منظمة الأغذية والزراعة للأمم المتحدة | 联合国粮食及农业组织 | Food and Agriculture Organization of the United Nations | Organisation des Nations Unies pour l'alimentation et l'agriculture | Продовольственная и сельскохозяйственная организация Объединенных Наций | Organización de las Naciones Unidas para la Alimentación y la Agricultura

Country report

supporting the preparation of *The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture*, including sector-specific data contributing to *The State of the World's Biodiversity for Food and Agriculture* - 2013 -

Country: Ukraine

I. EXECUTIVE SUMMARY

Please provide an executive summary (not more than two pages) that will allow national and international stakeholders to gain a quick overview of the content of the country report.
The executive summary should contain information on:

- key trends and driving forces affecting animal genetic resources management in your country;
- strengths, weaknesses and gaps in capacity to manage animal genetic resources in your country;
- key constraints and challenges with respect to animal genetic resources management in your country;
- priorities and strategic directions for future action (focusing particularly on the next ten years).

For the last decade there can be found out several actual problems of agricultural market development. Particularly, decrease of cattle, sheep and goats' number (for data of principal statistical body of Ukraine - Derzhcomstat) on 1.1.2004 - 7712,1 th. of cattle heads, out of which 4283,5 th. of cow heads and on 1.1.2013 accordingly 4645,9 th. of heads, out of which 2554,3 th. of cows. However, the increase of pigs was stated - 7321,5 th. of heads in 2004 against 7576,7 th. of heads in 2013, and poultry - accordingly 142,4 mln.heads in 2004 against 214,1 mln. in 2013.
Amongst other actual problems can be found out low quality of dairy products and consumer's non-confidence to producer, comparatively high prices for market products, that leads to non-correspondence of products' consumption for one person to norms, stated by WOPH (though in 2011 meat consumption constituted 80 % (64,0 kg) against 63,2 % (50,6 kg) in 2008), absence of stability and state support for agrarian producers, unpredicted price policy, undeveloped export potential, and, as result, absence of sales market.

Cattle number decrease and naturally beef and milk production decrease (13709,5 th.tonnes in 2004 against 11377,6 th.tonnes in 2012) is caused, firstly, by economic reasons, particularly, unattractiveness for investors of long period till profit getting, so they should invest into at least three first years into unprofitable business. Instead of this chicken meat production was increased, and prices for it stayed almost stable and in middle range compared to prices for beef and veal, that increased more than twice. So, for the last 10 years chicken meat production increased from 11% to 46%, but beef production was reduced from 45% to 18%. Cattle reduction resulted in reduction of production of milk and dairy products. Eggs production increased, as chicken production increased.
Analysis of production and consumption of meat, milk and eggs showed, that in Ukraine production of these products exceeds their consumption, and import of meat into Ukraine (210 th. tonnes in 2011) exceeds export (65 th.tonnes), but milk and eggs, vice versa - export is larger, than import.

Besides that, it should be mentioned, that major amount of milk production within 80% are concentrated in private peasant farms, 89,4% of which keeps 1-2 cows. On 2010 data, out of 7,7 th. enterprises, which keeps dairy cows, 2,8 th. enterprises, or 36,5% - keep from 100 to 500 cows and only 283 enterprises, or 3,7% - large industrial farms, which have

500 and more cows, and 31 enterprises out of them keep 1000 and more cows.

Priority of agro-industrial complex development and social development of villages in national economics are noted in Law of Ukraine "About major basis of state agrarian policy for the period till 2015" (2005). Here are shortly these basis of national policy for the development of agrarian complex:

- Development of agrarian and food sells markets to meet people demand for food, raw materials for food industry and agrarian products processing, facilitating of inner market protection and promotion of agrarian production and food to external market;
- Improving of system of state impact, effective compilation of common state and regional policy in agrarian sector;
- Complex development of agrarian areas, improving of social protection and level of living rate of rural people;
- State support of agrarian risks' insurance, development of long-term crediting of innovative projects;
- Introducing of subsidies from state and local budgets for keeping of female animals, increasing of financial support of farms, which are situated in regions with unfavourable for agrarian business natural conditions;
- Re-equipping of agrarian enterprises.

It's a pity, but majority of planned points stayed formal even till now. But, accordingly to "Procedure of money use, which are presupposed in state budget for implementation of selection program at animal-breeding and poultry-breeding at the enterprises of agro-industrial complex", money for keeping of cattle of commercial or local breeds in the case of presenting of documents by a farm for the competition, was reimbursed from state budget (about 180 Euros for 1 head of commercial breeds and 200 Euros for 1head of local breed). However, last two years competition was not held and farms did not get money for local breeds conservation.

II. DATA FOR UPDATING THE PARTS AND SECTIONS OF *THE STATE OF THE WORLD'S ANIMAL GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

FLOWS OF ANIMAL GENETIC RESOURCES

1. Studies of gene flow in animal genetic resources have generally concluded that most gene flow occurs either between developed countries or from developed countries to developing countries. Does this correspond to the pattern of gene flow into and out of your country?

For developed countries, exceptions to the usual pattern would include significant imports of genetic resources from developing countries. For developing countries, exceptions would include significant exports of genetic resources to developed countries, and/or significant imports and/or exports of genetic resources to/from other developing countries.

- (●) yes
- ( ) no
- ( ) yes but with some significant exceptions

1.1. If you answer “no” or “yes but with some significant exceptions”, please provide further details. Please include information on: which species are exceptions and which regions of the world are the sources and/or destinations of the respective genetic material.

2. Have there been any significant changes in patterns of geneflow in and out of your country in the last ten years?

- ( ) yes
- (●) no

2.1. If yes, please indicate whether this view is based on quantified data (e.g. import and export statistics collected by the government).

- ( ) yes
- ( ) no

2.2. If yes, please provide references (preferably including web links) (if relevant, indicate which types of animal genetic resources are covered).

2.3. Please also describe the changes, indicating the species involved, the direction of the changes, and the regions of the world to and from which the patterns of imports and exports have changed.

3. Please describe how the patterns of geneflow described under Questions 1 and 2 affect animal genetic resources and their management in your country.

Note: Please answer this question even if the pattern of geneflow into and out of your country corresponds to the "usual" pattern described in the first sentence of Question 1 and/or has not changed significantly in the last ten years.

During last 50 years intensive substitution of local breeds' gene pool is observed. The absorption of valuable genetic material is made. In cattle breeding this absorption is made mainly by Holstein even till 100 %. Holseinization in not always satisfied conditions caused decrease of reproductive ability of crossed breeds and lose of valuable products of local breeds.

LIVESTOCK SECTOR TRENDS

4. Please indicate the extent to which the following trends or drivers of change have affected or are predicted to affect animal genetic resources and their management in your country and describe these effects.

Note: Relevant impacts on animal genetic resources and their management might include, for example, changes in the type of animal genetic resources kept (e.g. different breeds or species), changes in the uses to which animal genetic resources are put, changes in the geographical distribution of different types of animal genetic resources, increases or decreases in the number of breeds at risk of extinction, changes in the objectives of breeding programmes, changes in the number or type of conservation programmes being implemented, etc. In the text sections, please briefly describe the changes. If possible, provide some concrete examples of the challenges or opportunities presented by the respective drivers and the actions taken to address these challenges or opportunities. If relevant, you may also indicate why a given driver is not affecting animal genetic resources and their management in your country. For a general discussion of drivers of change, please see The State of the World's Animal Genetic Resources for Food and Agriculture (Part 2, Section A) (http://www.fao.org/docrep/010/a1250e/a1250e00.htm).

Drivers of change	Impact on animal genetic resources and their management over last ten years	Future impact on animal genetic resources and their management (predicted for the next ten years)	Describe the effects on animal genetic resources and their management
Changing demand for livestock products (quantity)	high	medium	Increasing of animal-breeding products' demand resulted in need to find ways of production increasing and crossing with more productive breeds, which had moreover higher food conversion.
Changing demand for livestock products (quality)	low	high	Decreasing of products' quality due to increasing of its quantity became to disturb people, that's why changes in this field should appear.
Changes in marketing infrastructure and access	high	medium	Chasing for quick profit at the access to possibility to impact at priorities changes caused shifting of accents from quality to quantity. Now quantity has higher meaning for investors and farmers, that leads to refusal from one or another breed or even branch in certain cases.

Drivers of change	Impact on animal genetic resources and their management over last ten years	Future impact on animal genetic resources and their management (predicted for the next ten years)	Describe the effects on animal genetic resources and their management
Changes in retailing	medium	medium	It is exactly the retail market that attract consumer with its possible better quality (original production), than supermarket products. In certain cases it is private farms which saved representatives of authentic autohtonous breeds and gives better production.
Changes in international trade in animal products (imports)	medium	low	Refusal from own genetic resources improving when imported not expensive production is available.
Changes in international trade in animal products (exports)	medium	high	High international standards on the one hand is a stimulus for own AnGR improving, on the other - in certain cases - reason for the refusal to keep AnGR having no possibility and labour-consuming of their improving.
Climatic changes	medium	high	Climatic changes can be reason for the returning to local breeds keeping with their high adaptability to environmental conditions.
Degradation or improvement of grazing land	high	high	Changes in pastures' melioration can have as threats for animal keeping, so advantages: pasture degradation can result in addressing of public attention to local, adapted to available resources, breeds, when improving of pastures can facilitate commercial breeds spreading (at low awareness about local breeds value) and "improving" of local breeds.
Loss of, or loss of access to, grazing land and other natural resources	medium	high	Results are the same as in previous case.
Economic, livelihood or lifestyle factors affecting the popularity of livestock keeping	low	high	History proves possible critical turns at popularity of one or another breed at certain people group life style or views change.
Replacement of livestock functions	high	medium	Substitution of horse draft power with car transport caused certain horse breeds disappearance at certain world regions. At high awareness of AnGR value such substitution can't impact significantly at their number.
Changing cultural roles of livestock	low	high	Increasing of culture role of animals can become one of the key factors of this or that breed conservation.
Changes in technology	high	high	Changes in management technologies can lead to breed expansion or disappearance. It is higher adaptability of Holstein breed to machine milking with higher production, that lead to its reigning state.
Policy factors	high	high	State support of local breeds will facilitate to their conservation, and vice versa.

Drivers of change	Impact on animal genetic resources and their management over last ten years	Future impact on animal genetic resources and their management (predicted for the next ten years)	Describe the effects on animal genetic resources and their management
Disease epidemics	medium	high	Significant impact of diseases at certain genetic resources, particularly, at their popularity at the world market.

OVERVIEW OF ANIMAL GENETIC RESOURCES

5. Please provide the number of locally adapted and exotic breeds kept in your country.

Data on the number of breeds is needed in order to calculate the percentage of breeds subject to the various management activities that are covered in this questionnaire. In line with the request of the Commission on Genetic Resources for Food and Agriculture at its Fourteenth Regular Session (CGRFA-14/13/Report, paragraph 31), FAO will implement the "locally adapted" vs. "exotic breed" classification system in the Domestic Animal Diversity Information System (DAD-IS). Once countries have fully updated their breed lists and classified all breeds in DAD-IS, it will be possible to use these data to obtain the numbers of breeds in each category.

Species	Locally adapted breeds	Exotic breeds
Cattle (specialized dairy)	5	2
Cattle (specialized beef)	6	7
Cattle (multipurpose)	5	6
Sheep	10	10
Goats	2	7
Pigs	9	8
Chickens	29	30
Ducks	12	13
Geese	7	75
Horses	7	10
Guinea fowls	1	3
Quails	2	10
Pigeons	1	11
Ostriches	0	3
Rabbits	7	16

CHARACTERIZATION

To provide further details of your country's activities in the field of characterization, surveying and monitoring, please go to Strategic Priority Area 1 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

6. Please provide an overview of the current state of characterization in your country by indicating the extent to which the activities shown in the following table have been carried out.

Note: Please focus on characterization studies that have been conducted within the last ten years (baseline surveys of population size may have been conducted in the more distant past). Recall that some types of characterization study on your country's breeds may have been conducted outside your country. For the first two columns, please insert the number of breeds; for columns 3 to 8 please choose one of the following categories: none; low (approximately <33%); medium (approximately 33–67%); high (approximately >67%).

Species	Baseline survey of population size	Regular monitoring of population size	Phenotypic characterization	Molecular genetic diversity studies – within breed	Genetic diversity studies based on pedigree	Molecular genetic diversity studies – between breed	Genetic variance component estimation	Molecular genetic evaluation
Cattle (specialized dairy)	7	7	high	medium	high	medium	medium	high
Cattle (specialized beef)	13	13	high	medium	medium	medium	low	medium
Cattle (multipurpose)	5	5	high	medium	medium	medium	low	low
Sheep	12	12	high	medium	medium	low	low	low
Goats	1	1	medium	low	none	none	none	low
Pigs	17	17	high	high	high	high	low	high
Chickens	16	16	high	medium	none	low	low	medium
Horses	13	13	high	medium	high	low	high	medium

INSTITUTIONS AND STAKEHOLDERS

To provide further details of your country's activities in the field of institutions and stakeholders, please go to Strategic Priority Area 4 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

7. Please indicate the state of your country's capacities and provisions in the following areas of animal genetic resources management.

	Score
Education	high
Research	medium
Knowledge	medium
Awareness	medium
Infrastructure	high
Stakeholder participation	low
Policies	medium
Policy implementation	low

	Score
Laws	medium
Implementation of laws	low

8. Please provide further information regarding your country's capacities in each of the above-mentioned areas of management. If relevant, please indicate what obstacles or constraints your country faces in each of these areas and what needs to be done to address these constraints. You may also provide information on any particular successes achieved in your country in any of these areas and on the reasons for these successes.

	Description
Education	Almost in each regional centre there is agrarian institute on specialist preparing. But, sometimes the level of material-and-technical base, preparing and low level of this branch specialists' salary after getting education don't allow to get set aims and potential to full extent. Each institute has its own library (electronical and printed).
Research	Obstacle is not always suitable for new researches equipment, though, there is certain, rather powerful laboratories (in Kiev, Kharkiv), where there is possibility to hold leading researches.
Knowledge	Rather high.
Awareness	Not rather high concerning value of local breeds and not always high value of commercial breeds and sometimes even harm of crossing with latter ones.
Infrastructure	Rather developed, but not always helpful.
Stakeholder participation	It began to widen, but not enough yet.
Policies	Last time there is observed reduction of capacity and state financial support for research institutes.
Policy implementation	Some time there was financial support for farms, breeding main farm breeds.
Laws	There is forming and correction of documents which are necessary for sustainable use of AnGR.
Implementation of laws	Partially, not appropriately.

9. What steps have been taken in your country to engage or empower the various stakeholders in animal genetic resources management (e.g. establishment of livestock keepers' organizations, development of biocultural community protocols)?

Note: Biocultural community protocol: a document that is developed after a community undertakes a consultative process to outline their core cultural and spiritual values and customary laws relating to their traditional knowledge and resources. For a discussion of the potential role of biocultural community protocols in the conservation of animal genetic resources, please see the guidelines In vivo conservation of animal genetic resources (http://www.fao.org/docrep/018/i3327e/i3327e.pdf).

Ministry of Agrarian Policy and National Academy of Agrarian Sciences are conducting yearly exhibitions, where research institute specialists, farmers and other stakeholders are invited. Farms at such exhibitions can show animals breed, and specialists can propose their help in breeding work in the farm. Besides that, research institute specialists go to farms with proposals and consultative help. Seminars are taken at the exhibitions for all stakeholders in different agrarian branches. NGO also takes part in the work of such exhibitions.
Research institutes have network of research stations (farms), where it is possible to lead researches, implement innovations and improve breeds. At the base of this research stations workshops are led, sometimes with international specialists' participation.
Last years there were discussed issue of active and helpful breed associations creation and their staff was formed, including specialists of all stakeholder institutions (Ministry of Agrarian Policy, National Academy of Agrarian Sciences, research institutes and leading farms' specialists).
Catalogues of proven bulls also is formed in the Ministry of Agrarian Policy with participation of research institute specialists, who previously agrees all contradicting questions with leaders and farms' specialists.

BREEDING PROGRAMMES

Note: Breeding programmes: systematic and structured programmes for changing the genetic composition of a population towards a defined breeding goal (objective) to realize genetic gain (response to selection), based on objective performance criteria. Breeding programmes typically contain the following elements: definition of breeding goal; identification of animals; performance testing; estimation of breeding values; selection; mating; genetic gain and transfer of genetic gain. Breeding programmes are usually operated either by a group of livestock breeders organized in a breeders' association, community-based entity or other collective body; by a large commercial breeding company; or by the government.

To provide further details of your country's activities in the field of breeding programmes, please go to Strategic Priority Area 2 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

10. Who operates breeding programmes in your country?

Note: the objective of this question is to identify which stakeholders lead or organize the breeding programmes that exist in your country. Stakeholder participation in the implementation of the various elements of breeding programmes is covered under Question 15. If you wish to provide further information on the activities of the various stakeholder groups (including collaborative activities on an international scale), please provide it in the text section of Question 15.

Species	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	Non-governmental organizations	Others
Cattle (specialized dairy)	yes	no	no	yes	no	yes	no
Cattle (specialized beef)	yes	no	no	yes	no	yes	no
Cattle (multipurpose)	yes	yes	no	yes	no	no	no
Sheep	yes	no	no	no	no	yes	no
Goats	no	yes	no	no	no	yes	yes
Pigs	yes	no	no	yes	no	yes	no
Chickens	yes	no	no	yes	yes	yes	no
Horses	yes	no	yes	yes	yes	yes	yes
Geese	yes	no	no	yes	no	yes	no
Ducks	yes	no	no	yes	no	yes	no
Rabbits	yes	no	yes	no	no	yes	no
Ostriches	no	no	yes	no	no	no	yes
Turkeys	yes	no	no	yes	yes	yes	no

10.1. If you choose the option “others”, please indicate what kind of operator(s) this refers to.

The small, local private companies

11. For how many breeds in your country are the following activities undertaken?

Note: Please do not include activities that are only undertaken for experimental purposes, i.e. include only activities that directly serve or involve livestock keepers. However, please include activities even if they do not at present form part of a breeding programme. The intention is to obtain an indication of whether the “building blocks” of a breeding programme are available or being developed in your country. Loc = Locally adapted breeds; Ex = Exotic breeds.

Species	Tools															
	Animal identification		Breeding goal defined		Performance recording		Pedigree recording		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation (by maximizing effective population size or minimizing rate of inbreeding)		Artificial insemination	
	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	5	2	5	2	5	2	5	2	5	2	5	2	2	1	5	2
Cattle (specialized beef)	6	7	6	7	6	7	6	7	6	7	5	5	5	6	6	7
Cattle (multipurpose)	5	6	5	6	5	6	5	6	5	6	2	4	4	6	5	6
Horses	7	10	7	10	7	10	7	10	7	10	7	10	5	10	7	10
Pigs	9	8	9	8	9	8	9	8	9	8	8	1	5	5	8	4
Sheep	10	10	10	10	10	10	10	10	10	10	2	0	6	7	5	5
Goats	0	9	0	9	0	7	0	5	0	3	0	3	0	4	0	3
Chickens	0	0	13	72	13	51	13	51	13	39	7	11	13	65	5	3
Geese	0	0	6	16	3	13	3	11	3	12	2	5	6	15	2	5
Ducks	0	0	4	21	4	13	4	11	4	13	3	6	4	20	2	4
Turkeys	0	0	2	13	2	12	2	11	1	1	1	1	2	11	1	1
Ostriches	0	0	0	3	0	3	0	3	0	1	0	1	0	3	0	1
Rabbits	0	0	5	18	5	12	5	10	5	12	0	0	5	14	3	5

12. Please indicate how many of the breeds in your country are subject to breeding programmes applying the following breeding methods.

Note: Loc = Locally adapted breeds; Ex = Exotic breeds.

Species	Breeding method			
	Straight/pure-breeding only		Straight/pure-breeding and cross-breeding	
	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	1	2	4	0
Cattle (specialized beef)	4	4	2	3
Cattle (multipurpose)	0	3	5	3
Sheep	7	6	3	4
Pigs	7	6	2	4
Horses	3	4	4	6
Goats	0	3	0	6
Chickens	13	39	0	33
Geese	1	8	5	8
Ducks	4	9	0	12
Turkeys	1	1	1	12
Ostriches	0	3	0	3
Rabbits	3	8	2	10

13. Please indicate the state of research and training in the field of animal breeding in your country.

Species	Training	Research
Cattle (specialized dairy)	medium	medium
Cattle (specialized beef)	low	medium
Cattle (multipurpose)	low	medium
Sheep	low	medium
Goats	low	low
Pigs	medium	high
Chickens	medium	medium
Geese	medium	medium
Ducks	medium	medium
Turkeys	medium	low
Ostriches	low	low
Rabbits	medium	medium
Horses	high	high

14. Please indicate the extent to which livestock keepers in your country are organized for the purposes of animal breeding.

Species	Organization of livestock keepers
Cattle (specialized dairy)	medium
Cattle (specialized beef)	none
Cattle (multipurpose)	low

Species	Organization of livestock keepers
Sheep	medium
Goats	none
Pigs	low
Chickens	none
Geese	medium
Ducks	medium
Turkeys	low
Ostriches	none
Rabbits	low
Horses	medium

15. Please indicate the level of stakeholder involvement in the various elements of breeding programmes in your country.

Note: If your country has different types of breeding programme, the level of involvement of the various stakeholders may vary from one type of programme to another. In answering this question please try to indicate the overall degree of involvement of the various stakeholder groups.

Cattle (specialized dairy)	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	low	high	low	low	low	none	low	none
Animal identification	medium	none	none	none	high	none	none	none
Recording	low	high	none	high	none	none	none	none
Provision of artificial insemination services	low	none	none	high	medium	none	none	none
Genetic evaluation	medium	low	none	none	medium	none	high	none

15.1. If you choose the option "others", please indicate what kind of operator(s) this refers to.

15.2. Please provide further information on the roles that the stakeholders identified in the table play in the implementation of the various activities. If relevant, please also provide further information on the organizational roles played by the stakeholders identified in Question 10.

The most significant role in breeding goals setting has research institutes, but which consider farmers' opinion, their organizations and market demands. Animals' identification and registration is done by Agency of identification and registration with staff of agents in identification in each region. Obligatory data collection on animals' recording and forming of Common State Breeding Register till some times before was done by National Association on breeding issues in animal-breeding, now - by certain department of Institute of Animal-Breeding and Genetics. Artificial insemination service is done by technique of artificial insemination, who is engaged in the staff of farm, which consulted with main zootechnic about which sperm should be dams inseminated. Genetic evaluation is done either by research institutes' laboratories or independent non-goverment laboratories in genetic evaluation, which have higher possibility in its spending.

16. Does your country implement any policies or programmes aimed at supporting breeding programmes or influencing their objectives?

Species	Policies or programmes
Cattle (specialized dairy)	yes
Cattle (specialized beef)	yes
Cattle (multipurpose)	yes
Sheep	yes
Goats	no
Pigs	yes
Chickens	yes
Ducks	yes
Geese	yes
Horses	yes
Quails	yes
Rabbits	yes
Turkeys	yes

16.1. Please describe these policies or programmes, indicating whether or not they include any measures specifically aimed at supporting breeding programmes for locally adapted breeds or any measures specifically aimed at supporting breeding programmes for exotic breeds (including breed-replacement programmes). Please indicate whether different types of programme are promoted in different production systems (and describe the differences).

Species	Description of policies or programmes
Cattle (specialized dairy)	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Cattle (specialized beef)	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Cattle (multipurpose)	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well. Last time is noted special attention to local breeds, but their funding is not done last two years.
Sheep	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Goats	Goat- and Sheep-keepers Association consults goat- and sheep-breeds, when they need it.

Species	Description of policies or programmes
Pigs	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Chickens	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Ducks	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Geese	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Horses	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Quails	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Rabbits	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.
Turkeys	Funding by National Academy of Agrarian Sciences of breeding programs compilation by research institutes. In some cases, business trips to implement this breeding programs are paid as well.

17. Please describe the consequences of your country's breeding policies and programmes, or lack of breeding policies and programmes, for your country's animal genetic resources and their management.

Species	Description of consequences
Cattle (specialized dairy)	Institutes coordinate the implementation of developed breeding programmes and consult breeders. Financial facilitation from Ministry of Agrarian Policy for farmers, keeping farm animals contributed to animal-breeding development at these farms. Financial assistance for farms, keeping local breeds was a bit higher.
Cattle (specialized beef)	Institutes coordinate the implementation of developed breeding programmes and consult breeders. Financial facilitation from Ministry of Agrarian Policy for farmers, keeping farm animals contributed to animal-breeding development at these farms. Financial assistance for farms, keeping local breeds was a bit higher.
Cattle (multipurpose)	Institutes coordinate the implementation of developed breeding programmes and consult breeders. Financial facilitation from Ministry of Agrarian Policy for farmers, keeping farm animals contributed to animal-breeding development at these farms. Financial assistance for farms, keeping local breeds was a bit higher.
Sheep	Institutes coordinate the implementation of developed breeding programmes and consult breeders. Financial facilitation from Ministry of Agrarian Policy for farmers, keeping farm animals contributed to animal-breeding development at these farms. Financial assistance for farms, keeping local breeds was a bit higher.
Goats	Absence of selection programmes, accepted at national level, leads to insufficient management of this AnGR.
Pigs	Institutes coordinate the implementation of developed breeding programmes and consult breeders. Financial facilitation from Ministry of Agrarian Policy for farmers, keeping farm animals contributed to animal-breeding development at these farms. Financial assistance for farms, keeping local breeds was a bit higher.

Species	Description of consequences
Chickens	Institutes coordinate the implementation of developed breeding programmes and consult breeders. Financial facilitation from Ministry of Agrarian Policy for farmers, keeping farm animals contributed to animal-breeding development at these farms. Financial assistance for farms, keeping local breeds was a bit higher.

18. Please describe the main constraints to the implementation of breeding programmes in your country and what needs to be done to address these constraints. You may also provide information on any particular successes achieved in your country with respect to the establishment and operation of breeding programmes and on the factors that have contributed to these successes.

The major obstacle for policy of support implementation is imperfect infrastructure. Farms' financial support contributed to animals' maintenance conditions improving. Last 30-40 years development and realization of detailed selection programmes of different farm animals' breeds contributed to the next number of new-created in Ukraine breeds (innerbreed types): dairy cattle - 4 (10), beef cattle - 4 (4), sheep - 2 (11), pigs - 3 (6), horses - 2, chicken - 8, ducks - 4, geese - 2, turkeys - 1, minks - 1, carp - 3 (6), bees - 3 (7) and silkworm - 44 (20).

19. Please describe future objectives, priorities and plans for the establishment or further development of breeding programmes in your country.

Species	Description of future objectives, priorities and plans
Cattle (specialized dairy)	To improve and strengthen the national policy and promising scientific researches in the field of sustainable use and development of AnGR. To improve the correctness of population data. To breed local breeds without any cross-breeding, at least at special reservations.
Cattle (specialized beef)	To improve and strengthen the national policy and promising scientific researches in the field of sustainable use and development of AnGR. To improve the correctness of population data.
Cattle (multipurpose)	To improve and strengthen the national policy and promising scientific researches in the field of sustainable use and development of AnGR. To breed local breeds by pure-breeding methods.
Sheep	To improve and strengthen the national policy and promising scientific researches in the field of sustainable use and development of AnGR. To put more attention to this species.
Goats	To put more attention to this species in researches and to their sustainable use.
Pigs	To improve and strengthen the national policy and promising scientific researches in the field of sustainable use and development of AnGR.
Chickens	To improve and strengthen the national policy and promising scientific researches in the field of sustainable use and development of AnGR.

CONSERVATION

To provide further details of your country's activities in the field of conservation, please go to Strategic Priority Area 3 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

20. Please provide an indication of the extent to which your country's breeds are covered by conservation programmes.

Please focus on at-risk breeds and breeds for which there are serious grounds for concern about their potential to fall into the at-risk category in the near future. Countries should not reduce their scores because of a lack of conservation programmes for breeds that are clearly not at risk. The main purpose of this question is to obtain an indication of the extent to which your country's conservation programmes meet the objective of protecting breeds from extinction. If your country has no official national criteria for classifying breed risk status or lacks the relevant data for identifying which breeds are at risk, please base your answers on estimations. Please also note that Question 8 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources – 2007 to 2013" (below) requests countries to provide information on the criteria they use to assess the risk status of animal genetic resources.

Note: n/a = no programmes implemented because all breeds of this species present in the country are secure.

Species	In situ conservation	Ex situ in vivo conservation	Ex situ in vitro conservation
Cattle (specialized dairy)	medium	none	medium
Cattle (specialized beef)	medium	low	medium
Cattle (multipurpose)	low	none	low
Sheep	medium	none	low
Goats	none	none	none
Pigs	medium	none	low
Chickens	medium	low	low

21. Does your country use formal approaches to prioritize breeds for conservation?

- (•) yes
- ( ) no

21.1. If so, which of the following factors are considered?

Note: See Sections 2 and 3 of the FAO guidelines In vivo conservation of animal genetic resources (http://www.fao.org/docrep/018/i3327e/i3327e.pdf).

	Considered in formal prioritization approaches
Risk of extinction	yes
Genetic uniqueness	yes
Genetic variation within the breed	yes
Production traits	no
Non-production traits	yes
Cultural or historical importance	yes
Probability of success	no

22. Please indicate which of the following methods are used as elements of in situ conservation programmes in your country and which operators are managing them.

Note: Operators: the sector(s) that initiate(s) and manage(s) the respective activities. If both sectors undertake the respective activity, please answer "yes" in both rows. Please answer "yes" if the respective sector only works with some of the species targeted. If necessary, details of which sector addresses which species can be provided in the textual response. Information on what kinds of public- or private-sector organizations undertake the activities can also be provided, if necessary, in the textual response. Species targeted: Please answer "yes" if there are any such activities targeting the respective species, whether they are undertaken by the public sector, private sector or both.

Operators / Species targeted	Promotion of niche marketing or other market differentiation	Community-based conservation programmes	Incentive or subsidy payment schemes for keeping at-risk breeds	Development of biocultural community protocols	Recognition/award programmes for breeders	Conservation breeding programmes	Selection programmes for increased production or productivity in at-risk breeds	Promotion of at-risk breeds as tourist attractions	Use of at-risk breeds in the management of wildlife habitats and landscapes	Promotion of breed-related cultural activities	Extension programmes to improve the management of at-risk breeds	Awareness-raising activities providing information on the potential of specific at-risk breeds
Public sector	no	yes	yes	no	yes	yes	yes	no	yes	yes	yes	yes
Private sector	yes	yes	no	yes	yes	no	no	yes	yes	yes	no	no
Cattle (specialized dairy)	no	yes	yes	no	yes	yes	yes	no	no	yes	no	no
Cattle (specialized beef)	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes
Cattle (multipurpose)	no	yes	yes	no	yes	yes	yes	no	no	yes	yes	no
Sheep	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Goats	yes	no	no	no	no	no	no	no	no	no	no	no
Pigs	no	yes	yes	no	yes	yes	no	no	no	yes	no	no
Chickens	yes	no	no	no	no	yes	no	no	no	yes	yes	yes
Horses	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes

22.1. Please provide further details of the activities recorded in the table and any other in situ conservation activities or programmes being implemented in your country.

It was developed the algorithm and stated main parameters of population structures for different variants (totally 175, from 3 to 6 for each species) of safe protection of micro- and mini-populations of 35 species of farm animals with *in situ* method and implementation of selection-and-genetic monitoring of genetic resources and forming of national informational system of farm animal biodiversity (Guziev I.V., 2007, 2012). It was found tools of tactical arsenal of selection approaches to non-admission of uncontrolled increasing of inbreeding level at closed of small amount populations (Guziev I.V., 2007).
Expeditionary survey in Danubian biosphere reservation recently found existence of 3 indigenous original populations of Lipovanian: horses, cattle and bees. Besides that, there is leading work on in situ conservation of Ukrainian (Transcarpathian) buffalo population.

23. Does your country have an operational in vitro gene bank for animal genetic resources?

In vitro gene bank: a collection of documented cryoconserved genetic material, primarily stored for the purpose of medium- to long-term conservation, with agreed protocols and procedures for acquisition and use of the genetic material.

- (●) yes
- ( ) no

23.1. If your country has no in vitro gene bank for animal genetic resources, does it have plans to develop one?

- ( ) yes

○ no

23.2. If yes, please describe the plans.

Increasing till maximum capacity of species and breeds of farm animals, which are at-risk of extinction.

24. If your country has an in vitro gene bank for animal genetic resources, please indicate what kind of material is stored there.

	Stored in national genebank
Semen	yes
Embryos	yes
Oocytes	no
Somatic cells (tissue or cultured cells)	yes
Isolated DNA	yes

25. If your country has an in vitro gene bank for animal genetic resources, please complete the following table.

Species	Number of breeds for which material is stored	Number of breeds for which sufficient material is stored	Does the collection include material from not-at-risk breeds?	Have any extinct populations been reconstituted using material from the gene bank?	Have the gene bank collections been used to introduce genetic variability into an in situ population?	Have the gene bank collections been used to introduce genetic variability into an ex situ population?	Do livestock keepers or breeders' associations participate in the planning of the gene banking activities?
Cattle (specialized dairy)	7	1	yes	no	yes	no	no
Cattle (specialized beef)	12	1	yes	no	yes	no	no
Cattle (multipurpose)	9	1	yes	no	yes	no	no
Sheep	2	0	no	no	no	no	no
Goats	1	0	yes	no	no	no	no
Pigs	2	0	no	no	no	no	no
Chickens	2	2	no	yes	no	no	no
Horses	2	0	yes	no	no	no	no

25.1. Please provide further details of the activities recorded in the table (including any examples of the use of gene bank material to reconstitute populations or introduce genetic variability) and any other in vitro conservation activities or programmes being implemented in your country.

During the cooperation with farms semen of indigenous and exotic breeds is being given free of charge for reconstitution or successful functioning of breeds.

Regulated conservation of biodiversity presuppose the creation of virtual gene pool herds, that consists of cryoconserved genetic material of known original in quantity, which is enough for reconstitution of real gene pool herd. It was stated concrete need in sperm, embryos, DNA-samples and their donors of different sex for long-term cryostorage, aiming to ensure secure reconstitution of copies of each conserved gene pool object and in general on major species of farm animals (Guziev I.V., 2012).

26. Does your country have plans to enter into collaboration with other countries to set up a regional or subregional in vitro gene bank for animal genetic resources?

- (•) yes
- ( ) no

26.1. If yes, please describe the plans, including a list of the countries involved.

Owing to "Cryoweb" programme to find out existence of genetic material of transboundary and related breeds in other countries and fulfill exchange if another side will agree to cooperate.

27. If there have been any cases in your country in which breeds that were formerly classified as at risk of extinction have recovered to a position in which they are no longer at risk, please list the breeds and describe how the recovery was achieved.

Grey Ukrainian breed after beginning of work with it as at risk of extinction (about ten years ago) began to increase its number. Mountainous Transcarpathian sheep after beginning of ethnic and cultural activity development with it by private sector (creation and sell in other regions handicrafts from this breed wool) stopped to be at risk of extinction.

REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

28. Please indicate the level of availability of reproductive and molecular biotechnologies for use in livestock production in your country.

Note: low = at experimental level only; medium = available to livestock keepers in some locations or production systems; high = widely available to livestock keepers.

	Biotechnologies								
Species	Artificial insemination	Embryo transfer	Multiple ovulation and embryo transfer	Semen sexing	In vitro fertilization	Cloning	Genetic modification	Molecular genetic or genomic information	Transplantation of gonadal tissue
Cattle (specialized dairy)	high	low	medium	low	low	low	none	low	none
Cattle (specialized beef)	medium	low	low	none	low	none	none	low	none
Cattle (multipurpose)	high	low	low	low	none	none	none	low	none
Pigs	low	low	low	none	low	none	none	medium	none
Sheep	low	low	low	none	none	none	none	low	none
Horses	high	low	low	none	low	none	none	medium	none
Chickens	medium	none	none	low	low	low	none	low	low

28.1. Please provide additional information on the use of these biotechnologies in your country.

Artificial insemination is used in dairy and multipurpose cattle-breeding almost for 100%. At beef cattle-breeding, considering its work specificity and complexity - for 20-30%, though work is being done on wider implementation of this issue.
In pig-breeding AI mainly is used at big pig-breeding complexes, sometimes - at enterprises of smaller scale. Mainly, AI is used at pure-breeding of pork (paternal) breeds and at getting of interbreed hybrids for fattening. For exotic breeds (Landrace, Pietren, Duroc, Wales) AI is used as using fresh sperm, so defrosted (imported from abroad). The greatest demand has sperm of terminal boars (interbreed crosses, oftener got from combination Duroc x Pietren).
In 2012 from 4 cows and 3 heifers of indigenous breed of Ukraine Grey Ukrainian 75 embryos was obtained, 30 ones out of which were suitable for freezing, i.e., efficiency of embryoproduction was 40%. At the insemination of cows and heifers the sperm from Bank of Genetic Resources of the Institute of Animal Breeding and Genetics, which was stored in liquid nitrogen 22 (Zapad 2705) - 43 (Inzhyr 7927) years was used.
From two local pig breeds more - Ukrainian Steppe White and Ukrainian Steppe Black-and-White - scientists of the Institute obtained 1010 ml of fresh sperm and laid for storage into Bank of Genetic Resources of the Institute of Animal Breeding and Genetics 1240 spermdoses with activity after melting 20%. Checking of sperm reproductive ability of one of the boars after defreezing in in vitro conditions showed its satisfactory ability (49,2% fertilized eggs, 29,7% of embryos divided and 25,7% embryos' development to later stages).
Besides that, it was proposed organizational principles of complex implementation of biotechnological methods of obtaining, evaluation, cryostorage and use of different genetic material (*ex situ in vitro*) from different species.

29. If the reproductive and/or molecular technologies are available for use by livestock keepers in your country, please indicate which stakeholders are involved in providing the respective services to the livestock keepers.

	Stakeholders					
	Public sector	Breeders' associations or cooperatives	National non-governmental organizations	Donors and development agencies	National commercial companies	External commercial companies
Artificial insemination	yes	yes	yes	no	yes	yes
Embryo transfer	yes	no	no	no	yes	yes

29.1. Please provide additional information on the roles that the providers identified in the table play in the provision of biotechnology services in your country.

Mainly artificial insemination is done by techniques of artificial insemination, which are held by farm. Their job is to find out cows in heat and inseminate them. In embryotransfer there is some more forms of work. It is done by specialized laboratories of research institutes or special departments at breeding enterprises, which main functions are to save and market semen (as in Poltavaplemservice).

30. Please indicate which biotechnologies your country is undertaking research on.

Biotechnologies	Public or private research at national level	Research undertaken as part of international collaboration
Artificial insemination	yes	no
Embryo transfer or MOET	yes	no
Semen sexing	yes	no
In vitro fertilization	yes	no
Cloning	yes	no
Genetic modification	no	no
Use of molecular genetic or genomic information for estimation of genetic diversity	yes	yes
Use of molecular genetic or genomic information for prediction of breeding values	yes	no
Research on adaptedness based on molecular genetic or genomic information	yes	no

30.1. Please briefly describe the research.

Owing to the complex application of modern biotechnological approaches it have been obtained and transplanted 211 Holstein sexed embryos for the last three years.
Obtaining of Grey Ukrainian cattle embryos was carried out in the herd of "Polyvanivka" farm from heifers and cows that have been treated hormonally with follicle stimulating hormone (FSH). For artificial insemination of donors the sperm of Grey Ukrainian bulls, that is stored in a Bank of Genetic Resources in average 36 years was used.
Totally after cryopreservation into the Bank of Animal Genetic Resources were laid 30 embryos, of which 10 morulas and 20 blastocysts of good and excellent quality
The rest of obtained embryos and oocytes were used for cytogenetic analysis (42 ones) and genotyping (18 ones) by polymerase chain reaction (PCR). These studies were carried out to analyze the reasons of embryonic development stop, evaluation of early embryogenesis, the finding out of embryos' sex.
It was found that the termination of embryos' development at certain stage of embryogenesis is linked to lack of energy resources in maternal cell, that may be caused by poliovulation or unsatisfactory management conditions.
The sex of embryos was determined, using PCR-analysis. It was found that 67 % of embryos are females, that allow to predict, that among 30 laid to the Bank embryos about 20 ones are heifers and ten - bulls. Besides that, the possibilities of parthenogenesis and cloning are investigated.

31. Please estimate the extent to which artificial insemination (using semen from exotic and/or locally adapted breeds) and/or natural mating is used in your country's various production systems.

Note: low = approximately <33% of matings; medium = approximately 33–67% of matings; high = approximately >67% of mating; n/a = production system not present in this country.

Cattle (specialized dairy)	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	medium	medium	medium	medium	medium
Artificial insemination using nationally produced semen from exotic breeds	low	low	low	medium	medium
Artificial insemination using imported semen from exotic breeds	low	low	low	medium	medium
Natural mating	medium	low	none	none	none

Cattle (specialized beef)	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	medium	medium	medium	medium	medium
Artificial insemination using nationally produced semen from exotic breeds	low	low	low	medium	medium
Artificial insemination using imported semen from exotic breeds	low	low	low	medium	medium
Natural mating	medium	high	medium	low	low

Cattle (multipurpose)	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	high	high	high	low	medium
Artificial insemination using nationally produced semen from exotic breeds	medium	low	low	medium	medium
Artificial insemination using imported semen from exotic breeds	low	low	medium	high	medium
Natural mating	low	low	low	low	low

Sheep	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	medium	medium	medium	medium	medium
Artificial insemination using nationally produced semen from exotic breeds	medium	low	low	medium	low
Artificial insemination using imported semen from exotic breeds	low	none	none	low	low
Natural mating	medium	high	high	medium	high

32. Please provide further details on the use of reproductive and molecular biotechnologies in animal genetic resources management in your country. Please note any particular constraints to implementing these activities and any problems associated with their use. Please indicate what needs to be done to address these constraints and/or problems. You may also provide information on any particular successes achieved in your country in the use of biotechnologies in animal genetic resources management and on the factors that have contributed to these successes.

The majority of dairy cows is in private sector. So, insemination is done by sperm, which is available at local regional breeding enterprise. It's mainly sperm of exotic or locally adapted with exotic roots breeds. One more form of work in

artificial insemination is existence of private agents, who cooperates with companies abroad and promote their production and inseminate cows with exotic breeds' sperm.
Cows' insemination at big farms is done by technique of artificial insemination with sperm of bulls, which are determined by consultant-scientist or zootechnique in selection of farm to improve production of cows or some exreior flaws.

III. DATA CONTRIBUTING TO THE PREPARATION OF *THE STATE OF THE WORLD'S BIODIVERSITY FOR FOOD AND AGRICULTURE*

INTEGRATION OF THE MANAGEMENT OF ANIMAL GENETIC RESOURCES WITH THE MANAGEMENT OF PLANT, FORESTRY AND AQUATIC GENETIC RESOURCES

1. Please indicate the extent to which the management of animal genetic resources in your country is integrated with the management of plant, forestry and aquatic genetic resources. Please describe the collaboration, including, if relevant, a description of the benefits gained by pursuing a collaborative approach.

	Extent of collaboration	Description
Development of joint national strategies or action plans	limited	This cooperation needs intensification.
Collaboration in the characterization, surveying or monitoring of genetic resources, production environments or ecosystems	limited	This cooperation needs intensification.
Collaboration related to genetic improvement	limited	This cooperation needs intensification.
Collaboration related to product development and/or marketing	limited	This cooperation needs intensification.
Collaboration in conservation strategies, programmes or projects	limited	This cooperation needs intensification.
Collaboration in awareness-raising on the roles and values of genetic resources	limited	This cooperation needs intensification.
Training activities and/or educational curricula that address genetic resources in an integrated manner	limited	Preferably in educational institutions.
Collaboration in the mobilization of resources for the management of genetic resources	limited	This cooperation needs intensification.

2. Please describe any other types of collaboration.

More intensive cooperation and integration of efforts is being done in management of AnGR, including such productive insects, as bees and silkworm and marine organisms (in industrial fish-breeding) as Ukrainian institutes of fish-breeding, bee-keeping and silkworm-breeding (department) are at the structure of National Academy of Agrarian Sciences.

3. If relevant, please describe the benefits that could be achieved by strengthening collaboration in the management of genetic resources in the animal, plant, forest and aquatic sectors in your country. If specific plans to increase collaboration are in place, please describe them and the benefits foreseen

One needs to intensify cooperation between these branches in research sphere. On the agenda of some institutions (f.e. Institute of agroecology) there became issue of plant-breeding and animal-breeding cooperation. But now there is no such close cooperation as it should be.
On the other hand in practical aspect there is close cooperation of plant- and animal-breeding: farms process fields to ensure good feeding of animals in animal-breeding, and animal-breeding products (manure) are used to improve crop capacity of agricultural fields. But farms sow plants, which are firstly profitable, but not so useful for animal-breeding to satisfy animals' demands (so, accents are shifted to plant-breeding demands), that impacts animal-breeding and doesn't allow to get full profit from animals due to not full feeding.
Combination of fish-breeding, pond management (aquaculture) and waterfowl management, and sometimes even other kinds of animal-breeding would facilitate to all involved branches.

There are plans to deepen cooperation of academic institutes of National academy of Agrarian Sciences with Biospheric reserves of Ukraine in genetic diversity conservation issues.

4. Please describe any factors that facilitate or constrain collaborative approaches to the management of genetic resources in your country.

Mainly farms are engaged with plant-breeding due to higher profitability and sooner getting of profit, but animal-breeding is available as well.
The main constraint is infrastructure dissociation (different subordination) of research centers, which should be devoted to AnGR, PGR and aquaculture management. And absence of single National Coordination Centre.

5. If there are constraints, please indicate what needs to be done to overcome them.

To raise awareness about mutual facilitation of collaborative branches. To promote mutual profit from collaboration.

ANIMAL GENETIC RESOURCES MANAGEMENT AND THE PROVISION OF REGULATING AND SUPPORTING ECOSYSTEM SERVICES

6. Do your country's policies, plans or strategies for animal genetic resources management include measures specifically addressing the roles of livestock in the provision of regulating ecosystem services and/or supporting ecosystem services?

Regulating ecosystem services: "Benefits obtained from the regulation of ecosystem processes" – Millennium Ecosystem Assessment. 2005. Ecosystems and human well-being: synthesis. Washington D.C., Island Press (available at http://millenniumassessment.org/documents/document.356.aspx.pdf), page 40. Supporting ecosystem services: "Services necessary for the production of all other ecosystem services" – Millennium Ecosystem Assessment. 2005. Ecosystems and human well-being: synthesis. Washington D.C., Island Press (available at http://millenniumassessment.org/documents/document.356.aspx.pdf), page 40.

- ○ yes
- ◉ no

6.1. If yes, please describe these measures and indicate which supporting and/or regulating ecosystem services are targeted, and in which production systems.

Examples of supporting and regulatory ecosystem services provided by livestock might include the following: provision or maintenance of wildlife habitats (e.g. via grazing); seed dispersal (e.g. in dung or on animals' coats); promoting plant growth (e.g. stimulating growth via grazing or browsing); soil formation (e.g. via the supply of manure); soil nutrient cycling (e.g. via supply of manure); soil quality regulation (e.g. affecting soil structure and water-holding capacity via trampling or dunging); control of weeds and invasive species (e.g. via grazing or browsing invasive plants); climate regulation (e.g. by promoting carbon sequestration through dunging); enhancing pollination levels (e.g. by creating habitats for pollinators); fire control (e.g. by removal of biomass that may fuel fires); avalanche control (e.g. grazing to keep vegetation short to reduce the probability that snow will slide); erosion regulation (e.g. indirect via fire control services); maintenance of water quality and quantity (e.g. indirect effect via erosion control); management of crop residues (e.g. consumption of unwanted crop residues by animals); pest regulation (e.g. by destruction of pests or pest habitats); disease regulation (e.g. by destruction of disease vectors or their habitats); buffering of water quantities – flood regulation (e.g. indirect effect via fire and erosion control).

6.1.1 Please describe what the outcome of these measures has been in terms of the supply of the respective ecosystem services (including an indication of the scale on which these outcomes have been obtained).

6.1.2 Please describe what the outcome of these measures has been in terms of the state of animal genetic resources and their management (including an indication of the scale on which these outcomes have been obtained).

7. Do your country's policies, plans or strategies for animal genetic resources management include measures specifically addressing environmental problems associated with livestock production?

Examples might include choosing to use particular species or breeds because they are less environmentally damaging in a given ecosystem or adapting breeding goals to produce animals that have some characteristic that makes them more environmentally friendly.

- ○ yes
- ◉ no

7.1. If yes, please describe these measures and indicate the environmental problems that are targeted, and in which production systems.

7.1.1 Please describe what the outcome of these measures has been in terms of the reduction of the respective environmental problem (including an indication of the scale on which these outcomes have been obtained).

7.1.2 Please describe what the outcome of these measures has been in terms of the state of animal genetic resources and their management (including an indication of the scale on which these outcomes have been obtained).

8. Please describe any constraints or problems encountered or foreseen in the implementation of measures in your country aimed at promoting the provision of regulating and supporting ecosystem services or reducing environmental problems.

These issues concerning AnGR conservation was not risen at national level.

9. Please provide examples of cases in which the role of livestock or specific animal genetic resources is particularly important in the provision of regulating and/or supporting ecosystem services in your country. Please also describe any examples in which diverse animal genetic resources are important in terms of reducing the adverse environmental effects of livestock production.

At the ecologically pure production making important is use of smaller quantity of pesticides, herbicides, less need in mineral fertilizers (substitution of them by organics from animals) at fields' management. It's ruminant animals which can do grazing, deciding herewith the problem of food. Sustainable use by ruminants of big areas, withdrawn from effective economic use, of natural meadows and pastures, as well as contaminated with radionuclides of Chornobyl zone is important as well. Improving of soil fertility, as after pastures' use, so by way of natural soil processing by compost (manure) indigenous and new-created high-productive population of rain (compost) worms (Red Californian hybrid, "Prospector", "Podolian hybrid" and so on.

10. Please describe the potential steps that could be taken in your country to further expand or strengthen positive links between animal genetic resources management and the provision of regulating and/or supporting ecosystem services or the reduction of environmental problems. If your country has specific plans to take further action in this field, please describe them.

To strengthen awareness and promote possible profit from this collaboration. Serious increasing of different species number, firstly of ruminants, in different natural-and-climatic zones of Ukraine is important as well. Natural potential of soils of Ukraine can absorb (for mutually beneficial compatible existence at optimal ratio, density at square unit) enormous number of productive animals of different species.

11. Please provide any further information on the links between animal genetic resources management in your country and the provision of supporting and/or regulating ecosystem services and/or the reduction of environmental problems.

Creation of new not mulberry, but oak silkworm, besides all, in new productive plan, will facilitate to improving of use of oaks' fund of Ukraine.
Creation of new population of hunting pig will facilitate to sustainable use of forest fauna and forest byotsenoz of Ukraine.
The wider distribution on area of Ukraine at compliance with zoning of bees of Ukrainian Steppe, Carpathian and Polissian populations favorably affect obvious improving of pollination processes (so, real productivity), as steppe, so forest greenery.
Introduction into industrial aquaculture of new herbivorous and predatory fish species will assist in balancing of water flora and fauna of inner reservoirs of Ukraine.
More intensive distribution of indigenous Ukrainian breeds of different animal and poultry species can "ennoble" landscapes of different natural-and-climatic zones of our country and gives to them apparently national coloring, that can be successfully used, including green, rural touristic business.

IV. PROGRESS REPORT ON THE IMPLEMENTATION OF THE *GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES* – 2007 TO 2013

Note: Please provide further details in the text boxes below each question, including, if relevant, information on why no action has been taken.

STRATEGIC PRIORITY AREA 1: CHARACTERIZATION, INVENTORY AND MONITORING OF TRENDS AND ASSOCIATED RISKS

- The state of inventory and characterization of animal genetic resources
- The state of monitoring programmes and country-based early warning and response systems
- The state of international technical standards and protocols for characterization, inventory, and monitoring

1. Which of the following options best describes your country's progress in building an inventory of its animal genetic resources covering all livestock species of economic importance (SP 1, Action 1)?
Glossary: An inventory is a complete list of all the different breeds present in a country.

- (●) a. Completed before the adoption of the GPA
- ( ) b. Completed after the adoption of the GPA
- ( ) c. Partially completed (further progress since the adoption of the GPA)
- ( ) d. Partially completed (no further progress since the adoption of the GPA)

Please provide further details:

Updating of such catalogue on all species of farm animals is planned.

2. Which of the following options best describes your country's progress in implementing phenotypic characterization studies covering morphology, performance, location, production environments and specific features in all livestock species of economic importance (SP 1, Actions 1 and 2)?

- (●) a. Comprehensive studies were undertaken before the adoption of the GPA
- ( ) b. Sufficient information has been generated because of progress made since the adoption of the GPA
- ( ) c. Some information has been generated (further progress since the adoption of the GPA)
- ( ) d. Some information has been generated (no further progress since the adoption of the GPA)
- ( ) e. None, but action is planned and funding identified
- ( ) f. None, but action is planned and funding is sought

- ○ g. None

Please provide further details:

Phenotypic information continues to be collected and accumulated.

3. Which of the following options best describes your country's progress in molecular characterization of its animal genetic resources covering all livestock species of economic importance (SP 1)?

- ◉ a. Comprehensive studies were undertaken before the adoption of the GPA
- ○ b. Sufficient information has been generated because of progress made since the adoption of the GPA
- ○ c. Some information has been generated (further progress since the adoption of the GPA)
- ○ d. Some information has been generated (no further progress since the adoption of the GPA)
- ○ e. None, but action is planned and funding identified
- ○ f. None, but action is planned and funding is sought
- ○ g. None

Please provide further details:

Molecular information continues to be collected and accumulated.

4. Has your country conducted a baseline survey of the population status of its animal genetic resources for all livestock species of economic importance (SP 1, Action 1)?

Glossary: A baseline provides a reference point for monitoring population trends. Population status refers to the total size of a national breed population (ideally, also the proportion that is actively used for breeding and the number of male and female breeding animals).

- ○ a. Yes, a baseline survey was undertaken before the adoption of the GPA
- ◉ b. Yes, a baseline survey has been undertaken or has commenced after the adoption of the GPA
- ○ c. Yes, a baseline survey has been undertaken for some species (coverage increased since the adoption of the GPA)
- ○ d. Yes, a baseline survey has been undertaken for some species (coverage not increased since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Baseline survey of the population status of animal genetic resources of all livestock species of economic importance was carried out due to own, modified (in comparison with recommendations of FAO) technique.

5. Have institutional responsibilities for monitoring the status of animal genetic resources in your country been established (SP 1, Action 3)?

Glossary: Monitoring is a systematic set of activities undertaken to document changes in the population size and structure of animal genetic resources over time.

- ○ a. Yes, responsibilities established before the adoption of the GPA
- ◉ b. Yes, responsibilities established after the adoption of the GPA
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details:

Though institutional responsibilities are established, but they hardly are being implemented into continuous practice.

6. Have protocols (details of schedules, objectives and methods) been established for a programme to monitor the status of animal genetic resources in your country (SP 2)?

- ○ a. Yes, protocols established before the adoption of the GPA
- ◉ b. Yes, protocols established after the adoption of the GPA
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details:

These protocols (detailed plans, objectives and methods) aren't approved yet at the state level.

7. Are the population status and trends of your country's animal genetic resources being monitored regularly for all livestock species of economic importance (SP 1, Action 2)?

- ○ a. Yes, regular monitoring commenced before the adoption of the GPA
- ○ b. Yes, regular monitoring commenced after the adoption of the GPA
- ◉ c. Yes, regular monitoring is being undertaken for some species (coverage increased since the adoption of the GPA)
- ○ d. Yes, regular monitoring is being undertaken for some species (coverage not increased since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Coverage is limited to species, which entered the State Breeding Register (cattle, horses, pigs, sheep, goats, fish, bees and some species of poultry and fur animals, including herbivorous of cage keeping).

8. Which criteria does your country use for assessing the risk status of its animal genetic resources (SP 1, Action 7)?

Glossary: FAO has developed criteria that it uses to allocate breeds to risk-status categories based on the size and structure of their populations (http://www.fao.org/docrep/010/a1250e/a1250e00.htm).

- ◉ a. FAO criteria
- ○ b. National criteria that differ from the FAO criteria
- ○ c. Other criteria (e.g. defined by international body such as European Union)
- ○ d. None

Please provide further details. If applicable, please describe (or provide a link to a web site that describes) your national criteria or those of the respective international body:

In Ukraine criteria of FAO are modified and added a bit. 8 criteria of threats (Extinct, Critical, Critical Maintained, Endangered, Endangered Maintained, Vulnerable, Not-at-risk and Unknown) are identified on: quantity of breeding females (in purebred breeding) and males, Ne, Ne_{sel}, ΔF, size of all population, % of females in purebred breeding - separately for species with high and low potential of reproduction and availability of programs of preservation or any support - research institutes, associations or business firms. Besides this, such criteria are considered - demographic, which takes into account: tendencies in number of females over time (trends), updated quantity of females, quantity of replacement females, quantity of breeding males for artificial insemination and whether this population was in critical condition in the past or no; - genetic: inbreeding level for 50 years, availability of selection and its type, introgression level, hereditary specifics (genetic originality); - criteria of distribution of populations: quantity of herds and their tendency (dynamics), geographical (territorial) location of herds, length (km) of the maximum radius of area where there are about 75% of population, ecological and landscape value; - potential of *ex situ in vitro* preservation: existence of germoplasm: sperm, oocytes, embryos, use of artificial insemination and transplantation of embryos; - social and economic and cultural and historical potential: economic competitiveness, cultural and historical and social value, cultural preferences of farmers, age of farmers and so on.

9. Has your country established an operational emergency response system (http://www.fao.org/docrep/meeting/021/K3812e.pdf) that provides for immediate action to safeguard breeds at risk in all important livestock species (SP 1, Action 7)?

- ○ a. Yes, a comprehensive system was established before the adoption of the GPA
- ○ b. Yes, a comprehensive system has been established since the adoption of the GPA
- ◉ c. For some species and breeds (coverage expanded since the adoption of the GPA)
- ○ d. For some species and breeds (coverage not expanded since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Searches of additional sources of financing are being continued.

10. Is your country conducting research to develop methods, technical standards or protocols for phenotypic or molecular characterization, or breed evaluation, valuation or comparison? (SP 2, Action 2)

- ○ a. Yes, research commenced before the adoption of the GPA
- ◉ b. Yes, research commenced after the adoption of the GPA
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details:

In particular, the draft of the "Agreement about definition and preservation of gene pool of local and disappearing breeds of farm animals" is developed.

11. Has your country identified the major barriers and obstacles to enhancing its inventory, characterization and monitoring programmes?

- ◉ a. Yes
- ○ b. No
- ○ c. No major barriers and obstacles exist. Comprehensive inventory, characterization and monitoring programmes are in place.

Please provide further details. If barriers and obstacles have been identified, please list them:

1. Sustainable state policy.
2. Financial support.

12. If applicable, please list and describe the measures that need to be taken to address these barriers and obstacles and to enhance your country's inventory, characterization and monitoring programmes:

Creation of a national information database for AnGR.

13. Please provide further comments on your country's activities related to Strategic Priority Area 1: Characterization, inventory and monitoring of trends and associated risks (including regional and international cooperation)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

1) Inventory, systematization as well as national and international classification of domestic AnGR have been carried out

for 596 gene pool objects including 225 mammals, 202 birds (poultry), 25 fishes and 144 insects (hexapods).
Preparation of analytical materials for updating the national database in EFABIS and DAD-IS has been started in 2011.
A national survey, conducted on 20 March 2009 and aimed at identifying threats to animal genetic resources, provided answers to a FAO global electronic questionnaire (with 381 questions).
Identification of Ukrainian AnGR (145 gene pool objects) at risk of extinction and their analysis according to the international classification of conditions of populations (the current statuses and their causes) has been submitted to FAO in May 2009.
The analysis of main threats to animal genetic resources of Ukraine has been performed. The analysis of the threats classification methodology being developed by FAO has been provided (available as a world e-conference report: "Analyzing threats to animal genetic resources for food and agriculture" (on 4-25 May 2009).
Initial monitoring of trends and associated risks has been carried out in 2011 for 596 gene pool objects by employing the new unified international methodology.

2) For the future, it is planned to continue inventory and monitoring of trends and associated risks and to acquaint the cattle breeders with the international methodological approaches to the analysis of threats and conservation of AnGR as well as to assessment of the real status of risk of the pedigree (gene pool) populations.

STRATEGIC PRIORITY AREA 2: SUSTAINABLE USE AND DEVELOPMENT

- The state of national sustainable use policies for animal genetic resources
- The state of national species and breed development strategies and programmes
- The state of efforts to promote agro-ecosystem approaches

14. Does your country have adequate national policies in place to promote the sustainable use of animal genetic resources (see also questions 46 and 54)?

- ○ a. Yes, since before the adoption of the GPA
- ◉ b. Yes, policies put in place or updated after the adoption of the GPA
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details. If available, please provide the text of the policies or a web link to the text:

Now the foundation of their financing is laid.

15. Do these policies address the integration of agro-ecosystem approaches into the management of animal genetic resources in your country (SP5) (see also questions 46 and 54)?

Glossary: The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (for further information see http://www.cbd.int/ecosystem/description.shtml).

- ○ a. Yes
- ○ b. No, but a policy update is planned and funding identified
- ◉ c. No, but action is planned and funding is sought
- ○ d. No

Please provide further details:

Agro-ecosystem approaches, undoubtedly, will have a priority in the nearest future.

16. Do breeding programmes exist in your country for all major species and breeds, and are these programmes regularly reviewed, and if necessary revised, with the aim of meeting foreseeable economic and social needs and market demands (SP4, Action 2)?

- ○ a. Yes, since before the adoption of the GPA

- ○ b. Yes, put in place after the adoption of the GPA
- ◉ c. For some species and breeds (coverage has increased since the adoption of the GPA)
- ○ d. For some species and breeds (coverage has not increased since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Unfortunately, in the last 2-3 years work in this direction was slowed down a bit.

17. Is long-term sustainable use planning – including, if appropriate, strategic breeding programmes – in place for all major livestock species and breeds (SP4, Action 1)?

- ○ a. Yes, since before the adoption of the GPA
- ○ b. Yes, put in place after the adoption of the GPA
- ◉ c. For some species and breeds (further progress made since the adoption of the GPA)
- ○ d. For some species and breeds (no further progress made since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Strategic breeding programs for the major species and breeds of farm animals now need to be updated.

18. Have the major barriers and obstacles to enhancing the sustainable use and development of animal genetic resources in your country been identified?

- ◉ a. Yes
- ○ b. No
- ○ c. No major barriers and obstacles exist. Comprehensive sustainable use and development measures are in place.

Please provide further details. If barriers and obstacles have been identified, please list them:

Insufficient level of governmental support (financing).

19. Have the long-term impacts of the use of exotic breeds on locally adapted breeds (e.g. economic, environmental or genetic impacts) and on food security been assessed in your country (SP4, Action 1)?

Glossary:

Exotic breeds are breeds that are maintained in a different area from the one in which they were developed. Exotic breeds comprise both recently introduced breeds and continually imported breeds.

Locally adapted breeds are breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.

b. Yes, assessments were introduced before the adoption of the GPA

Please provide further details:

Very troublesome is lifting of first parturition age and other reproductive problems of holstenized cows, which were not detected in crossed generations at the beginning.

Besides, the assessment of long-term consequences revealed obvious deterioration of the general reproductive and adaptation potential, decrease in viability and nonspecific resistance of an organism of animals, and also quality indicators of their production.

20. Have recording systems and organizational structures for breeding programmes been established or strengthened (SP4, Action 3)?

- ○ a. Yes, sufficient recording systems and organizational structures for breeding programmes have existed since before the adoption of the GPA
- ○ b. Yes, sufficient recording systems and organizational structures for breeding programmes exist because of progress made since the adoption of the GPA
- ◉ c. Yes, recording systems and organizational structures for breeding programmes are partially in place (and were established or strengthened after the adoption of the GPA)
- ○ d. Yes, recording systems and organizational structures for breeding programmes are partially in place (but no progress has been made since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

All breeding farms gave recording information to form national database (Breeding Register) since 2003.

21. Are mechanisms in place in your country to facilitate interactions among stakeholders, scientific disciplines and sectors as part of sustainable use development planning (SP5, Action 3)?

- ○ a. Yes, comprehensive mechanisms have existed since before the adoption of the GPA
- ○ b. Yes, comprehensive mechanisms exist because of progress made since the adoption of the GPA
- ◉ c. Yes, mechanisms are partially in place (and were established or strengthened after the adoption of the GPA)
- ○ d. Yes, mechanisms are partially in place (but no progress has been made since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Educational institutes sent students to research laboratories to come closer to researches. Research institutes have their own research farms, where they can implement their investigations results.

22. Have measures been implemented in your country to provide farmers and livestock keepers with information that facilitates their access to animal genetic resources (SP 4, Action 7)?

- ◉ a. Yes, comprehensive measures have existed since before the adoption of the GPA
- ○ b. Yes, comprehensive measures exist because of progress made since the adoption of the GPA
- ○ c. Yes, measures partially implemented (and were established or strengthened after the adoption of the GPA)
- ○ d. Yes, measures partially implemented (but no progress has been made since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Annually published State Breeding Register and Catalogues of breeding animals facilitate it.

23. Has your country developed a national policy or entered specific contractual agreements for access to and the equitable sharing of benefits resulting from the use and development of animal genetic resources and associated traditional knowledge (SP3, Action 2)?

- ○ a. Yes, sufficient measures (policy and/or agreements) have been in place since before the adoption of the GPA
- ◉ b. Yes, sufficient measures (policy and/or agreements) are in place because of progress made since the adoption of the GPA
- ○ c. Yes, some measures (policy and/or agreements) are in place (progress has been made since the adoption of the GPA)
- ○ d. Yes, some measures (policy and/or agreements) are in place (but no progress has been made since the adoption of the GPA)
- ○ e. No, but a policy and/or agreements are in preparation
- ○ f. No, but a policy and/or agreements are planned
- ○ g. No

Please provide further details:

Measures, which were sufficient in the past demand obligatory strengthening in the future.

24. Have training and technical support programmes for the breeding activities of livestock-keepers been established or strengthened in your country (SP 4, Action 1)?

- ◉ a. Yes, sufficient programmes have existed since before the adoption of the GPA
- ○ b. Yes, sufficient programmes exist because of progress made since the adoption of the GPA
- ○ c. Yes, some programmes exist (progress has been made since the adoption of the GPA)
- ○ d. Yes, some programmes exist (but no progress has been made since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Additionally new adequate programs of training and technical support for livestock-keepers are required not only for further development, but also for long-term preservation of animal genetic resources of local breeds.

25. Have priorities for future technical training and support programmes to enhance the use and development of animal genetic resources in your country been identified (SP 4, paragraph 42)?

- ◉ a. Yes, priorities have been identified or updated since the adoption of the GPA
- ○ b. Yes, priorities were identified before the adaption of the GPA but have not been updated
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details:

New programs of training are included into universities' courses, and the Ministry of Agrarian policy and Food continues to find financial resources for technical support.

26. Have efforts been made in your country to assess and support indigenous or local production systems and associated traditional knowledge and practices related to animal genetic resources (SP 6, Action 1, 2)?

- ◉ a. Yes, sufficient measures have been in place since before the adoption of the GPA
- ○ b. Yes, sufficient measures are in place because of progress made since the adoption of the GPA
- ○ c. Yes, some measures are in place (and were established or strengthened after the adoption of the GPA)
- ○ d. Yes, some measures are in place (but no progress has been made since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Support of traditional systems of animal managing of rural mountain inhabitants of the region of the Ukrainian Carpathians, and also the whole branch of animal breeding - beef cattle breeding in Ukraine can be an example.

27. Have efforts been made in your country to promote products derived from indigenous and local species and locally adapted breeds, and facilitate access to markets (SP 6, Action 2, 4)?

- ○ a. Yes, sufficient measures have been in place since before the adoption of the GPA
- ○ b. Yes, sufficient measures are in place because of progress made since the adoption of the GPA
- ◉ c. Yes, some measures are in place (and were established or strengthened after the adoption of the GPA)
- ○ d. Yes, some measures are in place (but no progress has been made since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

In the western regions of Ukraine national festivals of Ukrainian pigs' lard, production of beef cattle breeding, for example of Volynsk Beef breed and holidays of Huzul horse breed fans quite recently started being held.

28. If applicable, please list and describe priority requirements for enhancing the sustainable use and development of animal genetic resources in your country:

Comprehensive research of qualitative origin and specific value of local AnGR.

29. Please provide further comments on your country's activities related to Strategic Priority Area 2: Sustainable Use and Development (including regional and international cooperation)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

1) A number of state programmes (more than 30) for improvement (selection) of the main breeds of the major species of agricultural animals in Ukraine for the period of 2010-2012 have been developed.
The basic approaches to rational use of AnGR have been developed.
The basic strategic postulate for conservation of the gene pool in the national livestock sector has been proposed by the National Coordinator.
The National Coordinator proposed to combine the organization of the state breeding service with the conservation of AnGR diversity in a single national strategy.

2) For the future, it is planned to improve and strengthen the national policy and promising scientific research in the field of sustainable use and development of AnGR.

STRATEGIC PRIORITY AREA 3: CONSERVATION

- The state of national conservation policies
- The state of *in situ* and *ex situ* conservation programmes
- The state of regional and global long-term conservation strategies and agreement on technical standards for conservation

30. Does your country regularly assess factors leading to the erosion of its animal genetic resources (SP 7, Action 2)?

- ○ a. Erosion not occurring
- ◉ b. Yes, regular assessments have been implemented since before the adoption of the GPA
- ○ c. Yes, regular assessments have commenced since the adoption of the GPA

- ○ d. No, but action is planned and funding identified
- ○ e. No, but action is planned and funding is sought
- ○ f. No

Please provide further details:

Unfortunately, in the last 2-3 years weakening of attention of government bodies of the power to preservation of genetic resources of animals is observed.

31. What factors or drivers are leading to the erosion of animal genetic resources? Please describe the factors specifying which breeds or species are affected:

Introduction of exotic breeds; low competitiveness of local breeds and fast development of industrial technologies.

32. Does your country have conservation policies and programmes in place to protect locally adapted breeds at risk in all important livestock species (SP 7, SP 8 and SP 9)?

Glossary: Locally adapted breeds are breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.

- ○ a. Country requires no policies and programmes because all locally adapted breeds are secure
- ◉ b. Yes, comprehensive policies and programmes have been in place since before the adoption of the GPA
- ○ c. Yes, comprehensive policies and programmes exist because of progress made since the adoption of the GPA
- ○ d. For some species and breeds (coverage expanded since the adoption of the GPA)
- ○ e. For some species and breeds (coverage not expanded since the adoption of the GPA)
- ○ f. No, but action is planned and funding identified
- ○ g. No, but action is planned and funding is sought
- ○ h. No

Please provide further details:

Especially it concers the cattle, sheep, horses and pigs' breeds.

33. If conservation policies and programmes are in place, are they regularly evaluated or reviewed (SP 7, Action 1; SP 8, Action 1; and SP 9, Action 1)?

- ◉ a. Yes
- ○ b. No, but action is planned and funding identified
- ○ c. No, but action is planned and funding is sought
- ○ d. No

Please provide further details:

But in recent times estimates and inspections of programs of preservation aren't always carried out in time and quickly, dragged out.

34. Does your country have in situ conservation measures in place for locally adapted breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?

Glossary: Locally adapted breeds are breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.

- ○ a. Country requires no in situ conservation measures because all locally adapted breeds are secure

- ○ b. Yes for all breeds
- ◉ c. For some breeds (coverage expanded since the adoption of the GPA)
- ○ d. For some breeds (coverage not expanded since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

First of all it concerns cattle, pigs, sheep and horses.

35. Does your country have ex situ in vivo conservation measures in place for locally adapted breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?

Glossary: Ex situ in vivo conservation - maintenance of live animal populations not kept under their normal management conditions - e.g. in zoological parks or governmental farms - and/or outside the area in which they evolved or are now normally found.

- ○ a. Country requires no ex situ in vivo conservation measures because all locally adapted breeds are secure
- ○ b. Yes for all breeds
- ◉ c. For some breeds (coverage expanded since the adoption of the GPA)
- ○ d. For some breeds (coverage not expanded since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

First of all it concerns horses and some species of poultry.

36. Does your country have ex situ in vitro conservation measures in place for locally adapted breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?

Glossary: Ex situ in vitro - conservation, under cryogenic conditions including, inter alia, the cryoconservation of embryos, semen, oocytes, somatic cells or tissues having the potential to reconstitute live animals at a later date.

- ○ a. Country requires no ex situ in vitro conservation measures because all locally adapted breeds are secure
- ○ b. Yes for all breeds
- ◉ c. For some breeds (coverage expanded since the adoption of the GPA)
- ○ d. For some breeds (coverage not expanded since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Number of state branch cryobanks are united into network and are headed with National Bank of Genetic Resources (at the Institute of Animal Breeding and Genetics of the National Academy of Agrarian Sciences), which since 2002 is classified as object, which is national treasure, where all farm animal genetic material preservation is presupposed.

37. Please describe the measures (indicating for each whether they were introduced before or after the adoption of the GPA) or provide a web link to a published document that provides further information:

http://document.ua/pro-zatverdzhennja-porjadku-vikoristannja-koshtiv-peredbache-doc56105.html

38. If your country has not established any conservation programmes, is this a future priority?

- ○ a. Yes
- ◉ b. No

Please provide further details:

39. Has your country identified the major barriers and obstacles to enhancing the conservation of its animal genetic resources?

- ○ a. Country requires no conservation programmes because all animal genetic resources are secure
- ◉ b. Yes
- ○ c. No
- ○ d. No major barriers and obstacles exist. Comprehensive conservation programmes are in place

Please provide further details. If barriers and obstacles have been identified, please list them:

Insufficient level of governmental support (financing).

40. If your country has existing ex situ collections of animal genetic resources, are there major gaps in these collections (SP 9, Action 5)?

- ◉ a. Yes
- ○ b. No

If yes, have priorities for filling the gaps been established?

- ◉ a. Yes
- ○ b. No, but action is planned and funding identified
- ○ c. No, but action is planned and funding is sought
- ○ d. No

Please provide further details:

Major tasks are to give numbers for each sperm dose in the collection (not only for each sire) and to form protocols for all main operations to arrange firmly all samples in the collection for Cryoweb samples' operation.

41. Are arrangements in place in your country to protect breeds and populations that are at risk from natural or human-induced disasters (SPA 3)?

- ◉ a. Yes, arrangements have been in place since before the adoption of the GPA
- ○ b. Yes, arrangements put in place after the adoption of the GPA
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details:

Threats of severe droughts and heat generally belong to natural disasters in the southern and east regions and floods and earth landslides in the western regions of Ukraine, and to anthropogenous (human-induced disasters) is a thoughtless relation of people to the perspective of preservation of genetic resources of animals.
Measures of protection: from threats of severe droughts and a heat - selection and genetic (introduction in a genotype of animals whom part, defined "blood shares" "heat-tolerant" species and breeds, such as, for example, a Zebu and Santa-Gertruda at cattle, the Ukrainian Steppe White and Motley breeds of pigs), - from floods and landslides - organizational (preliminary moving of animals to safe districts) and - from human-induced disasters - humanitarian (informing on problems of protection of AnGR and training in their overcoming).

42. Are arrangements in place in your country for extraction and use of conserved genetic material following loss of animal genetic resources (e.g. through disasters), including arrangements to enable restocking (SP 9, Action 3)?

- (●) a. Yes, arrangements have been in place since before the adoption of the GPA
- ( ) b. Yes, arrangements put in place after the adoption of the GPA
- ( ) c. No, but action is planned and funding identified
- ( ) d. No, but action is planned and funding is sought
- ( ) e. No

Please provide further details:

In this way cattle populations of Grey Ukrainian, Lebedinsky, Brown Carpathian, White-headed Ukrainian breeds, pigs - the Ukrainian Steppe Motley and Mirgorod breeds, sheep - Sokalsky breed, horses - Novoaleksandrovsky breed and hens - the Ukrainian Black and Cuckoo (Kukushechny) breeds are being restored for a long time.

43. Is your country conducting research to adapt existing, or develop new, methods and technologies for in situ and ex situ conservation of animal genetic resources (SP 11, Action 1)?

- (●) a. Yes, research commenced before the adoption of the GPA
- ( ) b. Yes, research commenced since the adoption of the GPA
- ( ) c. No, but action is planned and funding identified
- ( ) d. No, but action is planned and funding is sought
- ( ) e. No

Please provide further details. If yes, please briefly describe the research:

Only last years, since 2006 till 2010 in Zootechnic branch of Ukrainian (now National) Academy of Agrarian Sciences (a lot of branch institute of animal breeding) the Scientific-and-Technical Programme [STP] "Farm animal gene pool conservation" was implemented into life, and now, since 2011 till 2015 STP №30 "Biologic diversity conservation and system of work at small populations of farm animals and their use at selection process" ("Gene pool conservation") is implemented. Head of this programme is Deputy director of the Institute of Animal Breeding and Genetics of NAAS, National Coordinator on AnGR of Ukraine - Guziev I.V. In 2012 he defended thesis on this topic:
Guziev I.V. Methodology of the preservation of a biodiversity of genetic resources of the animal industries of Ukraine. - Manuscript (in Ukrainian).
Doctoral Thesis of Agricultural Sciences in speciality 06.02.01 - Animal Breeding and Selection.- Institute of Animal Breeding and Genetic of the National Academy of Agrarian Sciences, v. Chubynske, Kyiv Region, 2012.- 630 p.

44. Does your country implement programmes to promote documentation and dissemination of knowledge, technologies and best practices for conservation (SP 11, Action 2)?

- (●) a. Yes, programmes commenced before the adoption of the GPA
- ( ) b. Yes, programmes commenced since the adoption of the GPA
- ( ) c. No, but action is planned and funding identified
- ( ) d. No, but action is planned and funding is sought
- ( ) e. No

Please provide further details:

Publication of Catalogues of Breeding Animals of different species, scientific books (monographs) and articles, as well as participation in specialized scientific and practical conferences and regional and nation-wide exhibitions on animal breeding facilitate this.

45. What are your country's priority requirements for enhancing conservation measures for animal genetic resources? Please list and describe them:

Our basic strategic postulate: "*We should keep everything, that has reached up to now, AnGR are the property (heritage) of the nation, including newly created commercial breeds, and also preserve (for subsequent use in the breed creation process and different systems of crossbreeding) pedigree gene pool of domestic micro-populations of the best global genetic resources."*

46. Please provide further comments describing your country's activities related to Strategic Priority Area 3: Conservation (including regional and international cooperation)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

1) Earlier, a book was written and published in Ukraine under editorship of the National Coordinator, in the Ukrainian language ("Methodological aspects of conservation of a gene pool of agricultural animals" (M.V. Zubets, V.P. Burkat, J.F. Melnyk, etc.; Scientific editor I.V. Guziev.- Kyiv: The Agrarian science, 2007. 120 pp.). The theoretical and methodological aspects of the conservation of farm animals' gene pool were highlighted in this book. Historical and scientific analysis of the problem as well as some conceptual and methodological approaches based on unification of a complex of breeding, genetic, biotechnological and organizational measures were suggested as a basis of the up-to-date strategy of conservation of farm animal genetic diversity.
Methods for determining budget subsidy rate for gene pool conservation of different species of farm animals, as well as algorithm logic of calculation of main parameters of gene pool of micro-populations were described. On the basis of this book, and under the management of the National Coordinator, the first draft of the "Programme of conservation of a gene pool of the basic species of agricultural (farm) animals in Ukraine for the period until 2015" was developed, in which calculations of the necessary financial state support are demonstrated in the Appendix.

2) For the future, it is planned to work on the development of the state (national) policy and to plan promising scientific research in the field of AnGR conservation.

STRATEGIC PRIORITY AREA 4: POLICIES, INSTITUTIONS AND CAPACITY-BUILDING IMPLEMENTATION AND FINANCING OF THE GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES

- The state of national institutions for planning and implementing animal genetic resources measures
- The state of information sharing
- The state of educational and research facilities capacity for characterization, inventory, and monitoring, sustainable use, development, and conservation
- The state of awareness of the roles and values of animal genetic resources
- The state of policies and legal frameworks for animal genetic resources

47. Does your country have sufficient institutional capacity to support holistic planning of the livestock sector (SP 12, Action1)?

- (●) a. Yes, sufficient capacity has been in place since before the adoption of the GPA
- ( ) b. Yes, sufficient capacity is in place because of progress made after the adoption of the GPA
- ( ) c. No, but action is planned and funding identified
- ( ) d. No, but action is planned and funding is sought
- ( ) e. No

Please provide further details:

The Department of Animal husbandry of the Ministry of an agrarian policy and the food of Ukraine, National Association on Breeding Business in Animal husbandry, Branch of Zootechnics of the NAAN of Ukraine and a network of agrarian universities of Ukraine was engaged in it.

48. What is the current status of your country's national strategy and action plan for animal genetic resources (SP 20)?

Glossary: National strategy and action plan for animal genetic resources: a strategy and plan, agreed by stakeholders and preferably government-endorsed, that translates the internationally agreed Global Plan of Action for Animal Genetic Resources into national actions, with the aim of ensuring a strategic and comprehensive approach to the sustainable use, development and conservation of animal genetic resources for food and agriculture.

- (●) a. Previously endorsed national strategy and action plan is being updated (or new version has been endorsed)

- ○ b. Completed and government-endorsed
- ○ c. Completed and agreed by stakeholders
- ○ d. In preparation
- ○ e. Preparation is planned and funding identified
- ○ f. Future priority activity
- ○ g. Not planned

Please provide further details. If available, please provide a copy of your country's national strategy and action plan as a separate document or as a web link:

The law of Ukraine "On breeding business in animal production", 15 December 1993; "Programme of conservation of a gene pool of the basic species of agricultural (farm) animals in Ukraine for the period until 2015" edited by I.V. Guziev. Kiev 2009, 132 pp. (in Ukrainian).

49. Are animal genetic resources addressed in your country's National Biodiversity Strategy and Action Plan (http://www.cbd.int/nbsap/)?

- ◉ a. Yes
- ○ b. No, but they will be addressed in forthcoming plan
- ○ c. No

Please provide further details:

As its integral part.

50. Are animal genetic resources addressed in your country's national livestock sector strategy, plan or policy (or equivalent instrument)?

- ◉ a. Yes
- ○ b. No, but they will be addressed in a forthcoming strategy, plan or policy
- ○ c. No, animal genetic resources are not addressed
- ○ d. No, the country does not have a national livestock sector strategy, plan or policy

Please provide further details. If available, please provide the text of the strategy, plan or policy or a web link to the text:

Animal genetic resources issues are considered in all plans for animal husbandry sector.

51. Has your country established or strengthened a national database for animal genetic resources (independent from DAD-IS) (SP 15, Action 4)?

- ○ a. Yes, a national database has been in place since before the adoption of the GPA
- ○ b. Yes, a national database is in place because of progress made since the adoption of the GPA
- ◉ c. Yes, a national database is in place but still requires strengthening (progress since adoption of the GPA)
- ○ d. Yes, a national database is in place but still requires strengthening (no progress since adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

But the operating National database about AnGR still demands the strengthening and search of sources of additional financing.

52. Have your country's national data on animal genetic resources been regularly updated in DAD-IS?

Note that the Commission on Genetic Resources for Food and Agriculture has requested FAO to produce global status and trends reports every two years.

- ○ a. Yes, regular updates have been occurring since before the adoption of the GPA
- ◉ b. Yes, regular updates started after the adoption of the GPA
- ○ c. No, but it is a future priority
- ○ d. No

Please provide further details:

Yet it is required to adjust such updating not only for the main, but also for all species of agricultural animals of Ukraine.

53. Has your country established a National Advisory Committee for Animal Genetic Resources (SP 12, Action 3)?

- ◉ a. Yes, established before the adoption of the GPA
- ○ b. Yes, established after the adoption of the GPA
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details. If a National Advisory Committee has been established, please list its main functions:

Scientific support to the processes of conservation of AnGR diversity in Ukraine. As at once not officially, and then officially National Advisory Committee (Scientific Coordinative Center) on AnGR established at the Institute of Animal Breeding and Genetics of NAAS.

54. Is there strong coordination and interaction between the National Focal Point and stakeholders involved with animal genetic resources, such as the breeding industry, livestock keepers, government agencies, research institutes and civil society organizations (SP 12, Action 3)?

- ○ a. Yes, strong coordination has been in place since before the adoption of the GPA
- ◉ b. Yes, strong coordination was established after the adoption of the GPA
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details:

However involvement of larger number of interested stakeholders, potential participants of process of preservation of AnGR is still necessary.

55. Does the National Focal Point (or other institutions) undertake activities to increase public awareness of the roles and values of animal genetic resources (SP 18)?

- ○ a. Yes, activities commenced before the adoption of the GPA
- ◉ b. Yes, activities commenced after the adoption of the GPA
- ○ c. No, but activities are planned and funding identified
- ○ d. No, but activities are planned and funding is sought
- ○ e. No

Please provide further details:

Organization of scientific and industrial conferences, round tables, debates; participation in exhibitions of agricultural animals; edition of professional literature; speaking on national radio and TV.

56. Does your country have national policies and legal frameworks for animal genetic resources management (SP 20)?

- (●) a. Yes, comprehensive national policies and legal frameworks were in place before the adoption of the GPA and are kept up to date
- ( ) b. Yes, comprehensive and up-to-date national policies and legal frameworks in place because of progress made since the adoption of the GPA
- ( ) c. Yes, some national policies and legislation in place (strengthened since the adoption of the GPA)
- ( ) d. Yes, some national policies and legislation in place (not strengthened since the adoption of the GPA)
- ( ) e. No, but action is planned and funding identified
- ( ) f. No, but action is planned and funding is sought
- ( ) g. No

Please provide further details:

"Legal framework acts concerning breeding in animal breeding": [Collection of normative documents] / Ministry of Agrarian Policy and Food of Ukraine, State scientific and practical enterprise "Selection".- Kiev, 2004. - 278 p. [in Ukrainian].

57. Which of the following options best describes the state of training and technology transfer programmes in your country related to inventory, characterization, monitoring, sustainable use, development and conservation of animal genetic resources (SP14, Action 1)?

- ( ) a. Comprehensive programmes have been in place since before the adoption of the GPA
- (●) b. Comprehensive programmes exist because of progress made since the adoption of the GPA
- ( ) c. Some programmes exist (further progress since the adoption of the GPA)
- ( ) d. Some programmes (no further progress since the adoption of the GPA)
- ( ) e. None, but action is planned and funding identified
- ( ) f. None, but action is planned and funding is sought
- ( ) g. None

Please provide further details:

There were intensive work and corresponding results in these fields before the adoption of GPA, but significant progress was made since the adoption of GPA, especially in the field of characterization and sustainable use.

58. Have organizations (including where relevant community-based organizations), networks and initiatives for sustainable use, breeding and conservation been established or strengthened (SP 14, Action 3)?

- (●) a. Yes, comprehensive organizations, networks and initiatives have existed since before the adoption of the GPA
- ( ) b. Yes, comprehensive organizations, networks and initiatives exist because of progress made since the adoption of the GPA
- ( ) c. Yes, some organizations, networks and initiatives exist (established or strengthened since adoption of the GPA)
- ( ) d. Yes, some organizations, networks and initiatives exist (but no progress made since adoption of the GPA)
- ( ) e. No, but action is planned and funding identified
- ( ) f. No, but action is planned and funding is sought
- ( ) g. No

Please provide further details:

It's a pity, however, some of them, such as State Scientific-and-practical enterprise "Selection", National Association on Breeding Business in Animal Breeding, last years practically stopped their existence. "Main scientific-and-practical selection-and-informational center in animal breeding of the Institute of Animal Breeding and Genetics of NAAS [IABG NAAS]" came to their place. Besides it, now at the national level Institute of Animal Breeding and Genetics passes the procedure of assignment (approving) as "National Scientific Center on Animal Genetic Resources".

59. Are there any national NGOs active in your country in the fields of:

Characterization?

- ( ) a. Yes

- (●) b. No

Sustainable use and development?

- (●) c. Yes
- ( ) d. No

Conservation of breeds at risk?

- (●) e. Yes
- ( ) f. No

If yes, please list the national NGOs and provide links to their web sites:

Regional associations of breeding business in animal production (http://cicej.pat.ua/, http://www.plemservis.pl.ua/, http://cnpp.org.ua/reestr.html and others), Association of producers in pig breeding, Corporation of horse breeding of Ukraine (http://ukrdovidka.com/view.php?id=74888&page=1&cat=8&subcat=43&subsubcat=416), Association of sheep breeders and goat breeders (http://aviku.org.ua/contact.php) and others.

60. Has your country established or strengthened research or educational institutions in the field of animal genetic resources management (SP 13, Action 3)?

- (●) a. Yes, adequate research and education institutions have existed since before the adoption of the GPA
- ( ) b. Yes, adequate research and education institutions exist because of progress made since the adoption of the GPA
- ( ) c. Yes, research and education institutions exist but still require strengthening (progress made since the adoption of the GPA)
- ( ) d. Yes, research and education institutions exist but still require strengthening (no progress made since the adoption of the GPA)
- ( ) e. No, but action is planned and funding identified
- ( ) f. No, but action is planned and funding is sought
- ( ) g. No

Please provide further details:

In Branch of Zootechnics of NAAS there were functioning at least 8 research institutes and about ten leading agrarian universities (educational institutions), which were engaged in AnGR management.

61. Please provide further comments describing your country's activities related to Strategic Priority Area 4: Policies, Institutions and Capacity-building (including regional and international cooperation)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

1) The Institute of Animal Breeding and Genetics (IABG) is the coordinator of the Scientific and Technical Programme "Conservation of a gene pool of farm animals", which was developed before 2010. This programme was adopted by the Ukrainian Academy of Agrarian Sciences (UAAS) at its Presidium. Practically all Institutes of the Livestock Branch of the UAAS are participating in the implementation of the programme.
An AnGR cryo-bank has been established at IABG UAAS. The cryo-bank was recognized as national heritage of Ukraine. In the IABG, a separate AnGR laboratory is created.
In June 2009 the National Coordinator participated in the control of scientific research on the conservation of a gene pool of some breeds of beef cattle, pigs and sheep in the Institute of Animal Production of Steppe Areas "Askanija-Nova" (the Kherson Region of Ukraine); in July 2009 the National Coordinator presented a report at the International Congress "On Traces of Podolic Grey Cattle" (Italy, Matera); in August 2009 the National Coordinator presented a report "The state of a gene pool of meat cattle breeding of Ukraine" in Kovel (the Volyn Region of Ukraine) at the International Symposium "15 years of the Volyn Beef breed", and also actively participated and presented reports at the Regional Seminar for National Coordinators and the International Conferences (Meetings): in August 2009 - in Barcelona (Spain), in September 2009 in Almaty (Kazakhstan), in January 2010 - in Paris (France), in September 2010 - in Kyiv (Ukraine), in May 2011 - in Tartu (Estonia) and in June 2011- in Wageningen (The Netherlands).

2) For the future, it is planned: to study guiding materials of FAO for AnGR conservation.
Prospective planning of scientific research in Ukraine within the limits of the new programme for 2011-2015 "Conservation of biological diversity of agricultural animals".
The harmonization and development of national directive approaches and legislative base for AnGR.

IMPLEMENTATION AND FINANCING OF THE *GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES*

- The state of international collaboration for planning and implementing animal genetic resources measures
- The state of financial resources for the conservation, sustainable use and development of animal genetic resources

62. Has your country established or strengthened international collaboration in (SP 16):

Characterization?

- (•) a. Yes
- ( ) b. No, but action is planned and funding identified
- ( ) c. No, but action is planned and funding is sought
- ( ) d. No

Sustainable use and development?

- ( ) e. Yes
- ( ) f. No, but action is planned and funding identified
- (•) g. No, but action is planned and funding is sought
- ( ) h. No

Conservation of breeds at risk?

- ( ) i. Yes
- ( ) j. No, but action is planned and funding identified
- (•) k. No, but action is planned and funding is sought
- ( ) l. No

Please provide further details:

Now there is participation in the international project, characterizing podolic cattle and two years ago finished our participation in international project for Podolic cattle characterization.

63. Are there any international NGOs active in your country in the fields of:

Characterization?

- ( ) a. Yes
- (•) b. No

Sustainable use and development?

- ( ) c. Yes
- (•) d. No

Conservation of breeds at risk?

- ( ) e. Yes
- (•) f. No

If yes, please list the international NGOs:

64. Has national funding for animal genetic resources programmes increased since the adoption of the GPA?

- ○ a. Yes
- ◉ b. No

Please provide further details:

Till 2010 at national level "Comprehensive State Programme of Selection in Animal Breeding" was operating and financing, where prevailing role was given to AnGR sustainable use issues decisions.

65. Has your country received external funding for implementation of the GPA?

- ○ a. Yes
- ◉ b. No
- ○ c. No, because country generally does not receive external funding

Please provide further details:

We remain open for any financial help from FAO for implementation of the GPA.

66. Has your country supported or participated in international research and education programmes assisting developing countries and countries with economies in transition to better manage animal genetic resources (SP 15 and 16)?

- ○ a. Yes, support or participation in place before the adoption of the GPA and strengthened since
- ○ b. Yes, support or participation in place before the adoption of the GPA but not strengthened since
- ◉ c. Yes, support or participation in place since the adoption of the GPA
- ○ d. No, but action is planned and funding identified
- ○ e. No, but action is planned and funding is sought
- ○ f. No

Please provide further details:

In 2010 in Kiev under FAO patronage was held Regional International Workshop (for Eastern Europe countries) "Development of National Action Plans for sustainable Animal Genetic Resources management".

67. Has your country supported or participated in programmes aimed at assisting developing countries and countries with economies in transition to obtain training and technologies and to build their information systems (SP 15 and 16)?

- ○ a. Yes, support or participation commenced before the adoption of the GPA and strengthened since
- ○ b. Yes, support or participation commenced before the adoption of the GPA but not strengthened since
- ○ c. Yes, support or participation commenced since the adoption of the GPA
- ○ d. No, but action is planned and funding identified
- ○ e. No, but action is planned and funding is sought
- ◉ f. No

Please provide further details:

But our country has for this purpose a necessary potential.

68. Has your country provided funding to other countries for implementation of the Global Plan of Action?

- ○ a. Yes
- ○ b. No, but action is planned and funding identified

- ○ c. No, but action is planned and funding is sought
- ◉ d. No
- ○ e. No, because country is generally not a donor country

Please provide further details. If relevant, specify whether funding was bilateral or multilateral; research cooperation or aid; and to whom and for what it was given:

Unfortunately, now our country can't provide necessary financing of the own National Plan of Action.

69. Has your country contributed to international cooperative inventory, characterization and monitoring activities involving countries sharing transboundary breeds and similar production systems (SP 1, Action 5)?

- ◉ a. Yes
- ○ b. No, but action is planned and funding identified
- ○ c. No, but action is planned and funding is sought
- ○ d. No

Please provide further details:

International project from Croatia, characterizing all breeds of Podolic group (samples of Ukrainian Grey).

70. Has your country contributed to establishing or strengthening global or regional information systems or networks related to inventory, monitoring and characterization of animal genetic resources (SP 1, Action 6)?

- ○ a. Yes
- ○ b. No, but action is planned and funding identified
- ◉ c. No, but action is planned and funding is sought
- ○ d. No

Please provide further details:

Now we try to implement our own extended National information database, concerning characterization and monitoring of AnGR resources.

71. Has your country contributed to the development of international technical standards and protocols for characterization, inventory and monitoring of animal genetic resources (SP2)?

- ○ a. Yes
- ○ b. No, but action is planned and funding identified
- ○ c. No, but action is planned and funding is sought
- ◉ d. No

Please provide further details:

But in 2011 in Vageningene (Netherlands) at the Regional Workshop we exchanged experience in assessment and classification of threats for animal populations for FAO to accept the uniform technique unified for all countries.

72. Has your country contributed to the development and implementation of regional in situ conservation programmes for breeds that are at risk (SP 8, Action 2; SP 10, Action 1)?

- ◉ a. Yes
- ○ b. No, but action is planned and funding identified
- ○ c. No, but action is planned and funding is sought
- ○ d. No

Please provide further details:

Our country took part at development and realization of regional programme of Podolian cattle *in situ* conservation (in Ukraine to this category belongs our local indigenous breed - Grey Ukrainian).
Besides it, in Ukraine developed algorithm and stated main parameters of population structures for different variants (total 175, from 3 to 6 for each species) of safe preservation of heritable variability of macro- and mini-populations of 35-th species of farm animals with *in situ* methods.
The tools of arsenal of selection approaches to non-allowing of uncontrolled increasing of inbreeding level at closed small populations were found.

73. Has your country contributed to the development and implementation of regional ex situ conservation programmes for breeds that are at risk (SP 9, Action 2; SP 10, Action 3; SP 10, Action 4)?

- ○ a. Yes
- ○ b. No, but action is planned and funding identified
- ○ c. No, but action is planned and funding is sought
- ◉ d. No

Please provide further details:

But Ukraine possesses necessary potential for development and realization of Regional programmes for *ex situ* conservation (particularly *in vitro*) of breeds in risk.

74. Has your country contributed to the establishment of fair and equitable arrangements for the storage, access and use of genetic material stored in supra-national ex situ gene banks (SP9, Action 3)?

- ○ a. Yes
- ○ b. No, but action is planned and funding identified
- ○ c. No, but action is planned and funding is sought
- ◉ d. No

Please provide further details:

But we are ready to take participation in this development, as we have sufficient experience of creation of network of state genebanks *ex situ in vitro*.
In Ukraine there were analysed possibilities of complex application of modern biotechnological methods of obtaining, evaluation, cryoconservation and use of different genetic material (*ex situ in vitro*) from different species of farm animals. Revieled concrete demands in sperm, embryos, DNA-samples and their donors of different sex for long-term conservation with the aim of safe recovering of each conserved gene pool object copies and in whole on main species of farm animals of Ukraine. Stated common organizational, special and technological demands to conservation of different heritable breeding (initial populations), generative and somatic material (sperm, oocytes, embryos, DNA-samples from different biomaterial) of main species.

75. Has your country participated in regional or international campaigns to raise awareness of the status of animal genetic resources (SP19)?

- ◉ a. Yes
- ○ b. No, but action is planned and funding identified
- ○ c. No, but action is planned and funding is sought
- ○ d. No

Please provide further details:

After GPA acceptance our country regularly participates in all Regional Workshop on AnGR (for countries of Eastern Europe) which are organized by FAO.

76. Has your country participated in reviewing or developing international policies and regulatory frameworks relevant to animal genetic resources (SP 21)?

- ○ a. Yes

- ○ b. No, but action is planned and funding identified
- ○ c. No, but action is planned and funding is sought
- ◉ d. No

Please provide further details:

But Ukraine took part, in particular through the National Coordinator, in on-line discussion of some international strategy and the regulatory frameworks relevant to AnGR.

EMERGING ISSUES

77. In view of the possibility that at some point countries may wish to update the GPA, please list any aspects of animal genetic resources management that are not addressed in the current GPA but will be important to address in the future (approximately the next ten years). Please also describe why these issues are important and indicate what needs to be done to address them.
Issues to be addressed in future

Issues to be addressed in future (next ten years)	Reasons	Actions required
Some theoretical aspects of methodology of preservation of AnGR biodiversity	Lack of coherence in understanding and realization by the different countries of some actions for AnGR preservation	Search of the uniform unified approaches for the different countries in realization of concrete techniques of an assessment (including structures of micro populations), classification and AnGR monitoring
Species of agricultural animals	Maximum coverage of a biodiversity	Extending of range of farm animal species at the expense of representatives of not only poultry class (extended list of domesticated species) and mammals (e.g., animals of cage keeping), but as well animals of fish class (industrial species) and insects (bees, mulberry and oak silk worms, rain (compost) worms and so on).
Convenient and clear differentiation (and evident illustration) of degrees of threats (danger) for different populations of animals	Presentation, simplicity and convenience in use	Formation color (Black, Red, White and Green) the AnGR lists (the gene pool objects) over the countries, regions and the world as a whole.

Submit by Email