

Insights into the Romanian Agricultural Post-Socialist Transition to Sustainability on the European Open Market

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ABSTRACT

Our approach highlights the nexus between the national statutory laws on the Romanian agriculture over a 20 year period and the structural changes in the agricultural land-use and holdings, thus outlining the fact that Romanian agriculture still is in a fully ongoing transitional phase. We concluded that the extended transition phase of Romanian agriculture could partly lead to increased territorial development disparities and to the impossibility of developing small farms due to excessive aging or even natural decease of landowners. Results prove the inconsistencies of land-use policy and bring out the most common land reform issues that have firstly led to excessive land fragmentation through legal individual ownership, low farm productivity and the inability of local producers to enter the open market as the national market is deeply monopolized by the strong food-products chain of supermarkets. Moreover, we are not able to develop distinctive or organic raw and processed local products and promote them on the national and European markets. The answer to the negative consequences of transitional agricultural development policies are synthetically presented and described through a set of possible measures to be taken and implemented in order to shorten the transition phase Romanian agriculture is still facing.

1. INTRODUCTION

The study on the transition of agriculture in Romanian, as well as in other central and eastern European countries, from Socialist pattern to what it is today namely a market-oriented one, has been of great interest both to researchers and especially to the policy makers at both national and international levels. This interest resides in the desire to understand the changes agriculture has gone through, the effects of legislative measures, policies and EU structural funds in supporting rural and agricultural development and also to identify further optimal ways and solutions to bring this process to completion. Transition itself, as a complex process of turning into another socio-economic organization pattern is always difficult and there is no

universally valid recipe to achieve it as fast and efficient as possible. Since it is not a fixed pattern and there is large variability in its specific trajectories (Lambin and Meyfroidt, 2010) we can ultimately consider it a sequence of actions, resulting in numerous plausible or less plausible results whose effects reverberate over time and sometimes into unexpected results [14]. Previous analyses of structural changes brought by the agricultural reform in post socialism period in case of many former socialist states emphasize on the repercussions on the land use, ownership, land fragmentation and decreased labour productivity [6], [1], [12]. Decreased productivity in agriculture is places Romania among the transition countries struggling to reorganize agricultural activities through farm restructuring strategies even though the option of

cooperation holds its negative features inherited from the socialist regime, privatization and individual farming being preferred against cooperation or association, subsequently being most often rejected by the active farmers [11]. Co-operation or association not being a viable option for the farmers in the current transition context of Romanian agriculture is once more proven by the actual spontaneous privatization debated by Rizov in 2002, and further discussed and confirmed by Lerman et al. in 2004 [15].

In case of Romania, the transition of agriculture and of the entire society from the socialist centrally planned large scale agricultural organization to the capitalist one has unfortunately been marked by many obstacles, not always the best measures being taken; and, once taken, their effects resulted in an overextended transition. Naturally, if you apply consistent and optimal measures, a successful and complete transition shall last from 10 to 15 years maximum. However, in the case of Romania we have been witnessing an extension of already 5 years beyond the maximum extent, although not even half of the structural issues in agriculture have been solved. This could mean that the transitional period almost doubled. Therefore, the transition of Romanian agriculture from the Socialist type to that of the market economy is a natural process. What is unnatural refers to the excessive prolongation thereof, and the effects of measures taken at the beginning of the respective transition period, such as high level of land fragmentation establishing an unprecedented level of private property [23] or an intense ownership and land use restructuring [12]. This resulted in about 18-20 million agricultural parcels, the destruction of the entire infrastructure of the former agricultural holdings and almost no direct support measures for the new farmers [9]. Also, in most cases, giving back ownership and land fragmentation have led to the abandonment of plots [13], [20], this fact proving the inability of small farmers to support viable agriculture. Researches confirm the significant rate of agricultural plot abandonment in the first years after 1989, especially in the period 1990-1995 mostly due to the low level of complying with the new conditions of practicing agriculture [21], [22].

Our research study brings into question the most important moments in the transition of the Romanian agriculture, presenting facts through a set of general but representative agriculture related statistical indicators, analyzed throughout the period under review. The comparative analysis provides information over a 20 year period focusing on several particular aspects related to a wide range of variables and statistical indices: land use structure, agricultural holdings by type of propriety, crops, livestock, labour force and employment in agriculture and the share of agriculture to GDP, trade flows of raw and processed

agricultural products, which in the end are tools for setting as series of practical measures to be included in the future policies for agricultural development further discussed in the results section. Furthermore, we add the correlation of the most important stages of transition with the political, legislative, social, economic, financial and structural measures taken. We also argue on the causes that determined the type of transition chosen, as well as the minimal required set of measures that should be implemented to accelerate the completion of this process. The paper also launches a series of themes for debate, especially on the regeneration and adjustment of agricultural holdings to the most efficient sizes and on the protection and stimulation of domestic producers on the common market.

2. METHODOLOGY

The reasoning for this research is based on a field of wide debates on agricultural sustainability approaches varying from debates on the future policies for agricultural development [16], proposals and guidelines for the future of global agriculture [18], analyzing options of organization and sustainable development of agricultural establishments [3], [7] and the importance of agricultural sector in the national economy and in the context of European integration [20]. In this context, the phenomenon of the Romanian agriculture transition has already been approached reaching a consensual agreement of post factum inefficiency in terms of agricultural productivity [13], [9], [3] results also shown in the case of most of the central and eastern European transitional countries that in the past benefitted from a centrally planned economy [6], [12].

Since there is an obvious gap between the policy's theory and the ineffectual agricultural production in Romania, our aim is to express the reality of the Romanian agriculture practiced in small and medium farms as a result of land reform approach debated and established by Hartvigsen (2014) based on land restitution to former owners (including allocation of other land when restitution in the old boundaries is not possible) compensation (in state vouchers, bonds or money) and distribution in physical parcels [12].

Therefore, we illustrate the transition of agriculture in Romania in its complexity during a 20 year period, focusing on three time thresholds: 1. Year 1989 – the moment of political shift; 2. Year 2000 – the start in the negotiations for integration into the European Union and the open access to the EU financial support; 3. Year 2010 – corresponding to the present-day Romania as member of the EU, complying with the EU common agriculture policy and common market, beneficiary of EU structural funds and witness of market liberalization. We try to demonstrate

transition and its measurable effects by addressing and statistically analyzing the main variables in agriculture showing fluctuations, such as: structure of agricultural land, type and size of agricultural plots, farm equipment and agricultural machinery, employed population in agriculture, contribution of agriculture to GDP. We also try, on the one hand, to set the major causes for the situation registered during the entire period through the relativity of production and instability of land use and, on the other hand, to suggest a series of measures for improving agriculture as an economic activity and shorten the transition period. All these attempts are correlated with the legislative changes throughout this entire period focusing on regulations on: agricultural land property, type of ownership, direct payments, the land fund that caused radical structural changes in agriculture, not always with positive outcomes.

In choosing the indicators considered to be most illustrative for the analysis within the respective period, we have structured a set of data for the period between 1989 and 2010 available from the National Institute of Statistics (INS) in Romania (statistical yearbooks, yearly general agricultural censuses, population and housing censuses), as well as data on agricultural commodities production, trade, crops and livestock breeding available from the Food and Agriculture Organization of the United Nations - FAOSTAT (2010). In certain case we set the first time threshold back in 1975 or 1980, such as the contribution of agriculture to GDP or in case of trade balance. The statistical analysis was conducted on several variables: general structure of agricultural land use, structure of agricultural land use on categories of holdings, level of mechanization and agricultural equipment, employed population in agriculture, size of the agricultural holdings, ratio between used and unused agricultural land, at a general level and according to type of holdings, contribution of agriculture to GDP, the import-export balance of raw agricultural products and manufactured goods. By analyzing the regulations set up in the period between 1989 and 2010 we highlight the mechanism that triggered, guided and supported transition in agriculture. Even though the period under review is of 20 years, between 1989 and 2010, we chose to highlight three time thresholds for each is representative as or. The first threshold set in 1989, the year the Berlin Wall fell and the Iron Curtain lifted which internationally corresponds to the transition from centrally planned economies towards market economies [23] change of political ideology and the end of collective farming under the governmental administration. Spatially, we do not include here the mountain areas, which were not affected by collectivization, their inhabitants not being organized for the market production, but only for their own use. In the next 10 years, the land was put into the possession of the former owners, on the former

boundaries. The error was the reinstatement of propriety on the former land plots thus increasing the fragmentation of the large agricultural plots that put Romania on one of the first places in Europe with 3.3 ha the average size of the agricultural plot in 2007 [12], [1], fact that ranked Romania among the first in Europe regarding the average size of agricultural holdings, of about 3.3ha/farm in 2007 [1].

The second threshold is the year 2000, which corresponds to the beginning of negotiations for the integration into the European Union. This was the period the Romanian government established for the first time the National Plan for Agriculture and Rural Development in agreement with the European policy. It helped promoting measures to support small and medium-size farms and to access financial pre-accession funds. However, Romania is still described by a high number of subsistence farms as most of the east European countries recently included in the European Union [8].

And 2010, the third threshold was chosen to observe the effects of integration into the EU and the effects of the European Common Agricultural Policy and the common market. At the same time, this threshold coincides with the most recent data available, mostly using data from the agricultural statistical yearbook of 2010.

3. RESULTS AND DISCUSSION

3.1. Legislative premises of structural changes in the Romanian agriculture

Structural changes in the Romanian agriculture have been mostly determined by legislation and its practical measures. A series of regulatory acts such as decrees, laws, and orders of the Ministry were issued in the period under review. Their purpose was to regulate the land fund and farming or make adjustments in the process of land reorganization. Thus, we bring into discussion the following normative acts: Law 42/1990, Law 9/1990, Law 15/1990, Law 31/1990, Law 18/1991, Law 36/1991, Law 16/1994, Law 54/1998, the Urgent Governmental Decision 108/2001, Law 312/2005, and Law 247/2005.

Law 42 of 29th January 1990 setting up measures to stimulate the villagers basically starts the process of unravelling the Romanian socialist agriculture. It grants the right for each member of the former Agricultural Production Cooperatives (CAPs) to individually receive up to 5000 m² of farmland or other type of land for agricultural use, yet without the possibility of buying or selling it. This moment practically marks the debut of the fragmentation of the existing land fund before 1989, which was the result of forced collectivization and human sacrifices. It also starts the process of dismantling structures such as:

State-owned Agricultural Enterprises (IASs), Agricultural Production Cooperatives (CAPs) and Agricultural Machinery Stations (SMAs) [4]. In addition, *Law 9 of 31st July 1990* prohibits the temporary land alienation between the living persons even though made by legal agreements. It also sets the basic guidelines for the elaboration of the Law of Land Fund in 1991 and prohibits any land sales until the legal regulation of this issue. Taking into consideration the changes in the organizational structure of agricultural establishments, *Law 15 of 1990, on the reorganization of economic state-owned enterprises as autonomous companies and commercial companies* gives free access to the development of state corporations especially under article 42 that establishes the regulation on the activity of autonomous companies and commercial companies through facilities provided by the government, such as: preferential loans with preferential interests, state orders, subsidies, taxes and fees. Adding to this normative act, *Law 31 of 16th November 1990, concerning trading companies* promulgates the establishment of companies whether they be Limited Liability Company – LLC (Ro. S.R.L.), Private Limited Company – Ltd. (Ro. S.A.) or others. Made official in 1990, this law is the one that enhances the development of economic-commercial sector.

However, Article 8 of *Law 18 of 19th February 1991 on the Land Fund* (land resources) establishes the private property rights on the land formerly owned by the Agricultural Production Cooperatives through several stipulations (see box 1).

Article 14, paragraph 2 of this Act also regulates the location of the restituted land, which should be implemented accordingly: *as a rule, the effective assignment of the land in the hilly area shall be made on the old plots, whereas in the plain areas, on the plots established by the Commission within the perimeters of the agricultural production cooperatives and not necessarily within the old boundaries of the property.*

Box 1. Specifics of gaining the right of ownership on arable land (Art. 8, Law 18/1991):

1). *The right of private ownership of land formerly owned by the agricultural production cooperatives is made by reinstating the right of property or by setting up this right.*

2). *The beneficiaries of this law are the members of the cooperative who brought land into agricultural production cooperative or those who were taken land over in any way by it, and, in accordance with the law, their heirs, members of the cooperative who did not bring land into cooperative and others.*

3). *Setting private ownership is done upon request by releasing a property title on a minimum area of 0.5 ha for each person entitled under this Act, and no more than 10 ha of equivalent arable land for each family.*

somehow a *revenge* on the collectivization process and a repair of this historical mistake, meant at the same time, a major back-step of about 50 years in the Romanian agriculture and the beginning of a new fragmentation of the land fund. From then on, the effects of this land fragmentation would still represent the reality for an extended period of time because the natural land association up to the shape and size of viable farms is a long-lasting process. Also, besides setting the premises for private farms belonging to former owners, this legal provision lays the foundation for other types of agricultural holdings in terms of ownership, such as: holdings included in the national public and private domain, holdings owned and administered by the local authorities (village, towns and counties), farms belonging to the educational structures with agricultural profile and research centres, farms belonging to the church and monastic estate and/or to private limited companies. Provisions of this act also contributed to the dismantling of the livestock farms, Agricultural Machinery Stations and other agricultural facilities by giving out the propriety as goods or money to the former members of cooperatives. Vine and fruit holdings were also destroyed through land restitution especially in case when agricultural land seemed to be insufficient, which led to the fast deforestation of these planted areas and their transformation into mostly arable areas [17]. Presently, the future effects of this past legal act have affected the position of Romania among the EU states, and even though already a member, it may easily be considered as holding the same position as the candidate states that have been preparing their accession into the EU [19]. The former organization of agricultural land was also abrogated and never replaced with a new form of organization. This resulted in large agricultural areas without any form of organization, which, in the end, also influenced the agricultural productivity and economic competitiveness of farms. Articles 66, 67, 68, 69 of Law 18/1991 regulate the movement of farmland, as land selling and purchasing is subject to law. This underpins the process of restructuring the agricultural land fund belonging to the agricultural holdings and the emergence of viable holdings. Article 77 lays down the conditions under which the use of agricultural land can be changed, emphasizing on the possibility to transfer it from one category to another if the law allows it. In this respect, Article 77 stipulates that if companies change the use of arable land into other category of agricultural use, this can be done under the agreement of the county agricultural authority, and only in the certain cases (see box 2). Articles 104 and 105 of the same law regulate the planning of agricultural land but leave the execution of these projects to the decision of land owners. In this case, companies and private research units that were established later are excluded. Therefore, it is explicable that without financially supporting such studies the

These two provisions under articles 8 and 14, aiming to be considered a *restitutio in integrum*,

whole process of farming has been done erratically without specialized studies, fact reflected eventually in the low efficiency of agricultural activities [15].

Law 36 of 30th April 1991 on agricultural holdings and other forms of association in agriculture creates legal prerequisites for the free association in agriculture between the new landowners reinstated by the Law 18 of 1991. Still, this enactment had almost no positive outcomes, the new owners being very reserved towards any form of association for farming activities, as a result of the traumatic experience they went through for almost 40 years in the former communist regime.

Box 2. Specifics of change of use in the case of arable land (Art. 77, Law 18/1991):

a). *Arable land in hilly areas that constitutes enclaves in vineyards and orchards, parts of traditional and acknowledged vineyards and orchards, established by the specialized bodies of the Ministry of Agriculture and Food, can be converted into vineyards and orchards.*

b). *Arable land in lowland areas that proves to be needed for the required completion of the vineyards growing different varieties of grapes (wine, table and raisins) and orchards growing peach and apricot crops, established by the specialized bodies of the Ministry of Agriculture and Food, can be converted into vineyards and orchards.*

c). *Arable land with sandy soils can be converted into vineyards and orchards.*

d). *Arable land, situated in the hilly and mountain areas on slopes unsuitable for mechanization means, affected by surface and deep erosion, by active or partly stabilized landslides, which no longer can be improved and maintained to this use, can be converted into grassland and meadows.*

e). *Arable land located in riverbeds and along the Danube, which cannot be used cost effectively for other agricultural purposes can be transformed into fish ponds.*

We should mention here that, in most of the European states, the former models of agricultural organization were either maintained or replaced by other new cooperative organization forms [10]. However, based on this law, several dozens of large private agricultural holdings were created in the South and East parts of the country, which today represent the elite of agriculture in Romania. Thus, in 1992 about 1664 companies were already organized as follows: 775 companies of agricultural production, 573 companies providing services, 109 companies in the field of land improvement works, 64 companies for the production of compound feeding stuffs, 43 food supply companies, and 100 companies for trading fruit and vegetables. Commercial agricultural companies mainly state-owned have come to own about 17% of the national agricultural area and 25% of the livestock and what is even more important is that these structures provide 37% of the national agricultural production.

Law no. 16 of 1994 setting up provisions on leasing agricultural property does not restrict the lease

of agricultural property but stipulated by the law and also does not hinder any renewal of lease contracts.

Law 54 of 1998 on the legal transfer of propriety goes back to the regulation regarding the legal transfer of agricultural land. Yet, a significant change that occurs in relation to previous regulations refers to the maximum area that a family holding can own which, in this case, should not exceed 200 ha. This law also does not allow the sale of agricultural land to foreign citizens.

Only with the provisions of *Law no. 247 of 2005 on the reform of property and justice* can foreign citizens acquire land in Romania, under *Title X, art. 9 – Legal transfer of propriety*, which stipulates that *foreign citizens and stateless persons and foreign legal entities may acquire ownership of land in Romania under the conditions stipulated by the law*. This provision opens a wide field for the creation of large private agricultural holdings belonging to foreign companies, which have generated immediate actions of land merging by purchase or lease or in turn of a financial amount for giving up the land, especially in the plain area. This is beneficial to the development of agriculture, but on the other hand, it leads to the intensive exploitation of the land fund, especially in the case of energy crops (rape, soy, sunflower, and maize), and to the introduction of hybrid or genetically modified varieties. At this point the lifelong agricultural income (Ro. *renta viageră agricolă*) is set up as a measure to stimulate the natural agricultural land merging, as it is mostly directed to the elderly owners who own land but do not have the technical means for cultivation. This income is given to the land owners who would give their land to be used (cultivated) by other companies during their entire life. The amount of this lifelong agricultural income per year is the equivalent in lei of 100 euro/year/ hectare of alienated agricultural land and equivalent in lei of 50 euro/year for each leased ha (in accordance with *Title XI- Lifelong agricultural income, Chapter I - Definition and characteristics, article 3*). Measures are taken to speed up the litigations on rights of land ownership in case of the former owners by shortening the duration of legal operation that should not be longer than 15 days except where there is an agreement of the parties and court specialization in land litigations. The execution of the court decisions sentenced in land litigations is exempt from paying stamp duty and taxes. The lender would pay up to 20% of the costs of writ of execution, including the legal executor fee. The remaining difference would be obtained by the court bailiff directly from the borrower, once with the down payment.

The urgent governmental decision no. 108/2001 on the size of agricultural holdings (art. 5) establishes the following measurements as most suitable for farms to cultivate and produce most competitively (see box 3):

Box 3. Standard measurements for farming efficient production

fields cultivated with

cereals, crops (in the plain area - 110 ha; in the hilly area - 50 ha)

grassland - 25 ha in the mountain area

vegetables - 2 ha

orchards, vineyards - 5 ha

in the case of farms

cows for milk - 15 heads;

sheep - 200 heads;

pigs - 100 heads

These standards would not have any significance, except maybe for the intention of reinstating the former Agricultural Production Cooperatives and changing their name into agricultural holdings, if article 7 did not specifically mention that the government would financially support only those farms that comply with the size conditions specified in article 5. This governmental regulation (108/2001) was anachronous and unrealistic and incompatible with the European legislation and with negative impact on the Romanian rural life. Anachronous, because this type of support actions for farmers were no longer functional in the European Union, except if the farmers would give up cultivating certain plots for a year or several years, in which case they would receive payments for not cultivating those plots; and unrealistic because the presumed surfaces could not be achieved by market mechanisms, but only by the forced association of landowners. This law clearly reveals the nostalgia for the former socialist agriculture of the period 1945-1990.

Law 312 of November 10, 2005, concerning the right acquisition of private land ownership in case of foreign citizens and stateless persons and foreign legal persons establishes the impossibility of property rights on the Romanian territory in the case of persons who are in the circumstances mentioned above. That is, citizens and legal persons of the EU Member States are granted the same rights as the Romanian citizens and legal persons, but only after seven years starting from the date of accession. As provided in the Treaty of Accession, the ban does not apply in case of farmers and the self-employed (*i.e.* individuals) living in the Member States and those who set residence in Romania. Therefore, they can buy land immediately after accession, but cannot change its use during the transition period. They have to prove the farmer quality by documents issued by the Member State. Law no. 312/2005 came into force on January 1st, 2007, the date of EU accession of Romania. However, just as in the past, foreigners that developed a business company in Romania could still buy land on behalf of that enterprise as Romanian legal persons, irrespective of the origin of the capital.

Law 247/2005 on the reform of property and justice and some other related measures establish the restitution of the real estate abusively taken over by the

State through cooperatives or any other legal entities in the period between March 6, 1945 and December 22, 1989. Art. 6, paragraph 1 establishes the term of real estate, through which can be understood the land, with or without any constructions, of any use considered at the takeover date, and also movables that became real estate by their addition to the respective constructions. The land without buildings should be also returned even though works of public interest were approved on site, if construction did not start or works were abandoned.

In conclusion, Romania did not benefit from a consistent policy or any legislation stability during transition period as each government imprinted their own ideological platform characteristic to the main leading party. The set of legislative measures taken was not part of a coherent policy of agricultural reorganization, but every law was promulgated sequentially as a response to the previous one. Although positive results were intended, these laws did not have the expected effect due to the weak capacity of response of the rural communities constrained by the lack of financial capital, production means and even poor education.

3.2. Data analysis of the main agriculture-related variables

3.2.1. Changes in the structure of land use

Much attention needs to be given to the size of agricultural land since it varies significantly throughout the period under analysis. While in 1990 the national agricultural land registers an increase of about 50,000 hectares in comparison with the figures of 1989, in 1998 it stabilizes at 14,800 hectares. This increase, registered between 1990 and 1992 at a national level is mainly determined by the enforcement of Law no. 18 of 1991 setting the grounds of land restitution to the former owners on the former plots. This process also implies a great change in land-use of wide areas such as: built in areas, wet areas, water surfaces, industrial fields, areas formerly in occupied by the facilities of the former State-owned Agricultural Enterprises, Agricultural Production Cooperatives, giving them agricultural use. Hence, people tried their best to reconfigure the former agricultural holdings as they were before nationalization and collectivization, thus increasing the total agricultural surface. However, the results were very different from the expected outcome, at least in terms of use (see Appendix A, Table 1).

The major fluctuations in the size of agricultural land occur in 1998, this year also coinciding with the completion of the deindustrialization period (the last phase of shutting down the industrial platforms) (see fig. 1). Between 1998 and 1999 the agricultural land decreases by about 75,000 ha as a result of economic crisis and internal political

convulsions. The economic crisis becomes acute and land owners have no longer any capital to support their farms and subsequently large agricultural areas are abandoned due to the inability of new owners to cultivate the land. In order to prevent this situation, the Romanian government of that time adopts the Urgent Governmental Decision no. 108/2001 that establishes new measurements for the agricultural holdings and specifies the state support for the farmers complying with this regulation (see section 3.1.). By taking this measure, the agricultural area considerably increases (up to 125,000 ha) (1999-2000), which is the maximum registered throughout the period under analysis. This increase resulted from the inclusion of the entire available land into the agricultural category regardless of its use; it was mostly the case of abandoned plots and the new plots resulted from the disintegration of industrial and mining platforms. This is also the period in which the largest agricultural holdings were established in Romania, such as the one located in the Great Island of Braila, even though atypical for the European Union.

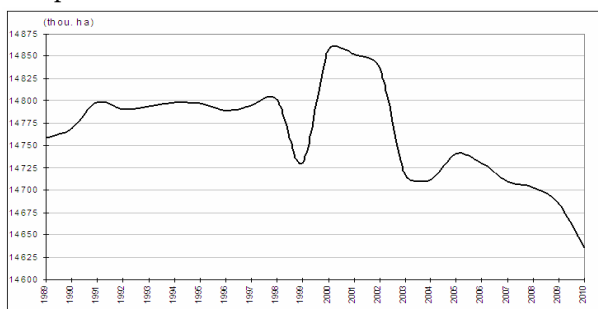


Fig. 1. Dynamics of agricultural land in Romania between 1989-2010.

The agricultural land has started decreasing consistently since 2000, presently maintaining the same downward tendency. The overall reduction of the total agricultural land area in the entire period has been by approx. 250,000 hectares. This situation is the consequence of the interaction of multiple political, social, economic and legal factors, such as: start of negotiations for the European Union membership, lack of state funding to support agriculture development, accentuated demographic ageing in rural areas affecting labour force in agriculture, and access to open market. All along, these upward and downward fluctuations in size affected all the subcategories of available agricultural areas.

The *arable land* registers a continuous decrease until 1994 when it reaches its lowest threshold over the study period (280,000 hectares). From then on, the arable area constantly expanded until 2006, when a new decrease trend occurred continuing up to the present (fig. 2). This increase (between 1994 and 2006) was supported by the possibility of farmers to apply for the European pre-accession financial

assistance and also coincides with the appearance of the large private agricultural holdings that mainly exploit arable land. However the strong decrease in 2006 is explained by the fact that the newly reinstated land owners were allowed to change the former land use and even abandon the arable land in case they were unable to cultivate it. Therefore, arable land lost ground given the strong fragmentation of large arable plots and the possibility of changing the land-use at the will of the new owners.

Nevertheless, grassland area shows a reverse behaviour as compared to the arable land (see fig. 2). If we analyze the figures in case of arable land, we notice a correlated reflection in the changes of the grassland. A possible explanation of the severe decrease in 2000 can be related to the regulation establishing the size of farms up to 50 hectares. The constant decrease after 2000 is associated with the increase of arable land. *Hayfields area* register a constant growth during the entire period, partially explained by the transfer of the arable land into the category of hayfields as a result of abandonment especially in the hilly and mountain areas (see fig. 2).

Vineyards and orchards also register a constant decline. This is associated with the abandonment and deforestation of vineyards and orchards. Many of these areas are transformed into grassland or hayfields (see fig. 2). The obvious downward trend persists in case of vineyards and orchards, while hayfields register a growth tendency. This process illustrates the abandonment and deforestation of orchards and vineyards formerly functional, now being mostly used as hayfields, as this is considered the most convenient agricultural land use, especially in the case of subsistence agriculture.

All of these structural changes of agricultural land at national level are in fact the result of the changes occurred at local level. If we consider 1989 the benchmark in agriculture evolution, we notice that during the decade of 1989-1999 the agricultural surface decreases significantly in the central and southern parts of the country, with the highest values, of over 4%, in the counties of Hunedoara and Caraş-Severin; however, an increase is duly noticed in the western, north-western and eastern parts of Romania (see Appendix B, fig. 1). This spatial differentiation is mostly referred to by the *sense of ownership* of the farmers who have permanently tried to maintain the individual farming. In the areas that reflected decreases in the agricultural area, they established large agricultural holdings, either Agricultural Production Cooperatives or State-owned Agricultural Enterprises. Thus, the rural population is not able to operate individually any longer, the result being that most of the restituted land is not cultivated and subsequently abandoned.

During the 2000-2010 decade we practically assist to a generalized decrease of the agricultural land

at national level, except for the counties that register wide surfaces of arable land cultivated by large agricultural holdings (Vaslui, Brăila, Ialomița, Teleorman, and Giurgiu) agriculture being the main source of subsistence for the local population (Botoșani, Bistrița-Năsăud, Caraș-Severin) (see Appendix B, fig. 2). As for conclusion, the surface of agricultural land

decreased, which, associated with reduced productivity has proved insufficient for internal consumption, thus causing the increase of imports.

All along, the high level of abandonment of agricultural land determined its degradation due to spontaneous vegetation, surface or in-depth erosion (see Appendix B, fig. 3).

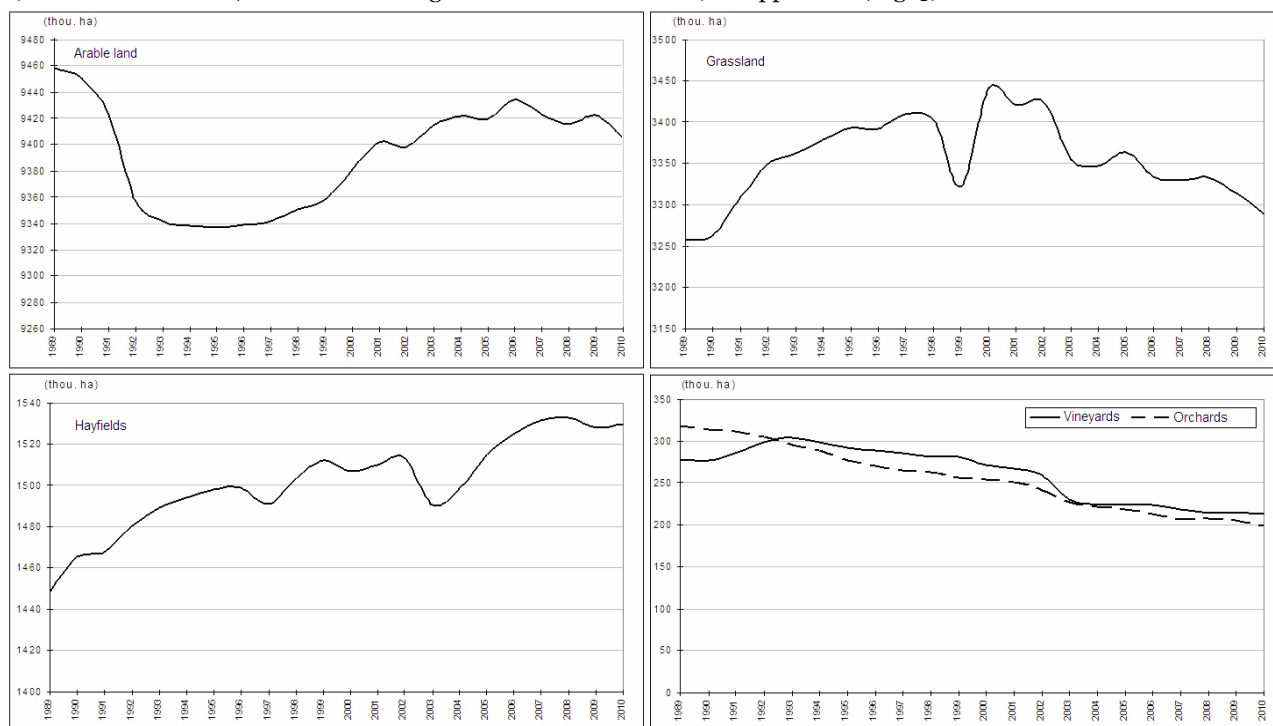


Fig. 2. Dynamics of agricultural land by type in Romania between 1989-2010 (arable land, grassland, hayfields, vineyards and orchards).

3.2.2. Typology of agricultural holdings

In the socialist period, the year 1989 as landmark, there were only three forms of agricultural holdings specific to centralized economy: Agricultural Production Cooperatives (CAPs), State-owned Agricultural Enterprises (IASs) and the individual holdings, located mainly in the mountain areas where collectivization was not accomplished. At that time, the state had the largest share of land ownership while private land ownership was only found in the mountain areas. Also, small farms were bound by state to share part of their achieved production with the state. The two main types of agricultural facilities (Agricultural Production Cooperatives and State-owned Agricultural Enterprises) used to hold surfaces of about several thousand ha in average (average surface/unit = 3,524 ha), with a high degree of systematization, which explains their low number registered nationwide (4,187 agricultural holdings nationwide). Another distinctive feature is that land cultivation used to be performed in accordance with the technological norms applicable to that period, resulting in high productivity shown by exports and contribution of agriculture to GDP. The optimal results in agriculture also explain how the state

was able to cover the costs of industrialization process. The small number of agricultural holdings shows that ownership of optimal land areas allows for the application of efficient production technology. After 1989, the process of changing the type of agriculture has determined the creation of new types of holdings (fig. 3), their current number reaching about 3.856 million (in 2010), a fact that caused the decrease of the average size of agricultural holdings by approx. 1000 times and up to 3.4 ha at present [5]. Currently, 53% of the agricultural land is owned by private individual agricultural holdings, which means 99% of the total number (average size = 1.87 ha). Beside this category of owners, about 24% of the agricultural land is cultivated by private capital commercial companies, but they represent only 0.4% of the total number of agricultural holdings (average surface = ~ 193 ha). Only one category of the former exploitations still exists in the present. They are state capital companies, corresponding to the former State-owned Agricultural Enterprises. They sum up to 72 units, barely owning 0.03% of the total agricultural area (see Appendix A, Table 2). In conclusion, this diversification of agricultural holdings without a proper technology based planning has sharply reduced the agricultural

productivity. At present, Romania cannot meet the demand of the national market for domestic

consumption, thus becoming a net importer to substitute for the raw and processed food products.

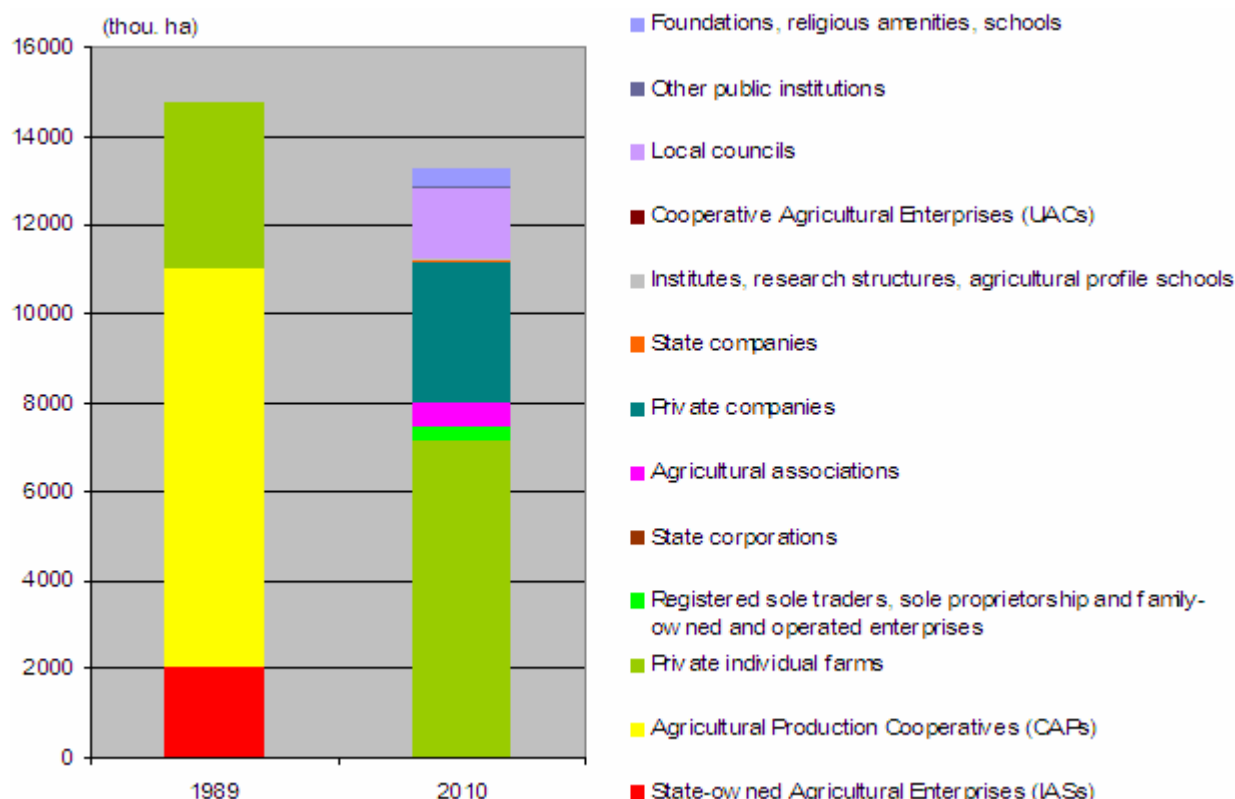


Fig. 3. Changes in agricultural holdings by size and types in 2010 as compared to 1989.

3.2.3. Size of agricultural holdings

Even though the current agricultural organization shows quite homogeneous levels, the plots owned and cultivated by small holdings of up to 5 ha

prevailing with over 90% of the total number are productively non-viable. However, farms over 100 ha that are considered viable hold just 0.2 – 0.3% of the total number of holdings (see Table 1).

Table 1. Numerical evolution of agricultural holdings according to size-classes.

Size-classes of agricultural area in use (ha)	2005		2007		2010	
	ha	%	ha	%	ha	%
> 0.1	414,975	10.07	273,544	7.10	503,963	13.12
0.1 - 1.0	1,436,860	34.86	1,411,956	36.66	1,633,568	42.52
1.0 - 5.0	1,883,983	45.71	1,765,660	45.84	1,439,398	37.47
5.0 - 10.0	289,575	7.03	299,996	7.79	182,218	4.74
10.0 - 100	86,963	2.11	91,026	2.36	68,981	1.80
> 100.0	8,891	0.22	9,608	0.25	13,656	0.36
Total (national level)	4,121,247	100.00	3,851,790	100.00	3,841,784	100.00

This indicator shows four types of agricultural holdings: 1). *Subsistence holdings* (over 90%) – up to 5 ha; their large share also imprints the national feature of subsistence agriculture; 2). *Small holdings* (about 5%) between 5 and 10 ha, represented by the local producers facing multiple challenges of entering the market; 3). *Average-size holdings* (about 2%) between 10 and 100 ha; their efficient production make them able to compete with large producers on the market; 4).

Large holdings (less than 1%) more than 100 ha. Out of all categories, the number the of subsistence farms is increasing as a result of the low performance of small and medium farms, while the large holdings are growing through the assimilation of the medium or small ones.

The spatial distribution of agricultural holdings is significantly differentiated and strongly influenced by land morphology, soil and climate - all of

them condition the practice of agriculture at a large scale. Thus, in the counties located in mountain and hilly areas we find an absolute majority of subsistence farms and about 99% of the small farms, whereas in the counties located in plain areas their number falls below 90% (see Appendix B, fig. 4).

Should we exclude individual private farms when analyzing their territorial distribution, we can notice the following situation (see Appendix B, fig. 5):

- in the mountain and hilly areas, with low potential for practicing agriculture, about a third of the farms are private, the rest of them being represented by other types of holdings;

- in the lowland areas (the Romanian Plain, The West Plain or the Dobrogea Plateau) with high potential for practicing agriculture, about two thirds of the agricultural holdings are private;

This spatial distribution proves once again that the location of private production units are closely related to the area with a certain level of economic profitability, not being present in the other agricultural areas where other types of agricultural holdings are developed yet with low yields and profits. The same concluding aspect can be drawn from the analysis of spatial distribution by types of farms (see Appendix B, fig. 6). Basically, subsistence and small farms hold almost 2 thirds of the agricultural land in areas with low productive potential, whereas in the areas with high potential of productivity, private farms own about 50-70% of the agricultural area, which is mostly arable land.

Not the same thing can be stated about the distribution of the uncultivated agricultural land according to the types of holdings (see Appendix B, fig. 7). At national level, in most of the cases the uncultivated land tenure belongs predominantly to individual households or to state-owned companies. There are also several cases of uncultivated agricultural land owned by private companies in few of the counties in the south.

Paradoxically though, the highest rate of abandonment of agricultural land is found in the counties registering the highest level of urbanization and economic development such as: Cluj, Timișoara, Sibiu, Brașov, Dolj, Hunedoara, Ilfov. This fact proves that land abandonment was determined either by the migration of the former land owners to urban areas or by the excessive aging of population. It is also certain that the services sector prevails as the main contributor to the development of these counties, therefore agriculture still remaining unattractive for both external investors and local population. There where the quality of land ownership is highly important (*i.e.* counties of Suceava, Maramureș, Covasna) or where the pressure over land is high due to its limited extension (*i.e.* counties of Neamț, Iași), the rate of land abandonment is highly reduced. The explanation for the low rate of

abandonment in Southern Romania is given by the existence and development of large agricultural holdings that are interested in maximizing yields and profits. In this case, the uncultivated land is either under private ownership or belongs to companies with low activity or facing financial insolvency.

Eventually, the excessive polarization of agricultural holdings determines a large gap between subsistence agriculture at one end and the large size agriculture at the other end, splitting Romania's agriculture into two disproportional categories. This imbalance too has regressed into the inability to provide for the necessary internal consumption, leading to importing most of the food, even though it is estimated that Romania could meet the consumption needs of about 40 million people if agricultural resources were sustainably managed.

3.2.4. Agricultural machinery

If the number of tractors and ploughs remains stable though with small growth trends during the reported period, the equipment for harvesting cereals and fodder registers a drastic decrease of 60-90%. This indicator can be correlated with the size of the agricultural holdings. If we consider the figures recorded in 1989, then the situations registered in 1999 and 2010 demonstrate a drastic decline (fig. 4). However, figures in 2010 compared to those in 1999 show a revival in quantity of equipment for harvesting cereals and fodder.

Two features become clear in the case of this indicator. At national level, until 2000 agriculture was practiced with old used heavy machinery and farm equipment usually taken over from the former large state-owned holdings. Yet, currently highly degraded, it can only be used in subsistence small and medium farms. Since 2003, farmers have started to develop their holdings, being able to purchase farm equipment due to the available pre-accession European financial assistance, though most of them represent medium and large holdings with the necessary financial means to contribute to the project funding. We can also notice a series of structural changes in the structure of the agricultural machinery park. Throughout the period from 1989 to 2010, there is an increase of the basic agricultural machinery such as tractors, ploughs and seeders, but also a reduction in the complementary agricultural machinery, such as mechanical cultivators, self-propelled harvesters and sprayers.

The largest decrease was recorded in the case of self-propelled combines for harvesting cereals, whose number has been almost cut in half since 1989. This differentiated dynamics of agricultural assets can be explained by the following:

- the growth in the number of the basic agricultural machinery is determined by their transfer

from the state farms to the new land owners in various forms (by sale, barter payment system or cassation) after the dissolution of Agricultural Production Cooperatives, even though they were viable and still are for the small holdings. Since the implementation of the

financial assistance programmes for agriculture development in the pre-accession period we notice a continuous process of purchasing new equipment for the newly established agricultural holdings;

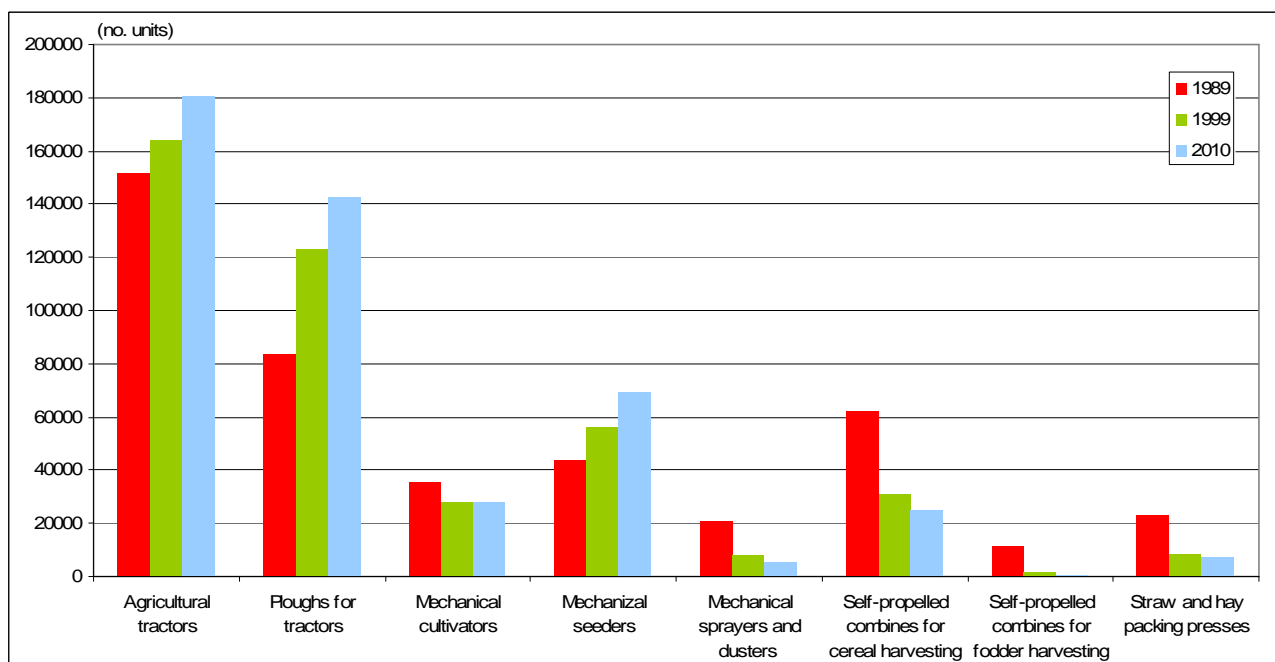


Fig. 4. Numerical evolution of agricultural machinery.

- in the case of complementary agricultural machinery, the decrease is caused firstly by the overuse of equipments that belonged to the former Agricultural Production Cooperatives and which have no longer been transferred to the new land owners, the majority being (legally) dismantled or sold to iron deposits, and secondly by the high costs of acquisition and maintenance of such equipment, not being considered cost-effective enough to be used in case of small holdings. This way, only the large farms are able to acquire this kind of new equipment, the number of machines being correlated with the number of economically profitable agricultural holdings. For this reason, as well as due to the lack of harvesting machinery, the owners of small farms gave up cultivating several traditional crops and cereals (wheat, barley, oats, rye, sunflower) and focused on maize and potato crops that can be manually harvested.

3.2.5. Active population in agriculture

Transition of agriculture to the market economy has had strong effects on the labour force employed in this sector. As the share of rural population remains relatively stable at 45-46% of the total population within this period, significant changes occur in the case of the labour force employed in agriculture. Thus, in the case of the number of population employed in agricultural activities (see Appendix A, Table 4), we note the separation of two periods of growth:

- the first growth is registered between 1990 and 1994, which is associated with the land re-allotment and restitution to former landowners due to the agrarian reform in 1990-1991 (see section 3.1. on regulations), which resulted in up to 35% of population employed in agriculture;

- the second growth is registered between 1996 and 2000, and may be associated with the phenomenon of a reverse migration of population, this time from urban to rural areas, especially of those close to retirement or pensioners who started practicing agriculture on the inherited land (in most of the cases).

Since 2001 we have witnessed a permanent decrease in the share of the self-employed population in agriculture up to 25%, the phenomenon being associated with the excessive aging of the land owners and the widespread abandonment of agricultural areas [24].

This reduction of the self-employed population in agricultural activities can be also associated to the beginning of the development of large agricultural holdings and may represent one of the effects triggered by the Law of lease (*Ro. Legea arendeii*), which allowed for most of the owners either to sell or to lease their farmland, thus contributing to the reduction of the population working in agriculture. In the case of the population employed in agriculture we note a permanent decrease beginning with 1990, from over 20 % of the population employed in agriculture to about 4% in 2000, as set stable value so far (fig. 5).

This downward tendency is associated with the drastic reduction of jobs in agriculture through the dissolution of State-owned Agricultural Enterprises,

Agricultural Production Cooperatives and Agricultural Machinery Stations starting with 1990.

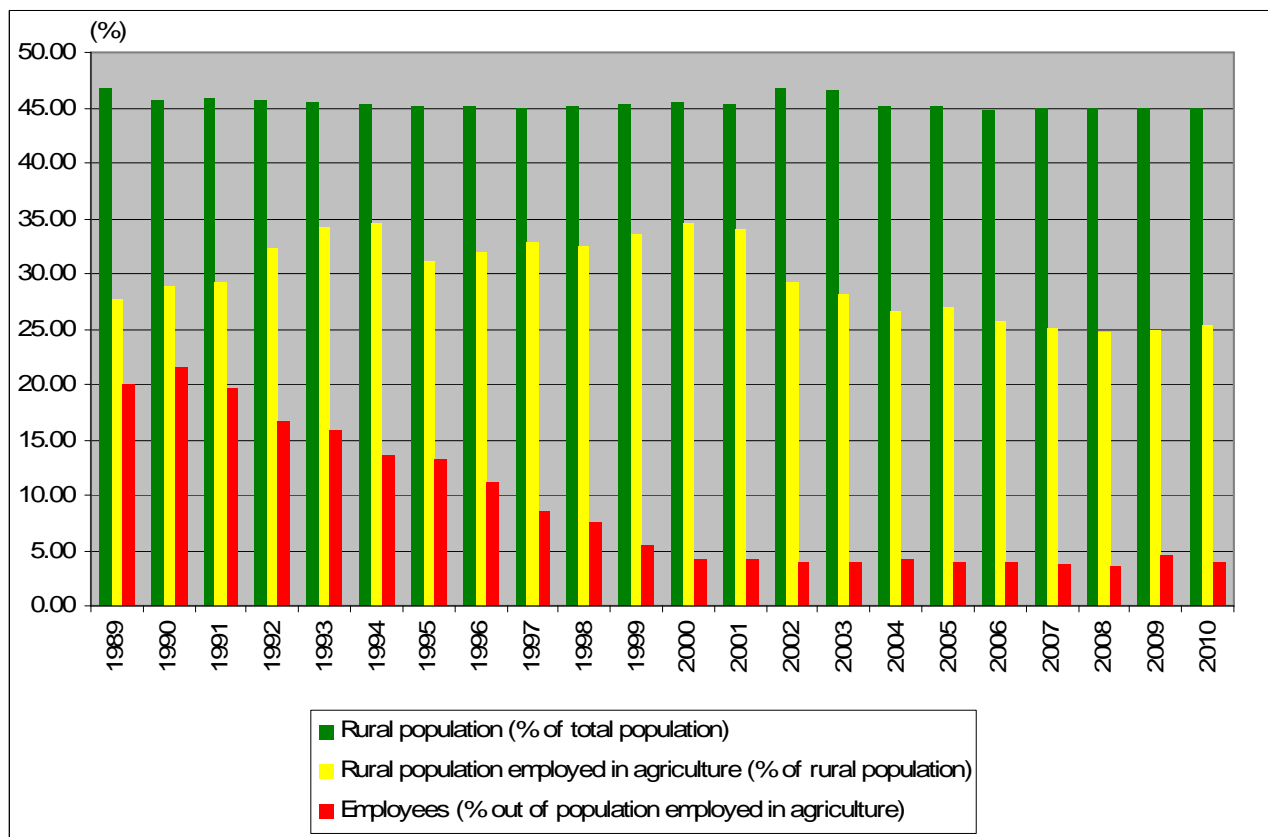


Fig. 5. Dynamics of rural population and population employed in agriculture between 1989-2010.

The current share of the population employed in agriculture is represented mostly by people employed in the large agricultural holdings and those employed in the state administrative facilities in the field of agriculture [2]. The optimal threshold in the structure of the population occupied and employed in agricultural activities will be reached when the two groups oscillate approximately within the same percentage values.

3.2.6. The contribution of agriculture to GDP

The contribution of agriculture to the GDP registered significant fluctuations in the period under review, which is associated with the transformations agriculture went through. Thus, if in the period 1980-1989 agriculture contributed to GDP with 13-14%, we notice an increase of over 20% in the period 1990-1997, afterwards figures registering a continuous downwards trend up to 6-7% at the end of the analysis period. This variation of the contribution of agriculture to GDP closely reflects the transition of Romanian agriculture from socialism to capitalism (see Appendix A, Table 5).

The values of the eighth decade of the 20th century are correlated with the period in which the Romanian agriculture registered high yields and a high level of diversification of production. This economic

branch was the only competitive branch on foreign markets and generated high added value, production being mainly used for export and subsequently contributing to the payment of the foreign debt of the country engaged in the 7th decade of investments in pursuit of industry development. The excessive exports of agricultural products triggered a drastic reduction of the internal consumption, the Romanian population thus entering the food rationalization programme (see fig. 6). The substantial increase in the contribution of agriculture to GDP in the period 1990-1996 is determined by the collapse of the industrial activities after the revolution in 1989, reflected in failed private ownership attempts and the lack of new investment in industrial activities [17]. In the context of the GDP general decrease, agriculture is set in a comprehensive process of restructuring and private ownership, representing, again, the only economic branch producing high added value in the national economy during the transitional period. The descending trend of the share of agriculture in the GDP after 1997 and up to the present is explained by the beginning of the Romanian economy recovery in its entirety, adding to its own settling (based on the principles of market economy) and along with the intensification of production in other economic sectors.

The declining trend is normal if we consider the fact that in developed countries the usual contribution of agriculture to the GDP registers values of 3-5%. The analysis of the agricultural trade balance in Romania during the transitional period cannot be properly interpreted without considering what

happened before this historical threshold. Subsequently, the analysis of this indicator was extended to a much larger period, from 1975 to the present. Thus, we can highlight four distinctive time intervals during this period, two of which being distinguished after 1989 (see Appendix A, Table 6).

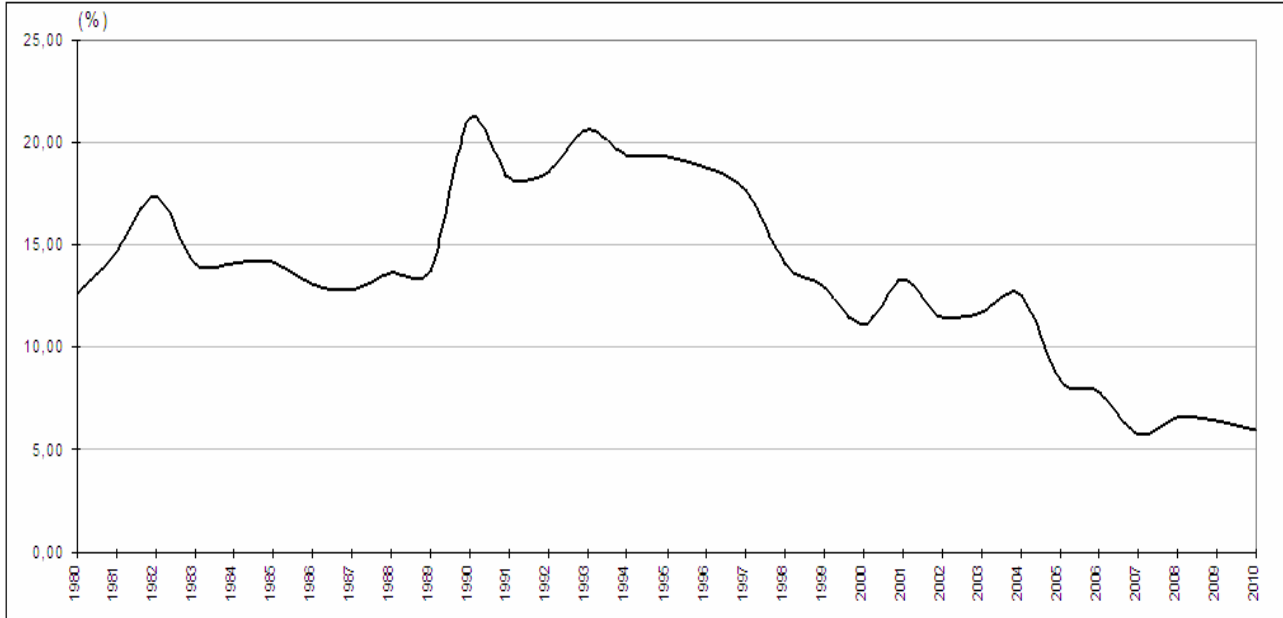


Fig. 6. Contribution of agriculture to GDP in Romania, between 1980-2010.

The first time interval, between 1975 and 1980, stands out by a stabilized trade balance, the deficit being therefore insignificant, Romania's agriculture covering about 90-100% of the domestic consumption in that period, while the overall production registered an upward trend. In 1980 the loans made by Romania on the foreign markets reached maturity and since then, for almost a decade, agriculture had been exploited to the optimal parameters along with the rationalization of domestic consumption in order to reimburse the loans (fig. 7).

In this historical context we, therefore, witness an intensification of the global production, the maximum values being recorded in 1984-1985 and the surpluses of 30-40% above the domestic consumption were used to pay the foreign debts. This surplus in relation to domestic consumption was not though determined by an overdevelopment of agriculture, which, we must admit, was sufficiently diversified and developed as compared to the technical conditions and the historical period, but it was caused by the rationalization of domestic consumption. On the one hand, this obviously resulted in paying the foreign debts but, on the other hand, unfortunately, determined the starvation of population. Hence, this was followed by the social revolution in the winter of 1989 and change of political regime. In this context, agriculture was undermined through the poor financial co-interest of agricultural workers, this way encouraging stealing

from all facilities along with practicing false reports on production, especially when the requirements on agriculture established through the five-year plans set out by the Communist Party increased.

These practices were possible due to the poor financial assistance of agriculture, during this period all investments being directed to the development of industrial facilities, even though in most cases they were not economically competitive. Starting with 1990 we witness a reversal of the situation in agriculture, once with the new transition from the Socialist farming to the market one [13].

Thus, according to Law of 1990 on the reorganization of State-owned economic holdings into autonomous and trading companies, the agricultural production facilities were closed and the overall agricultural production starts diminishing. Also, the restitution of land to the former owners begins as decreed by the Decree-Law No. 42 of January 29, 1990 and later on due to the Law of Land Fund, no. 18 of 19.02.1991, setting up certain measures for the stimulation of farmers. Therefore, we witness, once again, the disruption of trade balance in favour of imports and a decreased level of covering imports by exports. This way, from a country that succeeded in meeting the demand of domestic consumption almost entirely out of domestic production before 1989, Romania has become dependent on food imports, a phenomenon that intensifies by the year 2003, when

trade deficit becomes more acute, and the rate of import-export substitution falls below the value of 60%,

which is close to almost three times more imports of agri-food products.

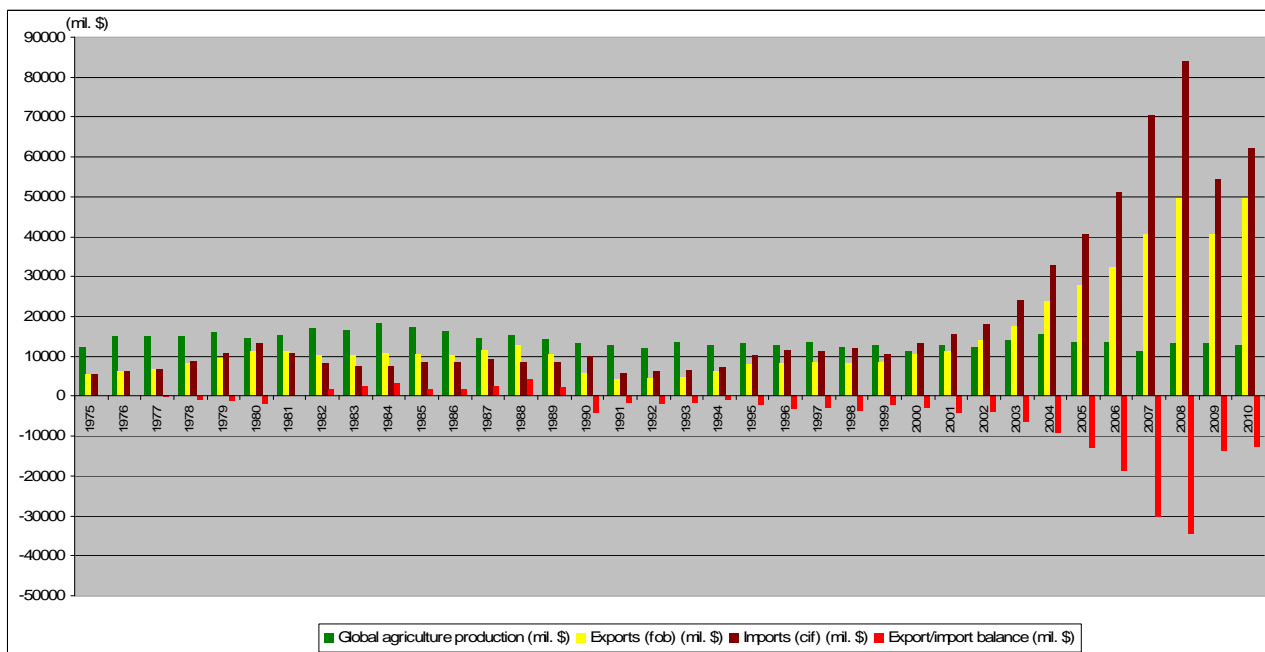


Fig. 7. Agricultural trade balance between 1975 – 2010.

This resulted in applying for foreign loans, which eventually have become a burden on the national budget and a break in the process of economic growth. After 2007, we notice a slight recovery of trade balance and an increase of covering levels up to 80% (see fig. 8). This situation is primarily due to the liberalization of

agri-food market after Romania's accession to the EU and the incapacity of most of the domestic producers to compete with large foreign companies. Romanian farmers mainly produce enough for their own consumption needs and large producers have specialized in monocultures, mostly energy crops.

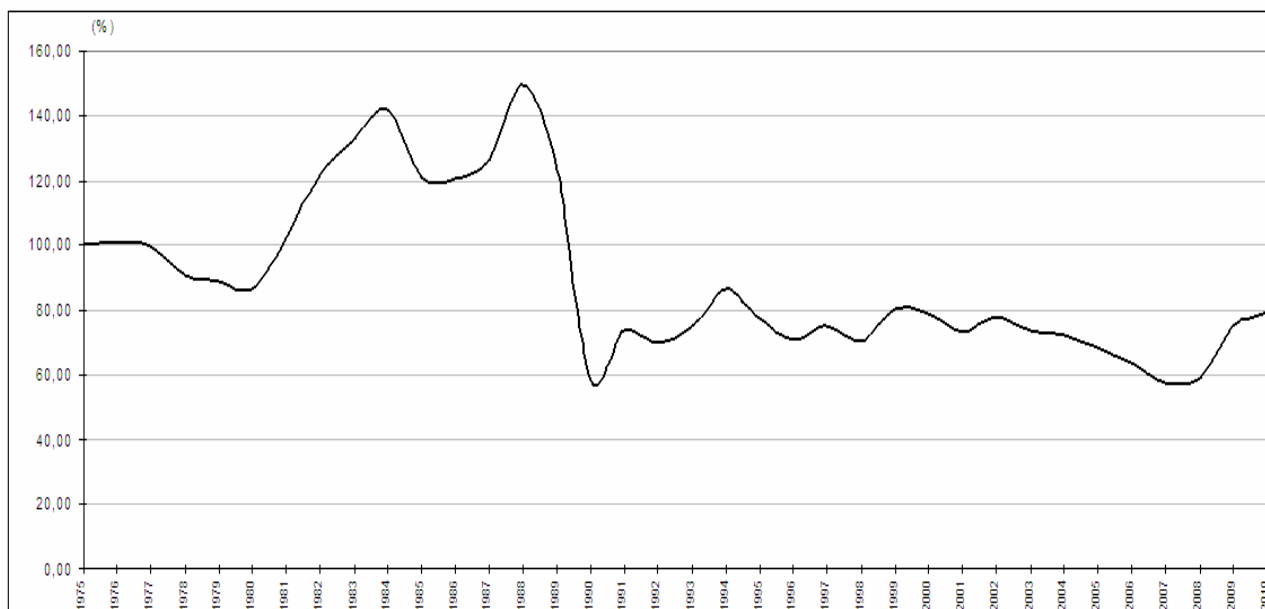


Fig. 8. Level of covering imports by exports (%) (1975-2010).

Thus, the urban agri-food market has remained almost completely open, lacking in domestic food products, which have to be provided by imports. This is readily made possible by the major hypermarket chains that work only with external food producers that provide relative quality but at very competitive prices.

3.3. Forwarded measures

Following the analysis we carried out on the Romanian agriculture in the period between 1989 and 2010 by using the most relevant indicators, we can conclude that agriculture is still set in an acute

transition phase. In addition to all directions and measures established through the new CAP reform, which are complying with the financial priorities for agriculture and rural development scheduled through the European Agenda 2000 and after the Berlin Accord in March 1999, meant to speed up the completion of the transition period and regain (economic) balance (without any prolongation of this period as it may seem in the present), we suggest a set of measures as follows:

1). *Complete agricultural land registration with the Land Registry* of all plots located inside and outside the city borders; this could be enhanced by taking two clear sub-measures: i. completion of land registry and ii. completion of property litigations.

2). *Stimulate the process of association* in order to develop optimal and viable agricultural holdings, which would involve a range of sub-measures such as: i. selling primarily to the neighbours; ii. differentiated taxes applied to landowners, particular attention being given to plots that are not cultivated; iii. setting up state-owned agricultural associations there where private agricultural activities are not visible or no longer possible (villages affected by aging population); iv. the state should get involved in purchasing raw or processed products from small producers who can hardly face the globalized market; v. the state should take under exploitation the land not cultivated for more than 3 years.

3). *Stimulate the growth of small scale farming output and intensify the use of agricultural machinery* by setting-up local mechanization facilities that would provide the local farmers the necessary mechanized means and services in agriculture.

4). *Resume remedial works on the farmland* which includes: 1. reassessment of soil fertility, which no longer coincides with the development plans for agriculture since it has mostly changed in the last 20 years; 2. intervention on degraded lands (affected by erosion, landslides, grasslands invaded by shrub vegetation, old and abandoned orchards); 3. chemical soil correction to control acidity; 5. replanting or development of green protection belts (forests) bordering the farmland and 6. development of irrigation systems.

5). *Set up technology consultancy centres* whose specialists would provide technical support to local farmers to improve agricultural practices and cultivation techniques.

6). *Create new storage facilities (warehouses) at regional level* that would encourage storage and collection of farm produces (cereals, fruit, etc.) from small farmers and thus provide a good opportunity for agricultural trade by eliminating the costs of individual transport and storage of farm produce on behalf of the local farmer community.

7). *Government subsidies should provide subsidy payments to local farmers only based on*

production and not based on the land ownership certificate to support active farmers to enhance production and enter the market.

8). *Encourage and promote the importance of organic farming and certification of organic agricultural products*; coordination and specialized assistance is needed for the management of organic products on the market, with special attention in promoting those produced in the mountain areas and at foothills.

9). *Simplify the procedures for applying for financial aid to implement agricultural development projects*, thus encouraging and helping young and middle-age active people in the local communities react positively, involve themselves in the benefit of their community and adjust to change and new policies; secondly, since all projects need the beneficiary to have a certain amount of capital to cover the expenses, which is usually not available, the government should consider accepting the agricultural land located outside the city border/on the outskirts of the city as a guarantee for bank loans needed for project funding.

10). *Develop an agricultural stock* to coordinate the activities of agricultural holdings and help farmers face price variation of crops and food products. This type of stock would establish a guaranteed price of food products and other agricultural commodities in accordance with the necessary quota established for domestic consumption, thus encouraging production and cultivation of certain crops guided towards profitability and competitiveness on the open market.

11). *Develop a national strategic plan* to assist the organization of small and large agricultural holdings (land-planning according to farm technologies and related categories of management).

12). *Protect domestic agriculture and promote organic food products* in the face of genetically modified crops and the offensive of hybrid seeds on the market.

13). *Refresh the genetic base of stock to enhance animal breeding*.

14). Since data on the structure of agricultural land reveal that in some cases the local public authority owns a significant share of agricultural land, *public agricultural associations should be established* (at local and regional level), their products being sold on the local market and thus supporting the local produce trade.

15). *Enhance financial efficiency in agriculture by reducing VAT rates* on the basic food products (bread, milk, eggs, meat) throughout the entire production chain.

16). *Provide financial facilities and create new agricultural holdings* to stimulate the relocation of new active specialists in agriculture.

17). *Create and promote distinctive agricultural products* based on the specific environmental conditions (biological, soil and climatic

conditions), which should be competitive on the external market.

18). *Establish the state guarantee fund to help farmers in rural areas insure their investments co-financed through the European funds.* Thus, investments would remain private but guaranteed by the state and farmers would be more determined to apply for European financial assistance.

19). *Payment of the products purchased through the state financial repositories should not be done at the time of their sale, but upon their purchase.*

20). *The storage centres should be established at least one year before the respective season and should guarantee the purchase price of the basic agricultural products in order to encourage small farmers to maintain their farms and production active.*

21). *Eliminate the long chain of intermediaries on the market that usually cause price growth while minimizing the prices offered to the local farmers and create centres or markets at local or regional level for agricultural products sale that would not charge producers any fees and thus encourage consumption of local food products.*

22). *Regulate funding and facilities provided to farmers below age 35 for the establishment of new agricultural holdings on a continuous basis.*

23). *Revive agricultural education at high school level by the reinstating agricultural education facilities in rural areas.* This measure would be appropriate in order to prepare students for further academic studies in agricultural field as well as to train young farmers.

24). *Farmers located in disadvantaged areas with environmental restrictions should be funded through severance payments for the farm management complying with the program of environmental protection in order to stop the process of farm abandonment.* The compensation of crop loss or any other additional expenses arising from the programme Nature 2000 should also fall under this measure.

All these measures should become part of the national agricultural policy-making process and be transiently applied as soon as possible at this stage of the transition, until the Romanian agriculture develops enough as to reach the European standards.

4. CONCLUSIONS

The study on the transition of the Romanian agriculture from socialism to market economy is not new in the field, although most of the approaches have only analyzed issues in sequences, from a temporal perspective or through a set of target indicators. This study provides a comprehensive analysis of the process over a period of 20 years, drawing out the most relevant aspects of the transition starting from legislation,

dynamics of agricultural areas and ending with the contribution of agricultural production to the GDP. All of these analyses have led us to the general conclusion that Romanian agriculture transition to a market economy has not ended yet, as expected, and we are still in full transition phase, with the possibility of extension beyond all expectations. This could partly lead to increasing territorial development inequalities and secondly could enhance the rural population's inability to develop small farms due to excessive aging or even because of natural decrease of the landowners. In the end, it is difficult to exactly pinpoint a specific cause, a specific factor, a specific variable that would definitely or completely explain the one conclusion and the one panacea for the salvation of the negative effects transition triggered in agriculture. If we had to choose we would definitely set legislation high up in the hierarchy of decisive factors for the current stumbling of agriculture. Therefore, we ask the final question whether the extension of the transition in agriculture is a political act intended to pave the way for the purchase of land by foreign investors or is there a national inability to develop agriculture, the most profitable sector of our economy?

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[34] *** Law no. 36 of 30 April 1991. <http://www.legex.ro/Legea-36-1991-1954.aspx>

[35] *** Law no. 16 of 1994. <http://legeaz.net/legea-16-1994-arendarii/>

[36] *** Law 54 of 1998. <http://www.everblue.ro/pdf/5379legea54.pdf>

[37] *** Urgent Governmental Decision 108/2001.

[http://legestart.ro/Ordonanta-de-urgenta-108-2001-exploatatiile-agricole-\(MTkxMzI-\).htm](http://legestart.ro/Ordonanta-de-urgenta-108-2001-exploatatiile-agricole-(MTkxMzI-).htm)

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APPENDIX A

Table 1. Dynamics and structure of land use in Romania in the period 1989-2010.

Year	Total surface (thou. ha)	Agricultural (thou. ha)	Share of the total surface (%)	Arable (thou. ha)	Share of the agricultural surface (%)	Grassland (thou. ha)	Share of the agricultural surface (%)	Hayfields (thou. ha)	Share of the agricultural surface (%)	Vineyards and nurseries (thou. ha)	Share of the agricultural surface (%)	Orchards and nurseries (thou. ha)	Share of the agricultural surface (%)
1989	23839.07	14758.6	61.91	9458.3	64.09	3256.8	22.07	1448.2	9.81	277.4	1.88	317.9	2.15
1990	23839.07	14769.0	61.95	9450.4	63.99	3262.5	22.09	1465.3	9.92	277.4	1.88	313.4	2.12
1991	23839.07	14798.3	62.08	9423.5	63.68	3309.8	22.37	1467.9	9.92	285.8	1.93	311.3	2.10
1992	23839.07	14790.1	62.04	9356.9	63.26	3349.2	22.64	1480.6	10.01	298.6	2.02	304.8	2.06
1993	23839.07	14793.1	62.05	9341.5	63.15	3362.6	22.73	1489.3	10.07	303.9	2.05	295.8	2.00
1994	23839.07	14797.5	62.07	9338.0	63.11	3378.4	22.83	1493.7	10.09	298.4	2.02	289.0	1.95
1995	23839.07	14797.2	62.07	9337.1	63.10	3392.4	22.93	1497.7	10.12	292.4	1.98	277.6	1.88
1996	23839.07	14788.7	62.04	9338.9	63.15	3391.7	22.93	1498.5	10.13	289	1.95	270.6	1.83
1997	23839.07	14794.0	62.06	9341.4	63.14	3409.8	23.05	1490.8	10.08	286.3	1.94	265.7	1.80
1998	23839.07	14801.7	62.09	9350.8	63.17	3402.7	22.99	1503.4	10.16	281.8	1.90	263.0	1.78
1999	23839.07	14730.7	61.79	9358.1	63.53	3322.8	22.56	1512.0	10.26	281.1	1.91	256.7	1.74
2000	23839.07	14856.8	62.32	9381.1	63.14	3441.7	23.17	1507.1	10.14	272.3	1.83	254.6	1.71
2001	23839.07	14852.3	62.30	9401.5	63.30	3421.4	23.04	1510.0	10.17	267.4	1.80	252.0	1.70
2002	23839.07	14836.6	62.24	9398.5	63.35	3424.0	23.08	1513.6	10.20	259.6	1.75	240.9	1.62
2003	23839.07	14717.4	61.74	9414.3	63.97	3355.0	22.80	1490.4	10.13	230.5	1.57	227.2	1.54
2004	23839.07	14711.6	61.71	9421.9	64.04	3346.9	22.75	1498.4	10.19	223.3	1.52	221.1	1.50
2005	23839.07	14741.2	61.84	9420.2	63.90	3364.0	22.82	1514.7	10.28	224.1	1.52	218.2	1.48
2006	23839.07	14731.0	61.79	9434.6	64.05	3334.4	22.64	1524.9	10.35	223.7	1.52	213.4	1.45
2007	23839.07	14709.3	61.70	9423.3	64.06	3330.0	22.64	1531.4	10.41	218.0	1.48	206.6	1.40
2008	23839.07	14702.3	61.67	9415.1	64.04	3333.0	22.67	1532.4	10.42	214.5	1.46	207.3	1.41
2009	23839.07	14684.9	61.60	9422.5	64.16	3313.8	22.57	1528.0	10.41	215.4	1.47	205.2	1.40
2010	23839.07	14635.5	61.39	9405.0	64.26	3288.8	22.47	1529.7	10.45	213.4	1.46	198.6	1.36

Data source: National Institute of Statistics

Table 2. The dynamics of agricultural holdings in the transition period in Romania.

Type of agricultural holdings	1989				2010			
	No	%	Surface (thou. ha)	%	No	%	Surface (thou. ha)	%
State-owned Agricultural Enterprises (IASs)	411	9.82	2055,5	13.93	0	0.000	0	0.00
Cooperative Agricultural Enterprises (UACs)	604	14.43	0	0	68	0.002	8,17	0.06
Agricultural Production Cooperatives (CAPs)	3172	75.76	8963,7	60.73	0	0.000	0	0.00
Private individual farms	*	*	3739,7	25.34	3820393	99.070	7154,13	53.80
Registered sole traders, sole proprietorship and family-owned and operated enterprises	0	0.00	0	0	5183	0.134	291,19	2.19
Government business enterprises	0	0.00	0	0	50	0.001	16,17	0.12
Agricultural associations	0	0.00	0	0	1390	0.036	556,78	4.19
Private companies	0	0.00	0	0	16410	0.426	3169,41	23.83
State companies	0	0.00	0	0	72	0.002	3,55	0.03
Institutes, research structures, agricultural profile schools	0	0.00	0	0	177	0.005	50,97	0.38
Local Councils	0	0.00	0	0	2722	0.071	1566,74	11.78
Other public institutions	0	0.00	0	0	353	0.009	32,06	0.24
Foundations, religious amenities, schools	0	0.00	0	0	9427	0.244	448,96	3.38
Total agricultural holdings/total agricultural area	4187	100.00	14758,9	100.00	3856245	100.000	13298,19	100.00

* No available data

Data source: National Institute of Statistics

Table 3. The structure of the agricultural machinery.

Type of agricultural machinery	1989		1999		2010		Variation in no. of items (%) 1999-2010
	No. of items	Variation in no. of items (%)	No. of items	Variation in no. of items (%)	No. of items	Variation in no. of items (%)	
Agricultural tractors	151745	100	163883	8.00	180433	18.91	10.91
Ploughs for tractors	83286	100	122956	47.63	142671	71.30	23.67
Mechanical cultivators	35386	100	27988	-20.91	27795	-21.45	-0.55
Mechanical seeders	43608	100	56173	28.81	69337	59.00	30.19
Mechanical sprayers and dusters	20803	100	8202	-60.57	5680	-72.70	-12.12
Self-propelled combines for cereal harvesting	61994	100	31268	-49.56	25285	-59.21	-9.65
Self-propelled combines for fodder harvesting	11696	100	2101	-82.04	797	-93.19	-11.15
Straw and hay packing presses	23252	100	8544	-63.25	7181	-69.12	-5.86

Table 4. The dynamics of the rural population and the population employed in agriculture in the period 1989-2010.

Year	Total population	Rural population	Share of rural population out of the total population (%)	Population self-employed in agriculture (thou. persons)*	Share of population self-employed in agriculture out of the rural population (%)	Employees in agriculture (thou. persons)**	Share of employees out of the population employed in agriculture (%)
1989	23151564	10839761	46.82	3012.3	27.79	601.6	19.97
1990	23206720	10597876	45.67	3055.0	28.83	655.1	21.44
1991	23185084	10632677	45.86	3116.0	29.31	608.8	19.54
1992	22788969	10421611	45.73	3361.6	32.26	560.5	16.67
1993	22755260	10349056	45.48	3537.4	34.18	560.2	15.84
1994	22730622	10303010	45.33	3561.0	34.56	483.8	13.59
1995	22680951	10223756	45.08	3186.8	31.17	419.7	13.17
1996	22607620	10196446	45.10	3249.0	31.86	363.5	11.19
1997	22545925	10141235	44.98	3322.1	32.76	282.8	8.51
1998	22502803	10154917	45.13	3295.6	32.45	250.4	7.60
1999	22458022	10155293	45.22	3418.9	33.67	186.6	5.46
2000	22435205	10190607	45.42	3522.5	34.57	146.4	4.16
2001	22408393	10164645	45.36	3456.2	34.00	141.7	4.10
2002	21794793	10186058	46.74	2970.8	29.17	115.7	3.89
2003	21733556	10133399	46.63	2842.4	28.05	113.9	4.01
2004	21673328	9777730	45.11	2592.3	26.51	106.4	4.10
2005	21623849	9743952	45.06	2630.6	27.00	106.4	4.04
2006	21584365	9670427	44.80	2476.3	25.61	97.6	3.94
2007	21537563	9659904	44.85	2426.2	25.12	91.1	3.76
2008	21504442	9669114	44.96	2387.3	24.69	85.8	3.59
2009	21469959	9646443	44.93	2411.0	24.99	110.0	4.56
2010	21431298	9632563	44.95	2440.0	25.33	95.0	3.89

* Self-employed and contributing family worker with no financial retribution (wage).

** having the status of employee, individual labour contract.

Table 5. The contribution of agriculture to GDP in Romania, in the period 1980-2010.

Year	GDP agriculture (billion lei)	Total GDP (billion lei)	Share of agriculture in GDP (%)	Year	GDP agriculture (billion lei)	Total GDP (billion lei)	Share of agriculture in GDP (%)
1980	78.2	616.9	12.68	1995	13941.3	72135.5	19.33
1981	91.3	623.7	14.64	1996	20459.7	108919.6	18.78
1982	126.2	727.4	17.35	1997	44582.7	252925.7	17.63
1983	108.5	768.7	14.11	1998	52212.3	371193.8	14.07
1984	115	816.1	14.09	1999	69832.4	539356.9	12.95
1985	115.6	817.4	14.14	2000	88984.3	803773.1	11.07
1986	109.9	838.6	13.11	2001	156128.6	1167687	13.37
1987	108.0	845.2	12.78	2002	173012.2	1514750.9	11.42
1988	116.8	857.0	13.63	2003	223084.5	1903353.9	11.72
1989	109.8	800.0	13.73	2004	31030.1	246468.8	12.59
1990	181.6	857.9	21.17	2005	24278.0	288954.6	8.40
1991	404.3	2203.9	18.34	2006	26845.8	344650.6	7.79
1992	1119.9	6029.2	18.57	2007	23966.3	416006.8	5.76
1993	4124.3	20051.0	20.57	2008	34081.9	514700.0	6.62
1994	9654.1	49773.2	19.40	2009	32297.8	501139.4	6.44
1995	13941.3	72135.5	19.33	2010	31410.6	522561.1	6.01

Table 6. Trade balance of agriculture in the period 1975 – 2010.

Year	Global agricultural production (mil. \$)	Exports (FOB) (mil. \$)	Imports (CIF) (mil. \$)	Exceeding/Deficit (mil. \$)	Level of covering imports through exports (%)
1975	12334	5383.987	5384.303	-0.316	99.99
1976	15005	6138.000	6095.000	43.000	100.71
1977	14860	6979.000	7018.000	-39.000	99.44
1978	15026	8077.000	8910.000	-833.000	90.65
1979	15971	9724.000	10915.000	-1191.000	89.09
1980	14685	11401.000	13201.000	-1800.000	86.36
1981	15254	11185.740	10983.600	202.140	101.84
1982	16883	10127.510	8327.500	1800.010	121.62
1983	16628	10104.800	7600.600	2504.200	132.95
1984	18254	10813.000	7622.700	3190.300	141.85
1985	17210	10414.837	8600.810	1814.027	121.09
1986	16397	10183.729	8432.019	1751.710	120.77
1987	14769	11531.308	9136.021	2395.287	126.22
1988	15223	12776.258	8570.608	4205.650	149.07
1989	14416	10631.200	8596.600	2034.600	123.67
1990	13153	5775.400	9886.900	-4111.500	58.41
1991	12888	4265.700	5793.400	-1527.700	73.63
1992	11835	4363.400	6259.600	-1896.200	69.71
1993	13531	4892.200	6521.700	-1629.500	75.01
1994	12861	6151.300	7109.000	-957.700	86.53
1995	13290	7910.000	10278.000	-2368.000	76.96
1996	13018	8084.000	11435.000	-3351.000	70.70
1997	13457	8431.000	11279.700	-2848.700	74.74
1998	12158	8302.000	11837.800	-3535.800	70.13
1999	13066	8486.900	10556.800	-2069.900	80.39
2000	11187	10416.719	13153.804	-2737.085	79.19
2001	12901	11358.980	15520.841	-4161.861	73.19
2002	12377	13882.423	17861.267	-3978.844	77.72
2003	13826	17662.277	23983.015	-6320.738	73.64
2004	15592	23541.929	32674.955	-9133.026	72.05
2005	13504	27724.368	40572.383	-12848.015	68.33
2006	13773	32459.174	51162.520	-18703.346	63.44
2007	11407	40559.268	70553.641	-29994.373	57.49
2008	13307	49535.220	84052.984	-34517.764	58.93
2009	13148	40567.200	54323.834	-13756.634	74.68
2010	12961	49498.854	62127.737	-12628.883	79.67

APPENDIX B

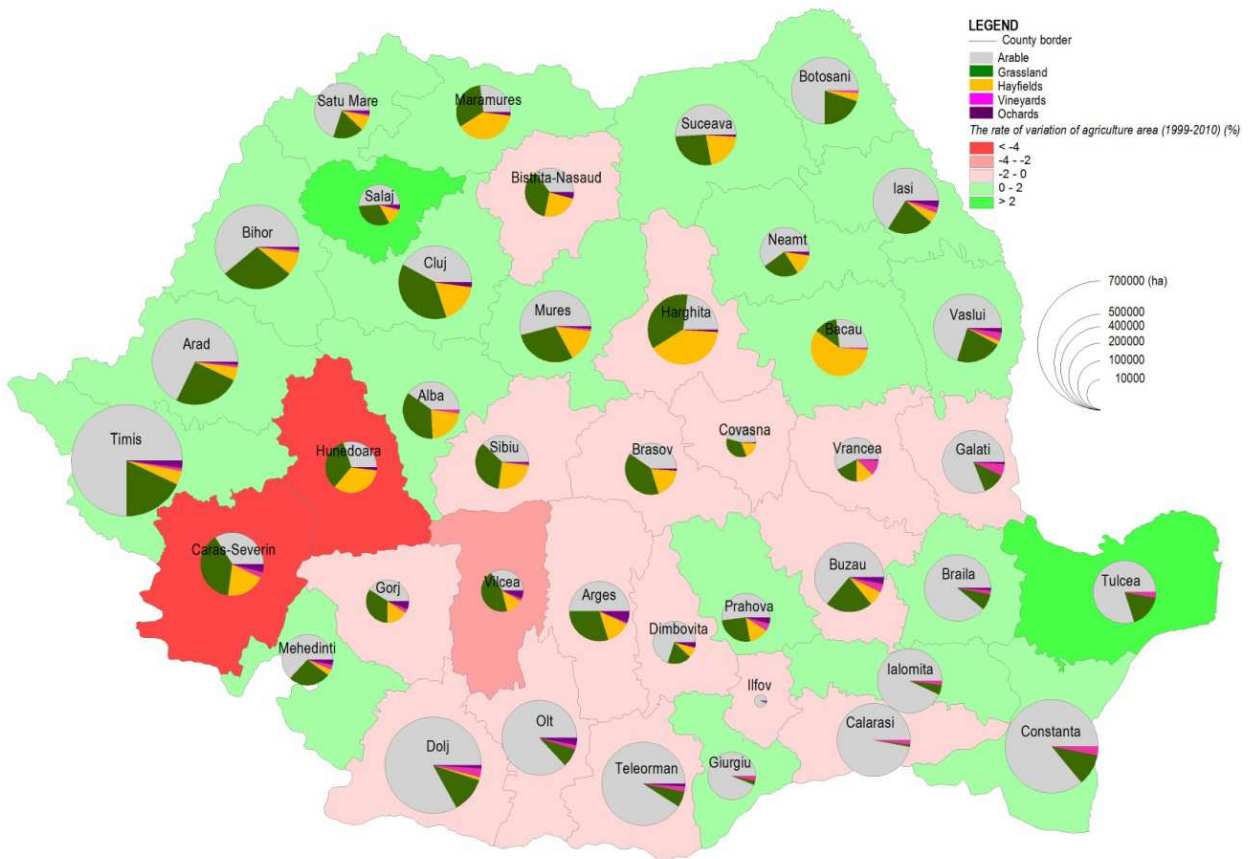


Fig. 1. Land use in 1999 and variation of agricultural land between 1999 and 2010.

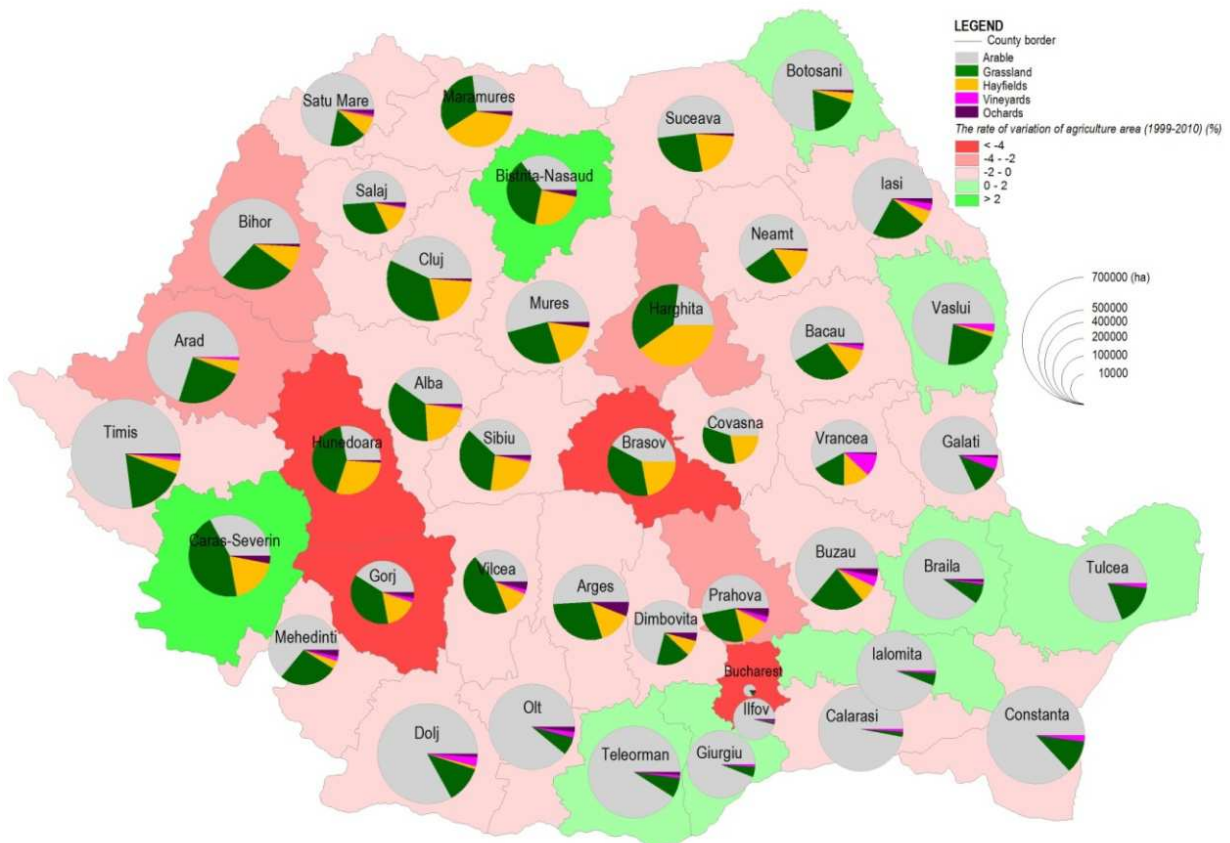


Fig. 2. Land use in 2010 and variation of agricultural land between 1999 and 2010.

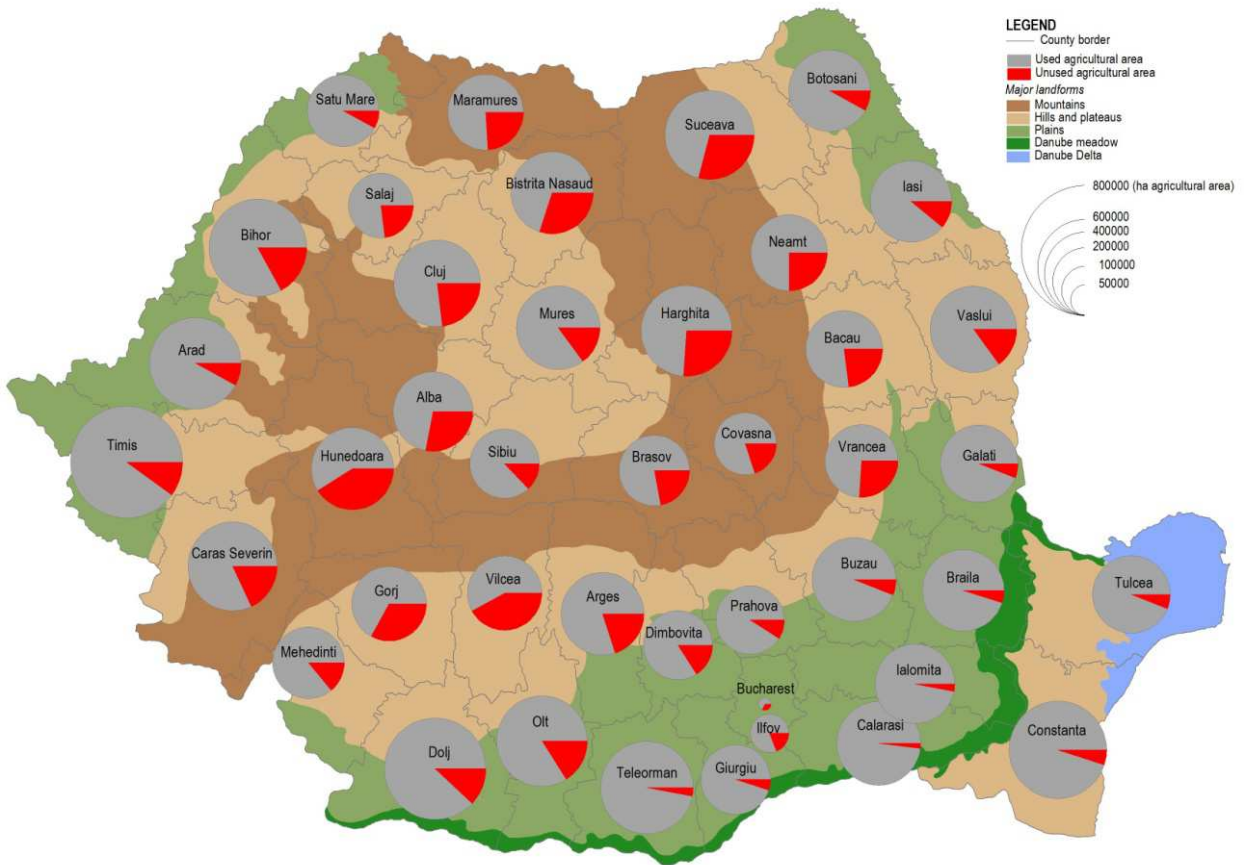


Fig. 3. Share of abandoned agricultural land out of total agricultural surface in 2010 (at county level).

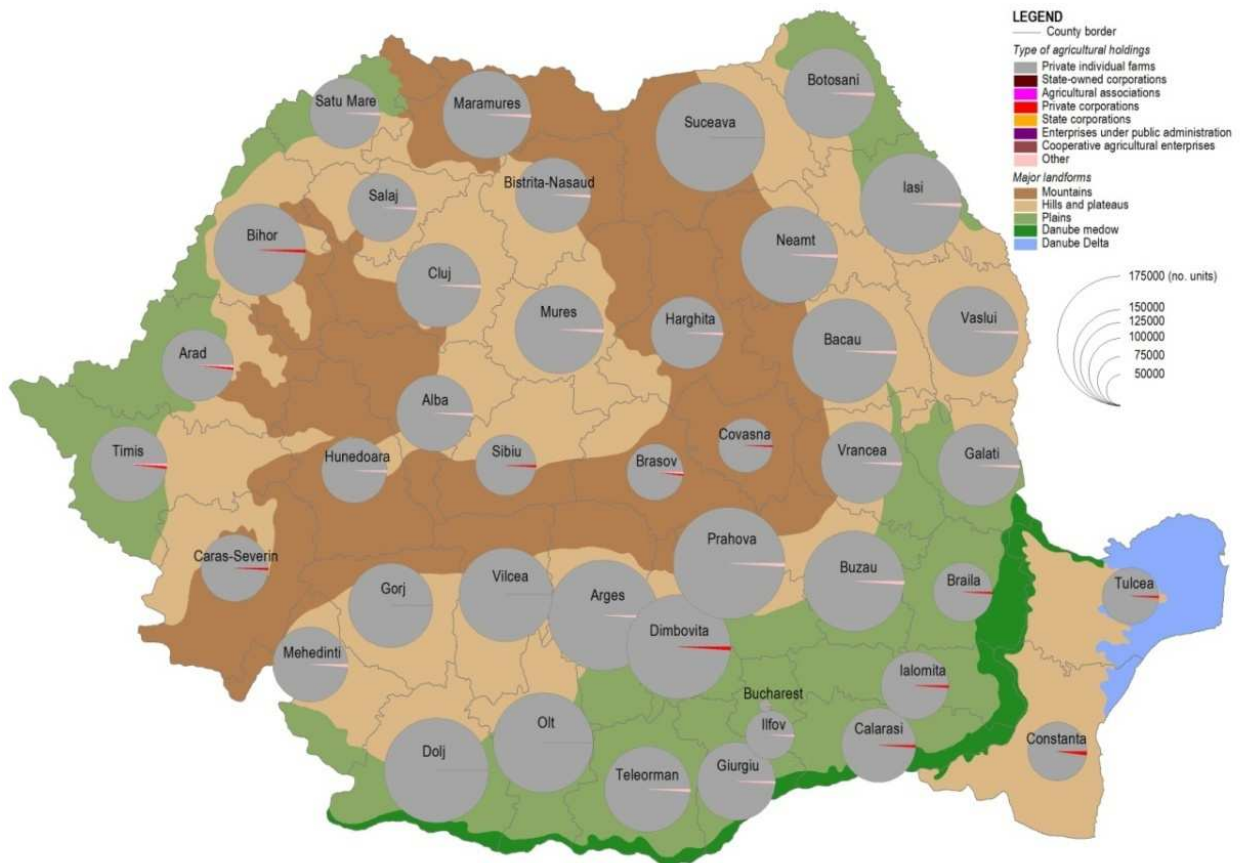


Fig. 4. Agricultural holdings by type of propriety (2010).

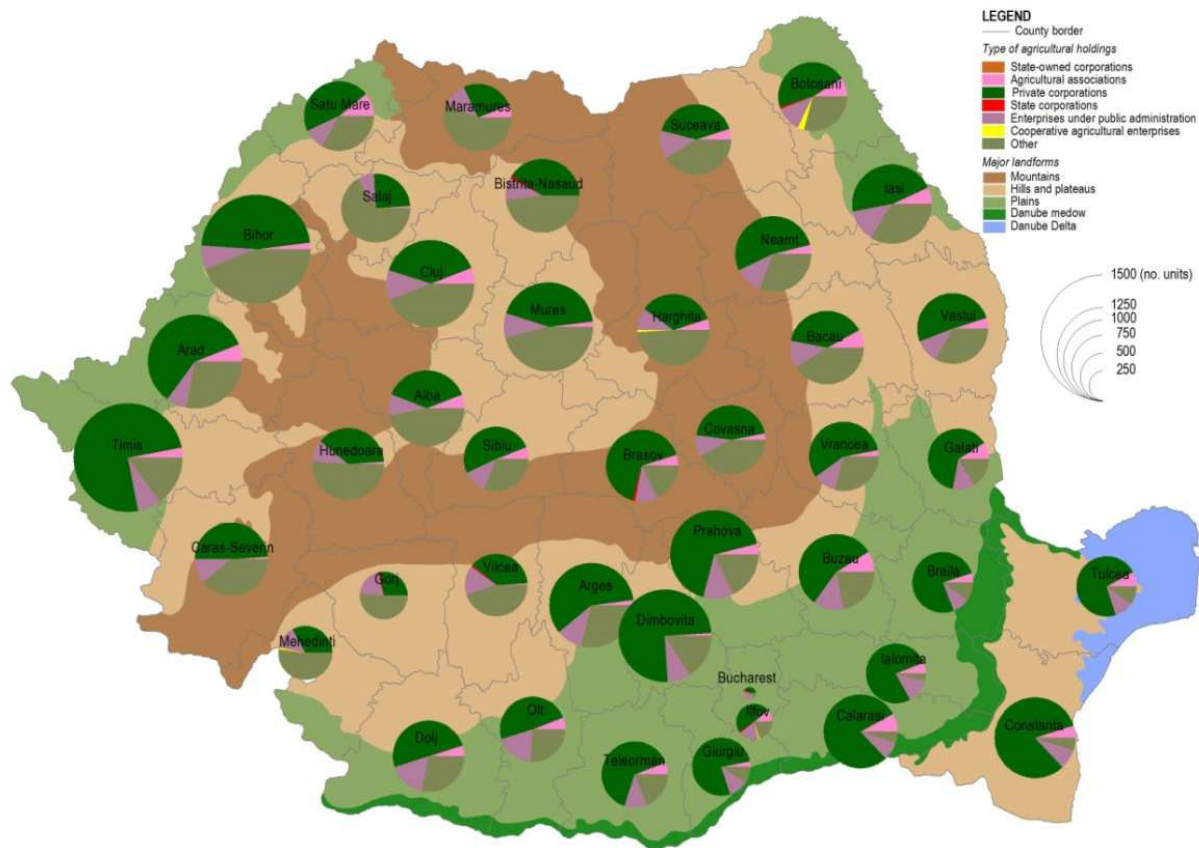


Fig. 5. Agricultural holdings by type of propriety (2010), not considering private individual holdings.

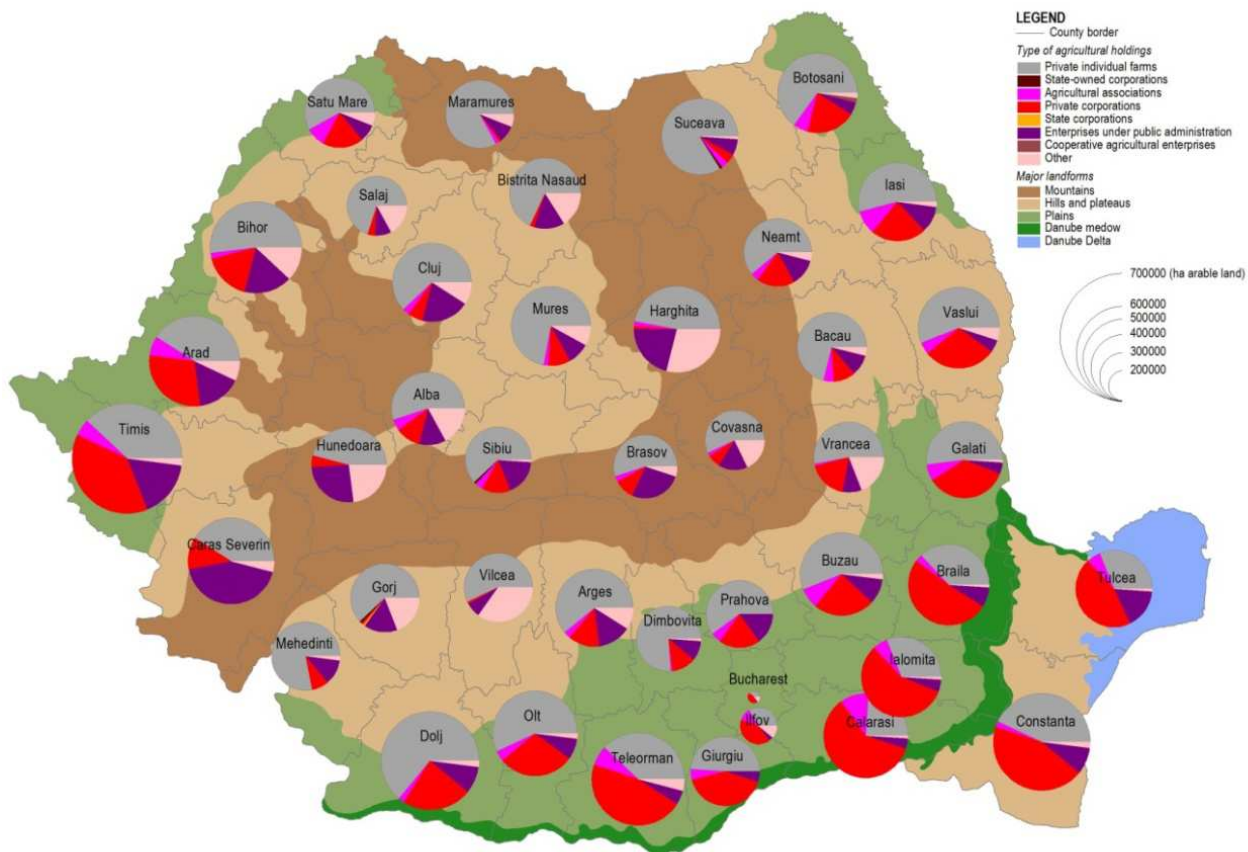


Fig. 6. Used agricultural area by legal status of agricultural holdings (2010).

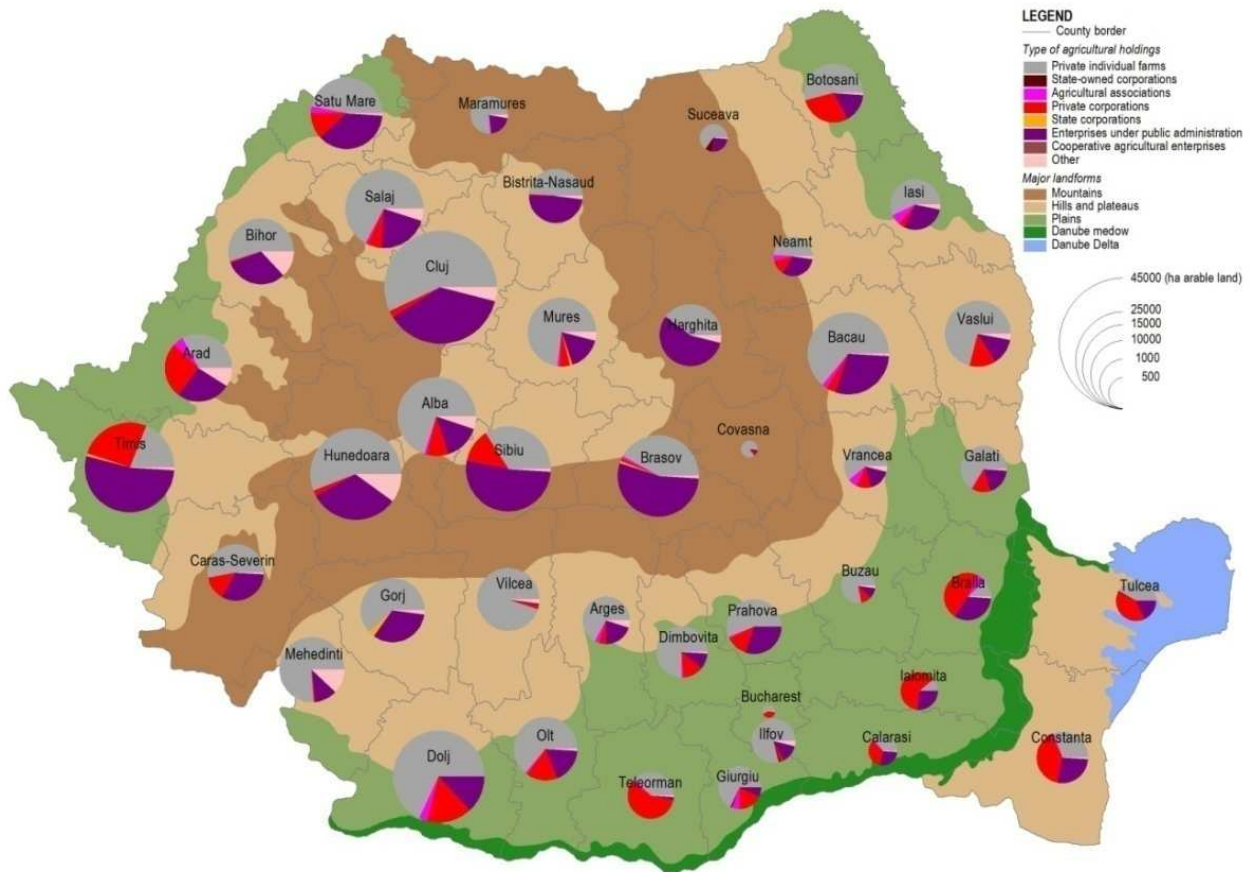


Fig. 7. Agricultural land left unused by ownership of agricultural holdings (2010).