RECENT DEVELOPMENTS IN AGRICULTURE IN THE APUSENI MOUNTAINS

MAGDALENA DRĂGAN¹, GABRIELA COCEAN²

Abstract: - Recent developments in agriculture in the Apuseni Mountains. In our study area, the recent developments in agriculture have followed two divergent courses: a reduction in the intensity of agricultural activities on the one hand and the concentration, amplification and specialization of production on the other. The first phenomenon, that is also the most widespread, was manifested in the decrease of land use and livestock. The demographic decline and ageing population is one determinant factor of this evolution, especially in a context in which subsistence agriculture is generalized in the entire mountain area. The intensification of agricultural activity through orientation of production towards the market is the second identified phenomenon. It had a lower impact so far and has mainly manifested in two different ways: through the development of agribusinesses (companies that concentrate and intensify production by increasing the size of farms) and through the small-scale producers that focus on organic farming and traditional agricultural products.

Key-Words: subsistence agriculture, agricultural land use, livestock, mountains.

1. Introduction

Although better-known at the national level for mining, the Apuseni Mountains (Romania) also represent an agricultural area due to the lower average altitudes (with a maximum altitude of 1849 m), the extensive surfaces of the leveling platforms and the presence of many depressions (Badea et al, 1987). However, there are also certain restrictions imposed by the slope, the soils and the mountain climate of the area. In fact, about two-thirds of the administrative units in the studied area (100 out of 153) are part of the Disadvantaged Mountain Area. These areas, as outlined in the National Rural Development Programme (the 4A Annex of the NRDP 2007-2013) cover altitudes higher than 600 meters, or between 400 and 600 meters but overlaying slopes of more than 15°.

The main form of production in the Apuseni Mountains is the individual agricultural holding, a fact that comes to highlight the essential feature of agriculture in this region where subsistence agriculture is still predominant. The importance of subsistence agriculture at the regional level is highlighted by the large number of agricultural holdings when compared to the number of households (144696 agricultural holdings and 143517 households) and by the high share of the population involved in agricultural activities: 63.8% of the stable population of the region in 2010 had worked in agriculture in the agricultural year 2009-2010, mostly in individual agricultural holdings.

Taking into account the predominance of subsistence agriculture in the Apuseni Mountains, we can only assume a future decline of this activity in close relation to the extent of the regional demographic decline (the population of the region decreased by 16.2% between 1992 and 2014). At the same time, the population structure indicates an ageing population, the 65 and over 65 age group representing 19.4% of the total population in 2014 (while the national average was 15.2%); this also suggests an acceleration of the demographic decline in the future.

The aim of the present paper is to identify the tendencies in agriculture in the Apuseni Mountains as reflected in the data from the last agricultural census (the General Agricultural

¹ Romanian Academy, Cluj-Napoca Branch, Geography Section, magdalenadragan@yahoo.com
² Romanian Academy, Cluj-Napoca Branch, Geography Section, gabri.cocean@gmail.com
Census of 2010) and the 1990-2014 Tempo-online data series of the National Institute of Statistics. Other complementary data were obtained from our own calculations based on reports from the Ministry of Agriculture regarding certified producers involved in ecological agriculture and traditional products.

2. The decline of the utilized lands

The demographic decline and ageing population are also reflected in the decrease of utilized areas [Fig.1]. Data from the General Agricultural Census of 2010 reveals that, at the regional level, 8.2% of the agricultural area was unutilized. One can note major differences in what regards the share of such areas in the counties that are part of the Apuseni Mountains: from only 4.1% in the area comprised in the Bihor County, to 17.4% in the area comprised in the Cluj County. In this case, the cause of such a difference lays in the different agricultural potential of the territory (Plăiaș, 1994) and the less steep demographic evolution in the Bihor County (Drăgan, 2010).

However, at the communal level, there are even more diverse situations. In some cases, almost the entire agricultural area is being utilized, especially if the agricultural area represents a lower share of the commune’s territory (eg. Pietroasa, Vața de Jos or Budureasa) or if the quality of the soils allows a more intense utilization, as in the case of the communes in the western depressions, with a high share of agricultural land reported to the total surface and a rather low share of the unutilized area [Fig.1]. At the same time, in other cases, the unutilized agricultural area exceeds 30% in some communes where the demographic decline adds up to a lower agricultural potential of the land.

![Fig.1. Unutilized agricultural areas. Data source: the General Agricultural Census of 2010, calculation and graphic representation by authors](image-url)
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(Bulzeștii de Sus, Vorața and Bucureșci in the Hunedoara County; Petriș in the Arad County; Ciucea, Mărgău and Valea Ierii in the Cluj County; Șuncuiuș in the Bihor County). In these cases, accessibility also adds up to the situation, since we can notice mostly the abandonment of agricultural plots with more difficult access, and the concentration of activities in the areas closer to the households.

3. The decrease in the intensity of agricultural land use

In addition to the reduction of utilized agricultural areas, there is also another process that we have to address, involving the decrease in the intensity of utilization of the currently used agricultural areas. In the last 25 years the arable area in the Apuseni Mountains has decreased by almost 18500 ha (-8.4% when compared to the situation in 1992). The decrease has been more pronounced in some counties like Cluj and Hunedoara when compared to the western part (Arad and Bihor counties) due to the superior soil quality of the latter (Plăiaș, 1994). The descending regional dynamics are mainly due to the decrease in the use of arable land in those parts of the region with more accentuated mountainous features and thus with a lower agricultural potential. In the Disadvantaged Mountain Area comprised in the Apuseni Mountains, the arable land decreased by 15% while in the more peripheral areas of the region the decrease was of only 2%.

The negative variations of the areas covered with orchards and vineyards are also included in this category of phenomena that illustrate the decrease in the intensity of agricultural use of the territory. Although they did not represent the specificity of the region, such areas were located in several well established locations (the Galda - Ighiuc - Cricău area in the Alba County, the periphery of the Zarand Mountains, the Geoagiu area, the Aleșd - Borod - Lugășu de Jos area in the Bihor County, the surroundings of Sebiș and Târnova in the Arad County and some communes located at higher altitudes.

Currently such areas are limited to just over 4000 hectares of orchards and 880 hectares of vineyards. The decline of these areas has been dramatic, of around 60% at the regional level, when compared to their extent in 1990. The more relevant cases mainly involve the areas where large state farms or Agricultural Production Cooperatives had functioned during the communist period. With the dismantling of these establishments, the land was divided and reclaimed by the former owners or their descendants. This resulted into many small holdings that more than often did not possess productive technologies (Swain and Vincze, 2001), a fact that contributed to the decline of these agricultural activities.

The surface of the arable land currently not used (at rest) is yet another indicator showing the decrease in land use intensity. According to the definitions used in the General Agricultural Census of 2010 (National Institute of Statistics, 2010), even if these areas are still registered as arable land, they have not been worked in the year of the review or they have been sown with fodder plants. At the regional level, over 40,000 hectares of arable land are at rest, representing about 20% of the total arable land in the Apuseni Mountains. These fields cover larger areas in the Western depressions and along the Mureș Valley, in communes with a larger percentage of available arable land. Among these, there are some communes where the arable land at rest covers more than 1000 ha: Târnova, Tăuț, Șilindia, Bârsa, Gurahonț or Geoagiu.

Before 1990, Agricultural Production Cooperatives and State farms functioned in most of these communes. After their dissolution, the land was returned to the former owners or their families. From that point on, the evolution of agriculture has been differentiated: some of the newly re-established farmers have continued the agricultural activities in individual farms, while others choose to rejoin the plots by leasing or even to sell the land to agricultural companies (Hatos, 2006). However, even in the case of large agricultural farms, wide arable areas at rest are still present. Such lands are often subject to economic decisions regarding the crops or...
are used to grow animal feed, as in the cases of Geoagiu and Gurahonț.

While the surfaces covered by arable land are significant in depressions and peripheral areas, the central mountainous part has been a traditional area for cattle breeding. The ratio between pasture land and hayfields, and arable land is much in favor of the first ones in the communes belonging to the Disadvantaged Mountain Area. When comparing the areas covered by pastures and hayfields in the recent years to the situation in 1990, we could observe that the differences are not that significant between the two moments of time (from 135406 hectares of hayfields in 1990 to 146761 hectares in 2014, from 300420 hectares of pastures in 1990 to 289728 hectares in 2010). From the evolution of the number of cattle we can see, however, that these agricultural areas are underutilized as well since the number of cattle was virtually halved in the same time frame (from 235218 in 1990 to 112376 in 2010).

4. The large farms - the intensification of production

There are some aspects that point to the simultaneous presence of a process quite opposite to subsistence agriculture, which implies the orientation towards the market of some agricultural holdings. Thus, 15% of the regional utilized arable area is found in farms that use over 10 hectares of arable land, while 8% of it in farms with over 100 hectares of arable land. The largest farms using arable land are located in Galda de Jos, Ighiu, Stremt, Vințu de Jos (Alba), Bârsa, Ponor, Dieci, Silindia, Tăut and Târnova (Arad), Vadu Crisului (Bihor), Branșca, Geoagiu, Rapoltu Mare (Hunedoara). We can note that these are generally communes where large state farms or agricultural cooperatives of production have functioned before 1990.

This process regarding the expansion of areas used in agricultural holdings for the

Fig. 2. Cattle numbers in the Apuseni Mountains. "1" marks those communes where holdings with more than 100 bovines are present. Data source: the General Agricultural Census of 2010, calculation and graphic representation by authors
purpose of market orientation is also revealed but the presence of leasing of agricultural lands. Although the regional standard is represented by agricultural holdings using lands that they own, 3.5% of all agricultural land in the region is leased or granted in concession. This phenomenon is more common in those areas with a significant share of the arable area found in large-scale farms (with cases like Galda de Jos, where 34% of the agricultural area used is leased, Rimetea with 28%, Izvoru Crișului with 30% or Branisca with 27%). However, it can also be noted in the mountain area itself where pastures are granted in concession (eg. Câmpeni, Poieni or Poșaga).

The same tendency towards market orientation can be observed in the case of livestock breeding, despite the drastic decrease in the number of cattle and their decrease in the households: at the regional level, only approx. one in four farms held cattle in 2010 (27.4 % of the total number of holdings bred cattle). Although 87.8% of the total number of cattle are found in farms with up to 9 bovines, and most of them in holdings with 1-2 cows, one can also see a phenomenon of concentration through the development of farms with higher capacities (that are present especially in the Alba and Bihor counties) and the emergence of even larger farms of over 100 bovines at Vîntu de Jos, Galda, Ighiu, Geoagiu, Hărău, Gura Hotilor, Hâncești, Soim, Poçola, Săvârșin and Curățele [Fig. 2]. Most of these establishments are located in communes where state farms or Agricultural Production Cooperatives having high numbers of cattle have functioned before 1990.

5. The small scale producers - organic farming and traditional products

Another way in which the agricultural producers have orientated their activity towards the market was organic farming and specialization in the production of traditional products. Without requiring large initial investments, organic farming can represent an opportunity for development in the region, where in fact almost the entire agricultural production of small farms is obtained without the use of chemicals and with minimal mechanization. In 2010, the orientation towards organic farming was still shy, with only 17 certified ecological producers, and with ecological farming covering a total of only 8.40 hectares. The number of ecologically bred livestock was also rather low - 149 cattle, 210 pigs, 366 sheep and goats, 1127 birds. However, by 2016, there has been a spectacular increase in the number of certified organic producers up to 528 regional registered producers.

The promotion of traditional products and the integrated development of organic farming and tourism can be an important drivers in maintaining and making this economic sector more efficient in the Apuseni Mountains. On August 31, 2017, in the analyzed region there were officially 21 traditional Romanian registered products, most of them located in the Alba County. Many of these products are promoted in connection with agritourism, in place, in various agritouristic destinations and infrastructures, and in the context of different fairs and events.

6. Conclusions

The analysis of the statistical data highlighted three important aspects:

- Firstly, the predominance of subsistence farming and the small scale of agricultural activities in the Apuseni Mountains are evident.
- The decline in land use and the decrease of cattle numbers over the past 25 years constitute another important aspect that is closely related to the first conclusion and to the accelerated demographic decline in the region.
- At the same time, the orientation of production towards the market of some agricultural holdings in the Apuseni Mountains is highlighted by the concentration of production on larger farms (by increasing the utilized areas and increasing the number of cattle) and by specialization in organic farming and traditional products.
REFERENCES


[5] INS (Institutul Național de Statistică), 1990-2014 Tempo online data base


