

HERITAGE SHEEP

European Commission Council Regulation (EC) No 870/2004 AGRI GEN RES 2006

Results of Work Package 1

May 2008

Introduction

Heritage Sheep Breeds (HSB) are defined as genetically distinct, geographically concentrated and adapted to their environments. Typically, these sheep breeds are "local" breeds, traditionally farmed for commercial use and play an important role in the culture and rural economy of the regions in which they are managed. Despite the value of these breeds and their genetic resources for both environmental and economic sustainability of local communities throughout the EU, they are only beginning to be recognised as "breeds at risk".

A general threat facing all HSB is the risk of disease entering the region in which the breed is geographically concentrated. Under these circumstances, the impact from the disease and from procedures such as culling, taken to prevent disease spread, can be catastrophic. This risk was highlighted during the 2001 Foot and Mouth Disease (FMD) epidemic in the UK, when regional breeds located in the disease centres suffered disproportionate losses to their gene pools.

The implementation plan of this programme has been designed to help ensure and improve the conservation, collection and characterisation of genetic resources of HSB in livestock agriculture in the European Community. The plan will complement and promote at Community level any relevant work undertaken already in member states and will extend best practices to those states in which work on Heritage Sheep Breed genetic resources has not yet started.

The implementation plan is targeted at HSB's defined in the table below. The breeds of the partner countries were identified within the wider ERFP scoping study that revealed the existence of HSB's across Europe.

The Breeds included:

France	UK	NL	Greece	Slovenia
Basco Béarnaise, Bizet, Causses du Lot, Corse, Grivette, Limousine, Manech Tête Noire, Manech Tête Rousse, Mourerous, Rava Tarasconnais Velay Black Merinos d'Arles	Brecknock Hill Cheviot, Cheviot (South Country Cheviot), Clun Forest, Dalesbred, Derbyshire Gritstone, Devon Closewool, Exmoor Horn, Herdwick, Lonk, Romney, Rough Fell, Shetland, South Welsh Mountain, Southdown, Welsh Hill Speckled Face North Country Cheviot	Black Blazed, Blue Texel, Drenth Heath, Flevolander, Mergelland, North Holland, Schoonebeek, Swifter, Texel, Veluwe Heath, Zeeland Milkssheep Kempen Heath Friesian Milkssheep	Boutsiko (Orino), Frizarta, Kefallinias, Sfakia Anogeiano Kalarritiko Mytilini	Bela Krajina Pramenka, Bovec Sheep, Istrian Pramenka, Jezersko – Solcava

The implementation plan for heritage sheep breeds in the UK has been targeted at 17 breeds. This number is a further refinement from the 24 breeds discussed within the ERFPP Scoping study. Through discussion with sheep specialists in the UK, 8 breeds were considered to have low geographical isolation and were removed from the list of breeds for detailed analysis. A new breed was added to the list, to incorporate a representative of the UK downs breeds. Thus, Dorset Horn, Badger Faced Welsh Mountain, Blue Faced Leicester, Swaledale, Black Welsh Mountain, Jacob, Lleyn, Blackface were removed from the list and Southdown added.

The ultimate aim of the project is to assess the HSB's across the Community, define the justification for preservation of the breeds, identify best practice procedures for *in situ* and *ex situ* conservation of their genetic resources and undertake the first steps to genebanking prioritised breeds in each partner country.

This plan compliments knowledge and activities already existing in member states, such as from the UE funded ECONOGENE project and ERFPP scoping study on Heritage Sheep Breeds in 14 member states of Europe.

Work Package 1

Work Package 1 was aimed at collating information to characterise and evaluate HSB genetic resources across the partner countries, in order to develop the means to prioritise conservation activities.

A questionnaire was developed gather information on Heritage sheep breeds. The questionnaire was sent to partner countries for translation and interviews were conducted with each breed society's secretary for completion of the questionnaire. The questionnaire is attached in the appendix.

Discussions with the breed societies allowed a breed description to be produced for display on the website www.heritagesheep.eu. The origin and history of the breed and information relating to current in situ and ex situ conservation activities is described and breed society contacts are listed.

Information relating to husbandry practices and traits of importance has been gathered but has not been included in this report.

Breeds that did not participate in completing the WP1 questionnaire are listed below

France	UK	NL	Greece	Slovenia
Tarasconnais Velay Black Merinos d'Arles	North Country Cheviot	Kempen Heath Friesian Milkshoop	Anogeiano Kalarritiko Mytilini	

The questionnaire was divided into sections to gather information.

- Numbers and Trends
- Threats
- Values
- Current Situation and Future Trends

The data gathered from the questionnaire was entered into a data base.

In the section on threats, in order to determine the breed with the highest score, the average score per breed for each threat category, social, political, disease and climate, was calculated.

The individual threat score per breed was multiplied by 100 and divided by the category average for that breed to give a standardised score. This standardise value was used to determine the breed most at risk from the threat. The breeds with the highest standardised scores, per country are listed in the tables below.

All scores and standardised values are given in the appendix.

The results for the identification of threats to the genetic diversity of Heritage Sheep Breeds are presented in the following tables.

Numbers and Trends

The first part of the questionnaire examined the estimated current populations of sheep. The breed societies gave estimates where records were not kept by the breed society.

- Breed societies gave an estimate of the number of purebred breeding sheep and number of their members' actively breeding sheep which in turn may represent the number of flocks.
- An estimate of the percentage of the breed that is actively farmed in the region associated with the breed.
- Breeds that are decreasing in number
- Breeds where 50% or more farmers are over 60

Table 1. Breed Society estimate of number of sheep per breed

FRANCE		UK		NL		GREECE		SLOVENIA	
Basco Béarnaise	80000	Brecknock Hill Cheviot	40000	Black Blazed	2820	Boutsiko (Orino)	12000	Bela Krajina Pramenka	900
Bizet	9000	Cheviot	80000	Blue Texel	6000	Frizarta	50000	Bovec Sheep	5000
Causses du Lot	106000	Clun Forest	4500	Drenth Heath	2000	Kefallinias	10000	Istrian Pramenka	1200
Corse	100000	Dalesbred	20000	Flevolander	1800	Sfakia	60000	Jezersko – Solcava	17500
Grivette	12000	Derbyshire Gritstone	5000	Mergelland	2220				
Limousine	40000	Devon Closewool	5000	North Holland	2500				
Manech Tête Noire	120000	Exmoor Horn	13000	Schoonebeek	1100				
Manech Tête Rousse	270000	Herdwick	50000	Swifter	15000				
Mourerous	36255	Lonk	12000	Texel	20000				
Rava	40000	Romney	7500	Veluwe Heath	1350				
		Rough Fell	17000	Zeeland milksheep	500				
		Shetland	12000						
		South Welsh Mountain	15000						
		Southdown	4000						
		Welsh Hill Speckled	10000						

Table 2. Summary of sheep numbers by country

France	Smallest breed Largest breed	Bizet 9000 Manech Tete Rouse 270000
UK	Breeds with 5000 or fewer sheep 4/15	Clun, Derbyshire Gritstone, Devon Closewool, Southdown
NL	Breeds with 5000 or fewer sheep 6/11	Black Blazed, Drenth Heath, Flevolander, North Holland, Schoonbeek, Veluwe Heath
Greece	All breeds more than 10,000	
Slovenia	Breeds with 5000 or fewer sheep 3/4	Bela Krajina Pramenka, Bovec Sheep, Istrian Pramenka

Table 3 Breeds that are decreasing in number (21/44 breeds)

France	UK	NL	Greece	Slovenia
Bizet, Causses du Lot, Grivette, Manech Tête Noire, Manech Tête Rouse, Mourerous, Rava	Brecknock Hill Cheviot, Clun Forest , Derbyshire Gritstone, Devon Closewool, Exmoor Horn, Herdwick, Lonk, Shetland, South Welsh Mountain, Welsh Hill Speckled Face	North Holland, Swifter, Texel,	Boutsiko (Orino)	0/4
7/10	10/15	3/11	1/4	0/4

Table 4. Breeds where it is estimated 50% or more farmers are over 60 (11/44)

France	UK	NL	Greece	Slovenia
	Brecknock Hill Cheviot, Cheviot, Devon Closewool, Exmoor Horn, Romney, Shetland, Welsh Hill Speckled Face	Texel		Bovec, Istrian Pramenka, Jezerko – Solcava
0/10	7/15	1/11	0/4	3/4

Table 5 Breeds and percentage in location

FRANCE	%	UK	%	NL	%	GREECE	%	SLOVENIA	%
Basco Béarnaise	100	Brecknock Hill Cheviot	100	Black Blazed	50	Boutsiko (Orino)	90	Bela Krajina Pramenka	100
Bizet	70	Cheviot	90	Blue Texel		Frizarta	60	Bovec Sheep	90
Causses du Lot	99	Clun Forest	66	Drenth Heath	50	Kefallinias	95	Istrian Pramenka	90
Corse	100	Dalesbred	90	Flevolander	5	Sfakia	80	Jezersko – Solcava	95
Grivette	75	Derbyshire Gritstone	80	Mergelland	95				
Limousine	65	Devon Closewool	95	North Holland	80				
Manech Tête Noire	100	Exmoor Horn	90	Schoonebeek	50				
Manech Tête Rousse	100	Herdwick	98	Swifter	90				
Mourerous	57	Lonk	90	Texel	20				
Rava	90	Romney	95	Veluwe Heath	75				
		Rough Fell	95	Zeeland milksheep	70				
		Shetland	100						
		Sth Welsh Mountain	100						
		Southdown	70						
		Welsh Hill Speckled	100						

Table 6. Breeds where it is estimated 95% or more of the breed is actively farmed in the region associated with the breed. (18/44)

France	UK	NL	Greece	Slovenia
Basco Béarnaise, Causses du Lot, Corse, Manech Tête Noire, Manech Tête Rousse	Brecknock Hill Cheviot, Devon Closewool, Herdwick, Romney, Rough Fell, Shetland, South Wales Mountain, Welsh Hill Speckled Face.	Mergelland	Boutsiko (Orino) Keffallinias	Bela Krajina Pramenka, Jezersko – Solcava.
5/10	8/15	1/11	124	2/4

Threats

Breed societies were asked to score for each question from 1 – 5 with 1= least important and 5 = most important.

The threats were categorised by Social, Political, Disease and Climatic factors.

Results on a country basis are calculated as breeds giving a score of 3 or higher.

Social

Breed societies were asked if the following social factors influenced a decline in sheep numbers.

Countries with 50% or more of their breeds concerned about social factors contributing to reducing sheep numbers.

- Farms ceasing to farm animals FR/NL/GR/SL
- Urbanisation GR
- Ageing population of farmers FR/UK/GR/SL
- Lack of skilled Labour UK
- Inability to hand on skills UK
- Environmental changes NL/GR
- Lack of training facilities GR

Table 7. Number of breeds per country scoring 3-5 concerned that social factors were contributing to a decline in sheep numbers.

	Total	France	UK	NL	Greece	Slovenia
Farms ceasing to farm animals	27/44	10	4	7	2	4
Urbanisation	8/44	4	1	1	2	0
Ageing population of farmers	34/44	7	12	7	4	4
Lack of skilled Labour	18/44	2	10	3	1	2
Inability to hand on skills	14/44	4	8	0	2	0
Environmental changes	20/44	4	8	5	1	2
Lack of training facilities	12/44	1	2	2	4	3

Political

Breed societies were asked if political policies contributed to reducing sheep numbers

Countries with 50% or more breeds concerned about political policies and their effects on reducing sheep numbers.

- Removal of Headage payments FR/UK/GR/SL
- Environmental schemes UK/NL/GR/SL
- Need to increase farm productivity FR/UK/GR/SL
- Need to make management easier FR/UK/GR/SL
- Decreasing area of farmed land GR/SL
- Increasing use of inputs GR
- Going organic SL
- Diversification to non farming activities GR/SL
- Ceasing farming altogether FR/SL

Table 8. Number of breeds per country scoring 3-5 concerned that political factors were contributing to a decline in sheep numbers.

	Total	France	UK	NL	Greece	Slovenia
Removal of Headage payments	30/44	6	12	5	3	4
Environmental schemes	28/44	2	12	9	2	3
Need to increase farm productivity	22/44	8	7	0	3	4
Need to make management easier	21/44	5	8	0	4	4
Non Farming use of land	17/44	2	5	4	2	4
Decreasing area of farmed land	13/44	1	5	0	3	4
Increasing use of inputs	4/44	1	1	0	2	0
Going organic	9/44	0	4	2	1	2
Diversification to non farming activities	14/44	3	4	1	2	4
Ceasing farming altogether	15/44	6	4	0	1	4

Disease

The breed societies were asked which diseases they felt most threatened their sheep.

Countries with 50% or more breeds concerned about disease and their contribution to reducing sheep numbers.

- Sheep Scab FR/UK
- Liver Fluke UK/NL
- (Barbers Pole worm) NL/SL
- Ticks FR/UK/NL/SL
- Tick born diseases UK
- Scrapie FR
- Blue tongue FR/UK/NL/GR
- Contagious Epididymitis Brucella ovis Not a perceived threat
- Contagious Agalactia Not a perceived threat
- Enzootic Abortion of Ewes EAE FR/UK
- Maedi Visna Not a perceived threat
- Caseous Lymph adenitis Not a perceived threat
- Worm resistance UK/NL

Table 9 Number of breeds per country scoring 3-5 concerned that disease factors were contributing to a decline in sheep numbers.

	Total	France	UK	NL	Greece	Slovenia
Sheep Scab	19/44	5	13	0	1	0
Liver Fluke	25/44	2	12	6	2	3
Barbers Pole worm	17/44	3	3	7	0	4
Ticks	27/44	5	10	5	3	4
Tick born disease	19/44	4	9	4	2	0
Scrapie	11/44	5	6	0	0	0
Blue tongue	34/44	9	12	11	2	0
Contagious Agalactia	8/44	3	0	3	2	0
Enzootic Abortion of Ewes EAE	19/44	8	7	4	0	0
Worm resistance	24/44	4	11	8	0	1

Climate

Breed societies were asked if they thought climate changes were influencing a reduction in sheep numbers.

Countries with 50% or more breeds concerned about the effects of climatic factors which contributed to reduced sheep numbers

- Reduced availability of water SL
- Reduced availability of grazing FR/SL
- Reduced availability of winter fodder FR/SL
- Increased requirement for housing GR
- Reduced availability of bedding GR
- Change in average rainfall GR/SL

Table 10. Number of breeds per country scoring 3-5 concerned that climatic factors were contributing to a decline in sheep numbers.

	Total	France	UK	NL	Greece	Slovenia
Reduced availability of water	13/44	6	1	1	1	4
Reduced availability of grazing	22/44	7	5	4	2	4
Reduced availability of winter fodder	22/44	6	6	2	4	4
Increased need for Housing	13/44	1	4	5	2	1
Reduced availability of bedding	9/44	2	5	0	2	0
Change in average rainfall	14/44	6	3	0	1	4

Values

This part of the survey tried to determine the importance of the breed to its region through adaptation and contribution to the environment through grazing habits.

Adaptation

Breed societies were asked to score on a scale of 1 -5 how well they felt their breed was adapted to its environment and how well the sheep were adapted to extensive farming systems.

Table 11. Number of breeds per country scoring 3-5 for their ability to withstand the climatic factors of their region.

	Total	France	UK	NL	Greece	Slovenia
Withstand cold	44/44	10	15	11	4	4
Withstand wet	40/44	8	15	10	3	4
Withstand wind	40/44	9	15	10	4	4
Withstand Heat	24/44	7	4	7	3	3
Adapted to altitude	33/44	9	14	3	3	4
Adapted to terrain	39/44	10	15	6	4	4
Ability to utilise sparse forage	34/44	5	15	6	4	4
Ability to utilise poor quality forage	36/44	10	14	6	4	4
Adapted to regional plants	37/44	10	13	6	4	4
Adapted to regional mineral deficiencies	32/44	7	13	5	3	4
Requirement for shelter	17/44	2	2	5	4	4
Requirement for improved pasture	20/44	4	3	6	3	4
requirement for increased husbandry	23/44	4	1	5	3	4

In conclusion all breeds scored highly for their adaptation to their environment. The Slovenian breeds had a greater requirement for shelter, improved pasture and increased husbandry than other breeds.

Sheep contribution to the Environment

Breed societies were asked to score on a scale of 1 – 5 how they felt their breed contributed to the environment by the effects of sheep grazing habits.

Table 12. Number of breeds per country scoring 3-5 for the sheep's positive contribution to the environment by the effect of their grazing habits.

	Total	France	UK	NL	Greece	Slovenia
improve the diversity of wildlife	36/44	9/10	14/15	6/11	1/4	4/4
improve the diversity of plants	35/44	9/10	14/15	6/11	2/4	4/4
improve access for the public	25/44	4/10	12/15	4/11	1/4	4/4
reduce weeds	26/44	7/10	12/15	2/11	1/4	4/4

In general it is felt by breed societies that sheep make a positive contribution to maintaining the environment.

Value of the breed to the rural community

Breed societies were asked to score on a scale of 1 – 5 the importance of the breed to the local community.

Table 13 Number of breeds per country scoring 3-5 for the sheep's importance to the local community.

	Total	France	UK	NL	Greece	Slovenia
Traditional	40/44	10/10	15/15	6/11	4/4	4/4
Local crafts	25/44	8/10	7/15	3/11	4/4	3/4
History	33/44	10/10	11/15	5/11	3/4	4/4
Tourism	35/44	8/10	15/15	4/11	1/4	4/4

Table 14. Number of breeds per country scoring 3-5 for the sheep's importance to farming and local economy

	Total	France	UK	NL	Greece	Slovenia
Ease of management	44/44	10/10	15/15	11/11	4/4	4/4
High demand for products	35/44	7/10	14/15	6/11	4/4	4/4
Good return on products	30/44	5/10	13/15	5/11	3/4	4/4
Adaptation to environment	36/44	9/10	15/15	6/11	2/4	4/4
Tourism	29/44	7/10	12/15	4/11	2/4	4/4
Income from associated industries	16/44	4/10	9/15	1/11	2/4	0/4
Breed related activities	18/44	5/10	9/15	2/11	1/4	1/4
Regional product	28/44	7/10	14/15	3/11	1/4	3/4

Current Situation and Future Trends

Promotion

Breed societies were asked to describe ways that the breed was promoted through marketing initiatives or performance improved to increase productivity.

Table 15. Number of breeds per country that actively promoted their breed.

	Total	France	UK	NL	Greece	Slovenia
Breed related marketing schemes	13/44	3	5	3	0	2
Breed related regional schemes	13/44	6	5	1	1	0
Grant aid to assist marketing	23/44	8	8	2	2	3
Advisory services	18/44	7	7	0	1	3

Breed promotional activities are summarised by country.

France:

Breed related marketing schemes 3/10 breeds

Causses du Lot, Limousine, Rava

Breed related regional schemes 6/10 breeds

Basco Bernaise, Maneche Tete Noir, Maneche Tete Rousse have quality Official Signs

AOC Ossau Iraty and the milk lamb that will become and IGP

Limousine is setting up a local branding Milevaches lamb (Agneau du Plateau Milevaches) with the help of the Regional National Park

Bizet, Causses du Lot, subsidies for reproductive animals

Grant aid to assist marketing 8/10

Grants are available for deseasoned animals but National subsidies are decreasing

Advisory services 7/10 breeds are aware of services

The breed associations play an active role in promotion.

UK

Breed related schemes 5/15 breeds

Brecknock Hill Cheviot markets to a major retailer Marks and Spencer

Exmoor Horn is promoting local lamb in 4 major restaurants in Exmoor National Park

South Wales Mountain markets Welsh Mountain lamb to major supermarkets

The Shetland Livestock Marketing group promotes 3 types of Shetland Lamb

Southdown lamb marketing scheme applies only to farms within South Down National Park

Regionally related product 5/15 breeds

Herdwick is applying for PDO Also markets under Made in Cumbria label

Rough Fell markets under Made in Cumbria

Shetland has 3 lamb quality schemes Shetland Lamb, Island Lamb, Seaweed Lamb

South Wales Mountain sheep and Welsh Hill Speckled Face both trade with Welsh Lamb PDO

Grant aid to assist marketing 7/15 breeds are aware of aid

These range from Welsh Assembly, Shetland Islands Council, Local Council initiatives and Leader Plus through DEFRA

3 breeds found applications for aid too difficult and complicated

Advisory services breeds are aware of services

Hybu Cig Cumru (HCC) Meat promotion Wales, Leader Plus, Agriscop

NL

Breed related schemes 3/11

Fevolander, North Holland, Schoonbeek market under their name

Regionally related product 1/11 breed

Schoonbeek is associated with regional marketing "Drents landschap" Foundation

Grant aid to assist marketing 2/11 breeds are aware of aid

Advisory services No breeds are aware of services

Greece

Breed related schemes 0/4

Regionally related product 1/4

Skafia produces milk for a PDO cheese (Feta)

Grant aid to assist marketing 2/4 breeds are aware of aid

Advisory services 1/4 breeds are aware of services

Slovenia

Breed related schemes 2/4

Bela Krajina Pramenka, Bovec

Bovec cheese is approved as a traditional product.

Regionally related product 0/4

Grant aid to assist marketing 3/4 breeds are aware of aid

Advisory services 3/4 breeds are aware of services

PDO/PGI

Agneau du Limousin

Ossau-Iraty Basco Bernaise, Maneche Tete Noir, Maneche Tete Rouse

Shetland Lamb

Feta cheese (Sfakia)

Lake District Herdwick Lamb pending (Breed related and restricted by region)

Finally breed societies were asked to give what they considered to be the 5 most important threats and the 5 most important characteristics to their breed.

Table 16. Top 5 Threats to sheep numbers.

	TOTAL	FRANCE	UK	NL	GREECE	SLOVENIA
Government Decrease in public funding	8	3	2	3		
Government Lack of political will to support rural communities	12	5	6		1	
Government Cross compliance	2	2				
Government Policies and legislation, including environmental	25	3	11	10	1	
Disease	27	4	10	11	2	
Predators	2	2				
Urbanisation	9	1	2	3	2	1
Poor return on product, competition from other livestock	47	16	16	8	7	
Ageing population of farmers	27	8	8	4	4	3
Lack of marketing support	9	4	5			1
Inbreeding	3			3		
Loss of skills	4		4			

Table 17. Top 5 most important characteristics of the breed.

	TOTAL	FRANCE	UK	NL	GREECE	SL
Tradition	26	7	13	4	2	
Supporting local economy	44	10	14	4	6	
Adapted to local region	24	9	10	3	1	1
Maintains Landscape	25	8	12	4		1
Supports local community	22	3	15	1	3	
Quality produce	10	1	6	2	1	
Ease of management	17	5	3	9		
Unique	1			1		

From the information gathered, a scoring system to determine the two breeds most at risk per partner country was presented for discussion at the Heritage Sheep Review and Steering Group (HSRSG) meeting held in Amsterdam on 19 -20 May 2008. Two methods were proposed.

It was agreed that the information contained in the dataset was a valuable resource based on the perception of the breed societies. The survey however revealed that many breed societies do not hold reliable evidence on which these risks can be evaluated objectively so the information gathered from the survey is subjective. The data set is most suitable for a sociological analysis therefore forms the groundwork for future investigations.

Consequently the degree of risk cannot be accurately determined without robust evidence. To inform management and conservation of FAnGR it will be essential to establish new standardised methodology to ensure national policy making is based on accurate information.

The data set as it stands is not suitable for the development of a scoring system for prioritisation. In addition the current situation in Northern Europe regarding Bluetongue virus (BTV) has posed a significant and immediate threat to some breeds of sheep. BTV has also created difficulties for the collection of semen which must further be taken into account. It was therefore decided that each country would select the two breeds per country for the collection of semen in work package 4, based on the current situation and aided by the information contained within the results presented in the work package 1 survey.

In addition other factors to be considered included:

Appendix

Social threats

BREED NAME	Farms ceasing to farm	Urbanisation	Ageing of farmers	Lack of skilled labour	Inability to hand on skills	Changes to the environment	Lack of training facilities
Basco Béarnaise	4	2	4	1	1	2	2
Bizet	4	1	4	2	4	3	1
Causses du Lot	5	1	2	4	3	3	1
Corse	4	3	4	4	3	3	3
Grivette	3	3	2	1	1	2	1
Limousine	5	1	5	1	5	1	1
Manech Tête Noire	4	2	4	1	1	2	2
Manech Tête Rousse	4	2	4	1	1	2	2
Mourerous	4	5	2	1	1	3	1
Rava	4	3	3	1	1	1	2
Average	0.82	0.46	0.68	0.34	0.42	0.44	0.32

BREED NAME	Farms ceasing to farm	Urbanisation	Agein of farmers	Lack of skilled labour	Inability to hand on skills	Changes to the enviroment	Lack of training facilities
UK							
Brecknock Hill Cheviot	2	1	4	3	1	1	1
Cheviot	1	1	3	4	3	3	2
Clun Forest	1	1	4	1	3	3	1
Dalesbred	4	1	3	2	2	1	2
Derbyshire Gritstone	1	1	4	4	4	2	2
Devon Closewool	2	1	5	4	4	1	1
Exmoor Horn	1	1	5	5	5	3	3
Herdwick	2	1	4	3	3	3	1
Lonk	2	2	2	4	2	4	2
Romney	1	1	4	4	1	1	1
Rough Fell	5	1	5	5	5	5	5
Shetland	1	1	2	1	1	1	1
South Welsh Mountain	1	1	1	1	3	1	1
Southdown	5	3	4	3	2	3	2
Welsh Hill Speckled	4	1	5	1	1	5	1
Average	0.44	0.24	0.73	0.60	0.53	0.49	0.35

BREED NAME	Farms ceasing to farm	Urbanisation	Agein of farmers	Lack of skilled labour	Inability to hand on skills	Changes to the enviroment	Lack of training facilities
NL							
Black Blazed	1	3	1	1	1	1	1
Blue Texel	4	1	3	1	1	3	3
Drenth Heath	5	1	3	3	1	5	2
Flevolander	3	1	3	1	1	3	1
Mergelland	3	2	3	3	2	2	3
North Holland	1	1	1	1	1	1	1
Schoonebeek	5	1	3	3	1	5	2
Swifter	2	1	2	1	1	1	1
Texel	3	1	5	1	1	5	1
Veluwe Heath	1	1	1	1	1	1	1
Zeeland milksheep	3	1	4	2	1	2	2
Average	0.56	0.25	0.53	0.33	0.22	0.53	0.33

BREED NAME	Farms ceasing to farm	Urbanisation	Agein of farmers	Lack of skilled labour	Inability to hand on skills	Changes to the enviroment	Lack of training facilities
GREECE							
Boutsiko (Orino)	1	1	5	2	4	4	3
Frizarta	4	5	5	1	1	2	3
Kefallinias	4	5	4	2	1	2	3
Sfakia	1	1	3	2	3	2	4
Average	0.5	0.6	0.85	0.35	0.45	0.5	0.65
BREED NAME	Farms ceasing to farm	Urbanisation	Agein of farmers	Lack of skilled labour	Inability to hand on skills	Changes to the enviroment	Lack of training facilities
SLOVENIA							
Bela Krajina Pramenka	5	2	5	3	1	1	3
Bovec Sheep	5	2	5	3	1	3	3
Istrian Pramenka	5	2	5	2	1	3	3
Jezersko – Solcava	4.00	2.00	4.00	1.00	1.00		2.00
Average	0.95	0.4	0.95	0.45	0.2	0.35	0.55

Political threats

BREED NAME	Removal of headage payments	Enviroment scheme changes	Need to increase farm productivity	Need to make management easier	Non farming uses of land	Increasing the area of actively farmed land	Decreasing the area of actively farmed land	Increasing farm labour	Decreasing farm labour	Increasing the use of inputs fertiliser pesticides	Going organic	Diversification non farming activities	Ceasing farming	Cross compliance
Basco Béarnaise	3	1	3	2	1	1	1	1	1	1	1	1	2	1
Bizet	3	1	3	3	2	2	2	3	1	2	2	1	4	3
Causses du Lot	1	1	3	3	1	1	1	3	1	1	1	1	3	1
Corse	2	2	2	4	3	1	4	4	1	1	1	4	4	1
Grivette	2	2	1	1	3	1	1	1	3	1	2	2	2	4
Limousine	5	3	3	3	1	1	1	1	1	1	1	3	5	1
Manech Tête Noire	3	1	3	2	1	1	1	1	1	1	1	1	2	1
Manech Tête Rousse	3	1	3	2	1	1	1	1	1	1	1	1	2	1
Mourerous	3	3	3	3	2	2	2	3	2	3	2	3	4	4
Rava	2	1	3	2	2	1	2	2	1	1	1	2	3	2
Average	0.54	0.32	0.54	0.5	0.34	0.24	0.32	0.4	0.26	0.26	0.26	0.38	0.62	0.38

BREED NAME	Removal of headage payments	Environment scheme changes	Need to increase farm productivity	Need to make management easier	Non farming uses of land	Increasing the area of actively farmed land	Decreasing the area of actively farmed land	Increasing farm labour	Decreasing farm labour	Increasing the use of inputs fertiliser pesticides	Going organic	Diversification non farming activities	Ceasing farming	Cross compliance
Brecknock Hill Cheviot	4	4	2	2	1	1	1		3	3	1	1	1	3
Cheviot	2	2	3	3	1	3	1	1	5	1	1	1	1	3
Clun Forest	3	3	1	1	1	1	1	1	1	1	1	2	2	1
Dalesbred	2	2	2	2	2	2	4	1	3	1	3	2	3	1
Derbyshire Gritstone	4	4	3	3	2	1	1	3	3	1	1	3	4	1
Devon Closewool	4	3	5	4	1	1	1	1	1	1	1	3	2	1
Exmoor Horn	5	3	5	5	3	3	5	4	3	2	3	3	5	3
Herdwick	4	5	5	2	1	1	1	1	4	1	1	1	2	1
Lonk	5	5	3	1	4	1	4	1	1	1	2	1	1	2
Romney	1	1	1	1	1	4	1	1	1	1	1	1	2	1
Rough Fell	5	5	2	3	5	5	5			1	1	3	2	3
Shetland	5	3	1	1	1	1	1	1	1	1	1	1	2	1
South Welsh Mountain	5	5	1	3	3	1	1	1	1	1	1	1	1	1
Southdown	4	4	3	3	1	3	3	3	3	2	3	2	2	2
Welsh Hill Speckled	5	5	1	5	3	4	1	1	5	1	3	1	4	5
Average	0.77	0.72	0.51	0.52	0.40	0.43	0.41	0.27	0.47	0.25	0.32	0.35	0.45	0.39

BREED NAME	Removal of headage payments	Environment scheme changes	Need to increase farm productivity	Need to make management easier	Non farming uses of land	Increasing the area of actively farmed land	Decreasing the area of actively farmed land	Increasing farm labour	Decreasing farm labour	Increasing the use of inputs fertiliser pesticides	Going organic	Diversification non farming activities	Ceasing farming	Cross compliance
Black Blazed	1	1			1						1	1		
Blue Texel	4	4			3						3	2		
Drenth Heath	3	5			1						1	1		
Flevolander	1	3			3						1	3		
Mergelland	2	4			2						2	2		
North Holland	1	3			2						3	1		
Schoonebeek	3	5			1						1	1		
Swifter	1	4			3						1	1		
Texel	1	3			2						1	1		
Veluwe Heath	5	1			3						1	1		
Zeeland milksheep	3	5			2						2	2		
Average	0.45	0.69	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.31	0.29		

BREED NAME	Removal of headage payments	Environment scheme changes	Need to increase farm productivity	Need to make management easier	Non farming uses of land	Increasing the area of actively farmed land	Decreasing the area of actively farmed land	Increasing farm labour	Decreasing farm labour	Increasing the use of inputs fertiliser pesticides	Going organic	Diversification non farming activities	Ceasing farming	Cross compliance
Boutsiko (Orino)	2	2	4	4	1	1	1	1	4	1	1	3	5	3
Frizarta	3	1	2	4	3	1	5	1	4	1	3	2	1	4
Kefallinias	4	3	4	4	3	1	4	3	1	4	2	3	1	4
Sfakia	5	4	3	3	2	1	5	3	3	4	2	2	2	3
Average	0.7	0.5	0.65	0.75	0.45	0.2	0.75	0.4	0.6	0.5	0.4	0.5	0.45	
SLOVENIA														
Bela Krajina Pramenka	5	2	3	3	3	1	4	2	1	2	3	4	5	
Bovec Sheep	5	5	3	4	3	2	3	3	2	2	2	3	4	
Istrian Pramenka	4	4	3	3	3	4	3	2	1	2	2	4	5	
Jezersko – Solcava	5	4	3	3	3	1	4	2	1	2	3	4	5	
Average	0.95	0.75	0.6	0.65	0.6	0.4	0.7	0.45	0.25	0.4	0.5	0.75	0.95	

Disease threats

BREED NAME	Sheep Scab	Liver Fluke	Barbers Pole worm	Ticks	Tick born disease	Scrapie	Blue tongue	Brucellosis Brucella melitensis	Contagious epididymitis Brucella ovis	Contagious Agalactia	Enzootic Abortion of Ewes EAE	Maedi Visna	Caseous Lymph adenitis	Worm resistance
FRANCE														
Basco Béarnaise	3	2	2	3	3	4	5	1	4	5	3	1	1	3
Bizet	1	2	3	1	1	2	4	2	2	1	3	1	2	1
Causses du Lot	2	1	1	2	2	1	5	1	1	1	2	3	2	2
Corse	5	4	4	3	1	3	5	3	2	1	3	1	1	2
Grivette	3	3	3	3	2	2	4	2	2	2	3	2	4	3
Limousine	1	2	2	1	1	1	3	1	1	1	3	1	1	1
Manech Tête Noire	3	2	2	3	3	4	5	1	4	5	3	1	1	3
Manech Tête Rousse	3	2	2	3	3	4	5	1	4	5	3	1	1	3
Mourerous	2	2	2	2	3	3	2	2	1	1	2	1	1	1
Rava	2	2	2	1	1	1	5	1	1	1	3	4	1	1
	0.5	0.44	0.46	0.44	0.4	0.5	0.86	0.3	0.44	0.46	0.56	0.32	0.3	0.4

BREED NAME	Sheep Scab	Liver Fluke	Barbers Pole worm	Ticks	Tick born disease	Scrapie	Blue tongue	Brucellosis Brucella melitensis	Contagious epididymitis Brucella ovis	Contagious Agalactia	Enzootic Abortion of Ewes EAE	Maedi Visna	Caseous Lymphadenitis	Worm resistance
UK														
Brecknock Hill Cheviot	5	4	1	1	1	3	5	1	1	1	3	1	1	1
Cheviot	5	5	1	5	5	1	5	1	1	1	2	1	1	3
Clun Forest	5	3	1	4	4	1	3	1	1	1	3	2	2	3
Dalesbred	5	5	3	4	4	2	5	1	1	1	5	1	3	3
Derbyshire Gritstone	4	4	1	4	1	1	5	1	1	1	1	1	1	2
Devon Closewool	5	5	1	5	5	2	5	1	1	1	2	1	1	1
Exmoor Horn	3	3	1	5	5	5	5	1	1	1	3	1	1	3
Herdwick	5	5	1	5	5	1	1	1	1	1	2	1	1	3
Lonk	4	2	1	2	2	2	5	1	1	1	4	1	1	4
Romney	2	2	3	1	1	1	5	1	1	1	1	1	1	2
Rough Fell	5	5	1	5	5	1	1	1	1	1	2	1	1	3
Shetland	1	3	1	1	1	5	1	1	1	1	1	1	4	3
South Welsh Mountain	5	2	1	1	1	3	5	1	1	1	2	1	1	3
Southdown	3	3	3	4	4	3	5	1	1	1	4	3	3	5
Welsh Hill Speckled	5	3	1	3	3	4	4	1	1	1	4	3	5	4
	0.83	0.72	0.28	0.67	0.63	0.47	0.80	0.20	0.20	0.20	0.52	0.27	0.36	0.57

BREED NAME	Sheep Scab	Liver Fluke	Barbers Pole worm	Ticks	Tick born disease	Scrapie	Blue tongue	Brucellosis Brucella melitensis	Contagious epididymitis Brucella ovis	Contagious Agalactia	Enzootic Abortion of Ewes EAE	Maedi Visna	Caseous Lymph adenitis	Worm resistance
NL														
Black Blazed	1	3	4	1	1	2	5	1	1	1	1	1	1	4
Blue Texel	2	3	4	4	4	2	5	4	4	3	4	4	2	4
Drenth Heath	2	3	3	4	4	1	5	1	1	1	1	1	1	2
Flevolander	1	1	1	1	2	2	3	3		3	3	2	3	3
Mergelland	2	2	2	2	2	1	5	2	2	2	2	2	2	3
North Holland	1	1	1	1	1	1	5	1	1	1	1	1	1	1
Schoonebeek	2	3	3	4	4	1	5	1	1	1	1	1	1	2
Swifter	1	3	4	1	1	1	5	1	1	2	3	1	1	4
Texel	1	2	3	1	1	1	5	2	3	3	3	1	1	4
Veluwe Heath	1	2	1	4		1	5	1	1	1	1	1	1	3
Zeeland milksheep	1	3	3	3	3	2	5	2	2	2	2	2	2	3
	0.27	0.47	0.53	0.47	0.42	0.27	0.96	0.35	0.31	0.36	0.40	0.31	0.29	0.60

BREED NAME	Sheep Scab	Liver Fluke	Barbers Pole worm	Ticks	Tick born disease	Scrapie	Blue tongue	Brucellosis Brucella melitensis	Contagious epididymitis Brucella ovis	Contagious Agalactia	Enzootic Abortion of Ewes EAE	Maedi Visna	Caseous Lymph adenitis	Worm resistance
GREECE														
Boutsiko (Orino)	2	2	1	1	1		3	4		4		2		
Frizarta	2	4	1	3	1	1	1	1	1	2	2	1	1	1
Kefallinias				4	5									2
Sfakia	4	3		4	4	2	3	2	3	3	2	3	2	1
	0.4	0.45	0.1	0.6	0.55	0.15	0.35	0.35	0.2	0.45	0.2	0.3	0.15	0.2
SLOVENIA														
Bela Krajina Pramenka	1	3	4	3	1	1	2	1	2	1	2	1	1	1
Bovec Sheep		1	4	3	1	1	1	1	3	1	2	2	2	4
Istrian Pramenka	1	3	4	3	1	1	2	1	2	1	2	2	1	2
Jezersko – Solcava	1	3	4	3	1	1	1	1	2	1	2	2	1	1
	0.15	0.5	0.8	0.6	0.2	0.2	0.3	0.2	0.45	0.2	0.4	0.35	0.25	0.4

Climatic threats

BREED NAME	Reduced availability of water	Reduction in available grass for grazing	Reduced availability of winter fodder	Increased need for housing animals	Increased weeds	Reduced availability of bedding	Change in average temperatures	Change in average rainfall
FRANCE								
Basco Béarnaise	3	3	3	1	1	1	2	3
Bizet	1	1	2	2	1	2	1	1
Causses du Lot	1	1	1	1	1	1	1	1
Corse	3	3	2	1	1	1	2	2
Grivette	2	3	3	2	1	2	1	3
Limousine	1	1	1	1	1	3	1	1
Manech Tête Noire	3	3	3	1	1	1	2	3
Manech Tête Rousse	3	3	3	1	1	1	2	3
Mourerous	4	5	3	3	3	3	3	3
Rava	3	4	4	2	1	2	2	3
	0.48	0.54	0.5	0.3	0.24	0.34	0.34	0.46

BREED NAME	Reduced availability of water	Reduction in available grass for grazing	Reduced availability of winter fodder	Increased need for housing animals	Increased weeds	Reduced availability of bedding	Change in average temperatures	Change in average rainfall
Brecknock Hill Cheviot	1	1	1	1	1	1	1	1
Cheviot	1	1	2	1	5	3	1	1
Clun Forest	1	1	3	1	1	1	1	1
Dalesbred	2	2	4	3	2	2	2	2
Derbyshire Gritstone	1	1	1	1	1	1	3	3
Devon Closewool	1	1	1	1	4	3	1	1
Exmoor Horn	1	3	3	3	3	3	4	2
Herdwick	1	1	2	1	2	1	3	2
Lonk	1	1	1	3	4	1	1	1
Romney	3	3	1	1	1	1	1	1
Rough Fell	1	5	5	5		5	5	5
Shetland	1	3	1	1	1	1	1	1
South Welsh Mountain	1	1	1	1	1	1	1	1
Southdown	1	4	3	2	2	2	3	4
Welsh Hill Speckled	1	1	4	1	5	4	1	1
	0.24	0.39	0.44	0.35	0.44	0.40	0.39	0.36

BREED NAME	Reduced availability of water	Reduction in available grass for grazing	Reduced availability of winter fodder	Increased need for housing animals	Increased weeds	Reduced availability of bedding	Change in average temperatures	Change in average rainfall
NL								
Black Blazed	1	1	1	1	1	1	1	1
Blue Texel	1	3	3	4	2	2	2	2
Drenth Heath	1	5	1	5	1	2	1	1
Flevolander	1	1	1	1	1	1	1	1
Mergelland	3	3	4	3	1	1	2	2
North Holland	1	2	1	1	1	1	1	1
Schoonebeek	1	5	1	5	1	2	1	1
Swifter	1	1	1	1	1	1	1	1
Texel	1	1	1	1	1	1	1	1
Veluwe Heath	1	1	1	3	1	1	1	1
Zeeland milksheep	1	2	1	1	1	1	1	1
	0.24	0.45	0.29	0.47	0.22	0.25	0.24	0.24

BREED NAME	Reduced availability of water	Reduction in available grass for grazing	Reduced availability of winter fodder	Increased need for housing animals	Increased weeds	Reduced availability of bedding	Change in average temperatures	Change in average rainfall
GREECE								
Boutsiko (Orino)	2	1	3	2	1	1	2	2
Frizarta	1	1	3	4	4	2	2	2
Kefallinias	3	4	4	2	1	4	2	5
Sfakia	2	3	4	3	3	4	3	2
	0.4	0.45	0.7	0.55	0.45	0.55	0.45	0.55
SLOVENIA								
Bela Krajina Pramenka	5	5	5	3	2	2	4	4
Bovec Sheep	5	3	3	2	2	2	3	3
Istrian Pramenka	4	4	4	1	1	2	1	3
Jezersko – Solcava	4	4	4	1	1	1	1	3
	0.9	0.8	0.8	0.35	0.3	0.35	0.45	0.65

Values

BREED NAME	Traditional	Local crafts	History	Tourism	Ease of management	High demand for products	Good return on products	Adaptation to environment	Tourism	Income from associated industries	Breed related activities	Regional product
FRANCE												
Basco Béarnaise	5	5	5	4	4	4	5	5	4	3	3	5
Bizet	4	2	4	2	5	2	2	5	2	2	2	2
Causses du Lot	4	1	3	4	4	3	2	4	2	1	1	1
Corse	5	3	5	4	5	5	5	5	4	4	5	5
Grivette	3	1	1	2	5	3	2	4	4	2	2	2
Limousine	5	5	5	5	5	5	4	5	5	2	2	5
Manech Tête Noire	5	5	5	4	4	4	5	5	4	3	3	5
Manech Tête Rouse	5	5	5	4	4	4	5	5	4	3	3	5
Mourerous	3	3	3	2	3	2	2	4	2	2	2	3
Rava	3	1	3	4	5	1	1	5	4	1	3	3
	0.84	0.62	0.78	0.70	0.88	0.66	0.66	0.94	0.70	0.46	0.52	0.72

BREED NAME	Traditional	Local crafts	History	Tourism	Ease of management	High demand for products	Good return on products	Adaptation to environment	Tourism	Income from associated industries	Breed related activities	Regional product
UK												
Brecknock Hill Cheviot	5	2	5	1	5	3	1	5	1	1	1	5
Cheviot	5	4	5	5	5	5	3	5	5	5	5	5
Clun Forest	4	2	3	1	5	2	1	3	4	3	1	3
Dalesbred	3	2	3	3	4	3	4	4	3	3	3	4
Derbyshire Gritstone	5	1	5	5	5	5	5	5	5	5	5	5
Devon Closewool	4	4	4	3	4	3	3	4	3	4	2	1
Exmoor Horn	5	5	5	3	5	3	3	5	3	1	3	5
Herdwick	5	2	5	5	5	2	2	5	5	1	2	3
Lonk	5	3	5	4	5	3	2	5	2	1	4	2
Romney	5	2	5	5	5	5	3	5	4	2	1	3
Rough Fell	5	3	4	4	5	4	4	5	5	3	2	2
Shetland	5	5	5	5	5	5	1	5	5	5	5	5
South Welsh Mountain	5	1	5	2	5	5	3	5	2	4	1	4
Southdown	4	3	4	3	3	3	3	4	3	1	4	3
Welsh Hill Speckled	5	1	5	1	5	3	3	5	2	3	4	4
	0.93	0.53	0.91	0.67	0.95	0.72	0.55	0.93	0.69	0.56	0.57	0.72

BREED NAME	Traditional	Local crafts	History	Tourism	Ease of management	High demand for products	Good return on products	Adaptation to environment	Tourism	Income from associated industries	Breed related activities	Regional product
NL												
Black Blazed	1	1	1	1	5	1	1	1	1	1	1	1
Blue Texel	3	2	2	2	4	3	3	4	2	2	1	1
Drenth Heath	5	4	5	5	4	2	1	5	5	1		1
Flevolander	1	1	1	1	5	4	5	2	2	1	1	1
Mergelland	5	2	4	2	4	3	2	4	2	1	1	1
North Holland	1	1	1	1	4	4	4	1	1	1	1	1
Schoonebeek	4	4	5	5	4	2	1	5	5	1		1
Swifter												
Texel	1	1	1	2	3	4	4	2	2	1		4
Veluwe Heath	5	1	5	5	5	2	2	5	5		5	5
Zeeland milksheep	5	5	5	3	5	5	5	5	3	3	3	5
	0.56	0.40	0.55	0.49	0.78	0.55	0.51	0.62	0.51	0.22	0.24	0.38

BREED NAME	Traditional	Local crafts	History	Tourism	Ease of management	High demand for products	Good return on products	Adaptation to environment	Tourism	Income from associated industries	Breed related activities	Regional product
GREECE												
Boutsiko (Orino)	5	4	5	2	5	3	2	5	3	1	1	1
Frizarta	3	5	1	2	4	4	4	4	1	5	4	1
Kefallinias	4	2	3	1	2	3	4	2	1	3	2	2
Sfakia	4	3	4	3	3	5	4	2	3	2	2	5
	0.80	0.70	0.65	0.40	0.70	0.75	0.70	0.65	0.40	0.55	0.45	0.45
SLOVENIA												
Bela Krajina Pramenka	5	2	4	4	5	5	3	5	3	1	1	4
Bovec Sheep	5	4	4	5	4	4	4	4	5	2	4	4
Istrian Pramenka	5	2	3	5	5	5	4	4	5	1	2	4
Jezersko – Solcava	5	3	4	4	4	4	3	5	3	1	2	2
	1.00	0.55	0.75	0.90	0.90	0.90	0.70	0.90	0.80	0.25	0.45	0.70

Adaptation

BREED NAME	Withstand cold	Withstand wet	Withstand wind	Withstand heat	Adapted to altitude	Adapted to terrain	Ability to utilise sparse forage	Ability to utilise poor quality forage	Adapted to regional plants	Adapted to regional mineral deficiencies	Adapted to regional vitamin deficiencies	Requirement for shelter	Requirement for improved pasture	Requirement for increased husbandry
FRANCE														
Basco Béarnaise	4	5	4	2	5	5	1	4	4	3	3	2	4	4
Bizet	4	4	4	4	4	4	3	4	4	2	2	2	2	2
Causses du Lot	4	2	2	4	2	4	3	3	3	1	1	1	2	2
Corse	5	5	5	5	5	5	5	5	5	5	5	1	1	1
Grivette	3	3	3	3	3	3	2	4	4	2	2	3	4	4
Limousine	4	3	3	4	4	5	5	5	5	5	5	3	1	1
Manech Tête Noire	4	5	4	2	5	5	1	4	4	3	3	2	4	4
Manech Tête Rousse	4	5	4	2	5	5	1	4	4	3	3	2	4	4
Mourerous	3	2	4	4	4	4	2	4	4	3	3	2	2	2
Rava	4	5	4	2	5	5	3	4	5	4	4	1	1	1
	0.78	0.78	0.74	0.64	0.84	0.9	0.52	0.82	0.84	0.62	0.62	0.38	0.5	0.5

BREED NAME	Withstand cold	Withstand wet	Withstand wind	Withstand heat	Adapted to altitude	Adapted to terrain	Ability to utilise sparse forage	Ability to utilise poor quality forage	Adapted to regional plants	Adapted to regional mineral deficiencies	Adapted to regional vitamin deficiencies	Requirement for shelter	Requirement for improved pasture	Requirement for increased husbandry
Brecknock Hill Cheviot	5	5	5	1	5	5	5	5	5	5	5	1	1	1
Cheviot	5	5	5	1	5	5	5	5	5	3	3	1	1	1
Clun Forest	4	4	4	4	4	4	4	4	4	3	3	1	1	1
Dalesbred	4	5	4	2	4	4	3	4	3	4	3	3	3	2
Derbyshire Gritstone	5	5	5	1	5	5	5	5	5	2	2	1	1	1
Devon Closewool	5	5	5	1	4	5	5	5	1	4	4	1	1	1
Exmoor Horn	5	5	5	5	5	5	5	5	5	5	5	1	2	1
Herdwick	4	5	5	2	5	5	5	5	2	3	2	2	1	1
Lonk	5	5	5	1	3	3	3	3	4	4	4	1	2	1
Romney	5	5	5	1	3	5	5	5	5	1	1	1	1	1
Rough Fell	5	5	5	3	5	5	5	4	5	3	2	1	1	1
Shetland	5	5	5	1	5	5	5	5	5	5	5	1	1	1
South Welsh Mountain	5	5	5	1	5	5	5	5	4	5	5	1	1	1
Southdown	4	4	4	3	2	2	4	4	3	3	3	4	3	3

Welsh Hill Speckled	5	5	5	1	5	5	3	2	2	4	1	2	4	2
	0.95	0.97	0.96	0.37	0.87	0.91	0.89	0.88	0.77	0.72	0.64	0.29	0.32	0.25

BREED NAME	Withstand cold	Withstand wet	Withstand wind	Withstand heat	Adapted to altitude	Adapted to terrain	Ability to utilise sparse forage	Ability to utilise poor quality forage	Adapted to regional plants	Adapted to regional mineral deficiencies	Adapted to regional vitamin deficiencies	Requirement for shelter	Requirement for improved pasture	Requirement for increased husbandry
NL														
Black Blazed	4	4	4	1		1	1	1	1	1	1	1	1	1
Blue Texel	4	4	4	3		4	4	3	4	4	1	3	3	2
Drenth Heath	5	5	5	1		4	5	5	5	1	1	1	1	1
Flevolander	2	2	2	2		1	1	1	1	4	1	3	5	3
Mergelland	4	3	4	3		3	3	3	3	3	3	3	3	3
North Holland	3	3	3	3		1	1	1	1	1	1	1	5	3
Schoonebeek	5	5	5	1		4	4	4	5	1	1	1	1	1
Swifter	4	4	4	4		1	1	1	1	1	1	3	5	4
Texel	4	4	4	5		2	1	1	1	1	1	3	4	4
Veluwe Heath	5	5	5	3		4	5	3	5	5		2	1	1
Zeeland milksheep	5	5	5	5		5	5	5	5	5		1	1	1
	0.82	0.80	0.82	0.56		0.55	0.56	0.51	0.58	0.49	0.20	0.40	0.55	0.44

BREED NAME	Withstand cold	Withstand wet	Withstand wind	Withstand heat	Adaptation to altitude	Adaptation to terrain	Ability to utilise sparse forage	Ability to utilise poor quality forage	Adapted to regional plants	Adapted to regional mineral deficiencies	Adapted to regional vitamin deficiencies	Requirement for shelter	Requirement for improved pasture	Requirement for increased husbandry
GREECE														
Boutsiko (Orino)	5	5	5	2	5	5	5	5	5	3	3	3	1	1
Frizarta	4	3	3	3	2	5	4	2	4	1	1	4	5	5
Kefallinias	3	2	4	5	4	5	4	3	4	5	4	3	4	4
Sfakia	5	4	4	3	4	4	3	3	4	3	3	5	3	3
	0.85	0.7	0.8	0.65	0.75	0.95	0.8	0.65	0.85	0.6	0.55	0.75	0.65	0.65
SLOVENIA														
Bela Krajina Pramenka	5	3	4	5	4	5	5	5	4	3	3	4	3	3
Bovec Sheep	5	5	4	2	4	5	4	4	4	3	3	4	3	3
Istrian Pramenka	5	3	5	5	3	5	5	5	4	3	3	4	3	3
Jezersko – Solcava	4	3	3	3	5	5	4	4	4	4	3	3	3	3
	0.95	0.7	0.8	0.75	0.8	1	0.9	0.9	0.8	0.65	0.6	0.75	0.6	0.6

Sheep contribution to the environment

BREED NAME	Improve the diversity of wildlife	Improve the diversity of plants	Improve the access-for-the public	Reduce weeds
Basco Béarnaise	4	5	1	5
Bizet	5	5	4	4
Causses du Lot	2	3	2	2
Corse	5	5	4	3
Grivette	4	4	4	3
Limousine	5	5	5	1
Manech Tête Noire	4	5	1	5
Manech Tête Rousse	4	5	1	5
Mourerous	3	3	2	3
Rava	5	5	2	4
	0.82	0.9	0.52	0.7

BREED NAME	Improve the diversity of wildlife	Improve the diversity of plants	Improve the access-for-the public	Reduce weeds
Brecknock Hill Cheviot	2	5	5	4
Cheviot	5	5	5	5
Clun Forest	5	4	4	5
Dalesbred	4	2	3	2
Derbyshire Gritstone	5	5	5	5
Devon Closewool	5	5	2	2
Exmoor Horn	5	5	3	3
Herdwick	3	3	5	3
Lonk	3	3	1	5
Romney	5	5	5	5
Rough Fell	5	5	5	1
Shetland	5	5	5	5
South Welsh Mountain	5	5	5	5
Southdown	3	3	3	3
Welsh Hill Speckled	3	3	4	4
	0.84	0.84	0.80	0.76

BREED NAME	Improve the diversity of wildlife	Improve the diversity of plants	Improve the access-for-the public	Reduce weeds
NL				
Black Blazed	1	1	1	1
Blue Texel	1	1	1	1
Drenth Heath	5	5	5	1
Flevolander	4	4	1	2
Mergelland	4	4	4	3
North Holland				
Schoonebeek	5	5	5	1
Swifter	1	1	1	1
Texel	1	1	1	1
Veluwe Heath	5	5	1	1
Zeeland milksheep	5	5	5	5
	0.58	0.58	0.45	0.31

BREED NAME	Improve the diversity of wildlife	Improve the diversity of plants	Improve the access-for-the public	Reduce weeds
GREECE				
Boutsiko (Orino)	3	4	2	2
Frizarta	1	5	5	5
Kefallinias	1	1	1	1
Sfakia	1	1	1	1
	0.3	0.55	0.45	0.45
SLOVENIA				
Bela Krajina Pramenka	3	4	4	4
Bovec Sheep	4	4	3	3
Istrian Pramenka	4	4	3	3
Jezersko – Solcava	3	3	4	3
	0.7	0.75	0.7	0.65

Promotion

BREED NAME	Breed special schemes	Breed special schemes	Region special schemes	Region special schemes	Grant aid to help marketing	Grant aid to help marketing	Advisor services marketing	Advisor services marketing
FRANCE								
Basco Béarnaise	0	The breed is a major element of the specifications both for the cheese AOC Ossau Iraty and the milk lamb (red label that will become a IGP). The breed association has a major role into the development of these Quality Official Signs.	1	They have for both Quality Official Signs: the AOC Ossau Iraty and the milk lamb (red label that will become a IGP)	1		1	
Bizet	0		1	subsidies to buy quality reproducers, not breed related	1		1	Breed Association provides this service for selling ewe replacements and rams. Breeding centre
Causses du Lot	1		1		1		0	
Corse	0		0		1		1	
Grivette	0		0		1	Grants for deseasonned animals	1	The breed association does it.

Limousine	1	Stetting up of a local branding "Millevaches Lamb" (Agneau du Plateau de Millevaches) with the help of the Regional Natural Park	1	As above	0		0	Breeder association is providing this
Manech Tête Noire	0	The breed is an element of the specifications for the cheese OAC Ossau Iraty and the milk lamb (red label, to be IGP). The breed association has a major role in the development of these Quality Official Signs.	1	Schemes for QOSigns. AOC Ossau Iraty and milk lamb (IGP)	1		1	
Manech Tête Rousse	0	As Manech Tête Noire	1	As Manech Tête Noire	1		1	
Mourerous	0		0	Only if it is crossed with a meat breed.	0		0	
Rava	1	Sometime through organistaion that have private contracts with farmers	0		1	National subsidies but they are disappearing and it is not linked to the breed	1	The breed association helps organising the sales of pedigree animals
	3		6		8		7	

BREED NAME	Breed special schemes	Breed special schemes(comment)	Region special schemes	Region special schemes(comment)	Grant aid to help marketing	Grant aid to help marketing(comment)	Advisor services marketing	Advisor services marketing(comment)
UK								
Brecknock Hill Cheviot	1	Brecknock Hill Cheviot M & S sell this through the 100 stores that sell the most lamb	0		0		1	HCC Hybru Cig Cymru Meat promotion Wales
Cheviot	0	too expensive	0	to difficult to arrange	0	Too difficult	0	
Clun Forest	0		0		0		0	
Dalesbred	0	(NO)	0	(NO) Several efforts to get schemes of lamb meat off the ground	1	(YES) when and if they occur	1	(YES)
Derbyshire Gritstone	0		0		0		0	Have not used any
Devon Closewool	0		0	Looked at a PDO scheme but the Exmoor Horn were more committed to its development so DC lost out.	0		1	

Exmoor Horn	1	Trials of Exmoor Horn Lamb into 4 major restaurants on Exmoor	0		1	Grants received from DEFRA Exmoor National Park Rural Enterprise Gateway. This has funded website, display stand advertising and a brochure	0	
Herdwick	0	Developing a PDO EU product of designated origin EU protected geographical indication Assisted by Leader plus	1	Made in Cumbria, promotion of farmers markets. Distinctly Cumbrian grant aid for value added. Leader plus	1		1	Leader plus. Cumbria Farm Link
Lonk	0		1	Trough of Bowland, but does not include Lonk	0		0	
Romney	0	To local restaurants. Not enough produce for full commercial commitment.	0		1	Kent CC Rural Regeneration. Romney Quality lamb from leader plus tried but too complicated.	0	
Rough Fell	0	Produced video, Breed needs regional association,	1	Made in Cumbria will help promotion	1	Voluntary Action Cumbria helped with making the video	1	Leader Plus will give help to individual Cumbria Farmers
Shetland	1	Shetland Livestock Marketing Group 300 members	1	SLMG set up 3 lamb quality schemes	1	Shetland Islands Council	0	

South Welsh Mountain	1	welsh mtn lamb to tesco	1	welsh mtn meat Treharris	1	Local Authority & Welsh Assembly grant	1	Agriscop - like leader plus
Southdown	1	Southdown lamb marketing scheme. ONLY for producers within the South Down Nat Park	0		1	SW Regional Breeders Group applying for funding via Exmoor Nat Park scheme	1	BLG
Welsh Hill Speckled	0		1	Welsh lamb	0		0	
	5		6		8		7	

BREED NAME	Breed special schemes	Breed special schemes(comment)	Region special schemes	Region special schemes(comment)	Grant aid to help marketing	Grant aid to help marketing(comment)	Advisor services marketing	Advisor services marketing(comment)
NL								
Black Blazed	0	selling of animals sometimes happens through the website and club magazine	0		0		0	
Blue Texel	0		0		0		0	
Drenth Heath	0		0		1		0	
Flevolander	1		0		0		0	
Mergelland	0		0		0		0	
North Holland	1	The website	0		0		0	
Schoonebeek	1	'Drents landschap" foundation	1	'Drents landschap" foundation	1		0	
Swifter	0	will help with the sell of breeding animals.	0		0		0	
Texel	0		0		0		0	
Veluwe Heath	0		0		0		0	
Zeeland milksheep	0		0		0		0	
	3		1		2		0	

BREED NAME	Breed special schemes	Breed special schemes(comment)	Region special schemes	Region special schemes(comment)	Grant aid to help marketing	Grant aid to help marketing(comment)	Advisor services marketing	Advisor services marketing(comment)
GREECE								
Boutsiko (Orino)	0		0		0		0	
Frizarta	0		0		0		0	
Kefallinias	0		0		1		1	
Sfakia	0		1	PDO cheese	1		0	
	3		1		2		1	
SLOVENIA								
Bela Krajina Pramenka	1		0		1		1	
Bovec Sheep	1	Bovec cheese is approved as traditional product	0		1		1	
Istrian Pramenka	0		0		0		0	
Jezersko – Solcava	0		0		1		1	
	2				3		3	

Top 5

BREED NAME	Most 5 important threats to your breed	Most important characteristics/contributions of your breed
FRANCE		
Basco Béarnaise	Sanitary problems and constraints Decrease of the public funding for the genetic improvement of local breeds Competition with more productive exogenous breed (Lacaune) Variation of the milk price related with the evolution of the sheep cheese trade Farmer	Implementation of Quality Official Signs (Cheese AOC Ossau-Iraty, red label milk lamb) with a strong connection with the local breeds Uses of local forages resources and landscape management (through transhumance notably) Ease of management and maintenanc
Bizet	1-Ageing farmers. 2-Increasing price of raw material. 3-Increasing work load, necessary to have more and more sheep to maintain same income. 4-Both local and National subsidies are decreasing. 5-selling price of lamb is too low	1-Land management of difficult areas. 2-Maintenance of good biodiversity. 3-maintenance of rural activities. 4-Land use planning. 5-Maintenance of traditions.
Causses du Lot	Having decent income for sheep breeders. Decreased number of sheep breeders. Decrease number of ewes. The local sheep industry getting weaker with the loss of local companies and activities. Breeders are not always capable of managing flock of very big s	From a local point of view sheep breeding is the main or even the only possible income. From a more general point of view, the sheep industry is a main job provider: farms, business and companies, services. Main role in landscape management. Part of the
Corse	Ageing population of farmers. Non farming uses of land (tourism). No local politic will to develop the sheep breeding industry. Milking is very time consuming and more generally raising milk breed is very time consuming => not attractive. Risks of new ep	Corsican endemic breed; genetically original, non standardized on colour pattern. Specific cheeses products + milk lamb and lot of tourists as consumers! Hardy outdoor breed, fully adapted to its "terroir" which respects the environment (low or now inputs
Grivette	Global economy of the industry. Production inadequate with the demands from the industry. Serious disease like Blue Tongue. Cross compliance. Big predators such as wolf.	Maintenance of activities in rural areas. Valorization of poor area. Landscape management. Farms profitability.

Limousine	<p>1.Competition with beef farming (higher SFP) 2. Decreasing sheep number 3.Farmers succession 4.Lack of involvement of the local industry to look for new markets 5 No awareness from the local and national financiers of the problems the breeds are coping wit</p>	<p>1.Breed well adapted to its territory 2.Valorisation of its territory 3. Production of a quality meat</p>
Manech Tête Noire and Manech Tête Rousse	<p>1-Sanitary problems and constraints. 2-decrease of public funding for the genetic improvement of local breeds. 3-Competition with more productive exogenous breed (Lacaune). 4-variation of milk price related to the evolution of the sheep cheese trade. 5-Fa</p>	<p>1-Implementmtation of Quality Official Signs (cheese AOC Ossau-Iraty, red label milk lamb). 2-Uses of local forage rsource notably through transhumanc. 3-Landscape management notably through transhumance. 4-Ease of management and maintenance of traditional</p>
Mourerous	<p>Drought. Cross compliance. Decrese of the price of lamb meat. Decrease in subsidies. Increase of the price of animal feeding (crop).</p>	<p>Biodiversity. Landscape management. Link between the breed and its region ("terrior"). Preservation of a traditional manner of breeding (transhumance).</p>
Rava	<p>If big predators such as wolves were to settle in its territory, the breeding practices might change hence the farmers might switch to a less hardy breed. It is highly sensitive to any disease with a high level of morbidity and/or mortality. On a differe</p>	<p>Adaptaion to the local pedoclimatic conditions. Deseasoning. Instinct and maternal qualities. Good matching between the cross complied products and the demands from the local industry. Maintaining of an open landscape.</p>
		<p>To tight legislation especialy for hobby farmers.</p>

BREED NAME	Most 5 important threats to your breed	Most important characteristics/contributions of your breed
UK		
Brecknock Hill Cheviot	1. Ageing population of farmers. Sons may continue but probably not farm full time 2. Lack of return 3. Bad implementation of environmental schemes. Farmers were not consulted. Their practices have maintained the landscape for generations but this appear	
Cheviot	Price of Lamb Disease threat Changing population of farmers Lack of support for Hill farmers Lack of support for countryside	Adapted to region Maintain the landscape Keep people on the land Support rural communities and livlihhods Regional heritage one of the oldest breeds
Clun Forest	1-Lack of foresight. 2-disease. 3-Lack of information. 4-No knowledge of marketing. 5-Market forces do not recognise qualities of heritage breeds.	1-Keeps people on land. 2-Landscape management. 3-local markets, auctions, butchers,abattoirs. 4-Rural community. 5-Adapted to local conditions
Dalesbred	Lack of profitability of hill-sheep farming. Lack of profitability of half-bred sheep production. Demand for lamb versus other meats. Willingness of younger generations to continue hill-farming.	Tourism (aesthetic & economic aspects)
Derbyshire Gritstone	1-Other commercial breeds. 2-Headage payments. 3-Ageing population of farmers. 4-Succession. 5-disease	1-Ability to survive in location. 2-Maintains enviroment. 3-Keep farmers on the land. 4-Fantastic wool. 5-Keeps community together
Devon Closewool	1-Ageing population. 2-Breeds lack of ability to compete with others. 3-Economic viability. 4-exotic disease. 5-Changing farm practices	1-Hardiness. 2-wool. 3-Ease of management. 4-Good flavour,5-Landscape management.
Exmoor Horn	Government red tape	They have been native to Exmoor since time immemorial. They manage and shape the Beautiful Exmoor landscape. They are hardy enough to withstand the freezing conditions and driving rain in this region. They are excellent to eat wirth sweet tender succulent
Herdwick	1-Agri enviroment schemes. 2-de coupling and loss of headage payments. 3-Abandonment of fell flocks, farmers are not obliged to keep sheep on the fell. 4-lak of income for fell farming. 5-threat of	Maintenance of cultural landscape. 2-heritage. 3-contribution sheep & farmers make to maintain access to the countryside. 4-Cohesion, keep people on the land/comunities. 5-Maitaining the eniromental

	epidemic like 2001	landscape
Lonk	<p>1. Different uses of land due to environmental schemes especially those implemented by United Utilities who own the land rented by 50% of members. Most of these schemes have been to introduce forestry into the area.</p> <p>2. Changes towards more productive bree</p>	<p>1.Maintaining the landscape. 2.Only native sheep of Lancashire Tradition Heritage 3.Provides a living for framers keeps people on the land. 4.Horns for local stick makers 5.The breed incorporates a sense of community and contributes to the local economy</p>
Romney	<p>1-Blue tongue. 2-Poor return. 3-government, no sympathy, understanding, desire to understand or interest in farming. 4-Increasing urbanisation of SE. 5-Lack of skills</p>	<p>1-Adaptability& flexibility. 2-Ease of management, good mothering. 3-Landscape management suited to enviromental schemes. 4-Traditional long history. 5-Heritage</p>
Rough Fell	<p>1-Poor wool prices. 2-Competition by Swaledale. 3-Lack of support for regional breeds. 4-Lack of political/public understanding. Farmers nolonger in control of their business or land. Many feel undervalued and that life is hard, no time off, no respect, n</p>	<p>1-Management of the fells/enviroment/landscape. 2-Breed supports small farms enabling them to make a living off the land. 3-Tradition and heritage. 4-Smal local shows ecurages tourism. 5-Cotribution to local economy in a variety of ways from toursm to as</p>
Shetland	<p>Lack of Markets Exotic disease Lack of slaughter facility Lack of processing facility Mainland policy affecting Island</p>	<p>Keeping people in crofting Adaptability of sheep to region Good quality product of wool and lamb Landscape management Shetland Sheep identified with Shetland Island</p>
South Welsh Mountain	<p>1-exotic disease. 2-Enviromental schemes, loss of common ground. 3-Enviromental schemes, productivity & economic returnsmake for poor price & reduced headage. 4- Ageing population of farmers. 5-Finding markets for product. 6-Land urbanisation</p>	<p>1-Regional identity. 2-all farms in this area keep these sheep. 3-Traditional, social cohesion, identity of Nelson region. 5-Landscape management of commons.</p>
Southdown	<p>1-Relatively small number of pure bred sheep. 2-Small individual flocks. 3-exotic disease. 4-market & fashion trends, reduction in red meat consumption. 5-Government interference</p>	<p>1-maitaining enviromental equilibrium of the South Downs. 2-Historical and intrinsic linking to area producing locally sourced food. 3-High quality meat. 4-High quality terminal sires. 5-traditional breed</p>
Welsh Hill Speckled	<p>1 - Loss of traditional farming. 2 - Ageing population of farmers 3 - Disease threat FMD Blue tongue. 4 - SFP. 5 - Lack of government interest in farming</p>	<p>1-Ease of management. 2-Extensively farmed. 3-Adapted to this area (tried Blackies, took 16 generations). 4-Keeps people on land. 5-Sense of community</p>

BREED NAME	Most 5 important threats to your breed	Most important characteristics/contributions of your breed
NL		
Black Blazed	<ol style="list-style-type: none"> 1. animal diseases like bluetongue and foot and mounth disease 2. policies 3. urbanisation 	<ol style="list-style-type: none"> 1. easy to keep
Blue Texel	<ol style="list-style-type: none"> 1. incoming of diseases from foreign countries, like bluetongue and foot and mouth disease. 2. envionment and health care policies. 3. Breeders have the curtsy to use to much highly related animals 	
Drenth Heath	<ol style="list-style-type: none"> 1. inbreeding 2. calamities 3. changing vision on the Environmental schemes. 4. stopping of subsidy for environment schemes 5. illnesses like scrapie and bluetongue 	<ol style="list-style-type: none"> 1. culturalhistory 2. natural management of the terrain 3. recreation ans toerism 4. quality of the breed for the future.
Flevolander	<ol style="list-style-type: none"> 1. Changes in manure policy. So sheep farms have to compete with other farming systems 2. competition from foreign countries 3. New diseases 4. transport legislation 	<ol style="list-style-type: none"> 1. Do to the high productivity of the breed it can contribute to the rentability of other farming systems. 2. The flevolander doesn't need a lot of attention so it is possible to keep these animals next to other animals/activities. 3. Animals contribute t
North Holland	<ol style="list-style-type: none"> 1. population is getting to small 2. bluetongue on short term 3. Swifter 	<ol style="list-style-type: none"> 1. you can use it for lamb and as dam 2. Ease of lambing 3. several twins and multiples 4. longevity

Mergelland	<ol style="list-style-type: none"> 1. legislation 2. increasing age of the farmers 3. diseases 4. overall increasing costs 	<ol style="list-style-type: none"> 1. unique sheep breed 2. characteristic of the area and very well spread over this area.
Schoonebeek	<ol style="list-style-type: none"> 1. inbreeding 2. calamities 3. changing vision on the Environmental schemes. 4. stopping of subsidy for environment schemes 5. illnesses like scrapie and bluetongue 	<ol style="list-style-type: none"> 1. cultural history 2. natural management of the terrain 3. recreation and tourism 4. quality of the breed for the future.
Swifter	<ol style="list-style-type: none"> 1. blue tongue 2. manure policy 3. slaughter compensation is a heavy burden for the small sheepfarmer. 	<ol style="list-style-type: none"> 1. easy to keep 2. very friendly sheep.
Texel	<ol style="list-style-type: none"> 1. Blue tongue and other diseases 2. bad image 	It's an old Dutch breed.
Veluwe Heath	<ol style="list-style-type: none"> 1. finances 2. bluetongue 	1. environmental management. The Veluwe Heath is a good sign-board
Zeeland milk sheep	<ol style="list-style-type: none"> 1. obsolescence 2. policy 3. urbanisation 4. changing of hobby 5. illnesses 	<ol style="list-style-type: none"> 1. soberness 2. it can easily rotate when it has fallen on its back 3. social animal 4. good for crossbreed 5. nice appearance

BREED NAME	Most 5 important threats to your breed	Most important characteristics/contributions of your breed
GREECE		
Boutsiko (Orino)	Low productivity Lack of successors Lack of infrastructures and social structures abondanance of the rural area	Economic support of the region Keeping of the population in the marginal region Cultural heritage
Frizarta	Ageing of farmers Lack of AI programme Urbanization of breeding regions Need of high input Health problems	Increase of agricultural income Work opportunities for the local community Increase of collaboration between the farmers Collaboration with farmers of other regions
Kefallinias	not organised structure young people prefer other activities lack of slaughterhouses low prices of products lack or high prices of feedstuffs	income of the farmers, offering of work opportunities regional products (mainly cheese) utilisation of land
Sfakia	overgrazing hgh price of fodders high price of medicines diseases	quality products tradition tourism
SLOVENIA		
Bela Krajina Pramenka	Social factors: age of the farmers, no successor, abandonment of farming, lack of market	adaptation to the environment, adaptation to low quality food
Bovec Sheep		
Istrian Pramenka		
Jezersko – Solcava		

Heritage Sheep Questionnaire

This survey has been developed to try and identify the threats to Heritage Sheep Breeds.

Heritage Sheep Breeds are defined as geographically isolated, genetically distinct, and environmentally adapted to their region. They contribute significantly to rural economies and the environmental landscape and enrich the diversity of genetic resources.

The information gathered in this survey will be used to inform European and National policy makers involved in making decisions related to sheep farming.

1. CONSERVATION

1.1 Why are we doing it?

To conserve the genetic resources of Heritage Sheep Breeds across the European Community for the diversification of production in livestock agriculture and the sustainability of medium to low-input farming systems.

1.2 What do we hope to achieve?

To improve quality of the environment and develop new uses and markets for products derived from regional breeds geographically concentrated and traditionally farmed by local communities.

To inform National and EU policy makers.

2. NUMBERS and TRENDS

2.1 MEMBERS

How many members does your breed society have?	
How many of your members actively breed XX sheep?	
What % of farms are rented	
What % of farms are hobby farms	
What % of farms are family owned	
What % of farms are corporate farms	
What % of your breeders are over 60 years	
What % of your members are under 35 years	

What % of farms have succession	
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2.2 SHEEP NUMBERS PRESENT

What is your estimate of the total number of XX sheep	
What percentage of your breed is located in the region stated	
What are the most common breeds used for crossing with – XX ewes	

	increase	decrease	Stay the same
Since 2000 how has the total number of – XX sheep changed			
Since 2000 has the size of flocks			
In the future do you think the number of – XX sheep will change			

2.3 FACTORS AFFECTING FUTURE SHEEP NUMBERS

Thinking about the farms in your region what do you see as the most important factors that would contribute to the reduction in the number of breeding XX Sheep

1 = not important 5 = very important

	1	2	3	4	5
SUCCESSION					
Farms ceasing to farm					
Urbanisation of region					
Ageing population of farmers					
Lack of skilled labour					
Inability to hand on skills					
Changes to the environment					
Lack of training facilities					

Climate change is a topical issue. Do you believe there have been trends in climate change in your region that have affected sheep farming?

1 = not important 5 = very important

CLIMATIC FACTORS	1	2	3	4	5
Reduced availability of water					
Reduction in available grass for grazing					
Reduction in availability of winter fodder					
Increased requirement for housing animals					
Increased weeds					
Reduction in availability of bedding					
Change in average temperatures					
Change in average rainfall					

There have been major changes to the Common Agricultural Policy.

Do you think the Single Farm Payment (SFP) has affected the way your members now manage their farms or influence their plans for the future?

Please indicate how significant the following factors have been in relation to **reducing** XX sheep numbers.

1 = not an important factor in reducing XX sheep numbers

5 = important in reducing XX sheep numbers

POLITICAL CAP / SFP	1	2	3	4	5
Removal of headage payments					
Environmental scheme changes					
Need to increase farm productivity					
Need to make management easier					
Non farming uses of land					
Increasing the area of actively farmed land					
Decreasing the area of actively farmed land					
Increasing farm labour					
Decreasing farm labour					
Increasing the use of inputs fertiliser/pesticides					
Decreasing the use of inputs					
Going organic					
Diversification into non farming enterprises on the					

farm					
Ceasing farming altogether (retirement)					
Cross compliance					
Scrapie genotyping					
Availability of processing plants					
Availability of abattoirs					

2.4 Factors that may have changed flock sizes

How many farms breeding XX sheep do you estimate are in an environmentally designated agreement or other quality assurance scheme?

ENVIRONMENTAL SCHEMES	% Farms	Comment
Site of Special Scientific Interest		
Special Area of Conservation		
Environmentally Sensitive area agreement		
Country Stewardship agreement		
Wildlife Enhancement Scheme		
National Park		
Organic		
Food quality scheme		
Other please specify		

Please rate how you think environmental schemes have affected the environment and farms that breed XX sheep

1 = not important

5 = very important

	1	2	3	4	5
Improved the diversity of wildlife					
Improved the diversity of plants					
Improved the access for the public					
Increased labour requirement on farms					
Increased work load for farmers					

Reduced sheep grazing					
Reduced sheep numbers					
Improved sheep health					
Increased weeds					

Please rate how you think sheep and their grazing habits affect the environment.

1 = not important 5 = very important

	1	2	3	4	5
Improve the diversity of wildlife					
Improve the diversity of plants					
Improve the access for the public					
Reduce weeds					

What % of sheep graze in a traditional manner for example hefting or transhumance?
Have any of the environmental schemes affected these traditions?

What disease factors pose a threat to your breed? Please rate the following according to importance to your breed in your region

1 = not important 5 = very important

	1	2	3	4	5
Sheep Scab					
Liver Fluke					
Haemonchus (Barbers Pole worm)					
Ticks					
Tick born diseases					
Scrapie					
Bluetongue					

Brucellosis (<i>Brucella melitensis</i>)					
Contagious epididymitis (<i>Brucella ovis</i>)					
Contagious Agalactia					
Enzootic Abortion of Ewes EAE					
Maedi Visna					
Caseous Lymphadenitis					
Worm resistance					
Other please specify					

3. VALUES

3.1 DISTINCTIVENESS

How long have XX sheep been bred in your region?

How long has the flock book been in existence?

What information is kept in the flock book?

FITNESS

Please rate the following qualities your breed is well-known for.

(Characteristics they possess rather than what you want them to have)

1 = not important 5 = very important

	1	2	3	4	5
Resistance to lameness					
Resistance to internal parasites					
Resistance to external parasites					

Resistance to scrapie					
Good dental conformation					
Ease of lambing					
Surviving regional conditions:					
Other					

PERFORMANCE

Please rate the importance of the following products produced from XX sheep

1 = not important

5 = very important

	1	2	3	4	5
Lamb					
Mutton					
Milk					
Cheese					
Yoghurt					
Wool					
Pedigree animals for sale					
Ewe replacements					
Store lambs					
Old Ewes					
Other animal products					

Please rate the importance of the following performance traits

1 = not important

5 = very important

Milk production for lambs					
Milk production					
Mother ability					
Single lambs					
Twins					
Multiples					
Rapid growth rates					
Ease of management					
Lean carcasses					
Flavour					
Other please specify					

3.2 ENVIRONMENTAL ADAPTATION

How is the breed adapted to the environment?

Please rate the following traits as they apply to your breed's adaptation to its environment

1 = not important

5 = very important

	1	2	3	4	5
Withstand cold					
Withstand wet					
Withstand wind					
Withstand heat					
Adaptation to altitude					
Adaptation to terrain					
Ability to utilise sparse forage					
Ability to utilise poor quality forage					
Adapted to regional plants					
Adapted to regional mineral deficiencies					
Adapted to regional vitamin deficiencies					
Requirement for shelter					
Requirement for improved pasture					
Requirement for increased husbandry					

Does the breed co exist with another species or farming practice?

1 = not important

5 = very important

	1	2	3	4	5
Sheep farming only					
Dairy farming + sheep					
Beef farming + sheep					
Pigs + sheep					
Poultry/Eggs + sheep					
Equine enterprises + sheep					
Arable + sheep					
Vegetables + sheep					

3.3 CONTRIBUTION TO RURAL COMMUNITIES

Please rate the importance of your breed to the following

1 = not important

5 = very important

Cultural	1	2	3	4	5
Traditional					
Local crafts					
History					
Tourism					
Other please specify					
Economic					
Ease of management					
High demand for products					
Good return on products					
Adaptation to environment					
Tourism					
Income from associated industries					
Breed related activities					
Regional product					
Other please specify					

4. OPTIONS

4.1 CURRENT AND FUTURE BREED SOCIETY INITIATIVES

Is the Breed society involved with any Non Government Organisation?

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Does the breed society participate in any research and development schemes

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Does the breed society organise any breed promotion events

Does the breed society organise any educational events for the breed society members

4.2 MARKETING AND BRANDING

	% Farms	Product	Comment
On farm sale of products			
Off farm sale			
Auctions			
Private contracts			
Internet sales			
Farmers markets			

	Yes	No	Comment
Does your breed have special schemes for marketing eg branding			
Does your region have special schemes for marketing eg branding			
Are you aware of grant aid to help you market your products?			
Are you aware of advisory services to help you market your products?			

4.3 BREED IMPROVEMENT

Does the breed society participate in any breed improvement initiatives?

	Yes	No	comment
Are XX sheep involved in any production improvement practice?			
Is Artificial Insemination used to improve breeding?			
Is semen stored?			
Is other material stored eg blood / somatic cells?			

Does the breed society promote Flock Health plans to improve returns and animal welfare	% Farms		Comment
What % of farms have flock health plans drawn up in consultation with a vet?			
What % of farms fully implement these plans?			
	Yes	No	Comment
Were flock health plans considered a requirement for cross compliance?			
Does the breed society actively promote Flock health plans?			
What do you think is the most important advice given in Flock Health Plans?			

This survey has tried to determine what threatens Heritage breeds of sheep.

- What do you believe are the 5 most important threats to your breed.
- What do you believe are the 5 most important characteristics/contributions of your breed to the local community/society

If possible please make notes of any comments the breed society wishes to make relating to what they believe threatens their breed.