GEORGIAN DOMESTIC ANIMAL GENETIC RESOURCES

2003

G E O R G I A

COUNTRY REPORT
ON THE STATE OF THE WORLD'S
ANIMAL GENETIC RESOURCES

(Country report to the FAO)

THE MINISTRY OF AGRICULTURE OF GEORGIA

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Capital – **TBILISI**

Population – 1, 25 million

Country population –5, 5 million (Of which rural population 2, 5 million)

Density of population per sq. km. – 78, 1

Sovereign state - since 1991

National currency – Lari, GEL (since 1995)

Member of the Council of Europe (COE) – since 1998

Member of the United Nations (UN) – since 1992

Member of EAAP-since 2004

1. GEORGIA AND AGRICULTURAL SECTOR

1.1. GENERAL INFORMATION

Georgia is located in the Caucasus at the crossroad of Asia and Europe on the northern periphery of subtropical zone between the northern latitude of 41-420 degrees and eastern longitude of 40-460 degrees (Greenwich meridian). Georgia is an eastern gateway to the Europe along with other states of the south Caucasus –Azerbaijan and Armenia.

In terns of modern borders, total area of the country territory is 69,7 thousand sq. km. Georgia is bordered by the Black Sea from the West, Azerbaijan – from the East and South-East and the Russian Federation – from the North. The southern geographical boundaries run along the Minor Caucasus mountain range and separate Georgia from Turkey and Armenia. The total length of the border is 1968, 8 km, whereas the land border totals 1660, 4 km. The territory of the country vertically spreads up to 5068; 8 meters above the Black Sea level (Mount Shkhara).

Georgia's geographical location conditioned diversity of its nature, as Georgia is characterized with contrasting relief and 2/3 of its territory is mountainous.

Georgia is one of the ancient countries in the world. Its statehood counts 3000 years. Georgia's population consists of: Georgian nation – 3, 5 million; Abkhazian people – 90 thousand; Armenian –500 thousand; Azerbaijan –400 thousand; Russian -200 thousand; Ossethian – 160 thousand; Greek – 150 thousand; Jew – 80 thousand; Kurt – 40 thousand; (The figures need to be specified). In addition, there are Ukrainian, Polish, German, Kist (Chechen) and people of other nationalities as well. Historically, orthodox Christianity has been regarded as an official religion.

POPULATION AS OF THE BEGINNING OF THE YEAR

(Thousand inhabitants)

Year	Total population	Of which rural population	Rural population as percentage of total population
1985	5 230,0	2 430,4	46,5
1990	5 456,1	2 397,9	43,9
1995	4 745,9	2 278,1	48,0
1996	4 757,8	2 288,5	48,1
1997	4 721,7	2 072,9	43,9
1998	4 690,5	2 054,4	43,8
1999	4 650,7	1 967,3	42,3
2000	4 604,2	1 943,0	42,2
2001	4 495,1	1 888,0	42,0
2002	4 409,8	1 874,8	42,5

Georgia is rich with the diverse landscapes, contrasting nature, where the Caucasus mountain range is covered with eternal snow and glaciers, subtropical zone of the Black Sea coast. Also the country is rich with the internal waters (rivers, lakes, reservoirs, underground waters, marshes, waterfalls, and medical springs), caves, and health-resorts, historical and cultural monuments. There is the great number of water abounding rivers in Georgia - 25075 rivers with the total length of 54768 km.

Georgian rivers belong to Black and Caspian Sea basins. Most of them spring from Caucasus mountain range with great descent and create the deep gorges. The largest river is Mtkvari in East Georgia, which springs from Turkey. The largest river in West Georgia is Rioni. There are a lot of different original lakes in Georgia. Their number is around 860. Most of them are too small. The most important lakes are: Paravani Khozapini, Tabatskuri, Bazaleti, Paliastomi, Ritsa. The marshes occupy especially large area (225000 hectares) in Kolkheti lowland in West Georgia. Georgia water resources are used for irrigation, water supply and energy generation.

On the territory of Georgia all types of climatic zones, explored on the Earth, can be observed. In West Georgia there is the damp, subtropical climate. In East Georgia the climate is mainly continental. In the zone of eternal snow and glaciers the climate is severe.

Georgian flora is diverse. Here are the damp, subtropical forests, European type foliage forests, coniferous forests, the lowlands and uplands, and the sub-alpine and alpine meadows. The forests cover the large territory of Georgia. In West Georgia they are extended to 2400 meters from the sea level. In East Georgia they are spread in the gorge of the river Mtkvari, also on the south branches of Caucasus mountain range, on the mountain ranges of Ajara – Akhaltsikhe and Trialeti. There are also forestless uplands and semi-deserts. There are a lot of unique reserves and forest parks of international significance in Borjomi, Lagodekhi and Kharagauli. Rare beasts dwell in Georgian forests. Hunting is very popular in suitable seasons in Georgia.

There are about 100 health-resorts in Georgia, 7 of which (Borjomi, Tskaltubo, Gagra, Akhali Atoni, Bichvinta, Kobuleti, Gudauri) are of international significance.

Black Sea climatic health-resorts are located in the recreation district of Abkhazia and Ajara and partially in Kolkheti lowland. Also there are famous balneologycal health-resorts and mineral springs in West Georgia. Gudauri and Bakuriani are considered as very significant mountain climatic health-resorts.

Mountaineering in Georgia was traditionally popular. Georgia is also referred as the country of caves. According to the zoogeography Georgia appropriates to the Arctogey land, Holarctic district and Mediterranean sub-district.

The list of the animals spread in the Caucasus mountain range, west and Central Caucasus

Endemic
West Caucasian aurochs
Dagestani aurochs
Prometheomys mouse
Caucasian black grouse

Common to the East Caucasus
Grey rabbit
Usual hedgehog
Caucasian pheasant
Caucasian tortoise

Widely spread
Brown bear
Lynx
Fox
Badger

Common to the West Europe
Chamois
Snow field-vole
Forest cat
Forest marten
Mole
Kind deer
West nightingale
Tree frog

Common to the Copetdag
Leopard
Snow field-vole

TRACECA-Transport corridor of Europe, Caucasus and Asia

The idea of launching the TRACECA project belongs to the ex–president of Georgia, Edward Shevardnadze. In May 1993 the conference involving European Union member countries (Kazakhstan, Uzbekistan, Armenia) was held, which laid the foundation for the TRACECA program. This program foresaw to develop a transport corridor on a West-East axis from Europe, across the Black Sea, through Caucasus and the Caspian Sea to Central Asia. It was decided that this program would be funded by the European Union.

TRACECA is an international program of the European Union, which is implemented by Tacis.

The construction of an oil pipeline is one component of the TRACECA project. Many successful activities are connected with this project, including an interstate INOGATE project, which implies development of routes for oil and gas pipelines.

Transport corridor of the Europe-Caucasus-Asia is a repeated version of the oldest Big Silk Road. Starting from the Ist century BC, it has played a significant role in connecting eastern and western civilizations. Currently, the revival of this route is prompted by historical changes. The opportunity of shipments into the Europe opens alternative markets for the post-soviet countries. It is convenient to use railway for shipments from the eastern countries to Turkmenistan. Ferryboat system in the Caspian Sea makes two Caucasian countries – Azerbaijan and Georgia crucial points of the corridor.

One of the major functions of the Europe-Caucasus-Asia corridor is to transport oil and natural gas. Their transportation is more favorable through pipelines. Central Asia region is one of the richest basins of oil and gas in the world. It is scheduled to involve fuel raw materials of China, Pakistan and other South-East countries of Asia in this project as well.

In addition, this route has far-sighted prospects, which implies transportation of final products of light industry made by the European firms to the South-East Asia.

According to modern territorial-administrative division, Georgia is represented by the following historical-geographical units: Kakheti, Samegrelo, Svaneti, Kvemo Kartli, Mtskheta-Mtianeti, Imereti, Samtskhe-Javakheti, Shida Kartli, Racha-Lechkhumi, Guria, Abkhazia, Ajara. Georgian regions are divided into administrative districts and the districts themselves are divided into Sakrebulos (city councils).

Kakheti Region

Administrative centre – **Telavi**

Samegrelo & Zemo-Svaneti Region

Administrative centre – **Zugdidi**

Kvemo-Kartli Region

Administrative centre – **Rustavi**

Mtskheta-Mtianeti Region

Administrative centre – **Mtsketa**

Imereti region

Administrative centre – **Kutaisi.**

Samtskhe-Javakheti Region

Administrative centre – **Gori**

Racha-Lechkhumi and Kvemo Svaneti Region

Administrative centre – **Ambrolauri**

Guria Region

Administrative centre – **Ozurgeti**

Abkhazia AR

Capital city – **Sukhumi**

Ajara AR

Capital city – **Batumi**

1.2 AGRICLTURAL BACKROUND IN GEORGIA

Georgia is the agrarian country. Agriculture has a vital importance in Georgian economics, and its share in GDP accounts for 28%. About 1,3 million people are employed in this sector, which is 55% of the total employment of the country.

EMPLOYMENT IN NATIONAL ECONOMY

(Thousand people)

Year	Employment, total	Of which in agriculture	As percentage of total
1985	2 667,3	728,8	27,3
1990	2 767,3	695,0	26,1
1995	1 730,1	530,1	19,2
1998	1 731,1	832,1	48,1
1999	1 732,6	895,9	51,7
2000	1 748,8	903,0	51,6
2001	1 877,6	1 044,0	55,6

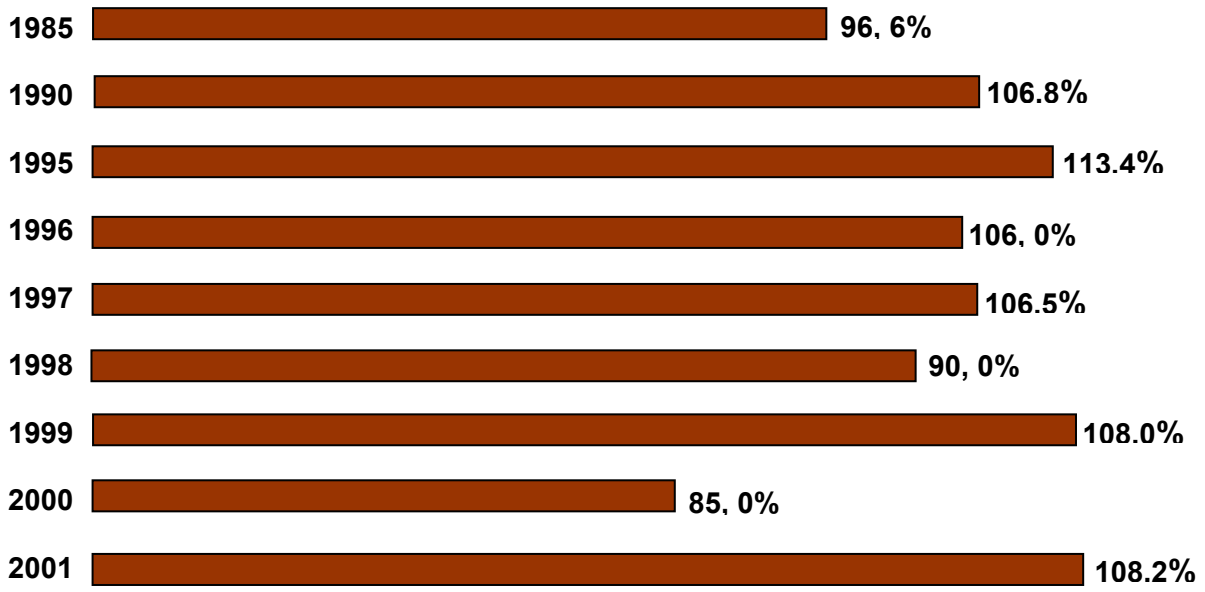
The significant fields of economics of the country are: Agriculture (husbandry, vegetable growing, fruit-growing, horticulture, tea-growing, citrus- growing, tobacco – growing, potato-growing,) and livestock (cattle-breeding, swine- breeding, sheep- breeding, poultry, rabbit-breeding, bee-keeping, goat- breeding, horse- breeding, beast- breeding, fish- breeding,)

BRANCHES AS SHARE OF GDP

(as percentage)

Branches of economy	1990	1995	1998	1999	2000	2001
Agriculture	29.7	41.7	26.7	24.7	20.2	20.8
Industry	22.9	9.5	12.3	13.0	13.6	12.1
Construction	8.7	2.2	4.6	3.7	3.7	3.7
Trade	5.6	26.0	10.4	11.5	12.7	12.5
Transport & communications	7.1	8.5	10.9	11.9	14.3	14.3
Other branches	26.0	12.1	35.1	35.2	35.5	36.6

PHYSICAL VOLUME INDICES OF AGRICULTURAL OUTPUT BY FARM OF ALL CATEGORIES
(Comparable prices, as percentage of the previous year)



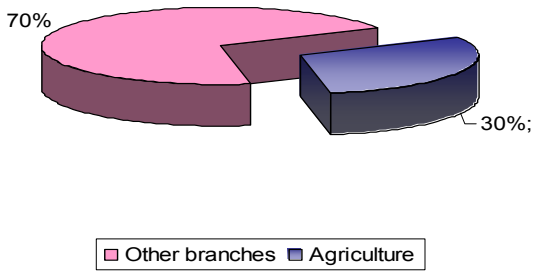
ANNUAL AVERAGE MILK YIELD PER COW
(kg)

Indicators	1995	1996	1997	1998	1999	2000	2001
Milking cows, thousand heads	514.3	531.3	543.6	551	575.0	640.1	646.3
Average yield, kg/head	913	982	1090	1087	1073	944	1018

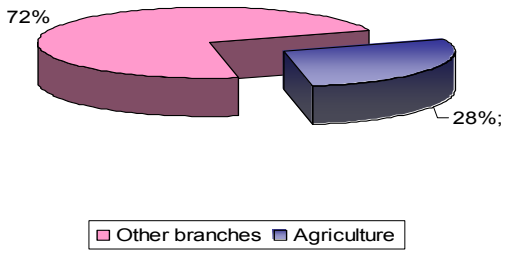
Formation of market relation structures in agriculture of Georgia, creation of new types of enterprises, redistribution of agricultural output in private sector, principally new representation of consumers market under free trade conditions require carrying out of reforms in the state statistics. In fact the material-technical base and agricultural machinery must be re-established.

SHARE OF AGRICULTURE IN GDP

1990 year



2000 year



AGRICULTURAL OUTPUT
(Current prices, min. GEL)

	1996	1997	1998	1999	2000	2001
Agricultural production, total	172638	1709.6	1718.0	1887.5	1591.8	1851.4
Of which: plant growing	948.6	942.3	920.7	1076.6	771.0	935.3
Livestock	778.2	767.3	797.3	810.9	820.8	916.1

The structure of agricultural land ownership underwent a significant transformation on the first stage of agrarian reforms. After the land reforms about one million families became the owners of nearly 30% of agricultural land.

PHYSICAL VOLUME INDICES OF AGRICULTURAL OUTPUT BY CATEGORIES OF FARMS
(Comparable prices, as percentage of the previous year)

year	By farms of all categories	Of which in:	
		Plant growing	Livestock
1996	100	100	100
1997	103.9	101.0	107.3.
1998	93.4	89.1	98.7
1999	106.9	11.9	101.2
2000	88.0	79.0	100.2
2001	108.2	110.6	106.0

DISTRIBUTION OF THE NONAGRICULTURAL AND AGRICULTURAL LAND BY THE TYPES OF OWNERSHIP

(As of 1April 2002, ths. hectares)

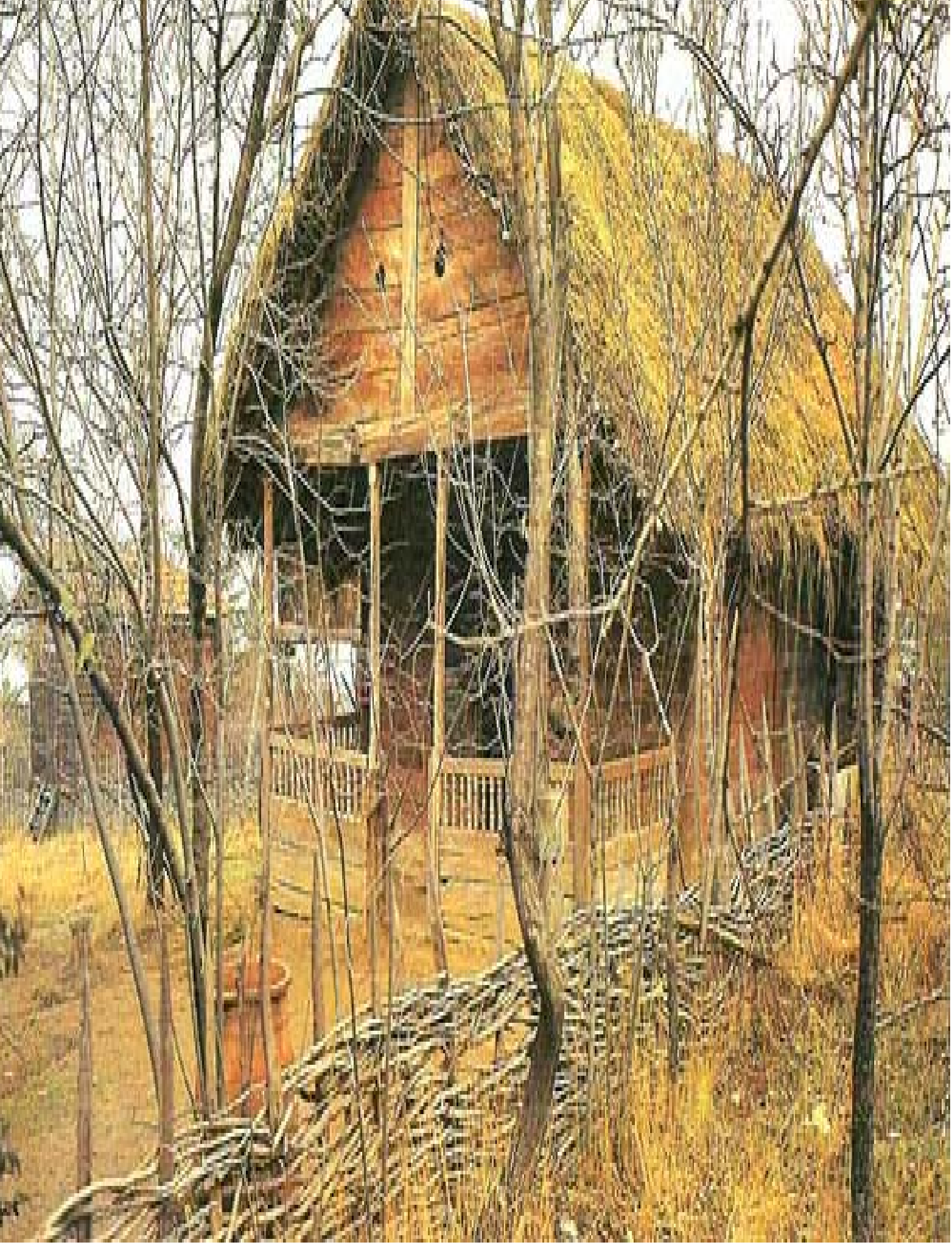
	1986	1991	1998	1999	2000	2001	2002
Land area, total							
All categories	7272.6	7272.3	7009.0	7009.0	6449.0	6449.0	7628.4
In private ownership	199.0	211.4	918.0	919.6	932.5	942.3	943.4
In state ownership	7073.6	7060.9	6091.0	6089.4	6116.5	6007.1	6685.0
Agricultural land							
All categories	3267.1	3275.4	3037.0	3063.5	3018.4	3019.7	3022.7
In private ownership	183.6	195.3	789.7	750.1	762.1	762.1	763.0
In state ownership	3083.5	3080.1	2247.3	2312.4	2256.3	2257.6	2259.7
Arable							
All categories	783.2	790.4	785.0	791.9	790.4	792.9	795.3
In private ownership	96.4	95.9	431.9	431.7	433.9	434.1	436.6
In state ownership	686.8	694.5	353.1	360.2	356.5	358.8	358.7
Perennial plants							
All categories	357.0	336.9	277.5	269.8	270.1	269.3	267.9
In private ownership	84.7	97.6	185.7	181.8	182.3	182.5	181.1
In state ownership	272.3	239.3	91.8	88.0	87.8	86.8	86.8
Meadows							
All categories	176.3	158.4	141.2	14.7	142.5	142.3	142.5
In private ownership	2.5	1.8	47.6	39.6	41.5	41.3	41.9
In state ownership	173.8	156.6	93.6	103.1	101.0	101.0	100.6
Pastures							
All categories	1947.7	1983.7	1833.3	1839.7	1796.0	1795.8	1797.2
In private ownership	-	-	124.5	77.6	85.0	84.8	83.6
In state ownership	1947.7	1983.7	1708.8	1762.1	1771.0	1711.0	1713.6
Fallow							
All categories	2.9	6.0	-	-	-	-	-
In private ownership	-	-	-	-	-	-	-
In state ownership	2.9	6.0	-	-	-	-	-

STRUCTURE OF AGRICULTURAL LANDS BY THE TYPES OF OWNERSHIP

(As of April 2002, percentage of total)

	1986	1991	1998	1999	2001	2002
Land area, total						
All categories	100	100	100	100	100	100
In private ownership	2.7	2.9	13.1	13.1	13.6	12.4
In state ownership	97.3	97.1	86.9	86.9	86.4	87.6
Agricultural land						
All categories	100	100	100	100	100	100
In private ownership	5.6	6.0	26.0	24.5	25.2	25.2
In state ownership	94.4	94.0	74.0	75.5	74.8	74.8
Arable						
All categories	100	100	100	100	100	100
In private ownership	12.3	12.1	55.0	54.5	54.7	54.9
In state ownership	87.7	87.9	45.0	45.5	45.3	45.1
Perennial plants						
All categories	100	100	100	100	100	100
In private ownership	23.7	29.0	66.9	67.4	67.8	67.6
In state ownership	98.6	98.9	66.3	72.3	71.0	70.6
Meadows						
All categories	100	100	100	100	100	100
In private ownership	1.4	1.1	33.7	27.7	29.0	29.4
In state ownership	98.6	98.9	66.3	72.3	71.0	70.6
Pastures						
All categories	100	100	100	100	100	100
In private ownership	-	-	-	-	-	-
In state ownership	100	100	93.2	95.8	95.3	95.3

On this stage the reorganization processes of agricultural enterprises is carried out. The former collective farms, state farms and other types of state agricultural enterprises, being founded on the private cooperative and other kinds of ownership transformed into new legal organization forms.



2. THE STATE OF THE PRODUCTION SYSTEMS

2.1. PRIMARY ANIMAL PRODUCTION SYSTEMS

There are three major production systems in Georgia which significantly contribute to food production and agriculture, rural communities or ecology:

1. a low-input system – mostly non-certified organic production (ecological production);
2. a medium- input system – mixed production;
3. a high-input system – intensive production.

Low- Input System

A Low- Input System mostly refers to non-certified organic production. Non-certified organic production is substantially presented generally in all regions of Georgia at small and middle family farms.

Certified organic production is a system of farming, today relatively marginal in Georgian agriculture, but has a potential to expand owing to natural conditional relation towards conservation of agricultural resources.

Indigenous breeds represent a natural value not only regarding genetic diversity but also their impact on diversity of ecological systems and landscape.

Medium-Input System

A medium- input system refers to the sustainable or basic production which is of a mixed type- dependable on geographic, social and economic factors. Each family farms belong to the medium-input system as central categories of ownership traditionally related to Georgian agriculture. It is an integral farming with unfailing livestock breeding and traditional farming;

There is an increase in intensive production systems on family farms today. Within the framework of a sustainable agriculture system family farms usually raise more than one livestock species (cattle, pigs, poultry, sheep and goats).

As well imported as indigenous animal breeds are predominant in Georgia

High-Input System – Intensive Production

Intensive agriculture is a market-oriented activity which is aimed at high profits and marketability product and nowadays there are not any investments by capital producers.

This system has mostly been developed on a smaller number of family farms. This system gives priority to poultry breeding in Georgia.

Organizational Characteristics of Production Systems

The privatization process has changed the ownership structure by creating mixed, stock and holding companies.

The sustainable agriculture system consists of majority of family farms, which implies private ownership of farms. Most of them are of mixed production.

Input Dependence

In the sustainable agriculture system the majority of family farms utilize their own crop production for the provision of basic animal food and consequently, does not depend on the outside input. They depend on the veterinarian care, selection and concentrated protein components, mineral and vitamin additives.

This dependence affects productivity and health of the extant animal genetic resources.

Risk Factor Impact

After Georgia gained its political independence, there were significant social and economic changes in Georgian economics and accordingly in agriculture. Transition processes, privatizations, and other capital resources declined agricultural production and foreign trade balance.

The transition shock in the changes of market economics resulted in similar phenomena in agricultural-food industry complex and in the overall economy likewise; a decline in production and employment indebtedness, technological underdevelopment a decline in the balance of trade exchange and non-liquidity.

Although declaratively favorable for farmers, inadequate system of financial and institutional support to agriculture in practice has either directly or indirectly caused the state money transfer into inefficient and slow systems. High external production costs, rigid revenue system, chronic lack of cheap capital (necessary for agriculture), irrational trade and distribution system and insufficient budget support are only some of the major factors of production decline, low level of self-sufficiency and high prices of agricultural and food industry products.

The process of agricultural land management is very slow and inability to buy land still restricts the property enlargement which directly affects the increase of animal fund, especially on family farms. The functioning of the agricultural and food industry products is restricted by disloyal competition and insufficient legislation.

It especially affects directly family farming engagement in the distribution of agricultural and food industry products and non-existence of institutional frameworks, which would determine the farmer's position on the market.

All the afore-mentioned factors are present as risk factors in all livestock production systems, regardless of animal species. Livestock production requires constant investments. However, capital is extremely inaccessible, while low standard, social turmoil, currency fluctuations and livestock diseases constrain security of livestock production.

Apart from the above-mentioned risk factors we need to emphasize occasional droughts and floods, as well as various animal diseases, which have seriously affected all animal production systems in the last ten years.

2.2. THE MOST IMPORTANT ANIMAL PRODUCTS

The following species are utilized in primary livestock production: cattle, pigs, sheep, goats, poultry, fish and bees. Cow milk is predominant in milk production, while pork, meat and poultry are equally represented in meat production. Locally adapted breeds have far greater significance in all livestock production than modern imported breeds.

The most important primary livestock products are meat, milk, eggs, fish and poultry. Georgian regions differ in respect of significance of these products.

The importance of secondary products in Georgia is related to particular regions, depending on geographic, social and economic status, management of natural resources.

In the last year there has been a significant cease in livestock product export, owing to their import. Since we are not self-sufficient in livestock production, everything we produce is mostly for the domestic market. Social difficulties and privatization processes have substantially contributed to a decline in the livestock production for the domestic market and export.

2.3. MAJOR TRENDS OR SIGNIFICANT CHANGES IN THE USE AND MANAGEMENT OF ANIMALS

In the last ten years there have been significant changes in the use and management of animals. These events caused the changes in the ownership structure, application of new Agriculture acts, Agricultural land Act.

Objectives and measures of changes in the ownership structure are: an increase in the size of family farms, i.e. property enlargement through privatization of sale or lease of agricultural land in the state ownership. In livestock production it implies an increase in livestock fund, modernization in production with food security as much as possible by competitive domestic agricultural products. At the same time the objective is to create production conditions for ecological products.

There have been significant changes in the infrastructure of animal production in the last ten years. Business politics has been oriented towards emphasizing domestic, competitive production in order to meet needs for food products.

The courses of action for agricultural politics with the aim to restructure the agricultural sector are:

- Subsidy for vital commercial farms;
- modernization of production capacities agro-technological and agro-economic procedures;
- increase in the role of farmers on the agricultural product market;
- impact on the changes in the agrarian structure and production technology order to increase competitiveness of agricultural production;
- implementation of financial resources and compensations in agriculture;
- reform of the fund for financing and subsidizing farmers;
- implementation of selection work in livestock breeding;
- counseling support;
- increase in efficiency of administrative and special services and association in agriculture;
- stimulation of personnel training;
- implementation of measures for protection of biological and landscape diversity in farming;
- Stimulation and development of ecological and traditional agriculture and agriculture that allow the survival of a relatively rich animal world.

All this considerably affects production systems in livestock production.

Today the major limiting factors and constraints which affect the productivity and efficiency in livestock breeding are small scale farms, still unfinished privatization, and inefficient production owing to insufficient education, market instability and insufficient financial support. All this is actually a combination of limiting factors which follow agriculture of the countries in transition.

3. THE STATE OF ANIMAL GENETIC RESOURCES DIVERSITY

3.1. THE STATE OF KNOWLEDGE OF ANIMAL GENETIC RESOURCES

The perennial basic information on diversity of animal genetic resources is preserved in the Livestock Department of Agriculture and Food Ministry and in Zoo Veterinary Academy of Georgia. During the last ten years there were passing an intensive procedures in order to research biological and immunological investigation and to study the characterization of new breeds. Nowadays there is not any separate coordinated effective institute, which is working on diversity of animal genetic resources. The main reason is financial problems and unique breeds are in danger. Now there is nothing being done in this sphere.

Georgia's priorities regarding capacity development for AnGR characterization are:

1) To start working on the creation of a central identification and registration system and data base for farm animals;
2) To start working on founding and organizing of breeding and farmers associations which would gradually overtake a portion of activities in AnGR identification, monitoring and characterization and actively participate in breeding and selection work;
3) To start establishing institutions for control of agricultural product quality;
4) To establish animal gene bank.

3.2. INFORMATION OF AnGR GENETIC DIVERSITY

Breeds in Georgia are divided into:

1) ACTIVE- domestic animal breeds which are economically lucrative and are bred in sufficient number and population size is stable;
2) ENDANGERED – breeds which are in danger of becoming extinct because their amount of population is smaller than the critical number. In Georgia the following species of domestic animals have been utilized directly in food production and agriculture: cattle, horse, ass, pig, sheep, goat, hen, duck, goose, turkey. Apart from the species mentioned, fish are also used for production (in aquaculture, as well as in the open seas), bees and some farmers are starting to breed the ostrich. In the last years some locally adapted breeds have disappeared.

Consequently, the total number of domestic animals has decreased considerably, causing locally adapted breeds to suffer. Some of them have totally disappeared, while the number of others has drastically decreased and we need special measures for their survival. There is a weak base of animal identification (life number, data of birth) in Georgia. The endemic breeds are more protected than locally adapted breeds.

Georgian Domestic Animal Genetic Resources

Georgian cattle

Georgian mountain cattle. Georgian mountain cattle are represented by the ancient local sorts, created by national selection, which are extended in all regions of Georgia. Aristotle remarked that there are small cows at the river Phazisi (West Georgia) that are characterized by large quantity of high fatness milk, this was Georgian mountain cow, which is still preserved in Georgia. During the centuries it was formed many kinds in this sort of cattle by the result of isolated breeding in different parts of the country and different direction selection, which are Khevsuruli, Pshavuri, Rachuli, Adjaruli, Osuri, Svanuri; They differ from each other exteriorly, also by the development and productivity indicators. The unique peculiarities of Georgian

mountain cattle are: the adaptation to the stern climatic conditions and to the poor food, endurance and sustenance. Georgian Mountain cow is bred in the high mountain regions of Caucasus, where there is shortage of winter food for animals and the pastures are so steep, that no other cattle can feed themselves but Georgian Mountain cow. It is very small-sized body-dwarf (100cm) but it has unique productivity potential. This is suitable for the country which territories more than 50% are represented by mountains and hills. They use steep tablelands (30-35^0). These breeds have peculiarities characteristic exclusively to them and have no analogues anywhere. These are: high endurance to diseases (absolute resistance to leucosis and pyroplazmosis); adaptability to the temperature fluctuations and low oxygen consistence in mountainous area; adaptability to the steep pastures, which is practically impossible for other breeds; specific taste of milk and milk products.

Characteristics	**Cow**	**Producing-bull**
Live weight, kg.	180-220	250-300
Average yield, kg	500-700 (max 4111)	-
Consistence of milk (%): Fat **Protein**	4.3-4.6 3.2-3.3	- -
Live weight of calf at born, kg	10-12	12-15
The steers weight (18-20 months), kg	-	200-220
Average daily increase, g	-	500-600
Outcome of slaughter (%)	-	52-54

The sort is small, but it has universal productivity. The weight of grown-up cows is 200-250 kg. and of producing bulls- 350-400 kg. The average lactation yield of Georgian mountain cow is 500-700kg. The dairy product in the breeding farms hesitates between 1000-1500 kg with the fatness of 4, 2-4,4 in different years. It is characterized by low milking rate in primitive feed conditions, but in case of improved feeding and maintenance, milking rate increases on average up to 2000kg. with 4.2% fatness. The milk is characterized by small diameter fat bubbles. In the best years grown-up cows, which represent the sort's potential ability, are equal to the productivity indicators of the specialized high cultural sorts. The Georgian mountain cattle are characterized by the good taste peculiarities of meat.

The Caucasian nut-brown cow. One of the most significant achievements of zoo-technical sciences in 20th century may be considered the establishment of Caucasian nut brown sort on the base of the joint activity of Caucasian scientists. Southern districts of Georgia are considered to be the main places for the establishment of this sort. Here are wide grounds, which are necessary for stable food base. The characteristics of Swiss and local sorts are joined successfully in this sort: from Swiss brown sort-large live weight and productivity and from local sort - high milk fatness and high adaptation towards the local conditions. Corresponding to the feed and care-keeping intensification level, being achieved in Georgia, it was impossible to create the sort having more high productivity.

During the period of collective farming in Georgia, Caucasian nut-brown sort composed 90% of the total amount, which was economically justified. For example, there were 1.1 million heads of cattle of the Caucasian nut-brown sort in 1990, of which 330 thousand heads of dairy cows. By now, the number of cattle close to the Caucasian nut-brown is more than 95% (of the total amount of cattle). In the average feeding conditions, volume of the annual dairy product was 2400-2800kg. with 3.8-4% fatness. In the conditions of better feeding and maintenance, the dairy rate reached 3500-4500kg. The record dairy rate was 8789 kg, demonstrating the high genetic potential of this sort. This is the only sort in the country, the product of which is used for making the Swiss cheese on the Alpine pastures.

The Caucasian nut- brown sort of cow is produced on the base of Georgian cattle, Swiss and other nut-brown sorts by the Georgian scientists. The best peculiarities of this sort are the good ability of adaptation to the stern natural climatic conditions and also ability of using the alpine and crushed-stone pastures, firm hoofs, the high consistence of albumen and fat in milk.

The Caucasian nut- brown cow

The Caucasian nut-brown sort is the most broadly extended in the country. In South Georgia all crushed-stone and descended pasture regions cow-breeding are represented totally by this sort. Caucasian nut-brown sort has the milk and meet direction.

The grown up cows' weight is nearly 450-470 kg, dairy is 2800-3400 kg with the fatness of 3, 85-3, 9%. The Swiss cheese is made only from the milk of Caucasian nut- brown.

Characteristics	Cow	Producing-bull
Live weight, kg.	450-520	850-900
Average yield, kg	2400-2800(max 8789)	-
Consistence of milk (%): Fat **Protein**	3.7-4.0 3.2-3.3	- -
Live weight of calf at born, kg	27-29	30-33
The steers weight (18-20 months), kg	-	460-480
Average daily increase, g	-	900-950
Outcome of slaughter (%)	-	56-58

This sort has good meat productivity and tasty peculiarities. During the fattening the grown up gives daily 900-950 g weight addition, at the age of 18-20 months the steers weight is 460-480 kg. In future the main growing of nut-brown sort improvement will be their pure breeding.

Megruli red cow. Megruli red is produced by brothers Kvaratskhelia in the second half of the 19th century as draught cattle. This is the local sort and is extended through the small territories of west Georgia, mainly in Samegrelo and Guria.

During the World War I brothers Kvaratskhelia sent 300 bulls to the Russian Emperor-Nikoloz II, as the labor power. They received the Honorable Diploma from the Emperor for special achievement.

Megruli red is established on the base of Georgian mountain cow by selection. Megruli red cow is bred in nomadic conditions.

This sort spends summer in the Alpine mountain zone. In winter, it feeds itself in Kolkheti bogs and does not need barns or any extra food. It's characterized by high endurance and strong constitution.

Megruli red cow

This sort is mainly red and has up-curved horns of light color. It is characterized by live temperament. The average live weight of Megruli red cow is 250-290kg., of producing bulls - 400-450kg. the average annual yield is - 1500-2000kg. with 4,3 -4,4% fatness. In the poor nomadic conditions its milking rate is low, but in the case of improved feeding - it reaches 2900-3000kg. It is late matured animal, its meat productivity is lower than average.

Characteristics	**Cow**	**Producing-bull**
Live weight, kg.	250-280	450-500
Average yield, kg	1500-2000 (max 4400)	-
Consistence of milk (%):Fat **Protein**	4.2-4.4 3.1-3.2	- -
Live weight of calf at born, kg	15-16	18-20
The steers weight (18-20 months), kg	-	300-320
Average daily increase, g	-	600-700
Outcome of slaughter (%)	-	52-55

This breed is characterized with high endurance to diseases (absolute resistance to leucosis and pyroplazmosis); adaptability to the temperature fluctuations and low oxygen consistence in mountainous area; adaptability to the steep pastures, which is practically impossible for other breeds; specific taste of milk and milk products; These characteristics of the local Gene Pool are achieved by selections carried out for a long time, representing a source for genetic completion.

Georgian buffalo. Buffalo breeding has a long history in Georgia. It's bred as in lowlands (in the river gorges of Alazani, Iori, Mtkvari, Rioni and others) so in mountainous regions at 1700-2000 meters from sea level.

Georgian buffalo

It's characterized by the great endurance towards the following diseases: brucellosis and foot-and-mouth disease. Buffalos use well the grass of marshes, cane, low quality hay, on which the cows can't make productions.

Buffalo breeding has the work-dairy-meat direction. Georgian buffalo are bigger than Azerbaijan, Armenia and India ones, but it's small than Hungary buffalo. Female buffalo's weight is nearly 470-550 kg. By the dairy it's nearly the same as the cow's local sorts. It gives 1300-1500 kg milk with nearly 7, 8% fatness.

Buffalo's dairy productivity has the potential of 3000 kg. The best quality sour milk and cheese is made from buffalo's milk.

Georgian pig

Kakhuri pig. Kakheti pig is one of the oldest breeds of European origin, which was received in the nomadic conditions as the result of European wild pig domestication by national selection. Herd uses well the forest fruits, pastures and seed cultures. It is black, sometimes dark grey or reddish. Sucking-pigs are stripy like their wild ancestors. Stripes disappear at the age of 3 months. Mostly it has straight and coarse bristle, sometimes curly. Its fuzz is well developed. This breed is characterized by medium-size long head, well developed moving snout and short standing ears. It has flat, narrow, enough deep and short body, convex back, tall and strong legs, indrawn and short stomach, underdeveloped udder, the number of nipples -10-12.

The prompt mass of the male is 100-120kg, of female - 60-80kg. Meat quality is high. Pure weight of lean meat is 63-65%, of fat – 20-21%. Such composition of meat and fat is desirable for specialized bacon sorts. Kakhuri pig is preserved only in the mountainous zones in East Georgia, where nomadic pig breeding is extended most of all.

Kakhuri pig

Its productivity is 6-8 sucking pigs. The pregnant pigs sometimes disappear in the forest to born their sucking pigs and after birth, they return to the herd. Rarely they don't return and become wild. Kakhuri pig is pure breed due to immunogenetical investigation.

Characteristics	Boar	Sow
Live weight, kg.	110-120 (max-160)	95-100 (max-130)
Body length, cm.	105-110	95-100
High productivity, unit	-	6-8
Milk products, kg.	-	30-35
Average daily increase, g	250-300	250-300

The same data are given by learning the construction of the cranium. Phenotype and genotype data directly confirm their origin from their wild ancestors.

Svanuri pig. Svanuri pig is extended in the high mountainous zones in West Georgia (1800-2000 meters from sea level). It's formed in the result of the wild pig's domestication. Stern climatic conditions and poor food impacted its development. By the immunogenetical learning it's clear, that they are alike to their wild ancestors. The same data are given by learning the construction of cranium. Out coming from this, phenotype and genotype confirm the origin of this breed directly from its wild ancestors. It is characterized by high taste peculiarities of meat.


Svanuri pig

Meat is like marble, which is used for bacon. This sort has high endurance towards diseases and is late matured. It is accustomed to Svaneti high mountain conditions. Because of small live weight Svanuri pig was massively crossed to the big white boar for increasing productivity. All this impacted negatively on nomadic peculiarities.

Characteristics	Boar	Sow
Live weight, kg.	50-60	35-40
Body length, cm.	82-90	77-85
High productivity, unit	-	5-6
Milk, kg products.	-	28-30

The amount of this breed is very small and needs special attention.

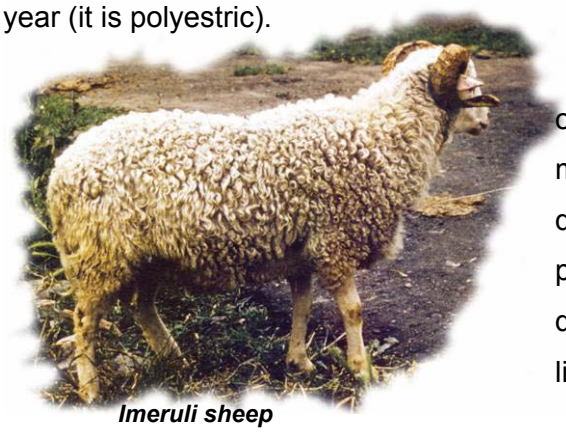
Georgian sheep

Georgian sheep. Sheep breeding is historically traditional field of animal-breeding in Georgia. In the further past (900-11000 years A.D) the breeding of mild wool sheep was very popular in the countries of small Asia and in West Georgia- in Kolkheti, from where they were broadly extended in the Mediterranean countries-mainly in Greece, Italy and Spain; Merinos breeds were brought into West European countries from Spain. In ancient Kolkheti merinos sheep-breeding was developed, which is confirmed by the famous legend "War of Argonauts in Kolkheti for golden fleece acquirement".

Imeruli sheep. Imeruli sheep is the descendant of old Georgian sheep. It is small and has thin, elongated body, short cone-shaped tail, hard extremities and dry constitution. This breed is mostly white, but sometimes motley or colored. The unique breed of Imeruli sheep is characterized by expensive biological-productive peculiarities. It is inseminated at the age of 5-6 months. This breed is very productive and represents the expensive genetic material for creation of sheep new types and breeds.It gives pure, transitive-fleece wool of extra class and meat with good taste peculiarities, which has not specific smell.

It is shaved three times in a year. Imeruli sheep grows quickly and is early-matured. The lambs, at the age of 6 months reach 75% of grown-up sheep, at the age of 4 months it is sexually matured, at the age of 11-13 months it gives 2-5 offspring and grows 2 of them without any help. It multiplies in any season of the year (it is polyestric).

Imeruli sheep



Imeruli sheep

National selection was directed to receive 5 offspring and multi-productive generation during many centuries. This breed is characterized by the quick circulation of generation, because it is early, polyestric and multi-productive, for example, the descendants of one 3 year ewe often reach 10-12 livestock, but the record indicator is 76 in 3.5 years.

Natural habitat of Imeruli sheep is reducing due to lack of village pastures. This breed is now preserved in Imereti, Racha, Lechkhumi and Svaneti.

Indicators	**Ewe**	**Ram**
Live mass, kg	29,2- 30,2(max.39)	34,9-38,8 (max.45)
Average cutting, kg	1,53	2,7
Wool length, cm	13,3	17,4
Pure wool yield, %	40-45	45-50

Tushuri and other breed rams were brought in West Georgia in the last years, which worsened the breed peculiarities of Imeruli sheep. It is most significant to use its unique gene fund in industrial sheep-breeding.

Tushuri sheep. It is a half fat-tail sheep breed. It is raised in nomadic conditions in East Georgia due to national selection (XIII-XIV centuries) by crossing of old Georgian sheep to other rough wool breeds. This breed is white, but some of them have black or brown spots on the face and extremities. The rams have well-developed spiral horns but the ewes sometimes have small horns. They are on the pastures during all seasons.

Tushuri sheep

Tushuri sheep is compact, has a hard constitution, it endures the drive on far distances and eats well on poor pastures. They go 250-500k from summer pastures to winter ones in very difficult and stern conditions. These nomadic conditions impacted greatly on forming a firm constitution of sheep. Its meat and wool productivity increases distinctly in the case of improved feeding.

This breed matures early, is lack-productive, has high quality meat and white, flexible, elastic and glittering wool, of which people knit high quality rugs.

Indicators	♀	♂
Live weight, kg.	35-45 (max 60)	60-70 (max 80)
Cutting of wool per sheep	2.5-3.5	4-5
Wool length, cm	10-12	12-16 (max 30)
Output of pure wool,%	56-58	58-60

A tasty cheese is produced from its milk, which is successfully used not only in Georgia.

Georgian mild wool fat-tail sheep. This is such mild wool breed of sheep, which has fatty tail. It is formed by crossing of Tushuri sheep to Soviet merinos and mild wool Caucasian sheep.

This breed is confirmed in 1958. The average live weight of this original rams is 60-70kg, of ewes - 42-50kg. The average cutting of rams is 3.5-4kg, of ewes – 2.5-3kg. Wool is white and is characterized by sinuous merinos, its mildness reaches 60-64 quality, length - 7-9cm. Output of pure wool composes 47-53%.

Georgian mild wool fat-tail sheep

Indicators	♀	♂
Live weight, kg.	42-50 (max 60)	60-70 (max 80)
Cutting of wool per sheep	2.5-3	3.5-4
Wool length, cm	6-8	7-9
Output of pure wool,%	47-53	47-53

Like Georgian half mild wool sheep, this breed is accustomed to difficult nomadic conditions of Georgia, too. But it is also characterized by molting, that's why it is not so popular in sheep breeding. The working on the completion of this breed is continuing.

Georgian half mild wool sheep. This breed is raised from crossing of Tushuri sheep to Mild wool Rambuli and Prekosi rams. Then these crossed individuals had been selected and crossed to each other. Due to purposeful selection, new wool-meat direction sheep breed had been formed. Compatibility of half mild wool to fat tail had been the first successful achievement in the history of sheep-breeding.

Georgian half mild wool sheep

This sort had been confirmed in 1949.Georgian half mild wool sheep is characterized by molting in spring. The average live weight of rams is 70-75 kg, of ewes – 45-50 kg. The average cutting of rams is 4.5-5kg, of ewes – 3-3,5kg. Output of pure wool achieves 60-65%.

Indicators	♀	♂
Live weight, kg.	45-50 (max 60)	70-75 (max 85)
Cutting of wool per sheep	3-3.5	4.5-5
Wool length, cm	10-12	12-15
Output of pure wool,%	60-65	60-65

The length of wool is 12-15sm. Its mildness composes 50-56 quality. This breed is characterized by good meat peculiarities, but it is not fully perfect yet.

Megruli goat. Two types of Megruli goat with dairy direction are bred in West Georgia: lowland goat and mountain goat. Live weight of mountain nanny-goat is 40-45 kg (max.50-60 kg), of billy-goat - 50-55 kg (max. 70-90 kg). Lowland goat is small but it's characterized by much more dairy.

Megruli goat

Annually it gives nearly 300-400 kg milk by keeping in the pasture conditions during 6-8 month lactation, but the best of them give 800 kg milk with the 4% fatness. Productivity is nearly 120%. It's characterized by the firm constitution, the hair is short andrough without baize, white or light grey in color.

Megrula hen. Megrula hens are widely spread in whole Georgia. It is bred in our country since ancient times – mostly in Samegrelo districts. Its name is originated from it. It is characterized by striped feather conditioned by B gene of feather stripes. Because of this gene action cocks have white feather on the head and black one on other territories at the age of 1 day and hens- white feather on a very small area of head. Megrula hen has a high endurance towards local conditions, does not need additional heating of building even during cold period.

Megrula hen

Population builds small wooden stalls called "Karia" in west Georgia, where it is impossible to create optimal micro-climate. In spite of such conditions, Megrula hen endures well the high temperature of summer and low temperature of winter. It has a delicious meat and color shell egg. It belongs to meat-oviparous type.

Live mass, kg		Annual oviposition, unit	Egg mass, gr.	Hatching (%)	Keeping (%)
Hen	Cock				
1.8-2.1	2.8-3.0	163-165	57.7	82	98

Megrula hen is characterized by the long cycle. Both cycles of oviposition are equal. During second cycle it is 161.5 units.

Bare neck hen. Bare neck hen is spread in Georgia since ancient times. It is called "Kitaika" in West Georgia. Presumably it is brought from China in our country and its name is originated from there.

This hen is characterized by high endurance towards hot climate conditions and the best quality of meat and egg.

Bare neck hen

Bare neck hen

The best broilers are raised by crossing of bare neck hen to high productivity cultural breeds. In particular, the broilers raised by crossing of bare neck hen and Kornish cocks weigh 1.5-1.7 kg at the age of 7 months.

Live mass, kg		Annual oviposition, unit	Egg mass, gr.	Hatching (%)	Keeping (%)
Hen	Cock				
2.0-2.3	3.2-3.5	158-160	63	83	95

This breed belongs to meat-oviparous type and is spread almost in all districts of Georgia. Its feather is diverse: black, straw-colored, striped, etc.

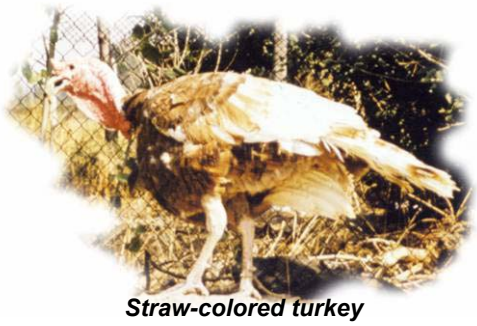
Straw-colored hens. Straw-colored hens is widely spread in whole Georgia. Today it is purely preserved in the villages of upper Imereti (Kharagauli, Zestaphoni districts), where the impact of cultural breeds is low. Feathering is straw-colored conditioned by recessive golden ***s*** gene.

Straw-colored hens

Live mass, kg.		Annual oviposition, unit	Egg mass, gr.	Keeping (%)
Hen	Cock			
2.2 – 2.5	3.3 - 3.5	160 - 163	60	93

This breed belongs to meat-oviparous type, well endures the local climate conditions, in some districts it spends winter directly on trees. It has a delicious meat and light brown thick-shell egg.

Straw-colored turkey. Straw-colored turkey was established in the 60-s as a breed group. It was bred in experimental farming of Georgian Zoo technical Veterinary University as a pure breed and extended within population from here.



Straw-colored turkey

Live mass, kg		Annual oviposition, unit	Egg mass, gr.	Hatching (%)	Keeping (%)
Female	Male				
6.1-6.5	8.5-10	120-125	78	65	86

Georgian straw-colored turkey has a wide body, small head, wide and pulled breast, wide back, long tail, strong feet, color - reddish or rosy, straw-colored feather. Sexual maturity begins at the age of 8-10 months.

Javakhuri goose. Javakhuri goose is bred from wild grey goose. In spite of the long history of its breeding, Javakhuri goose is unstudied to date. There are three types of Javakhuri goose according to color: white (8-10%), ash-grey (33-44%) and motley (57-58%). The main characteristics of Javakhuri goose is the color of eyes and beak. Eye color is related to feather color.

Javaxuri gray goose

Javaxuri motley goose

White goose has blue eyes and orange beak, motley has dark ash-grey eyes and light orange beak, but ash-grey one – brown eyes and greyish spotty beak. The average oviposition of annuals is 8-12 unit; of biennials – 12-15 unit. They begin oviposition at the age of 11-12 months. Live mass increases greatly in the conditions of intensive feeding. After selection, oviposition reaches from 15-20 units to 25-27 for 5 years. Male goose matches to 2-3 females and doesn't let other male to them.

Indicators	Population	
	Motley	Ash-grey
Live mass of females, kg.	3.1	3.3
Live mass of males, kg.	4.2	4.5
Annual oviposition, unit	55	60
Egg mass, gr.	117.4	120.2
Insemination (%)	83.3	83.2
Keeping (%)	68.1	67.3

They express such instinct during first year by 50-60%, but during following years by 95-100%. Their feather is characterized by high quality. This goose is capable to give feather twice in a year – in August and October.

Georgian horse

Tushuri horse. Tushuri horse is one of the oldest populations of Caucasus, which is bred in the mountainous zone natural-climatic conditions of Georgia by massive selection. It is originated from old Georgian horse breeds, which were bred in I-III centuries in Georgia. It has preserved its expensive peculiarities during centuries. Tushuri horse has high endurance, courage,

caution, good orientation, easy endurance towards temperature changes, light steps – these characteristics are necessary for movement in the mountains. It's mainly extended in East Georgia.

Tushuri horse

Tushuri horse has a sitting-packing significance in animal-breeding, especially for nomadic shepherds, where there are problems with roads. It is bred by herd method on the mountain pastures all year round. It is characterized by intensive fattening in summer pastures, by excellent adaptation towards mountain ranges and gorges.

This sort has small moving body. The indicators of exterior and constitution are: short light head, straight profile, well-developed breast, middle-sized live expressive eyes, well-developed mane, standing moving ears, short neck, middle-high wither, bulging waist and straight back, short and a bit bent croup, round riffling, not high extremities, small, dark hoofs and high temperament. It is late-matured, finishes growing at the age of 5-6 years and is used for doing light works from the age of 3. Mares have high productivity – 65-70% and dairy. They have well-developed trot and gallop.

Indicators	Horse	Mare
Height in the wither	136	134
Skew length of body	140	139
Breast circle	155	156
Metacarpus circle	17	16.9

This breed is hard working and quick- biennials run 1000 m distance in 1 min and 32.7 sec., triennials – 1 min and 27.6 sec. It's mainly chestnut (45%), grey (28%), we also meet sorrel and black. The main breeding method of Tushuri horse is thoroughbred.

Megruli horse. Megruli horse is bred by pasture breeding since ancient times by national selection in the lowland zones of West Georgia, mainly in Black Sea areas. This sort is mentioned in some Georgian historical sources of II-III centuries.

It is not changed during the evolution process. It has a local significance.

Megruli horse

The natural-climatic conditions of Kolkheti played a significant role in the formation of Megruli horse. This breed is mainly sitting-packing horse; it is used as harness one in lowland zones and often in agricultural activities. It is characterized by high adaptation towards mountain conditions. Megruli horse is late-matured and finishes growing at the age of 5-6 years. It is used for doing light works from the age of 3.

Megruli horse

This horse is hard-working, carries nearly 100-130 kg load. It composes 35-40% of its live weight.Megruli horse has hard endurance towards working; it equally works in bogs and in mountains.

It is characterized by fattening on summer pastures, special extremities, specific standing and other adaptive peculiarities.

It has a short and square body comparing with Tushuri horse. Characteristics: middle-sized head, small and standing ears, big and moving eyes, not high wither, straight back and waist, short and oval sacrum, well-developed joints on the extremities and hard hoofs.

Indicators	Horse	Mare
Height in the wither	132	129
Skew length of body	136	130.5
Breast circle	150	145
Metacarpus circle	17.0	16.0

Megruli horse is mainly bay and dark bay, which is very popular. We also meet grey and black ones. It rarely has signs on its head and extremities. This sort is characterized by strong constitution.

Javakhuri harness hourse. Javakhuri harness horse is not independent breed; it is received by crossing the Crimea and Doni mares to the Russian working horse. The forming of cross-breed of Javakhuri draught horse began in 1841-1845, when sectarians were removed from Russia to Georgia. They brought the harness horse which was crossing of Crimea and Doni mares to Russian working horse. This crossing was middle-high, big-boned, with well-developed muscle system, strong and firm.

Javakhuri harness hourse

These horses were good for traveling and for cab-draught. Since 1938 the following breeds of male horses (Arden, Brabanson, Persheron) were used in the formation of this horse. New breed group was formed by the result of this, which was adapted to stern natural conditions. There are three types of Javakhuri draught horse: hard-draught, middle-draught and light.

Javakhuri draught horse is smart and characterized by light steps, good trot, vigorous temperament, it is obedient and endures hard work, has a firm constitution; its color is mainly bay, black and grey. Most of them have peculiar signs on head and extremities.

Indicators	Horse	Mare
Height in the wither	146.1	141.2
Skew length of body	155.4	149.4
Breast circle	173.8	167.8
Metacarpus circle	22.1	20.7

Intensive reproduction of breeding livestock is necessary for breeding–multiplication of Javakhuri draught horse.

♀ ***donkey*** **X** ♂ ***hourse***

♀ ***hourse*** **X** ♂ ***donkey***

donkey

donkey

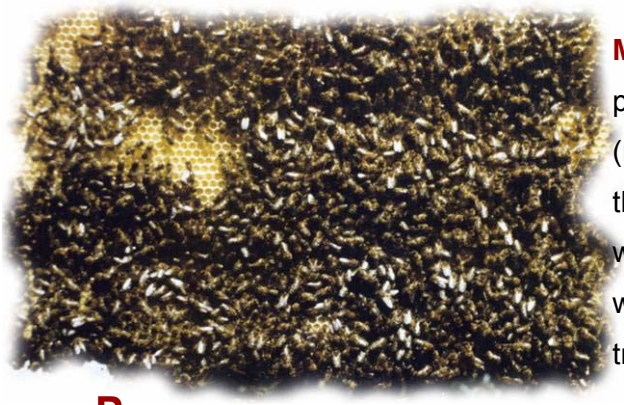
Georgian bee

Georgian bee is famous by the name of Caucasian mountainous grey bee throughout the world. This is the pure Georgian sort, which began its extension at the beginning of the current century in the world. It was specially extended on the territory of ex-USSR, but it is extension area was limited, because of less winter endurance, low egg laying and the sensitiveness towards “Manana” honey. Although in USA the Caucasian bee composes almost 1/3 of the whole bee livestock.

In Georgia it is represented by 3 main populations: Abkhazuri, Megruli and Kartluli. These populations differ from each other enough by the biological and economical indicators.

Abkhazuri population. Its characteristics are: short trunk, good winter endurance, the economical use of food and small quantity death in the period of winter.

Kartluri population. It endures the long winter well. It is characterized by high egg lying. This population is famous by the high activity of the back gut catalysis. This bee is suitable for giving crossed generation, having the better endurance during the long winter.



Megruli population. It is most widely spread population and is characterized by the long trunk (not less then 7,1 mm) and low egg laying. We meet this population mainly out of Georgia. In difference with other bees it pollinates successfully the deep wreath tube flowers of trefoil with the help of its long trunk.

Priorities in capacity development in order to improve understanding of the AnGR diversity:

1) to specialize scientist and faculty professors in order to improve understanding of the significance of AnGR diversity, as they transfer their knowledge to students;
2) to specialize state officials and local government officials regarding the significance of AnGR diversity for the local community and rural development on the whole;
3) to review curricula- to introduce units about the significance of AnGR genetic diversity (on all levels of education, from primary schools to faculties);
4) to utilize electronic media and publications –to pay more attention to AnGR in educational, scientific and popular programs on the Georgian television; to create mature, objective and responsible public opinion on the AnGR diversity; to improve understanding of AnGR in wider public and among all participants in animal production;
5) to utilize special promotional materials with animal photographs – calendars, stamps, telephone cards, videos, posters, etc.

4. THE STATE OF UTILIZATION OF AnGR

4.1. POLICY AND LEGAL INSTRUMENTS REGARDING THE UTILIZATION OF AnGR

According to the Georgian government policy agriculture is strategic branch of Georgian economy. Although the importance of livestock production in the overall agricultural production is indisputable, these development strategies livestock-breeding still does not hold the position

that it deserves. Our aim is to have a new strategy which encompasses agriculture and livestock production. This strategy will be increase of some key products (milk, beef and pork).

Georgian Governments and Ministry of Agriculture and Food work on a particular normative base in order to create Livestock-Breeding Act. The true strategy and acts should create suppositions for restructuring of Georgian agriculture and increase production (especially of such products for which self-sufficiency is extremely low) and product quality.

4.2. THE STATE OF USE OF AnGR

In spite of that agriculture is one of the priority branch in Georgia financial problems have prevented from development of animal genetic resources. Practically there is not import production in Georgia and our production is not corresponding to European standards.

4.3. THE STATE OF CAPACITY TO USE AnGR

Family farms which deal with livestock-breeding in Georgia are small and lack capital and cannot pay for all technical, specialist and training services. All institution which deals with the improvement of AnGR belongs to the state sector. These sectors are without function and the main reason is financial problems. The farmer's activities in order to regulate of AnGR are chaotic. It is necessary to pay greater attention to the institutionalized assistance to gamily farms and at the same time assist and stimulate the organization of association of farmers interested in production and breeds.

Governmental institution must has a consultative role, to improve cooperation and to participate in the implementation of measures of assistance to family farms, They must participate in research projects conducted on farms and coordinated by the Counsel for Agricultural Research.

Government institution must primarily deal with breeding and selection work for all sorts of domestic animals and central information system must establish in this institution for all domestic (farm) animals.

It is necessary to conduct identification and registration of animals. It is also necessary to conduct identification, registration and control of endangered breeds. The main activity is creating 1 or 2 European standards man-made fecundation stations.

4.4 . THE STATE OF UTILIZATION OF AnGR

The main problems which constrain further development of AnGR are:

- small populations of particular breeds,
- lack of sub- legislation (guidelines) for particular segments of breeding programs in some animal species,
- only phonotypical selection for majority of breeds.

Fundamental principles of sustainable breeding such as:

- improvement of product quality, health and welfare of animals,
- improvement of production and economic efficiency,
- maintenance of biological diversity and improvement of adaptability to diverse environmental conditions,
- Decrease of pollution by improvement of efficiency of food use, are not sufficiently included into breeding programs.

4.5. OBSTACLES, OPPORTUNITIES AND NEEDS FOR USE AND DEVELOPMENT OF AnGR

Regardless of extremely favorable conditions for animal production, Georgia is still insufficient for majority of animal products, as it does not use its comparative advantages to the full. There are numerous opportunities for production increase, but despite the recognition of major problems and limiting factors, there have been no significant improvements.

5. THE STATE OF THE CONSERVATION OF AnGR

Georgia ha relatively, recently started activities regarding conservation of genetic diversity of animal resources, but the main problem is that we have not any Individual protection programs and we also do not have a generally accepted integral program for active management of animal genetic resources. We want to create a National Counseling Committee, which should be coordinated to create national program for the protection of diversity of animal genetic resources. It is necessary to create financial strategy which should be financed selectioneers in order to do registration and identification of animals. For the time being there is no special financing state program for protection.

Unfortunately, conservation and protection are expensive and financial means are inadequate for the overall implementation of these programs and the priorities are chosen according to the following criteria:

1. Endangerment, 2. Important Economic characteristics, 3. Agro ecological importance in special landscape, 4. Genetic uniqueness 5. characteristics important for scientific research, 6. Cultural and historical value.

Criteria have been mentioned here in the order of priority. Breeds satisfying more then one criteria should have priority. According to the extant criteria (FAO) at the moment in Georgia there are 20 endangered breeds of domestic animals. The endangerment status is shown here only for locally adapted animals. According to new criteria there are 3 endangered breeds of horses, 4 of cattle, 3 of sheep, 1 goat, 4 of pigs and 5 of poultry. For the time being the sperm of a smaller number of studs is preserved in liquid nitrogen, and it is planned (in case financial means are provided) to conserve oocytes and embryos.

The necessary main priorities to increase the capacities for the development and implementation of conservation program are:

1. Individual protection programs
2. Generally accepted integral programs for active management of animal genetic resources.
3. To create a National Counselling Committee-coordinated to create national program for the protection of diversity of animal genetic resources.
4. To finance selectioneers in order to registration and identification of animals.
5. Establishment of Gene Bank for AnGR.

6. THE STATE OF POLICY DEVELOPMENT AND INSTITUTIONAL ARRANGMENTS FOR AnGR

Domestic animal breeding in Georgia has a great significance, especially in the part related to breeds used in the conventional livestock production. Livestock breeding is the most important branch of agricultural production which provides for a great number of inhabitants and therefore can justly hold such significance in domestic animal breeding. It is necessary to pay attention to protection of authentic and protected breeds.

6.1 ORGANIZATION OF DOMESTIC ANIMAL BREEDING

Organized domestic animal breeding started in Georgia at the beginning of 20th century. In Soviet Union period breeding of domestic animal has developed, but from 1990 year this activities has ceased. Today Domestic Animal Breeding is established in all cases without any specific breeding programs for particular species and breeds of domestic animals. We are working in order to create with European association's specific programs which should be ratified by the state and should have a legal basis. In Georgia breeding activities are financed by state symbolically and it is only limited for employee salary. Immediately financing the jobs of genetic development the state provides financial resources to stimulate breeders to become active participants. A special incentive is in the implementation of protection of authentic and protected breeds, which regarding their production characteristics cannot be competitive with contemporary breeds today. For these breeds it is necessary to have breeding programs which determine the way how to implement their protection, as well as breeding targets which are considerably different from breeding targets of conventional breeds. Specialized and scientific institutions should be participated in the implementation of domestic animal breeding in the country. In Georgia there are centers for artificial insemination and testing clinics, but they are without work and our aim is to create a center which should be coordinated activization these centers and clinics and would create a work positions (vacancies).

6.2. ORGANIZATION OF BREEDERS IN THE IMPLEMENTATION OF DOMESTIC ANIMAL BREEDING

Animal holders, breeders should be partially associated into breeding associations or federations which should be provided and developed special progrrammes.

6.3. GENETIC RESOURCES IN GEORGIA

In conventional production in Georgia mostly those animal breeds with high profitability are used. These are primarily breeds which can be found in a great number of livestock-breeding developed countries. They are mostly imported breeds some of which were imported in the 19th century and majority in the 20th. Nevertheless, even today in the majority of cases there is a close breeding connection where by sperm or livestock heads procurement these genomes are included into our population. In this way , we strive to provide our genome of a good quality, especially because Georgia cannot attain the breading objective it desires regarding number of heads of particular breeds by itself. Keeping all this in mind one can say that for smaller populations which we can find in Georgia it is justified to maintain constant breeding connection with other breeding as this should be created conditions for the achievement of a more profitable animal-breeding production. We would like to take care about conservation of genetic diversity of animals, in the part related to the real implementation of conservation of authentic and protected breeds as well as I the part of maintenance of the extant variability of conventional breeds as much as possible.

6.4. ORGANIZATION RELATEDNESS IN THE IMPLEMENTATION OF DOMESTIC ANIMAL BREEDING

In Georgia in the next period the methods of implementation of genetic development and conservation of formed genetic resources should be revived and improved. We have not any Computer technology or equipment in order to processing of all breeding data.

6.5. BREEDING OF DOMESTIC ANIMAL

There are some stations for artificial insemination in Georgia which are without activities and insemination does not increase in Georgia.

6.6. LEGISLATIVE FOUNDATION FOR THE IMPLEMENTATION OF DOMESTIC ANIMAL BREEDIN

In Georgia all regions related to AnGR are not legislatively regulated. Veterinary Act provides for healthy aspect of maintenance and use of domestic animals; among other things it provides for quarantine conditions in import of live animals or genetic material (sperm and embryo). Conditions for import of animals and genetic materials are adjusted to regulations of World Veterinary Organization and do not cause difficulties in import. Animal-breeding product quality assigned to human food is regulated with several laws depending on the aspect observed.

6.7. COOPERATION OF GEORGIA WITH OTHER COUNTRIES AND ORGANIZATIONS IN THE IMPLEMENTATION OF DOMESTIC ANIMAL BREEDING

Georgia as a country with small populations is oriented to cooperation with other countries in order to improve genetic development. These relations are, on the one hand, related to purchasing of livestock or genetic material (sperm) but also professional cooperation with other countries and international institutions dealing with livestock-breeding and use of domestic animals.

6.8. RESEARCHE AND EDUCATION IN DOMESTIC ANIMAL BREEDING

Research I the field of AnGR is conducted by scientific institution, such as Zoo Veterinary Academy. Students have a possibility to acquire knowledge necessary for adequate engagement in animal-breeding it would be of interest to reform education in the future and create even better conditions which would provide an opportunity to acquire greater knowledge, especially in the part related to the organization of breeding and production units in livestock-breeding in Georgia. Special emphasis should be given to improve organization of scientific and research work and better connection with scientific institutions of other developed countries.