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Final Report - Summary

AGRONOMY



Feasibility Study for Trans-border Biosphere Reserve Osogovo

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AGRONOMY OF OSOGOVO REGION

Summary

The purpose of this report is to give a picture of crop and livestock production in the Osogovo region (in booth Macedonian and Bulgarian side), through which the implications of these activities on its territory and the prospect of a biosphere reserve can be seen in the future.

In Republic of Macedonia, a total of 76 village territories of settlements are covered which occupy 107322.4 hectares (1073 km²). This means that the average size of the village territory is 1413.1 hectares (14.1 km²).

Out of total territory area, 66441.8 hectares or 61.9% are in the public sector and other 40880.6 hectares or 38.1% in the private sector.

Because of the characteristics of the territory (mountainous area), the cultivated areas cover about 1/5 of the territory of the examined area, namely 21787.1 hectares. The prevailing are arable land with 18310.5 hectares, then meadows 1864.8 ha, 998.4 ha of orchards, vineyards 503.5 ha, etc. Most of the arable land is privately owned. With the change in lifestyle and management of the population in recent decades, some of these areas have are not cultivated, so that one can freely conclude that they complement the non-arable areas, especially areas of pastures and forests.

The non-arable areas (pastures, forests, reeds and marshes, barren land) occupy about 4/5 of the territory in Osogovo Mountains. The largest areas are forest 48471.3 ha, then 28608.0 ha of pastures, 8376.0 ha are infertile land, etc. Most of the areas in the non-arable land is in public ownership, i.e. approximately 1/4 of these areas are in private and about 3/4 are public. A similar proportion of these areas is applicable for the settlements, so through the review of the populated places, one can plan and undertake specific business development activities with relatively high accuracy.

Observed by *municipalities*, it is concluded that the municipalities Kocani with about 27500 ha, Kriva Palanka around 26953.6 ha, Kratovo with about 19400 ha, Makedonska Kamenica about 19011.5 hectares and Probistip and Zletovo with about 14300 ha participate with largest areas.

Considering the *sizes of the areas by land uses* (cadastral crops), global spatial schedule (plan) of arable land (about 20% of the total area) is mainly located in the lower areas of Osogovo range (where most of the settlements are located), followed by the belt areas mostly under forests (about 45%) and the pastures in the highest Osogovo region as most widespread (about 27%) mainly extending over 1800 m. The comparative elements relating to the exploitation of natural capacities in the area of agriculture, livestock, forestry, water management, mining and various associated professions from the sphere of tourism, traditional crafts and so on should be seen in the context of this arrangement.

From the overview it is obvious that most of the cattle are bred in Kriva Palanka and Kratovo, sheep are most common in Probistip, Kratovo and Cesinovo- Obleshevo. The largest number of goats are bred in Kratovo and Cesinovo- Obleshevo.

The presented data suggest that regardless of the breed, average size of cattle farms in the municipalities covered by the Osogovo region are small farms with up to five heads, which represented 68%.

Also, the smallest categories farms up to 50 sheep are dominating in the region, which represent 66% of the total. Regarding goats, the farms with up to 50 goats are the most

common and participate with 93% of farms in the region. Based on data from the Ministry of Agriculture (Ministry of Agriculture, Forestry and Water Economy) it turns out that according to the type of cattle that is grown, the farms are with mixed structure and generally belong to the type of family farms.

The system of livestock production, the manner of raising and direction of exploiting animals in the Osogovo region is the product of specific natural (climate, soil, pasture) and economic factors (market prices, the available labor force, the size of herds), meaning it varies depending on the location of villages. However, several general characteristics may be selected which mark the livestock production in this part of the country.

The sheep breeding, represented by domestic Pramenka and its crossbreeds with Merino breeds (mostly Wurttemberg) has an extensive character with triple direction for production (milk, meat and wool) and based on the exploitation of natural pastures and modest diet with hay in winter. The production traits of Pramenka are within the characteristics of the domestic population. As a result of crossbreeding of Pramenka with crossbred rams of Wurttemberg, today in the region, and across Macedonia there are herds of domestic Pramenka in pure breed, as well as the merino breeds.

The production system is extensive with remnants of semi-nomadic characteristics. The farming is traditional, which means one lambing per season (January-February), weaning of the lambs (March-April) and lactation until mid-July. It is estimated that the family farms have production of about 30-45 liters of milk or 10-15 kg of white brined cheese per sheep.

The feeding of sheep is usually based on the farmers own possibilities for production of feed from natural meadows, arable land and partial supply of concentrates (barley and concentrate for lambs). The feeding is regularly in deficiency, especially in non-vegetation period when needs of the sheep are greatest (late pregnancy and the first half of lactation).

Market for sheep products The production of lamb mainly consists of offering light lamb with average live weight of 15-16 kg in two seasons: Easter and Catholic Christmas. The lambs offered in the second season achieve a higher price, so some farmers are mating sheep out of a season (in May), naturally (without the use of hormones). However, based on the surveyed farmers, the supply of lamb from the area is unorganized and uneven and therefore the price is variable. Because of the unplanned mating and extended lambing, there are different weight classes of lambs in the flocks, which affects the income.

The sell of the wool is difficult and its price is unattractive but still, making shaggy woolen homemade blankets, clothes, carpets and other handicrafts of wool is done frequently for their own needs.

In cattle, in terms of breed representation, besides the local Busha, characterized by small production but with excellent adaptation to local conditions (health, strength, resistance to diseases and external influences, modest in nutrition), there are other present breeds such as eastern-friesian and Simmental breed and other crossbreeds of modern breeds.

The number of traditional farmers with 1-3 cows and low annual milk production of 2,000-3,000 liters of milk per cow is dominating. The productivity is low due to inadequate raising conditions and the low supply of animal feed as a quality and quantity.

Part of the farmers belong to the second group of family farms with 5-20 cows (27%) can be seen from graph 2, with annual milk production of 4,000-5,000 liters per cow. They are usually mixed farms with several types of production and represent a good basis for development of the sub-sector.

For illustration, in the Republic of Macedonia 74.6% of cattle farms have less than 5 heads, 21.1% have 6-20 heads, 3.9% of 21-50 and only 1.4% have more than this number.

The farming system is extensive including usage of natural grass resources during the spring, summer and autumn and insufficient additional feeding in winter. Basic income from cattle raising is accomplished through the sale of calves after the grazing season.

The goat population in the region does not differ from that in the Republic of Macedonia and it belongs to the Balkan goat and its crossbreeds with noble breeds, in the first place Saneen and the Alpine goat. Productivity of goats is within the above mentioned populations and varies depending on the production conditions. The system of raising is extensive and the income comes from selling the kids and milk which is processed into cheese (usually mixed with sheep). In the region goats are raised in farms often mixed with sheep.

The pig farming is characterized by keeping 1-2 pigs mostly for domestic use.

If we summed up the potential of livestock production in the region, it could be concluded that they are characterized by the production in healthy environmental surrounding with possibilities of using large areas for grazing. Livestock has traditional character and from the local breeds and their cross-breeds that are well adapted to the conditions, there are traditional products with authentic features. The farms are small family farms without strict specialization, mostly mixed, working with small input and output costs. Farmers are poorly trained resulting in poor management of farms with consequences for income, quality of products, the protection of the environment and so on.

On the other hand, extensive systems of livestock production based on this kind of traditional farms, in terms of trained farmers to a significant extent, can be supportive to rural tourism in most of its forms (agro tourism, ecotourism, mountain, Eno -gastronomski etc.). It is especially important in the case of the Osogovo region, which is characterized by diversity and quality amenities, authentic villages, winter sports center, hunting grounds and rich traditions (food, wine, crafts), which together can ensure its sustainable development.

Based on the data from the *surveyed villages*, can be concluded that besides the field crop production, the livestock is the basic activity in the surveyed households and features an extensive system with traditional characteristics. The farms are mixed, usually with cattle and sheep, then sheep and goats, but there are specialized sheep and cattle farms. Among the most common are sheep farms with a size of 100-200 sheep and the cattle they range in size from 5-20 cattle, although in the second group of villages (> 700) are more common ones with 1-5 cattle. Regardless of the type of livestock (sheep, goats or cows), with few exceptions, farmers are offering fresh milk for processing and fattened animals (lambs, calves, piglets). Some farmers offer dairy products (cheese and curd), but only few of them offer manure. The average size of holdings in the ownership or use, in the first group (<700) of villages is 1-5 ha, mostly of 3-5th class. In the second group of respondents in villages (> 700), most households have from 5-10 ha of land out of which two-thirds are ranked over the fifth class. Farms are characterized by good infrastructure (road, water supply, electricity) and appropriate distance from the processing facilities and veterinarian services. Possession of machinery (tractor with attachments) in cultivation of land and other farming activities is satisfactory. 90% of <700 group of villages has a tractor. Part of the answer to a question on the impact of agricultural activities on the environment, such as pollution of the environment, composting, GMO, indicate insufficient information to farmers. Some of them are aware of the threat of excessive use of fertilizers (although 81% of them used), then shifting vegetation due to livestock activities (in the case of under-utilization of pasture), but with a passive attitude towards this phenomenon. All this suggests that they have little knowledge of GAP (Good Agricultural Practice).

The intensive agricultural production in the Osogovo region at lower altitudes is structured on large fields, distanced from the cities. This production is completely market-oriented, based on high inputs and intensive use of mechanization. Near the cities and villages a small scale mosaic landscape prevails. It comprises family gardens and small field parcels around and in the settlements scattered with small traditional orchards or standing trees and household vineyards. Generally, the production in these mixed farms is very extensive and intended for own consumption. In higher elevation areas the land is covered with pastures, forests and cereal (rye, oats) or potato fields.

The total area, considering the category of use, is divided on cultivated land and pastures. According to the last report of the State Statistical Department (SSD), the total cultivated land in Osogovo region in 2014 covered 55192 ha, while the pastures are spread on 51235 ha, which is 8% and 7%, respectively, of the total cultivated land and pastures in Republic of Macedonia. The highest proportion of agricultural land belongs to the municipalities of Kratovo and Kriva Palanka and pastures are mostly located in the municipalities of Kochani and Kriva Palanka.

In all municipalities, except Cheshinovo-Obleshevo and Probishtip where predominant crops are cereals, the highest proportion of the land used for agriculture is under pastures. In the north part of the region the pastures are followed by meadows. The most of the vegetable and fodder crops production is located in the south part of the region (Cheshinovo-Obleshevo).

In 2014, *cereals* were harvested from 13576 ha. The most of that area belongs to the municipalities located in the lower part of the Osogovo mountains, mainly Cheshinovo-Obleshevo (4751 ha), Kochani (3342 ha) and Probishtip (2329 ha). In the vicinity of Kriva Palanka and Makedonska Kamenitsa, cereals are grown on only 222 and 470 ha, respectively. The total cereal production in the region is nearly 127.5 t/ha.

Predominant cereal crops in the region are rice and wheat, however, the type of the crop, area and average yields are highly variable (Table 3). Close to 90% of the rice production in Macedonia is located in municipalities within Osogovo region. Rice is grown on 4559 ha, mainly spread in Cheshinovo-Obleshevo (2582 ha) and Kochani (1933 ha).

Osogovo region is not typical region for production of *industrial crops*. In 2014, sunflower is grown only in Probishtip municipality, on only 8 ha, with average yield of 700 kg/ha, much lower than the average yield for Republic of Macedonia (Table 4). Tobacco is present in Cheshinovo-Obleshevo region on 19 ha, and in other regions on small area, with lower yield than the Macedonian average.

Vegetable crops in the area of Osogovo Mountain are grown on more than 3000 ha. For almost all crops, the main producing regions are Kochani and Cheshinovo-Obleshevo. Potato is predominant vegetable crop in Osogovo Region, followed by beans, except in Probishtip, where melons and watermelons are grown on the same area as potatoes, and on larger area than the other municipalities. Kriva Palanka region is famous for its potato production (424 ha in 2014). Onion and garlic are grown on large area in Kratovo region, while lentil is produced only in Makedonska Kamenica. The highest average yield for almost all crops is registered in Cheshinovo-Obleshevo, for cabbage even higher than the country average.

Alfalfa and vetches for hay production are the most spread fodder crops in Osogovo region. Alfalfa is present on 402 ha in the municipality Cheshinovo-Obleshevo, with average yield higher than the country average. In Kochani region it is grown on 280 ha. Clover is grown

only in Kratovo, Kriva Palanka and Rankovtse. The highest yield was registered in Kriva Palanka (5000 kg/ha). Fodder pea is mostly allocated in Probishtip municipality, but with very low yield.

From the total area for agricultural use, *pastures* are predominant in all municipalities except Cheshinovo-Obleshevo and Probishtip. Kratovo has the highest area with *meadows* in the region (3840 ha), and is characterized by the highest hay production (1854 kg/ha), followed by the municipality of Kriva Palanka.

In the Osogovo Region, *orchards* are present on nearly 1100 ha. Major fruit crop is the plum, with the highest production in all municipalities except Cheshinovo-Obleshevo and Probishtip, where sour cherry is predominant fruit crop. Establishment of new walnut and almond orchards is characteristic for the last few years, which can be observed from the very low number of fruit-bearing trees in some municipalities. Most of the crops are achieving the highest yields in Cheshinovo-Obleshevo and Kochani area.

Grape is not a typical crop for the Osogovo Region, and is mostly distributed in Kratovo and Probishtip area. The yield is near to the country average and most of the produced grapes are used for wine production.

Data presented from the State Statistical Department and it refers only to the agricultural crops that are grown on more than 1 ha in each municipality. The *agricultural production is intensive*, organized on large open fields, orchards, vineyards and plastic houses. The selection of crops and varieties is market-oriented. Most of the farmers use certified seed material as it is precondition for application for subsidies. Crop cultivation is yield-oriented with high level of capital and labor input with application of modern farming practices. Intensive agricultural production on one hand provides steady increase of harvests and improves security of food supply. On the other hand, use of chemicals and monocropping has the greatest impact on the natural resources and diversity. These processes often lead to over-exploitation and degradation of soil ecology. Until recently, farmers were using only chemical fertilizers and herbicides for cereal production. In the last few years, the climate changes initiated increased application of fungicide.

Vegetable crops, especially tomato, cucumbers and peppers, are generally cultivated in plastic houses and in the lower areas of Osogovo region in glasshouses. This trend for protected agriculture is expanding because the heating of glasshouses is performed by using hot water from the nearby hot springs. The Government provides subsidies for newly planted fruit trees as well. This supporting measure resulted with increased area of fruit plantings, mainly with walnuts and almonds.

Almost 30-50% of the local population in the villages is maintaining old landraces and local populations of agricultural crops. Vegetables and corn are grown in the gardens for farmers use only, although there are some farmers that maintain several well-known crop varieties for sale on the local niche markets (bean, pepper, leek, pumpkin, lentil, chickpea and poppy).

Most of the farmers apply traditional practices and planting, irrigating and harvesting are performed manually. Weeds are controlled by hoeing or pulling, pests are controlled (if they are) by spraying with blue stone (copper sulfate), fermented nettle solution or milk. If available, manure is used for fertilization and very rarely chemical fertilizers are applied. Crop rotation is regularly applied in the gardens. Usually best fruits are marked for saving seeds and very few farmers preserve seeds from the first fruits in order to avoid open pollination. Seeds are preserved in paper bags, plastic boxes or stocks in dark and dry places, often in the attics or barns. As one farmer maintains several landraces of one crop (melons, pepper), different seeds are usually clearly distinguished.

Cereals and forages are grown in the fields on small parcels (0.5-10 da), often distributed in far distance. They are cultivated with the use of mechanization, although some agricultural practices are performed manually (spraying). Cereals are not irrigated, while forages and field beans are grown on irrigated fields.

Diversity of cereals is represented by several crops, all grown in the fields except corn.

Oats and *rye* are the only cereal crops grown in the field represented with really old landraces, some of them maintained by farmers for more than 30 years.

Barley- Spring and autumn two-row barley is more distributed than six-row varieties. Very rare farmers declare that they maintain the specific variety more than 30 years. Usually they grow one variety for 10-15 years after what they are replacing it with a new one or exchange seeds with the neighbors.

Wheat is the crop where modern varieties are grown in the fields, although in some isolated villages old landraces could still be found. They are awnless, characterized with lighter seed color and have local name *Belica* (white color).

Broomcorn is grown by almost every family for making brooms. Several landraces are present varying mostly in the stalk and seed color – from pale cream to dark red.

Pepper crop is probably the only crop for which farmers do not buy seeds. Each family maintains at least 2-3 different varieties of pepper for various uses. Most represented are mild to very pungent pepper for frying and drying, called “*Vezen*” or “*Nareznen*” which means “embroidered” or “engraved.”

Other type of pepper landraces which are also commonly grown are “*ajvarski piper*” which is used for roasting during the summer when is green or red and for preparing the most traditional relish called “*ajvar*”. Most famous *ajvar* landrace is *Kurtovska kapija*.

Bell pepper is rarely maintained by farmers, although it is regularly used for preparing stuffed pepper dish.

Except for the long peppers, *small fruited peppers* are also present in each family with various shapes, tastes and colors.

Dry beans (*Phaseolus vulgaris*) are another crop with extreme diversity of landraces maintained almost exclusively in the rural areas, as in the city markets customers buy only white seeded beans. There are two groups of beans: dwarf (*ssp. nanus*) and climbing (*ssp. volubilis*). *Green beans* are also maintained by farmers with several dwarf and climbing landraces, out of which “*Puter boranija*”(butter green bean) is widely distributed.

Pumpkins- Traditionally, each family in the villages grow at least one or several pumpkin landraces and they are maintained within the family with generations. Squash (*Cucurbita maxima*) called “*Balka*” is present with white, light green, dark green or orange large fruits. Another type often grown is the butternut, *C. moschata*, called “*Bananka*” with large orange bottleneck fruits.

Melons and watermelons are widely maintained by farmers, mainly with several summer landraces. Farmers favorite melon landraces have small-sized orange fruits with juicy and smelly flesh called “*Medna rosa*” (honey dew) or “*Ananas*”.

Other vegetable crops- Farmer usually buy *tomato* seedlings for each season, although there are some that maintain one or several landraces for more than 10-30 years. Largely distributed landrace is “*Jabucar*” (meaning apple-like) that could be found with red and pink color. *Cucumber*, eggplant and zucchini landraces could be found sporadically, mostly with long fruits, although they are typical summer food and families cultivate them in the gardens (commercial varieties). Very often households in the villages maintain seeds from lettuce, parsley, onion, garlic (spring and autumn type) and especially leek. On the contrary, cabbage and spinach landraces are very rare.

Out of large diversity of crops and landraces grown in the past (cotton, flax, hemp, poppy, sesame and even coffee in Kumanovo region) in many fields, sunflower and poppy landraces are the only ones preserved today with few plants grown in the gardens. Both are maintained sporadically, sunflower for snacks and poppy for cakes and for preparation of special salt spice.

Analysis of treats and constraints from agricultural production in the Osogovo Region have shown that the main characteristics of intensive agricultural production are high input of chemicals, energy and use of commercial uniform varieties and hybrids. It often leads to increased uniformity of products and farming practices. The problems resulting from intensive management practices are soil degradation, erosion, pollution of water resources and loss of natural habitats due to expansion of agricultural land.

Monocropping and use of modern varieties have negative impact on agrobiodiversity. In rural areas a strong linkage between traditional farming and agrobiodiversity is still evident, contributing to traditional agricultural landscapes. However, depopulation and aging of farming communities, introduction of machinery and use of fertile plains for other purposes represent serious threat to maintenance of local landraces. Traditional agriculture is practiced predominantly by elderly and poorly educated farmers under difficult weather and socio-economic conditions. For most of them it is not deliberate choice but a survival need. The production is mostly for their own use and their families living in the cities. Some of them sell their surplus products on the local markets, but this income is not high and sustainable. Although the Government supports cultivation and protection of local varieties, very few farmers show interest in receiving subsidies for this purpose. The majority of farmers rely on their own practical experience and tradition only and are not sufficiently aware of their value for providing ecosystem services. Mountainous ecosystems with species-rich grasslands maintained with traditional pastoral grazing are threatened as well with the expansion of modern livestock farms.

In a situation like this, organized measures for conservation, promotion and sustainable use of agrobiodiversity need to be urgently implemented.

Republic of Bulgaria is divided in six regions of planning of production for all areas of economy. These are North—west, North-central, North-east, South-east, South-west and South-central. Kyustendil province is part of the South-west region. Further Kyustendil county and Nevestino county are part of Kyustendil province.

The general part of arable area in Kyustendil province of 26 628 ha is used for grain crops (cereals and maize) and oil crops, respectively 57% and 7,7%. Considerably lower is the field area with technical crops and vegetables. The basic reason for the predominant production of grain is the high level of mechanization of that type of production. The majority of the land is rented and grain producers use high productive techniques. It uses minimum of labour, maintain proper technology which lead to high productivity. As a result during the last years Bulgaria became a grain exporter.

This situation is not valuable for the national production, as the surplus value of that resources could be much higher if it is used for milk, meat and processed agricultural products. Some other crops as bean, soya, lentils occupy much lower land because of the necessity of specific mechanization.

Another negative effect of the major crop production is the difficulty in maintaining of the land in good ecological practice because of the poor crop rotation.

From the grain crops the main part occupies the wheat, 76%, which is also with negative effect on the proper crop rotation.

Among the technical crops the major part of the arable land is occupied by sunflower. Again the reason for that is the good income from that crop, the farm gate prices are stable, it is available a proper mechanization and technology of production.

Tobacco is reared on small fields of family farms, the production is subsidized by the national programmes, the production is an additional income to the family, and there is a secure market for the raw production.

Relative high share of the pastures, 61% of the total land, is a preposition for development of the ruminant livestock production. The encourage practice for the farmers is the system of financial support that they receive for maintaining of the pastures in good conditions, e.g. without shrubs, wild briars.

In terms of fruit crops the province of Kyustendil is suitable for cherries, apples and plums. There is a good market for this type of production. There is a general tendency for an increase of the fruit yards and the yield. The development of the new farms is supported by special programmes of the ministry of agriculture. In the region is located the research institute for fruit crops.

Most of the vine fields, about 80%, are wine type of cultivars. The area of the county and that of the region are in general suitable for the grape and wine production.

Kyustendil province is located in the Southwest region of Bulgaria and is one of the 28 provinces of Bulgaria. The total area of the district is 3 084 sq. km, representing 15% of the territory of the region, and 2.7% of the country. The number of settlements is 182, distributed in nine municipalities, 7 cities and 174 villages and 1 monastery – Rila. The population size of the area, according to data from census in 2011, is 136 686 inhabitants, which is slightly above 2% of the population in Bulgaria. The average population density is 44 inhabitants/km². Total utilised agricultural area (UAA) is 252 12 ha and 8% of the territory of the province.

The number of farms in the region of Kyustendil is 7514, which represents 2% of farms in the country of Bulgaria. The utilized agricultural area (UAA) is 252 117 ha and is distributed in 7448 farms. The average UAA per farm is a 3.39 ha or 34% of the average for the country – 10.13 ha.

The number of farms that do not have UAA is 66. The municipality with the largest number of farms - 42%, which handle ¼ of the total area is Kyustendil. Dupnitsa Municipality has the largest share of the UAA in the field - 27% (6 717,2 ha). With the largest average size of the land area is Bobov dol municipality - 96.4%. Above average for the area are municipalities of Rila, Dupnitsa and Treklyano, respectively 5,6 ha, 8,7 ha and 4,2 ha. Farms, processing over 50 ha UAA are 97 pcs. (1%) and accounting for 58% (14 720,6 ha) of UAA area. Farms cultivated up to 1 ha are 5352 pc. or 72% of farms with UAA in the area, but handled 7% (1 840,8 ha) of UAA.

Distribution of the utilized agricultural area (UAA) in Kyustendil province in totally of size of 252 11, 7 ha which is distributed 7 448 farms located on the territory of Kyustendil province. The number of individual private farmers is 7 365 and they managed 65.2% of UAA, UAA per this type of holdings is in the average of 1,35 ha. Commercial companies are 32 and they elaborate on 7.2% of UAA with an average size of 56,71 ha. On the territory of the region work 20 sole traders (еднолични търговци), who managed the 2.9% of UAA, and the average size of their farms is 36,9 ha. On the Kyustendil territory operate also 26 cooperatives, who managed in total of 24.2% of UAA with an average size of 234,19 ha. Five are the official associations and holdings with other, non agricultural legal status, e.g. (monasteries, schools, institutes, etc.), which use 0.5% of UAA with an average area of 25,27 ha. Of the total land own property of the farmers/holdings was 26.9%, and 56.7% of it was rented. The majority of the land, 93% is owned by privately.

Arable land in the area of Kyustendil province is 14 397,13 ha or 57% of the UAA field which is distributed in 4 533 farms. Cereals, technical and forage crops occupy 44% of UAA area, the permanent grassland – 31%, permanent crops – 11% of the total area. The majority of areas which raise cereals are occupied in 72% with wheat. The holdings of the municipality Dupnitsa grow 37% of areas with cereals in the field. From technical cultures the greatest share of sunflower and potatoes, which occupy 3% of UAA. Potatoes are grown in 2 936 holdings, the proportion of the area is 3% of the UAA. Plantations represent 10% of the UAA field and 93% of the plantations. 58% of areas under fruit types are busy with cherries, 24% with apples. In the field are 17% of areas with cherries on the side. The average size of these cherry rearing holdings is 0,73 ha. The largest areas with cherries are grown in farms in the municipality of Kyustendil – 33%.

Livestock, the poultry and the apiculture keep busy 5 322 of the farms in the Kyustendil area. Of them: 16% grow cattle, 20% – sheep, 39% - goats, 44% – swine and 70% – poultry. In the Kyustendil province grow 5 796 cattle with an average herd size of 6.6 heads. Dairy cows are 3 160 in number. Cattle, sheep, goats and pigs are grown mostly in holdings of individual farmers, respectively- 93% of cattle, 92% of the sheep, 99% of the goats, 96% of the pigs. In the holdings of sole proprietors are grown 58% of the poultry. In 473 holdings of individuals grow 6 897 honey-bee families.

In the South west region of Bulgaria by 2013 are reared 39,5 thsd cows, which are 11,4% of those in the country.

With the accession to EU a categorization of the cattle farms was made in three groups, which were described above on p.5. It was done for the farms with 5 and more cows. It is assumed that these farms produce milk for the market and they sale milk to the dairy plants. The smaller farms produce milk for their own consumption or sale directly to the customers. There are no official data for the number of the small farms.

The most widespread breed is Black-and-white with the next in importance is the Brown Swiss.

In Kyustendil county there are 5 farms of I-st group, with 129 dairy cows in total. There are no farms of II-nd group, farms of the III-d group are 6 with 133 dairy cows in total.

In Nevestino county there is 1 first group farm with 11 cows, there are no II-d group farms and the farms of III-d group are 2 with 29 dairy cows in total.

No buffaloes are reared in the Kyustendil and Nevestino counties.

Almost all *sheep farms* in the province of Kyustendil are small, family farms. Two of them are members of the Dairy sheep breeding associations. The number of ewes in these farms is 180 for each of them. The average milk yield is about 100 L for 120 days milking only period. Another 3 farms are members of the breeding association of West Balkan breed, one herd with 54 ewes works with the Breznishka breeding sheep association, while 2 other sheep farms with 200 ewes in total work with the Sofiiska sheep breeding association.

In general the production of the sheep farms is directed to milk and meat. The wool has very low price, often below the shearing cost.