\European Commission Council Regulation (EC) N^{o} 870/2004
AGRI GEN RES 2006

HERITAGE SHEEP

Heritage Sheep Review and Steering Group (HSRSG)
Second meeting
Hotel Mercure - Amsterdam NL
20th May 2008

Participants

UK
Professor Dianna Bowles (UK) (Chair) (**DB**)
Amanda Carson (UK) (**AC**)
David Clayton (**DC**)
Sally Steele (**SS**)

FRANCE
Delphine Duclos (**DD**)

GREECE
Andreas Georgoudis (Greece) (**AG**)
Christina Ligda (Greece) (**CL**)
Katerina Konsultu, (**KK)**
Chaido Mizeli (**CM**)

SLOVENIA
Drago Kompan (Slovenia) (**DK**)
Danijela Bojkovski (**DBoj)**

NETHERLANDS
Lucia Kaal (Netherlands) (**LK**)
Henri Woelders (Netherlands) (**HW**)
Spike Joost Hiemstra (Netherlands) (**SJH**)

External Evaluatores
Mike Roper (Defra UK National Co-ordinator for FAnGR, Chair ERFP UK) (**MR**)
Dominique Planchenault (Director Bureau des Ressources Génétiques ERFP France) (**DP**)
Professor John Woolliams (Roslin Institute) UK (**JW**)

Apologies
Olivier Diana for the EU Commission DG Agriculture and Rural Development (**OD**)
Duncan Rotherham University of York Accountant (**DR**)

1. INTRODUCTION OF ATTENDEES

DB welcomed the participants in the Review and Steering Group to the meeting.

2. REVIEW OF THE HERITAGE SHEEP PROJECT WORK PACKAGES

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.

Objectives

1. Detailed survey and assessment of Heritage Sheep Breeds in partner countries.

2. Identification of threats to the genetic diversity of Heritage Sheep Breeds Surveyed in Objective 1

3. Development of a scoring system to prioritise the threats identified in Objective 2

4. Construction of a priority list of Heritage Sheep Breeds in the partner countries to focus future conservation methods

Power point presentation given by AC

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 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 Milksheep Kempen Heath Friesian Milksheep	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 ERFP 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.

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

The breeds that did not participate

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

The questionnaire was divided into sections to gather information.

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

In the treat category 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.

The data gathered from the questionnaire was entered into a data base and the results from the database were presented in tables attached in the documents provided to the participants.
In addition 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 on the website.

From the information gathered, a scoring system to determine the two breeds most at risk per partner country was presented for discussion. 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.
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 is most suitable for a sociological analysis therefore forms the groundwork for future investigations.

The data set as it stands can inform the selection of breeds at risk and additional criteria were discussed and are set out below. . In addition the current situation in Northern Europe regarding Bluetongue virus (BTV) has posed a significant 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.
Important points for the determination of breeds include (where possible)

- Existing resources — Ex situ conservation resources see WP3
- Effective population size — Number of males in population
  Number of females used for pure bred breeding.
  (These are quantitative measures and information may not be available)
- Geographical isolation
- Existing conservation schemes and effect on population, if there are no conservation schemes in place for a decreasing population of sheep then these should be a priority.
- Co operation of the breed society in coordinating animals for collection of semen
- Disease crisis situations
- Unique traits associated with the breed
- Scientifically documented phenotypic traits
- Consideration of values and promotional activities determined by the dataset of WP1

Milestones

Milestone date	*Milestone description*
Month 4	M1.1 Visits to partner countries completed
Month 6	M1.2 All data received from partner countries
Month 10	M1.3 Visits to sheep specialists and geneticists completed

Deliverables

	WP1 Scoring system Lead - P6 + All Ps
Month 9	D1.1 Survey report on Heritage Sheep Breeds Completed D1.2 Report on Threats Ongoing
Month 12	D1.3 Scoring system for risk prioritisation Ongoing D1.4 Priority list for each partner country Ongoing

Action points

Each partner country to propose two breeds for inclusion in objectives of work package 4 to be circulated to all partners by the end of the 4th week of June 2008.

Work Package 2

Work package two aims to develop strategies and guidelines of successful *in situ* / on-farm breeding programmes that will enhance profitability of HSBs

Objectives

1. Analysis of successful cases of development strategies for HSBs

2. Development of case studies for HSBs in partner countries to support their *in situ*/on-farm conservation

3. Design of guidelines for *in situ*/on-farm conservation of HSBs

Powerpoint presentation given by DD

A study of three French Pyrenean dairy sheep breeds.
Maneche Tete Noir population 300,000 ewes in 1300 flocks and increasing, Maneche Tete Rousse population 114,000 ewes in 550 flocks and decreasing, Basco Bearnese population 80,000 in 450 flocks and static.

Milk production has more than doubled between 1985 and 2005 (production estimated at 54 million litres in 2005) through a very structured commitment to protecting these three breeds found in the French Pyrenean region.

In 1981 AOC Ossau Iraty (Protected designation of origin) was created. The 3 local breeds are the only breeds allowed to contribute to the production of this cheese. However only 32% of milk production is used in the cheese sold under the AOC label. Supermarkets own brand label accounts for the remaining cheese production.
In 1986 a co operative of milk producers and industry processers was formed to facilitate other programmes for the development of the sheep and the products.

The associated meat industry is less well structured and seasonal but involves approximately 400,000 lambs/year. Spain accounts for approximately 80% of this market. A meat label “agneau de lait” was developed in Pyrénées-Atlantiques department however the Label Rouge Agneau de Lait des Pyrénées which accounts for roughly 10% of lamb sales is not acknowledged yet at European level. Cross bred animals are allowed to be sold under this designation

An organised selection scheme, created by the AI Centre and “UPRA des Races Ovines Laitières des Pyrénées” was formed in 1975. Genetic selection is performed with the Maneche Tete Rousse, with 140 Rams participating, reflecting the breeds desire to increase favourable production traits quantity and quality of milk, breed standard, genetic variability, and scrapie resistance
The Maneche Tete Noir and the Basco Bernaise have 30 and 40 rams participating in AI which is too few for effective selection processes and reflects these breeds priority in selecting animals to conform to breed standards for example horn characteristics.
The Maneche Tete Rousse is therefore dependant on the dairy industry of the region and may be more vulnerable to a crisis situation due to restrictive selection processes. The survival of the Manech Tete Noir and Basco Bernaise is focussed more towards conservation strategies although even with

the removal of headage payments it is thought that they will continue through the activities of breeders committed to the breeds.

Milestones

Month 01	M2.1 First meeting: agreement on the methodology analysis
Month 02	M2.2 Start date for the breeding programmes analyses in France
Month 13	M2.3 Report on the French breeding programmes analysis: second meeting
Month 21	M2.4 Meeting on the draft guidelines issued from the complete analysis
Month 24	M2.5 Finalisation of guidelines/end of project

Deliverables

	WP2 In situ conservation Lead - P1+All Ps
Month 12	D2.1 Draft analysis issued from the 4 French HSBs

Action points

DD to produce a summary evaluation, based on the WP2 report.
DD to revisit questionnaire circulated to partners to ensure appropriateness
Partner countries to select two breeds for analysis under the guidelines prepared by Xavier Dornier following the 1st HSRSG meeting and to submit the results to DD to allow comparison of breeds by the end of July 2008.

Work Package 3 + 4

Work packages 3 + 4 aim to develop a framework that will achieve best practice for the cryoconservation of HSBs in the EU by comparing existing technologies and monitoring existing stores of genetic material.

Objectives

WP3

1. Identification of collection and cryopreservation strategies of HSBs through a detailed survey.
2. Comparison and evaluation of the practicalities involved in various collection & freezing methods of semen, embryos and tissues.
3. Development and implementation of strategies for *ex situ* conservation tailored for HSBs.

Powerpoint presentations by HW and LK

Results of the questionnaire sent out to organisations within the partner countries are summarised in the table below

Countries	Breeds	Organisation	Mean males/breed	Mean doses/male
UK	15	Innovis for NSP semen archive and heritage gene bank	30	152
NL	6	CGN	26	135
France	3	Nat. Cryobanque + AI org.	30	116
Greece	1	Nagref research Institute	15	67

Name of breed	Organi-sation1	When collected	No of rams	No of doses	Sperm/ dose	Eja or Epi	Storage sites	Straw or Pellet
Kempen Heath Sheep	CGN	2001-2002	15	2234	200	Eja	2	Str
Veluwe Heath Sheep	CGN	2001-2002	7	715	200	Eja	2	Str
Veluwe Heath Sheep	CGN	2004- - - -	27	3036	200	Epi	2	Str
Drenthe Heath Sheep	CGN	2001-2002	2	44	200	Eja	2	Str
Drenthe Heath Sheep	CGN	2004- - - -	55	4014	95-200	Epi	2	Str
Mergellander	CGN	2001-2002	21	2538	200	Eja	2	Str
Mergellander	CGN	2004	4	398	200	Epi	2	Str
Name of breed	Organi-sation1	When collected	No of rams	No of doses	Sperm/dose	Eja or Epi	Stor-age sites	Straw or Pellet
Schoonebeker	CGN	2001-2002	10	1096	200	Eja	2	Str
Schoonebeker	CGN	2008	7	709	80-200	Epi	2	Str

Zwartbles	CGN	2003	7	168	200	Eja	2	Str
Zwartbles	CGN	2005	1	6165	200	Epi	2	Str
Basco Béarnaise	Ordiarp	2005	16	2032	100	Eja	1	Str
Manech tête noire	Ordiarp	2005	20	2263	100	Eja	1	Str
Manech tête rousse	Ordiarp	2005	53	6017	100	Eja	1	Str
Chios	NAGREF	2006-2007	15	1000	100	Eja	1	Str
Brecknock Hill Cheviot	NSP	2005-2007	18	3499	100	Eja	2	Str
Cheviot	NSP	2005-2007	41	7076	100	Eja	2	Str
Clun Forest,	NSP	2005-2007	7	1567	100	Eja	2	Str
Dalesbred	NSP	2005-2007	6	1154	100	Eja	2	Str
Dalesbred	Heritage	April 2001	7	150x2	240	Eja	1	Pel
Derbyshire Gritstone,	NSP	2005-2007	2	308	100	Eja	2	Str
Devon Closewool	NSP	2005-2007	9	1923	100	Eja	2	Str
Exmoor Horn	NSP	2005-2007	11	2302	100	Eja	2	Str
Herdwick	NSP	2005-2007	37	7262	100	Eja	2	Str
Herdwick	Heritage	April 2001	155	2196x2	240	Eja	1	Pel
Lonk	NSP	2005-2007	1	200	100	Eja	2	Str
Lonk	Heritage	April 2001	4	59x2	240	Eja	1	Pel
Romney	NSP	2005-2007	17	1302	100	Eja	2	Str
Rough Fell	NSP	2005-2007	16	2584	100	Eja	2	Str
Rough Fell	Heritage	April 2001	20	324x2	240	Eja	1	Pel
Shetland	NSP	2005-2007	30	13012	100	Eja	2	Str
South Welsh Mountain	NSP	2005-2007	20	4173	100	Eja	2	Str
Southdown	NSP	2005-2007	20	3567	100	Eja	2	Str
Welsh Hill Speckled Face	NSP	2005-2007	19	11306	100	Eja	2	Str

In the UK semen collection was triggered by disease issue FMD and Scrapie
Organisations involved in the collection of semen
In NL: Central authority: CGN.
In UK: Ad hog organisations: ‘Heritage Gene Bank, and ‘NSP Semen Archive’.
In France, initiative lies with cooperative farmers AI organisations
Greece: Research institute NAGREF

The issue of future collection of semen is still to be formally arranged in UK France and Greece.
The costs continued storage in the future and who would pay remains an issue in all countries.
Only the Netherlands had a predetermined target of 25 males per breed and 100 doses per male.

Collection procedures:

Epididymal vs ejaculated semen
NL advocate use of epididymal semen for its good fertility and cost-efficiency.

Studies in the Netherlands have shown that the freezability of the epididymally collected semen was better than ejaculated, but more studies were required to further evaluate this and comparisons between partner countries would be useful.
Interpretation of law and regulations needs clarification because semen epididymally collected cannot be stored in the same facility as ejaculated semen.

Semen for Cervical or Laparoscopic insemination
Laparoscopic insemination is prohibited in NL (animal welfare) although Laparoscopic insemination may be 4-10 times more efficient (number of sperm required). Therefore semen doses contain 200 $x10^6$ sperm per dose as a higher amount is preferred for cervical insemination. There have been no scientific studies to determine if a lower concentration would be as effective in achieving satisfactory conception rates. Efficiency of laproscopic insemination is 4 times more efficient.

Collections on farm vs central facility
France cannot do on farm collection.
Collections in season, using teaser ewe or dummy were compared
Lower sperm quality and quantity in the summer. But it is probably not a bad constraint to limit collecting of semen for the gene bank to the season.
Dose size needed
Could we use less than 200 x 10^6 sperm per cervical AI?
What about laparoscopic. Why 100 x 10^6 sperm? Could we use less?

Procedures for freezing
Literature is very unclear. Always confounding factors.
Various methods seem to work as to semen handling, freezing medium, and actual freezing procedure
In NL expertise had gone up from zero to just adequate. (30% pregnancy with cervical AI)
France and UK have more experience and therefore it was proposed that we organise comparison of methods and exchange or researchers/personnel.

Recommendations for WP 4
In WP4 the partners will make new stocks of frozen semen from two breeds per country.

Perhaps this could be an opportunity to compare and exchange methods and expertise.
If it can be organised, a split sample comparison of freezing media/methods could perhaps be done combined with exchange of researchers/ personnel.
If possible and deemed necessary, we could also compare the same semen but using different dose sizes.

These plans are attractive, but HSB funding only covers the collection and freezing of the semen.
We should preferably be able to make use of on-going insemination activities instead of organise a costly 'animal experiment' in a research facility.

Objectives

WP4
1. Identification of breeds for *ex situ* conservation – Discussions within each country will be undertaken to prioritise two HSBs according to the scoring system developed in WP1.
2. Construction of the optimal *ex situ* conservation method of HSBs for each country
3. Collection, freezing and storage of semen (or other genetic material) from the prioritised HSBs

A method for semi-quantitative collection from the caudae epididymidis of slaughtered rams was developed. The motility of epididymal semen was good and the freezability seemed to be better than that of ejaculated semen.

Results of two breeds from which semen had been collected from the epidiymis were presented.

The Veleuwe Heath
19 rams were collected from at the end 2007
CGN bought 14 rams and collected from 5 rams testicles at abattoir
Rams born in spring 2007 and therefore were young rams
Bluetongue (BTV) 10 rams antibody + PCR positive - 7 rams antibody positive + PCR negative
No blood was available from 2 rams
Scrapie genotyping was performed 13 rams ARR/ARR
6 rams genotype unknown
Semen doses collected varied from 28 - 104 doses per ram reflecting the fact that young animals had been used, with 27 – 100 $x10^6$ cells per doses
Between 20 - 60 % viable cells after freezing

Drenthe Heath
13 rams were collected from during spring 2008
CGN bought 11 rams and collected from 2 rams testicles at abattoir
Rams born in 1999-2005
Bluetongue (BTV) 5 rams antibody + PCR positive - 6 rams antibody positive + PCR negative
2 negative
Scrapie genotype was performed 7 rams ARR/ARR 1 ARR/ARQ 2 ARQ/ARQ6
3 rams genotype unknown
Semen doses collected varied from 48 - 110 doses per ram with 95 – 200 $x10^6$ cells per doses
Between 20 - 60 % viable cells after freezing 10^6

The website http://www.cgn.wur.nl/NL/CGN+Dierlijke+Genetische+Bronnen/Tools provides a tool that allows the determination of the optimal number of rams for conservation purposes when variable parameters are entered into the planner.

The preferred number of rams for collection was 20 rams per breed with 100 doses per ram, however this criteria was influenced by the factor already discussed previously.

Again it was proposed that valuable information could be learned by the comparison of freezing methods utilized in other labs and a collaboration between laboratories in partner countries might be a new objective.

Milestones

WP3

Month 08	M3.1 Workshop to discuss the most important issues resulting from objective 1 & 2 held at 2nd HSRSG meeting
Month 16	M3.2 Workshop to discuss the definition of European wide strategies for ex situ conservation (objective 3) held at 2nd HSRSG meeting
Month 24	M3.3 Presentation of framework on conservation of heritage breeds

Month 16	M4.1 Teleconference to discuss the optimal *ex situ* conservation strategies and the relevance for the European wide strategies (WP3)
Month 24	M4.2 Collection, freezing and storage completed

Deliverables

	WP3 Ex situ conservation Lead - P2+All Ps	WP4 Genebanking Lead - P2+All Ps
Month 4	D3.1 Questionnaire to identify collection and cryopreservation strategies and practical methods	
Month 7	D3.2 Results of the questionnaire	
Month 9		
Month 12		
Month 13		D4.1 List of breeds per country that have to be preserved in genebanks
Month 14		D4.2 Description of the optimal ex situ conservation strategy for each country

Action Points

Discussions need to be conducted with Government Veterinarians to clarify the constraints on the issues surrounding semen collection, storage and use which result from specific diseases. There is a need to determine if one rule should apply across Europe EU.

Each partner country needs to determine the practicalities and the optimal method for semen collection giving consideration to the ease of collection and storage.

Each partner country is to explore the possibility of experimental studies relating to possible epididymal collection of semen and to the comparative methods for freezing semen.

Consideration should be given to the possibility of developing recommendations for the requirements of a dataset that can assess the quality of what is stored in a genebank that may inform EFABIS on additional fields for their database
Examples included; the method of collection, potential conception rate achievable, an effectiveness score e.g. not recommended for cervical insemination.

Partner countries will identify/prioritise 2 breeds, based on the WP1 socio economic data and the additional criteria developed, by week 4 of June, selection to be finalised by end of June.

Work Package 5

The aim of work package 5 is the creation of a website, www.heritagesheep.info for HSBs that links to and complements existing databases.

Objectives

1. Establish a web-based, permanent and widely accessible European network of national inventories of HSBs

2. Provide a database structure for combining all the information for the assessment of threats for HSBs, including information on disease, displacement, depopulation, genetic erosion, market demands, together with information on *in situ* and *ex situ* conservation strategies, semen collections, storage sites etc.

3. Provide the environment for the presentation of results, using GIS analysis, provide the tools to facilitate a true interactive collaboration among the different partners and provide the electronic means for outreach and dissemination to stakeholders and the public

Powerpoint presentation by CL

The website informs on project objectives, Workpackages, The breeds and relevant information to the general public and was demonstrated in the presentation.

The database has two parts
WP1 : information on the threats to HSBs and also on the general description
WP3 : information on the cryoconservation.
All data are entered in the database.
The next step is to develop the forms and queries for uploading the information to the website.

Discussion on developing the restricted part of the website led to the conclusion that it was not a necessary feature of the website.

Further work includes pages for the display of items relating to the mmanagement of the project, Questionnaires, Protocols and Meeting reports

Future developments include

May – June	Uploading of the database
	Design queries/forms for the website
	Development of the restricted area
July	Go Online
September – October	Geographical representation of the results
	Risk areas

Dissemination of the results to raise the awareness of HSB's through adding a news section was considered in order to inform policy makers, administration, groups of breeders, NGOs, general public etc.
Further links with other websites are to be developed including links with conferences and meetings of related organizations.

The future maintenance of the website beyond the GENRES project was considered and a proposal was put forward for the website to be transferred to the ERFP.

Milestones

Month 06	M4.1 Database facilities for the monitoring of the progress of the project in place
Month 06	M4.2 Database designed
Month 12	M4.3 Database tested using test data; real data entered

Deliverables

	WP5 Website/databases Lead - P3 +All Ps
Month 12	D5.1 Tested and validated databases

Action points

CL to hold discussions with ERFP on future maintenance of Heritage sheep website.

All partners to submit the general breed descriptions in their own language (in addition to the descriptions already provided in English).

CM to upload the descriptions in native language onto the website.

EU Commission presentation

The powerpoint presentation provided by Olivier Diana was circulated to all partners.
OD had emphasised to AC in telephone conversations the importance of ensuring that financial reports were submitted in the prescribed format. Any queries relating to the financial aspects could be discussed with him directly.

First annual report

DC reviewed the milestones and deliverable for each of the work packages

Action points

DC to update annual report and circulate between partners for finalising within 2 weeks.

Any proposed changes to the deliverables need to be addressed immediately and proposed changes circulated to all participants for consideration as changes can only be made within a short time frame.

Presentation of EU GENRES 012 (870/04) AGRI-2006-0264 by Spike Joost Hiemstra

Towards (self) sustainability of European Regional Cattle breeds (EURECA) an integrative approach using case studies.

Background
Replacement of local/regional, often ‘dual purpose’ cattle breeds by specialized, international breeds
How to maintain these breeds, the associated agro-ecosystems and our cultural heritage ?
Successfull strategies for conservation, development and use of such ‘regional/local’ cattle breeds
Ten partners from 10 European countries participate in this project.

The major objectives of this project proposal are:

- To better understand the factors affecting demographic dynamics of local/regional cattle breeds

- To assess status and organisation of existing cryopreservation programmes, related to those cattle breeds
- To review available methodologies and software which are useful supportive tools for genetic management
- To construct a map of breed development perspectives and to suggest guidelines and actions for successful programmes
- To assist in development of national or cross-border breed strategies towards selfsustainability and a higher profitability
- To exchange state of the art knowledge and 'good practises' on conservation and use of local/regional cattle breeds

EURECA is aimed at the improvement of *ex situ* and *in situ* conservation and breed development programmes for European, regional/local cattle breeds with the objective to achieve self-sustainability of the breeds. Status of current activities and programmes will be assessed largely in by case studies. Detailed breed case analysis will result in a better understanding of the factors affecting the rate of success of current activities and practises.
After a detailed assessment of breed cases and cryopreservation programmes, the outcome will be used to assess a larger number of breed cases and *in situ* and *ex situ* programmes.

Some similarities exist between the cattle and sheep projects for example

WP1 - Detailed breed studies
allow the assessment of individual breeds and the analysis of breeds across countries.

WP2 - Assessment of National cryopreservation
History and major developments, general organisation of cryoconservation programs/AI, major policies and their objectives
Complete inventory of collections, and analysis by breed/group of breeds for local cattle breeds

Development of website (+ teamsite) http://www.regionalcattlebreeds.eu

However WP4 - Inventory of available methodologies, tools, software for genetic management/breeding is more specifically related to cattle breeding programmes.

Any other business

A presentation is to be given to the ERFP meeting in Vilnius on 23rd August 2008.
In addition a poster will be presented to the EAAP conference in Vilnius commencing 24th August 2008

It was also proposed that a third HSRG meeting be held at a date to be determined prior to the commencement of semen collections.

Dianna Bowles closed the meeting and thanked the attendees for their participation in an interesting a productive meeting.

Date of next meeting

Skype meeting proposed as 11th June 2008