions. Good Agriculture and Environmental Conditions (GAEC) are developed on the bases of the specific conditions of Bulgaria and are aimed at conservation of soil from erosion and preserving its structure and organic substances. Another group of standards is related to the minimum level of maintenance of habitats, in order to avoid their deterioration.

Meeting the national GAEC standards is obligatory for all farmers, owners and/or users of agricultural lands for being eligible for support from the different schemes of the Common Agricultural Policy (CAP), for additional national payments and for the following measures of Rural Development Program:

- Payments to farmers for natural restrictions in mountainous regions;
- Payments to farmers for natural restrictions in regions, different from mountainous ones;
- Agri-environmental payments;
- Payments under Natura 2000 for lands;
- Payments under Natura 2000 for forests.

The following requirements for maintaining Good Agricultural and Environmental standards apply:

GAEC Standard 4: Providing minimal level of maintenance of natural habitats

- ***National standard 4.1:*** Farmers, using permanently grassed areas (pastures and meadows), are under obligation to maintain minimal density of 0,15 animal units per hectare (AU/ha) or to perform minimum 1 (one) mowing for the relevant year – until July 15 for the plain areas and until August 15 for the mountainous regions included into the range of the less-favored mountain areas;
- ***National standard 4.2.*** It is obligatory the permanent pastures and meadows to be cleared from undesired frutescent vegetation. Fight to be led against aggressive and resisting plant species – bracken (*Pteridium aquilinum*), hellebore (*Veratrum spp.*), aylan (*Ailanthus altissima*), black acacia (*Amorpha fruticosa*) and blackberry (*Rubus fruticosus*). For agricultural lands (grassed areas) with high nature value, lands falling under Natura 2000 and protected areas, depending on the current condition of the meadow or pasture, it is permitted to be left mosaic situated single or groups of trees, bushes and/or boundaries, up to 20% of the total grassed area;
- ***National standard 4.3.*** It is obligatory to retain existent field boundaries in the agricultural farm plot and/or agricultural block;
- ***National standard 4.4.*** Obligatory is the conservation of agricultural areas in proximity of forests against entering of wood and frutescent vegetation into them.

Requirements for maintenance of land in good agricultural and environmental condition do not abolish obligations of land owners or users of agricultural lands according to the Law for conservation of agricultural lands, Law for ownership and use of agricultural lands, and other normative deeds.

2.1.3 Trends in agriculture

In addition to gathering detailed information for each of the 4 farms a study of past and present farm practices and methods is made by reviewing the following documents:

Identifying of old farm practices in the region of rivers Lower Vit and Osam;
Assessment of environmental condition of municipalities of Dolna Mitropolia, Guliantsi and Levski;
MAF – annual report 2008.

Distribution of registered farmers, according to data of Municipality Agricultural Services, by December 2008:

Municipality	Registered in LPIS ²		Registered according to Ordinance 3	
	Plant-growers	Stock-breeders	Plant-growers	Stock-breeders
Nikopol	300	-	280	250
Belene	418	217	382	203
Levski	158	12	179	226
Guliantsi	253	212	255	216
Dolna Mitropolia	388	361	397	366

The average size of stock-breeding farms in the region is 30-50 LSU, with about 2-3 hectares farmland. Despite the well developed fodder production in the region the average size of the farms stays relatively small. Farming is mainly semi-subsistence cattle breeding and a continuous trend of decrease in the number of animals can be noticed, caused by the increasing fodder prices, low and unstable prices for meat and milk products. Moreover is impossible for the small farmers to meet the strict EU hygiene requirements.

Some of the small farmers are not eligible for direct support because they own too small parcels to be registered in LPIS (Land Parcel Identification System) notwithstanding the fact that they manage HNV grasslands without a clear contractual base.

Sheep-breeding is represented mainly by Pleven Black-headed breed of sheep. Animals of this breed continue to have an exceptional interest of farmers from across the country to be bought because of their excellent milk production qualities and adaptability to weather conditions.

² LPIS – Land Parcels Identification System

Goat-breeding shows a steady growth during the last years. This is due to the smaller expenses of goat breeding and their faster reproduction process. In comparison, cattle start generating income after the age of 27-28 months of the animals, but sheep and goat start generating income after 15-16 months.

Number of animals for 2008, by MSAF:

Municipality	Cattle	Sheep	Goats
Nikopol	1 200	325	728
Belene	3 143	5 010	1 605
Levski	2 034	7 560	2 180
Guliantsi	3 384	4 783	3 218
Dolna Mitropolia	4 590	6 243	3 699

Comparing the data by WWF study on old traditional farming practices in the region of Vit and Osam rivers it becomes clear that the numbers of sheep and goats, as well as of cattle have decreased drastically with thousands during the last 20 years. Data for some of the settlements in the municipalities are following:

Bozuritsa village – municipality of Dolna Mitropolia

	Sheep	Goats	Cows	Horses
Before 1944	5 000	2 500	500	500
1944 - 1991	4 500-5 000	2 500	500	300
After 1991	150	100	100	20

Before 1944 cattle breeding has been the basic occupation for population in the region. Horses and cattle have been used for land cultivation. In the period of socialism a big part of the land cultivations have been mechanized, so there was no interest in keeping horses and cows for pulling machines and carts. In Bozuritsa village located in the municipality of Dolna Mitropolia in that time (before 1944) were 300 horses with about 2 500 sheep and 5 000 goats, but in the moment the number of there are about 150 sheep and 100 goats. Animals were kept in stables while the being out for grazing after St. George's Day (in the beginning of May) – earlier grazing have been prohibited. Another typical special feature of pastures' management is, that they have been manured for greater productivity, which often had negative effect and led to change of their species' composition.

The amount of cattle in Kreta village – Guliantsi municipality over the years

	Sheep	Goats	Cows	Horses, cattle
Before 1944	2 000 – 2 500	4 000 – 5 000	200-300	200-300
1944 - 1991	2 000 – 2 500	5 000	500	-
After 1991	170	Over 200	117 + 50 calves	-

A typical feature in this region is that animals were grazing freely during the summer months. In the spring they were grazing on meadows and pastures around Vit river and were kept in pens along Danube river.

The amount of cattle in the villages of Balgarene and Obnova – Levski municipality

	Sheep	Goats	Cows	Horses, cattle
Before 1944	2 500 – 3 000	1 500	500	500
1944 - 1991	3 000	1 500	500	-
After 1991	N/A	N/A	N/A	-

Typical for meadows' maintenance in the region before 1944 is that crops like lucerne, meadow grasses, herbs (thyme) were grown and were harvested by cutting them several times annually (4-5 times) depending on the weather conditions.

2.1.4 Socio economic information about the farmers in the region

Showcases of 4 model farms were made based on various meetings and conversations with the farmers. Three of the farms are from a mixed type – plant-growing and cattle -breeding and their activities are in direct relation with the management and preservation of pastures and meadows in Natura 2000 sites. The fourth farm site is entirely arable and borders the N-2000 while on a part of its area the principles and standards of the organic farming are applied.

In order to optimize the requirements for maintenance of meadows and pastures in the region and with regard to the great difference in the numbers of animals before, during and after the socialist time, it is important to carry out a thorough complementary study on the positive or negative impacts of the strongly reduced number of animals on the Natura 2000 sites. At the moment there is no sufficient data about the required grazing density required to maintain or achieve favourable conservation status of habitats and species. This information has to be provided by the biodiversity working group.

Based on the requirements for Good Agricultural and Environmental Conditions the minimum number of animals for pastures in Bulgaria is limited to 0,15 animal units per hectare (1 sheep or goats per hectare).

From 2006 the number of registered farmers in the region increased due to the expectations to receive support from European funds. Opportunities for financial support of young farmers led to registration of young farmers in the pilot area and/or to the transfer of farm ownership to young members of the family. There is a great number of examples of young farmers in the region, who have registered themselves and count on complementary support for investments in their farms.

Information per farm

Farm	Denko Georgiev
Statute and farm category	Privately owned plot, first category
Location	Guliantzi municipality - Natura 2000 "Karaboaz" BG0000335
Owned land area	3 ha
Leased land area	138 ha
Haymaking meadows/pastures land area	38 ha – contract with municipality, animals are taken out to pasture - depending on weather conditions: March-October
Fallow land area	-
Other crops area	102 ha – forage, grain-wheat, barley
Type and number of animals	30 Milk cows, 40 calves (Black – color, Holstein, Simmental and Bulgarian Brown cow)
Main market strategy for milk and meat	Contract with milk manufacture – 175 tons per year, wants to reach 250 tones Selling calves outside the farm, won't increase the herd in the next 5 years
Investment intentions	Wants to build a storehouse for grain
Farm diversity	Fowls
Work of farmer – out of the farm; share of incomes from farming in family feeding and incomes	100% of the incomes are from farming
EU funds payments	"de minimis" support for forage and area based payments, agri-environment support and subsidies
Manure storage	Underground for liquid and solid manures

Denko's farm is of mixed type and is semi-subsistent oriented. The farm possesses only 3 ha of own land, but leases additional land for fodder production. The farm is one of the few in the region that complies with European requirements and is registered in 1-st category. It also receives financial support for the produced milk.

Since April 2008, 38 ha of the pastures leased by the farmer are under environmental contracts targeted to the maintenance of non-grazed areas under National Rural Development programme.

Farm	Georgi Vasilev
Statute and farm category	Privately owned plot
Location	Guliantzi municipality - Natura 2000 "Karaboaz" BG0000335
Owned land area	-
Leased land area	178 ha
Haymaking/pasture land area	70 ha – contract with municipality, animals are taken out to pasture - depending on weather conditions: March-October
Fallow land area	-
Other crops area	108 ha – sunflower, wheat, oats, lucerne
Type and number of animals	560 sheep, 300 lambs
Main market strategy for milk and meat	Contract with milk manufacture Selling lambs outside the farm
Investment intentions	Wants to build a milking system
Farm diversity	-
Work of farmer – out of the farm; share of incomes from farming in family feeding and incomes	100% of the incomes are from farming
EU funds payments	Area based payments and agri- environment payments
Manure storage	-

Farm	Selyaydin Zurabov
Statute and farm category	Agricultural producer
Location	Nikopol municipality - Natura 2000 "Nikopolsko plato" BG0000247
Owned land area	42 decares
Leased land area	32 ha arable land and 50 ha pastures
Haymaking/pasture land area	Municipality pastures, animals are taken out to pasture - depending on weather conditions: March-October
Fallow land area	-
Other crops area	Forage cultures
Type and number of animals	20 Milk cows, 8 calves (Black – color and Bulgarian Brown cow)
Main market strategy for milk and meat	Contract with milk manufacture Selling calves
Investment intentions	Wants to build a new cowshed with a central milking system and milk point station; Wants to raise wall-nut trees, plums, maize or lavender and hives
Farm diversity	Bee-keeping
Work of farmer – out of the farm; share of incomes from farming in family feeding and incomes	100 % of the incomes are from farming
EU funds payments	-
Manure storage	-

Farm	Albena Simeonova
Statute and farm category	Ltd.
Location	Lyubenovo vilage, Nikopol municipality - Natura 2000 "Nikopolsko plato" BG0000247
Own land area	50 ha
Leased land area	450 ha
Haymaking/pasture land area	-
Fallow land area	-
Other crops area	23 ha barley, 35 ha Lucerne, 152 ha sunflower, 100 ha maize, 60 ha oat-grass mixtures, 65 ha white thorn, 60 ha vineyard
Type and number of animals	-
Main market strategy for milk and meat	-
Investment intentions	-
Farm diversity	Organic farming – 11 ha vineyard, 10 ha maize, 51 ha white thorn
Work of farmer – out of the farm; share of incomes from farming in family feeding and incomes	100% of the incomes are from farming
EU funds payments	Area based payments and payments for organic farming (agri-environmental support)

2.2 Kresna

In the following chapter general information about the southern pilot site will be presented as far as relevant for the project for defining the methodology including information about surface, number of inhabitants, main economic activities, land use and land ownership.

In the southern parts of the country the target areas of the project are the following **Natura 2000 site**, declared according to Directive 92/43/EEC for conservation of natural habitats and of wild flora and fauna:

- „Kresna – Ilindetzi” BG 0000366 – municipalities Kresna, Strumyani, Simitli and Sandanski (Blagoevgrad district).



Map of Blagoevgrad district

2.2.1 Socio economic Information

The territory of municipalities and number of settlements in the Blagoevgrad region, Kresna I lindentzi Natura 2000 site are as follows:

Municipality	Territory, sq. km.	Settlements, number
Kresna	344	10
Strumyani	366	21
Simitli	529	18
Sandanski	106	54

The population on the territory of the municipalities by December 31, 2009, according data of National Statistical Institute:

Municipality	Population
Kresna	5 607
Strumyani	5 903
Simitli	14 877
Sandanski	41 582

During the last years there is clearly expressed trend of a decreasing population in rural areas in the region. Decrease of the population leads also to a decrease of it's density; for Kresna municipality it is 17 people per square kilometer or 4 times less than the average for the country. Most generally, changes in the age structure are directed to increase of the relative share of population in and above active age (above 60% totally) and decrease of population in pre-active age.

Earnings of population in the region are formed mainly in agriculture (above 30% of population) and light industry (mainly tailoring workshops).

The relief is predominantly mountainous, the highest parts being "alpine". The exceptions are the river valley of Struma and their tributaries where the majority of the population resides. The region covers the area of the mountain of Pirin.. The beautiful and wild nature of the region kept untouched in the national park and reserves is considered to be one of the greatest treasures of the region. The Pirin National Park is of worldwide importance and is on the UNESCO List of World Cultural Heritage.

The main land uses in the area are distributed as follows (data provided by Municipal Services "Farming and forestry", July 2008):

Municipality	Agricultural land /ha/	Forestry /ha/	Urbanized territories and settlements /ha/	Water areas /ha/	For transport needs /ha/
Kresna	7724,2	24655,1	315,0	-	-
Strumyani	12700,6	21190,3	163,6	371,5	159,6
Simitli	16446,2	30969,8	-	-	-
Sandanski	34747,7	54345,0	1989,3	-	430,5

As it is obvious from the table, forestry territories occupy big area (more than 50%) of municipalities' territories, which determine also the limited size of workable agricultural land in the region. Land is strongly fragmented, as because for the relief's and landscape's characterizations, so as because of small-sized plots with different owners and low extent of farmers' cooperation. Agriculture is distinguished mainly with extensive character – farming production is used mainly for satisfying of population's needs and comparatively smaller part of it go to the market or for secondary processing in food industries enterprises. In private agricultural farms vineyards, tomatoes, maize, potatoes, and fruits are grown.

Stock-breeding is concentrated mainly in private farming and has extensive, mainly grazing character. Typical is breeding of animals for meat. It's insufficient fodder providing, because of the low share of workable farming lands, strongly impedes its development. Activities are not mechanized and it is relied mainly on the hand labor, which makes them inefficient.

In the allocation of lands by form of property, prevail the state property (more than 50%), followed by municipality and private property. Municipality property include fields, perennial plantations, common lands, pastures and etc., while in the state property are included big forestry massifs and agricultural lands. Pastures and meadows are rendered for use to agricultural farmers, mainly through contracts for rent, but those who fall into the forestry fund – through contracts for grazing. The region is with weakly developed rental relationships.

Lease of farmland in 2008 for the district is (MAF, annual report 2009):

District	Number of leasing contracts	Size of land in ha	Size of lease payment
Blagoevgrad	78	285	0,6-6 lv/ha

2.2.2 Condition of the agricultural lands and recent changes

Semi natural meadows and pastures occupy big part of the total area of agricultural land (more than 50%). After the accession of Bulgaria to the EU there is a trend to use pastures and meadows, including mountain and alpine ones uniformly, with the aim subsidies to be received. In spite of this, great part of these is abandoned and is deserted, which lead to loss of habitats and valuable plant and animal species. This is so from one side, because of the common for the country trend for decrease of agricultural animals number, but from another is determined from the fact, that part of them is situated in more distant and difficult for access regions, without built infrastructure and temporary shelters and pens.

Currently area-based payments do not have visible effect on reducing land abandonment. However, it has to be stated that the system of single area payments is still in its early stages and the farmers who have received these payments are not many. On the contrary, most information point at the fact that farmers are not receiving support.

Available meadows and grasslands, by municipalities, in ha:

Municipality	Meadows and grasslands ha
Kresna	4600
Strumyani	3500
Simitli	8402
Sandanski	17680

2.2.3 Trends in agriculture

The abundance of natural meadows and alpine pastures traditionally supported the development of animal husbandry in the region and especially sheep and goat breeding. However, most of the sheep and goat farms are semi-subsistent with limited marketing opportunities for their products.

Cattle breeding and especially dairy cows are quite limited in the region.

Honey production is another semi-subsistence activity with a number of farmers registered as bee-keepers and honey producers.

Number of animals for 2008, by MSAF:

Municipality	Cattle (milk and meat)	Sheep	Goats
Kresna	650	7 200	4 100
Strumyani	502	7 100	5 150
Simitli	1 105	6 900	6 700
Sandanski			

The main threat to the biodiversity of the area is related to the decline of the number of grazing animals which leads to bush encroachment and disappearance of the typical vegetation.

Most of the abandoned pastures and meadows are owned by municipalities and belong to the Territory of Pirin National Park. Municipality, Pirin National Park Directorate and farmers have to agree on a grassland use system that will allow farmers to have access to the pastures and thus to prevent them from further degradation. Currently an agri-environment pilot is running through which farmers get paid for grazing with their animals in the pastures.

In the National Park grazing with goats is forbidden (since 1945) and this exacerbates the process of bush encroachment. From the perspective of managing the grassland habitats and securing favourable conservation status there is no need to prolong the ban on goats grazing in the mountains. On the contrary, it is better to lift the ban.

The share of semi-subsistence and subsistence farms is very high. In the region, it is clear that this cannot be ignored. On the contrary, they need targeted policy to support them to become viable businesses based on sustainable management of the natural areas and resources.

In addition to the economic and natural conditions for farming in the region there are other factors significantly impacting the overall situation:

- Out-migration and high percentage of ageing population;
- Lack of knowledge and skills – less than five percent of the population has specialized farming education, while traditional ways of land management were not supported for more than 50 years;
- Unattractiveness of farm labour and general lack of labour force in the region;
- Preference to make profits quickly and/or develop tourism activities.

All of these factors require adequate governmental and regional policy as well as targeted and specific financial support aiming at conservation and restoration of HNV farmlands, which are threatened by extinction if the current rates of depopulation, abandonment, and land degradation are maintained.

Comparing today's data with data of traditional farming practices in the Kresna region in the past it becomes clear that the numbers of sheep and goats, as well as of cattle have decreased drastically; with thousands during the last 20 years. Data for some of the settlements in the municipalities are as follows:

The amount of cattle in the villages of Kresna – Kresna municipality

	Sheep	Goats	Cows	Horses, cattle
Before 1944	over 5000	over 1 500	500	500
1944 - 1991	5 000 - 6 000	500 – 600	1 500	100
After 1991	900 - 1400	700 – 800	-	-

Before 1991 during summer and autumn (July – October), herds have been kept in pens in Chernata Voda and Peshterata country sides (there have been a dairy farm in the last place and there is a road leading to it) and have been grazing from Vihren, through Vlahini Ezera, Gredaro, to Sinanitsa and Spano Pole.

From May to June herds have been grazing through Debel Dab, Polena, Baba to Chernata Voda.

The amount of cattle in the villages of Gorna Breznitsa – Kresna municipality

	Sheep	Goats	Cows	Horses, cattle
Before 1944	over 32 000	over 3000	1000	-
1944 - 1991	30 000	500 – 600	500	-
After 1991	250 - 300	300	8-80	-

From December to April the cattle grazed in the pastures around the villages of Raynovitsa, Debel Dab, Zlatanchovtsi, Shemeto, Ladjov Chukar. From May to June gradually herds used to go up to the mountain.

During the period July – October they have been grazing in high parts – Rusalkite (Russaliyte) above Zagaza, Kriva Sospa, Nevarzum.

During the socialist times the country side of Polena, Debel Dab, Oshtava have been used for harvesting winter fodder.

2.2.4 Current forms of grazing in Kresna

Big part of stockbreeding sector is for meat production. The grazing period is from May (in the low part of the mountain) to October depending of on the weather conditions. The animals are organized in groups/herds called “bolyuk”. One ‘bolyuk” from cattle normally is approximately 100 -110 number of animals while one “bolyuk” from sheep is on the average 200 number of animals. Animals’ grazing is organized from their owners, or from hired shepherds, who take turns to graze them in the mountain for specified period of time (usually 1 week).

The traditional cattle breeds in the area are Karakachanska sheep and long goat-hair goat.

There isn't clear statistical information about number of herds.

3 Recommendations for management and restoration of N-2000 habitats

3.1 National Agri-Environment Programme

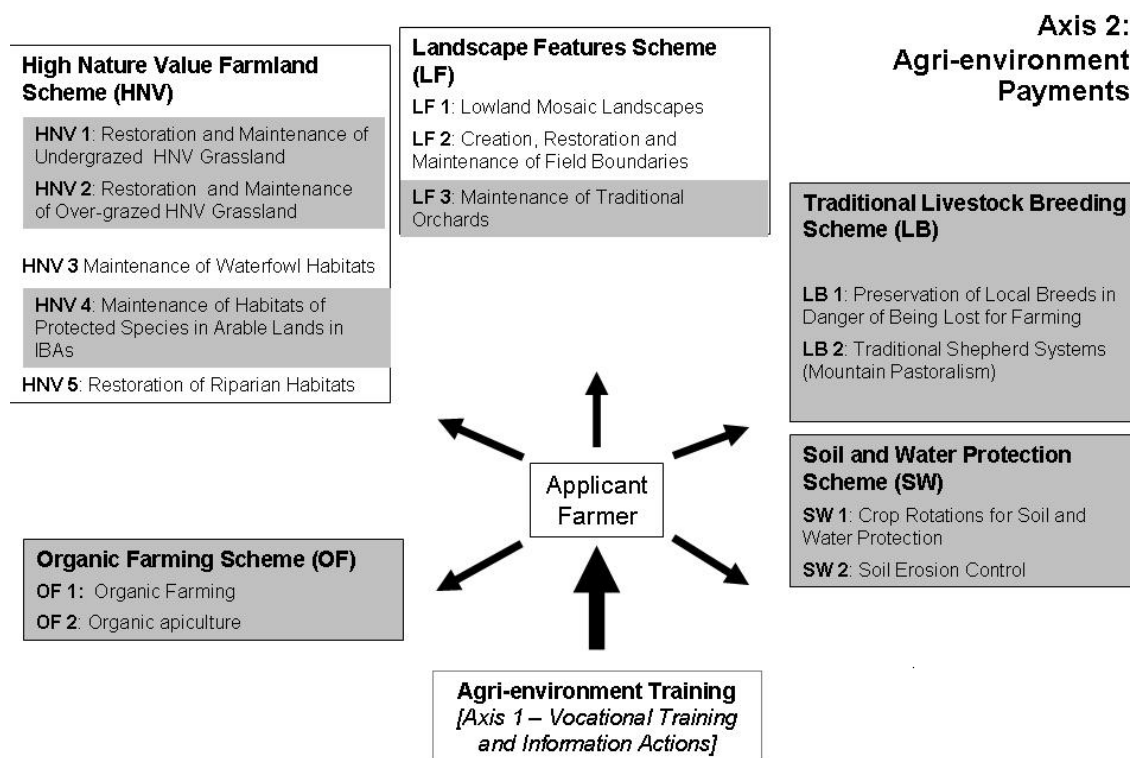
The specific objectives of the NAEP are to:

- a) Increase the awareness and knowledge of farmers about the impact (positive and negative) of agricultural practices upon the environment, especially in relation to the management of soil and water and the conservation of biodiversity;
- b) Promote the use of environmental planning in farm management practices, including the identification and maintenance of all areas and features on the farm of ecological and landscape value;
- c) Support the development of organic farming as an environmentally-friendly and economically-viable method of agricultural production;
- d) Maintain genetic variety and cultural heritage by supporting the conservation of endangered local breeds of farm animal and traditional crop varieties, particularly where these have additional environmental benefits;
- e) Maintain biodiversity by encouraging the conservation of high nature value farmland (semi-natural habitats) which is under threat from changing land use, agricultural intensification and/or abandonment, including support for traditional mountain pastoralism in designated areas
- f) Maintain and restore traditional agricultural landscapes and landscape features which have cultural, scenic or environmental value, especially for biodiversity;
- g) Conserve soil and water resources, including in those areas affected by severe erosion and at risk of high nutrient losses (e.g. Nitrate Vulnerable Zones) or other forms of agricultural pollution;
- h) Encourage farmers on a voluntary basis to manage agricultural lands in Natura 2000 sites in line with the aims and requirements of the Birds and Habitat Directive, prior to the introduction of mandatory land management obligations in these areas.

Contrary to “natural” habitats that have developed without human interventions, the so called “semi-natural” habitats have developed under human influence like grazing and mowing. Semi-natural grasslands belong to the most valuable ecosystems in the agricultural landscape and are the result of many centuries of stable agricultural management using the grasslands for grazing animals (pastures) or making hay (meadows) or combinations of both uses. As a result of this long-term management, the ecosystems associated with semi-natural grasslands are well developed and characteristic of their bio-geographical region.

The maintenance of semi natural habitats and species therefore depend on the continuation of the human activity through which the habitats and species developed. In most cases this implies a continuation of extensive farming methods like grazing and mowing without the use of high amounts of fertilizers and chemicals. Thus the requirements for managing these habitats and related species are in most cases simply to secure the continuation of these extensive forms of agriculture. The financial compensation from agri-environment schemes is then based on paying the farmer for the loss of income he could earn when he would develop his farm to the modern day levels with higher inputs of fertilizers and chemicals.

The following packages are included in the agri-environment programme of Bulgaria:



The implementation of the schemes and packages specified in the measure will be phased-in according to environmental priorities, implementation capacity and supporting expertise etc. Those marked in grey are the priority packages which are under implementation. The widespread implementation of all other packages (all schemes start from outset) will start in 2010, after a change to the RDP to introduce the relevant details and conditions of these agri-environment activities.

Implementation of the Mountain pastoralism package are on a pilot basis only, in 2 National parks – Pirin and Central Balkan.

Management requirements will vary according to the specific type of high nature value grassland targeted and will need very clear and careful elaboration by local experts, but will include:

HNV 1 and 2: Restoration and maintenance of HNV grasslands

HNV1 – Restoration and maintenance of undergrazed HNV grasslands

Each year farmers have to specify whether the grassland will be mowed or grazed.

For both practices the following applies:

- Use of fertilizers and application of pesticides is prohibited except those defined in Regulation (EEC) 2092/91 (R 834/2007);
- No new drainage and ploughing is permitted.

For grasslands that will be mowed the following requirements should be observed:

- Free grazing on meadows after the last mowing (except for meadows in the forests, because they are a habitat for plant species of European conservation importance where the grazing might not be of benefit, moreover the forest meadows are used for grazing by wild fauna and human presence might disturb them);
- Mowing should be between 15th of June and 15th of July for lowlands and between 30th of June and 15th of August for mountainous lands (Less favorite areas);
- The mowing may be done manually or if it is with a slow grass cutting machine to be performed in a way that will not disturb the nesting birds or other animals (e.g. from the centre towards the periphery of the meadow and with low speed or from one end to the other). (This will allow the ground nesting birds and other animals to escape).

For grasslands that will be grazed:

- Maintenance of minimal and maximum density of livestock depending on natural climatic and soil conditions in order to assure a good ecological state of the meadows and pastures and keep permanent grass cover. The minimum and maximum levels should be as follows:
 - o 0.3-1.5 LSU/ha;
- Farmer should keep the minimum and maximum stocking density in the whole grazing area within the farmers block. Respect of stocking density will take into account all grazing livestock kept in the farm.

HNV 2 – Restoration and maintenance of overgrazed HNV meadows and pastures

Each year farmers have to specify whether the grassland will be mowed or grazed.

For both practices:

- Re-seeding with approved native species – preferably with seed of local provenance;
- Use of fertilizers and application of pesticides is prohibited except those defined in Regulation (EEC) 2092/91 (R 834/2007);
- No new drainage and ploughing is permitted.

For grasslands that will be mowed the following requirements should be observed:

- Free grazing on meadows after the last mowing (except for meadows in the forests, because they are a habitat for plant species of European conservation importance where the grazing might not be of benefit, moreover the forest meadows are used for grazing by wild fauna and human presence might disturb them);
- Mowing should be between 15th of June and 15th of July for lowlands and between 30th of June and 15th of August for mountainous lands (Less favorite areas);
- The mowing may be done manually or if it is with a slow grass cutting machine to be performed in a way that will not disturb the nesting birds or other animals (e.g. from the centre towards the periphery of the meadow and with low speed or from one end to the other). (This will allow the ground nesting birds and other animals to escape).

For grasslands that will be grazed:

- Maintenance of minimal and maximum density of livestock depending on natural climatic and soil conditions in order to assure a good ecological state of the meadows and pastures and keep permanent grass cover. The minimum and maximum levels should be as follows:
 - o 0.3-1.5 LSU/ha;
- Farmer should keep the minimum and maximum stocking density in the whole grazing area within the farmers block. Respect of stocking density will take into account all grazing livestock kept in the farm.

HNV 4 – Maintenance of habitats of protected species in arable lands of Important Bird Areas (IBAs)

The farmer may choose one or a combination of the following activities:

- Leave small (16-25 square meters) pieces of land unploughed and not sowed, amongst the autumn cropped areas (4 such pieces per hectare);
- Retain winter stubbles on fields selected for spring-grown crops;
- Leave uncultivated and un-ploughed areas ("wildlife-friendly set-aside") for a period for 2 years on a 5 year rotational basis in intensive agricultural land with monocultures (10 to 20% of the farmers block, but not less than 1 ha, as a single, non-fragmented block of land; with a 1m sterile strip around the perimeter that should be ploughed 2-3 times a year [but not between March and July] to prevent spread of weeds into adjacent crops);
- No cereal harvesting before 31st July in areas with nests of Montagu's Harrier (*Circus pygargus*);
- No use of pesticides (including second generation rodenticides) and mineral fertilizers - other than 'localised-treatment' of invasive weeds, i.e. selective use of some herbicides such as fluazifop-P-butyl or similar in March is permitted to suppress rank grass swards on grass margins or wildlife set-aside areas.

All the farmers, participating in the measure and receiving agri-environmental payments shall apply on their whole farm the following:

- the requirements for Good Agricultural and Environmental Conditions (GAEC) adopted with an Order of the Minister of Agriculture and Food and subsequent amendments of this Order;
- the minimum requirements for fertilizer and plant protection materials and other relevant mandatory requirements established by national legislation identified in the RDP.

These payments are in addition to any Axis 2 - Natura 2000 payments that the applicant may be eligible to receive. However; the payments can not be topped up. The farmers can chooses for the Agri-environment payments while the Natura 2000 payments are obligatory.

Because payments for agri-environment measures are based on the cross compliance principle farmers are obliged to take Good Agriculture and Environmental Conditions in consideration. These include:

- Protection of the area of natural habitats and habitats of species and their populations, within the frames of the protected site;
- Preservation of the natural conditions in natural habitats and species' habitats, within the frames of the protected site, including protection also of natural habitats of species compositions, site-specific species and the environmental conditions;
- Restoration when necessary of the area and of the natural conditions in natural habitats and species' habitats of priority, as well as restoration of species' populations, subject to conservation within the frames of the protected site.

3.2 Natura 2000 habitats and species in the pilot sites

The following semi natural habitat types occur in the pilot sites and for which the farmers can contribute to achieving favourable conservation status:

1530 Pannonic salt steppes and salt marshes*

General description:

The habitat type has **developed on alluvial deposits covered by Fluvisols in river valleys**. The wet conditions make them used as pastures for cattle in dry summer months. The habitat type is also used in parallel for mowing. Spring floods cause rise in salinity of the alluvial soils due to the high groundwater levels and the hot summer. These communities are the result of the joint impact of grazing, soil and climatic conditions. Grazing should be maintained at **extensive levels** In parallel mowing is acceptable practice, but up to max 100 % of the meadow area The mowing should be done only after bloom of the vegetation.

The following is the bases for the calculations and should be included in the agreement:

- 1) The reference situation is the present situation without fertilization based on 4500 kg/dry matter per ha;
- 2) The ecologically desirable management is extensive grazing with max 1,2 LSU per hectare (no rotation);
- 3) Parallel with the grazing the total field is mowed one time after 15 June (max 100%) to avoid ruderalisation;
- 4) Grazing with cows, sheep or goats is possible.

6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)*

General description:

The habitat type has developed on basic sandstones and acidic rocks at altitude of 0-1100 m. The soils are shallow, but not mosaic and deeper than in 6240 and 62A0. It turns to 6250 on deep loess deposits. It is a semi-natural grassland type created by grazing of mixed herds of cows, sheep and goats. Particularly low intensity grazing of goats is crucial to prevent overgrowing with shrubs and trees. The last should happen in mixed herds Only low intensity goat grazing should take place in order to keep open spaces.

The following is the bases for the calculations and should be included in the agreement :

- 1) The reference situation is the present situation without fertilization based on 2000 kg/dry matter per ha;
- 2) Extensive grazing is needed to achieve favourable conservation status;
- 3) Grazing is recommended with mixed herds goats and sheep or cows;
- 4) Maximum grazing pressure is 0.8 LSU per hectare.

6240* Sub-pannonic steppic grasslands

General description:

The habitat type has developed on very shallow mosaic soils with basic rock limestone or marl. The habitat type covers relatively small areas very low intensity grazing of sheep and goats in order to keep the areas from overgrowing with shrubs.

The following is the bases for the calculations and should be included in the agreement:

- 1) The reference situation is the present situation without fertilization based on 2000 kg/dry matter per ha;
- 2) Extensive grazing is needed to achieve favourable conservation status;
- 3) Grazing with mixed herds with goats and sheep or cows is recommended;
- 4) Maximum grazing pressure is 0.8 LSU per hectare.

6250* Pannonic loess steppic grasslands

General description:

This habitat type develops on loess deposits, covered on the surface mostly with Chernosem (black soil these days in relatively isolated patches of public pastures called “mera”. The original plant communities of the habitat type have been dominated by *Chrysopogon gryllus*, but this species has gradually been displaced by *Dichanthium ischaemum*, a species more stable to grazing and tramping.

The following is the bases for the calculations and should be included in the agreement :

- 1) The reference situation is the present situation without fertilization based on 2000 kg/dry matter per ha;
- 2) Extensive grazing is needed to achieve favourable conservation status;
- 3) Grazing with mixed herds with goats and sheep or cows is allowed and recommended;
- 4) Maximum grazing pressure of 0.8 LSU per hectare.

6510* Lowland haymaking meadows

General description:

This habitat type is rare and developed on alluvial deposits covered by Fluvisols at the bottom of river valleys. It is a semi-natural habitat type requiring regular mowing. Traditionally it was usually intensively used with mowing several times per year and together with that grazed by cattle. As a result strong at least one time per year of and up to 100% of the meadow area with applying a rotation next year is a crucial management practice in order to avoid overgrowing with shrubs. The moving should be done only after bloom of the vegetation.

The following is the bases for the calculations and should be included in the agreement :

- 1) The reference is the present situation without fertilization based on 4 500 kg/dry matter per ha;
- 2) Extensive grazing with 1,2 LSU per hectare (no rotation) is needed to achieve favourable conservation status;
- 3) pParallel to the grazing the total field is maximally one time mowed after 15 June (**max 100%**) to avoid ruderalisation;
- 4) Grazing with mixed herds with sheep and goats or cows is possible.

6520 *Mountain haymaking meadows*

General description:

The habitat type is found only in mountain areas and is developed on acidic rocks on altitudes from 750 up to 1900 m. Traditionally the habitat type is mainly used for mountain pasture for mixed herds of sheep, goats and cows, but the same areas were used also for mowing. It is a semi-natural habitat type requiring regular mowing or goat grazing. In the absence of this maintenance it starts slowly or faster to overgrow with shrubs and tree vegetation. Mowing at least one time per year of and up to 100 % of the meadow The mowing should be done only after bloom of the vegetation. Alternative is to provide the mountain meadows with regular grazing of mixed herds Both mowing and grazing could be applied together.

The following is the bases for the calculations and should be included in the agreement :

- 1) The reference situation is the present situation without fertilization based on 3000 kg/dry matter per ha;
- 2) Extensive grazing is required to achieve favourable conservation status;
- 3) Grazing with mixed herds with goats and sheep or cows is allowed;
- 4) The maximum grazing density is 0.8 LSU per hectare;
- 5) Mowing of parts of the parcels is possible after blooming (after 1 July).

Spermophilus citellus, Souslik

This species gained strong support from men activities throughout last several thousand years, but now is in strong decline due to abandoning the pastures and meadows. In order to survive and reproduce this species requires wide open areas without or with few shrubby and tree vegetation and with short grasses.

Colonies developed on dry pastures, code 6250, are suffering from low level of grazing and reduction in the number of sheep and cows. In order to be in good condition the grass should not be taller than 15 cm the souslik is in good conservation status and most abundant in overgrazed grasslands (over 1,5 animal units/ha) which are characterized by high ruderalisation, low coverage of dominant species and low diversity of typical species.

Colonies developed on salt meadows, code 1530, are suffering from both - low level of grazing and decrease of the number of sheep and cows and lack regular mowing. The resulting tall grasses and overgrowing with shrubs are the main obstacles for successful survival of the species Accompanying mowing is crucial to keep the habitat in good condition.

In the areas of existing or historical Souslik colonies higher grazing levels should overload requirements of maintaining grasslands against overgrazing.

No special measures needed.

Testudo graeca and Testudo hermanni, Iberian and Hermann's tortoises

Contrary to Souslik, both Mediterranean tortoises do not tolerate open steppes, without shrubby or tree vegetation. They inhabit clear steppes only at the edges of adjacent forests or bush. Tortoises prefer forest and shrub ecotones, areas with open grasslands covered with spread shrubs and trees or scarce light oak forests. In meadow habitats, they inhabit them if tree and shrub belts are surrounding patches of meadows. In North Bulgaria they live up to 800-1000 masl., in Southernmost up to 1200-1400 masl.

For both tortoises it is important to maintain open habitats, by traditional activities – grazing (mixed herds, with goats) and mowing. Appearance of small eroded areas near animal tracks and routs is important for providing suitable nesting areas. Mowing should be made by machines providing protection for tortoises against killing the animals or injury. Artificial removal of shrubs and trees, often advised to maintain the grasslands, should be completely excluded as practice in tortoise habitats, with the exception of removal of aggressive alien species. This rule should be applied everywhere, with the exception of the current or historical colonies of the Souslik and habitats of steppe polecat. In such areas protection of clearly steppic species should compromise the requirements of tortoises' protection. Better conditions for tortoises and some compromise could be achieved by protection of small depressions and valleys covered with low shrubs often penetrating the open steppe landscape.

No special measures are needed

Monitoring

It is up to the Ministry of Agriculture to design a monitoring programme in order to assess the results and impact of the programme.

For the purpose of good monitoring it is however needed that the following is taken into account:

- 1) The basic ecological situation is described and included in the agreement;
- 2) For the purpose of monitoring it is recommended to identify for each site one or more indicator plant species including foto's and a short description;
- 3) It should be clarified how many indicator plants per hectare should be occurring.



3.3 Method for calculating Natura 2000 compensatory payments

The calculation of the level of the financial remuneration to compensate farmers for the loss of income is based on the management requirements for N-2000 habitats and species occurring on the farmers' land. The management requirements are given by the ecologists based on an assessment of the conservation status of the habitats and species and the management requirements to maintain or restore the species and habitats in a favorable conservation status.

At this moment the application of manure and fertilizers is below what is acceptable in GAEC but it is assumed that this level will increase under the conditions of modernization of farming in Bulgaria.

The following basic elements have been applied for the calculation:

- 1) The reference production of grassland habitats is calculated as bellow:
 - o Normal grassland with manure and fertilizers based on Nitrogen directive for Bulgaria is 6000 kilogram dry matter;
 - o Grassland with mixed grasses and is 4500 kilogram dry matter;
 - o Herb rich grassland with 3000 kilogram dry matter;
 - o Herb grassland with 2600 kilogram dry matter;
 - o Botanical grassland with 2000 kilogram dry matter;
 - o In Bulgaria are grasslands with bushes, maximum 20 % (according GAEC) and soils with rocks. That kind of grasslands shall not produce the kilogram dry matter in normal grasslands. We make an assumption that the maximum yield is 3000 kilogram dry matter and ecological mix grasslands with 2000 kg, herb rich grasslands with 1000 kg and herb grasslands with 800 kg dry matter;
- 2) An animal unit (AU) is one cow older than 2 years. A cow between 1- 2 years is 0,7 AU; < 1 year is 0,3 AU; 7 sheep is 1 AU; 1 lamb is 0,5 sheep and 20 lambs= 1 AU;
- 3) The basic intake of food is the bases for calculating the grazing intensity. It is estimated that one cow (or one AU) in Bulgaria grazes 9,13 kg dry matter a day. These estimation is based on the density of 1,8 LSU per hectare (365 days grazing) and an estimated yield of 6000 kilogram dry matter per ha;
- 4) The number of animals used in the calculations is the maximum number of animals per hectare/yr in a permanent grazing plot and without rotation grazing;
- 5) The farmers currently don't use fertilizers in the Natura 2000 areas;
- 6) The yield without fertilizers is estimated on 4500 kg dry matter per hectare. The number of LSU is with this dry matter production is 1,35 per ha;
- 7) The ecological desirable grazing intensity varies and is based on dry matter production and the ecologically desired grazing pressure. The authorities and farmer have to make appointments about grazing/mowing plan;
- 8) The ecological desirable grazing intensity results in a lower yield (or take up) of dry matter of the grasslands resulting in the loss of dry matter;
- 9) The total number of grazing animals should be laid down in the contract;
- 10) The lost of dry matter in the agreements will be compensated with Lucerne. The price per kilogram dry matter is based on the production cost of Lucerne. In 2010 is the price 0,47 leva per kilogram dry matter;
- 11) The relation between leva and euro is calculated with 0,51203.

Based on the criteria given the calculations result in the following compensation payments:

Habitat types Bulgaria Natura 2000		Dry matter			0,47	0,51203
		Present production and take up	Take up under ecological grazing conditions	loss in dry matter.	Loss in leva	Loss in euro
1530	Pannonic salt steppes and salt marshes	4500	3973	527	247,69	126,82
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)	2000	1315	685	321,95	164,85
6240	Sub-pannonic steppic grasslands	2000	1315	685	321,95	164,85
6250	Pannonic loess steppic grasslands	2000	1315	685	321,95	164,85
6510	Lowland haymaking meadows	4500	3973	527	247,69	126,82
6520	Mountain haymaking meadows	3000	2315	685	321,95	164,85

3.3.1 The Karaboaz region calculations

For the two farms in the Karaboaz region, the following model calculation has been made. The habitat type occurring in the farm is type 1530. The calculation presents the average outcome for five years and is based on the situations of the farms. It is assumed that the grazing intensity in the summer is 1,2 LSU per hectare and there is 100 % mowing parallel with grazing. Each year will be different.

	LSU/ha	Kg dm/LSU/day	Days	Result
Dry matter production in the present situation				4500
Natura 2000; limited LSU/ha	1,2	9,13	180	1973
Winter fodder mowed				2000
Take up of dry matter				3973
Loss in kg Dry matter				528
Loss in leva		Price kg DM	0,47	248
Loss in euro		Leva/euro	0,51203	127

3.3.2 Calculation for the Kresna region

For some habitats the present yield is lower than 4500 kg DM. These are fields with slopes, bad soil, bushes and dry circumstances. The calculations have been made for two different situations: with haymaking and a situation with only grazing and apply to habitat type 6510.

The present production is 3000 kg dry matter plus 1000 kg DM in hay. The ecologically desired grazing intensity is 0,8 LSU per hectare.

	LSU/ha	kgdm/LSU/day	days	Result
Production of dry matter in the present situation				3000
Grazing density based on ecological requirements.	0,8	9,13	180	1315
Winter fodder mowed				1000
Yield (or take up) of dry matter				2315
Loss in kg dry matter				685
Loss in leva		price kg DM	0,47	322
Loss in euro		Leva/euro	0,51203	165

When only grazing is applied the present yield is 2000 kg DM. The yield under ecologically desired grazing management is 1315 kg dry matter. This results in the following calculation:

	LSU/ha	Kg dm/LSU/day	Days	Result
Production of dry matter in the present situation				2000
Grazing density based on ecological requirements	0,8	9,13	180	1315
Winter fodder mowed				0
Yields (or take up) in dry matter.				1315
Loss in kg Dry matter				685
Loss in leva		price kg DM	0,47	322
Loss in euro		Leva/euro	0,51203	165

With the given grazing density the appearance of ruderal plants in June is unavoidable but in the course of the year part of these plots will be consumed by the cattle.

3.4 Proposed method for calculating the compensation for herding

The financial aspects of the organization and implementation of grazing in the regions are as follows:

Measure: Traditional livestock production Sub-measure LP 2: Traditional shepherd systems Calculation scheme		
Indicators		Costs/leva
1 labour costs per year per herdsman		6 240
2 General farm costs		860
3 Transport herdsman		1 440
4 Transport milk		-
5 Maintenance fences and buildings		-
6 Interest and costs bank investments		
7 Subtotal		8 540
8 Profit		854
9 Total		9 394
10 Grazing costs a day/leva	180 days	52,19
11 Grazing costs a day/euro	180 days	26,68

Explanation

- 1) One herdsman works for 50 animals – cattle and sheep for 260 leva per week. For grazing period (six months) for 50 animals farmers need 1040 leva x 6 = 6 240 leva;
- 2) Extra farm costs related to the herd – additional costs for dogs, the herdsman uses normally 1 dog per 50 animals. Foot for one dog is 2 leva per day, or 60 leva per month. For 6 months, farmers need/pay 360 leva. Farmers have other extra costs for tents and other tent hold appliances, for the herdsman during the grazing period – 500 leva per year;
- 3) The animals are not transported to the mountains, but the farmer has costs for transport of the herdsman every week – to the mountains and back to the villages and this is normally count 60 leva per week or 240 leva per month, or for 6 months = 1 440 leva;
- 4) Normally farmers use the cattle only for meat. Sheep are being milked and herdsman produce green cheese immediately after the milking;
- 5) N/A;
- 6) N/A;
- 7) Subtotal;
- 8) 10 % profit of subtotal;
- 9) Total extra costs for a herd and his herdsman;
- 10) The grazing costs per day – 52,19 leva.

3.5 Recommendations for the next steps

Regrettably the proposed management of N-2000 habitats and species by farmers and the compensations paid to the farmers can not be introduced at this moment. The recommendations and proposed measures need to go through a number of procedures before they can be applied and some of them might take time. This is not only regrettable because it will delay the introduction of sound management of semi natural habitats and species but it will also cause the delay of payments the farmers can receive.

First of all the Ministry of Agriculture needs to formally accept the basic principles of the model to calculate the compensation payments for farmers proposed in this report. The next step would be to communicate with the paying agency if they also can support the methodology. After all it will be the agency that will be held responsible for the sound application and the payments to the farmers.

Once the Ministry of Agriculture and the paying agency agree the proposed measures and calculation method needs approval from the European Commission before it can be applied. This takes at least 6 months.

But even when the Commission has approved the measures and method the government can still not enter into contracts with the farmers. Before being able to do so the Ministry of Environment needs to issue the ordinances through which the management objectives of the various N-2000 sites are laid down and the required management is laid down in management plans. Currently it is not known when these ordinances will be issued and when the management plans will be ready. The Ministry of Environment is about to start a project through which all habitats will be mapped and this will be the bases for the management plans.

In addition to the above it is strongly recommended to embark on a training and awareness raising programme to make regional and local authorities aware of the agri-environment and N-2000 measures.

Despite the fact that modern agriculture can be destructive for the biodiversity agriculture plays at the same time an important role in maintaining the landscape and biodiversity. The manual provides information about the way agriculture has shaped the landscape and biodiversity of Bulgaria and how agriculture can help to maintain this landscape and biodiversity for the future. It provides insight in the EU agriculture and rural development policies and informs about the policies of the Bulgarian government with respect to rural development and environmental protection. Finally it provides guidance to those who want to apply for support to adjust farming to the requirements of nature conservation in areas that have been designated under the Birds and Habitats Directives in Bulgaria.

More information: www.cdi.wur.nl

