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INSTITUTE OF AGRICULTURAL AND FOOD ECONOMICS
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Characteristics of farm managers in Poland and selected Central-Eastern European Countries

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COMPETITIVENESS OF THE POLISH FOOD ECONOMY UNDER THE CONDITIONS OF GLOBALIZATION AND EUROPEAN INTEGRATION

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in the task: *Human capital in the structural transformation process of rural areas and agriculture*

The purpose of the study is to analyse the socio-demographic characteristics and economic activity of farm managers. This multidimensional study employs an unique range of data, including public statistics, as well as own research results.

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Introduction

Nowadays, non-material factors of economic development are becoming increasingly important. These trends are present also in agriculture, where technological developments change the proportions of production factors such as land, capital, labour and management. At the same time, the importance of information, knowledge and creativity is also growing[1]. This implies that people are the decisive factor in the efficient use of production resources and success in the business. Their knowledge, ingenuity, skills in acquiring and processing information, as well as searching for new, more efficient solutions determine the dynamics of development[2]. Therefore, one of the most respected individual characteristics today are resourcefulness, competence and skills that require constant retraining[3] to be successful in the business.

Competence – is knowledge, skills, personal qualities, experience, attitude and behaviour of employees focused on the efficient and effective execution of tasks in a constantly changing environment. Although the concept of competence is not clearly defined and measuring its level is very difficult, it is widely acknowledged that competencies of managers play a distinctive role at all levels of management.

Competitive advantage of a farm depends increasingly on the knowledge that farmers have, as the modern agricultural sector is increasingly based on human capital and on information rather than on other factors of production[4]. Modern production technologies are essentially labour effective, therefore, the economic power of farms is increasingly determined by the level of skills and abilities to absorb new skills by farm managers[5]. In contrast, the level of education of members of farm families weighs on the ability to increase their non-agricultural activity, since with an increase in the level of qualifications the chance of employment outside the farm also rises. Thus, there is more scope for reduction of employment in agriculture, as well decrease of the number of people not necessarily needed on the farm. For this reason, the quality of labour resources is of particular interest to the European Union (EU)[6], which closely

[1] B. Klepacki*, Znaczenie wiedzy i wykształcenia w rozwoju rolnictwa,* Zagadnienia Ekonomiczne, No. 2/2005, p. 45-57.
[2] A. Kowalski, *Czynniki produkcji w agrobiznesie,* [in:] *Encyklopedia Agrobiznesu,* ed. A. Woś, Fundacja Innowacja, Warsaw 1998, p. 108-114.
[3] M. Radziukiewicz, *Aktywność zawodowa ludzi młodych,* Wiadomości Statystyczne, 9/2013, p. 26-44.
[4] W. Coleman, W. Grant, T. Josling, *Agriculture in New Global Economy*, Edward Elgar, Cheltencham-Northampton, 2004, p. 51.
[5] *Employment Dynamics in Rural Europe*, ed. I.J. Terluin i J.H. Post, CABI Publishing, 2000, p. 20.
[6] see *The Cap and the Regions, The Territorial Impact of the Common Agricultural Policy*, ed. M. Shucksmith, K.J. Thomson, D. Roberts, CABI Publishing, 2005, p. 121.

linked its policy towards agriculture to the level of social development of the population associated with it.

The free market economy and the need to cope with increasing competition forces restructuring and modernization of the Polish agricultural sector entities. The pace of economic transformations in agriculture is the resultant of the impact of many factors, including, among others, the important characteristics of the socio-demographic structures. Demographic trends (including primarily population growth) are independent factors, but population characteristics (age, gender, level of education), under certain conditions, can stimulate or inhibit the processes of development-oriented transformations in agricultural structures. Interdependence in shaping the economic and social processes has the feedback features, which affects the rate of development--oriented transformations in agricultural structures.

The size and structure of the production potential and the level of its use are decided by those who work on the farm, especially the farm managers[7], because they make strategic decisions. For this reason, their attitudes, commitment and skills largely determine the economic condition of the entities[8].

The book consists of 8 chapters prepared under the research task of IAFE-NRI Multi-Annual Programme 2011-2014 entitled 'Human capital in the structural transformation process of rural areas and agriculture'.

The first chapter characterizes and compares farm managers from EU Member States in terms of the following characteristics: age, level of formal agricultural education, the degree of participation in lifelong learning and utilisation of advisory services. The presented data shows that the population of farm managers was characterized by unfavourable demographic structure at the EU level. This fact is associated with a certain stage of the demographic development of this population. In the analysed countries, most farmers were also characterized by a low level of professional education. Their qualifications were based primarily on practical experience. Moreover, study shows that farm managers in the EU also varied in the scale of participation in various forms of continuous education and the degree of use of advisory services which is an important element in the implementation of the CAP.

The following chapter describes socio-economic and demographic measures related to farms managed by women in the European Union, with special attention to female farm managers in Poland. The analysis showed that for the group of surveyed women the level of demographic potential indicator in Poland was one of the highest in the peer group of EU countries. It should be emphasized that the demographic potential of women managing farms was assessed at the relatively high level.

[7] The study interchangeably uses terms: manager, farmer.
[8] The study interchangeably uses terms: farm, entity, unit.

Many job opportunities for workers and managers in agriculture and integral input/output sectors were lost due to unfavourable changes in size and structure of Czech agriculture. In the third chapter authors indicate that in Czech Republic workers in agriculture are, on average, older than those in industry and in national economy, and farm managers are even older than other workers in agricultural holdings.

The following chapter describes the potential of managerial staff in the agricultural sector in Ukraine. Authors show that this potential is relatively high due to the rich experience of specialists functioning both at the times of system transformation and the free-market economy. Conditions of agricultural operations in Ukraine still cannot be deemed as fully market-oriented, but many aspects of economic life indicate that the farm managers are ready to function in the global economic system.

The next chapter includes analysis of socio-economic characteristics describing farm management in Romania. According to authors, farm managers in Romania are older in comparison to their EU-27 counterparts. They also prove that young farmers perform better than the older ones, and the farm's economic performance, evaluated in terms of labour productivity and land resources, is greater as far as the farm managers' agricultural training level increases. Authors underline a need for training programs in agriculture, especially the role of the agricultural advisory system in providing specialized technical assistance for farmers, especially those who do not have expert knowledge or experience in agriculture.

In the fifth chapter, the Authors argue that the structure of Bulgarian farm managers both by age and education level is extremely unfavourable. Main problems are processes of aging of the farming population and the lack of specialized training. Authors draw a conclusion that under the conditions of the CAP of the EU during the new programming period, wide application of specific support mechanisms for human resources quality improvement becomes necessary; i.e. young farm managers' employment promotion, increase of the knowledge and skills of managers which can help to strengthen the efficiency of the agricultural farms.

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Chapter 1. Socio-demographic characteristics of farm managers in the European Union

1.1. Introduction

Agriculture in the EU is diverse. There are not only different environmental conditions of the production, such as climate, land relief and soil conditions, but also the importance of the first sector in the national economies is different. Regardless of the small economic role of agricultural production in the EU countries, which is reflected even in the low share in the gross value added or employment, the sector fulfils a number of important economic, social, environmental and cultural functions. Long-term demographic trends and the turmoil in the global markets once again made the issues of food security important[9]. In many regions, agricultural activity also constitutes the main source of income and jobs of their populations[10]. The importance of agriculture in the production of raw material for energy purposes also increases. Degradation of nature, depletion of natural resources and the adverse effects of climate meant that the economic calculations of agricultural production increasingly begin to take note of the external effects[11].

All these circumstances make that agricultural producers are faced with challenges of various types. Processors and consumers report the demand for inexpensive high-quality products. Society as a whole expects farmers to provide public services relating to the maintenance of landscape, taking care of natural resources and the environment and maintaining the viability of rural areas. Therefore, it is necessary for farm managers to make appropriate adjustments, which in addition to social and environmental aspects should take into account market conditions.

Farm manager, who according to the microeconomic approach seeks to maximize his utility function, i.e. achieve a satisfactory level of income, makes

[9] *Sustainable food consumption and production in a resource-constrained world*, European Commission – Standing Committee on Agricultural Research (SCAR), The 3rd SCAR Foresight Exercise 2011, p. 126.
[10] OECD, *The new rural paradigm: policies and governances*, OECD Rural Policy Reviews, Paris 2006, p. 42.
[11] They concern mainly the natural environment, but also the socio-cultural and economic environment and quality of food, cf. J.St. Zegar, *Polityka rolna wobec konkurencyjności ekonomicznej i społecznej*, [in:] A. Kowalski, M. Wigier, M. Dudek, Multi-Annual Programme 2011-2014 Report No. 60, IAFE-NRI, Warsaw 2012, p. 30.

certain decisions on the type and size of production and allocation of resources and inputs[12]. The legitimacy of the choices made, resulting in a particular economic effect, depends on a number of factors. In this case, the different characteristics of the manager are also important, e.g. age, level of formal qualifications, actions taken in the field of vocational training, as well as activity in search of information important for the management process.

An important economic role of farmer's age is usually considered because of two reasons. First, it is believed that this factor affects the management process and the level of income[13]. Older farmers often limit their professional involvement, seeking to secure their financial situation, which is reflected in the deterioration of the economic condition of their agricultural holdings[14]. Secondly, there is the concern that due to the aging of farmers, a large part of farms is at risk of liquidation, which may cause adverse effects for the competitiveness of the EU agricultural sector[15].

The level of education, especially formal training, is an invariably important element for quality of the management process. In addition, due to the dynamic changes in agriculture and its environment, it seems necessary to also expand skills and information. One of the most important ways to increase qualifications is participation in various forms of continuing education (courses, workshops). Moreover, the functioning of business organizations is positively affected by the use of professional advice, including in the form of offers of agricultural advisory institutions. In addition, it may indicate an active orientation of the managing person towards the business.

The following part of the study characterizes and compares farm managers from EU Member States in terms of the following characteristics: age, level of formal agricultural education, the degree of participation in lifelong learning and the use of advisory services. It was considered that those characteristics can make the specifics of agriculture in the Member States and impact on the development prospects of the sector in each country. Another objective of this part of the study is to determine the socio-demographic characteristics of Polish farmers in relation to farm managers in other EU countries.

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[12] A. Kowalski, W. Rembisz, *Model zachowań gospodarstwa rolnego w warunkach endogenicznych i egzogenicznych*, Zagadnienia Ekonomiki Rolnej No. 1 (294), IAFE-NRI, Warsaw 2003, p. 6.

[13] A. Kimhi, *Optimal timing of farm transfer from parent to child*, American Journal of Agricultural Economics, Vol. 76, AAEA 1994, p. 228.

[14] M. Lobley, J.R. Baker, I. Witehead, *Farm succession and retirement: some international comparisons*, Journal of Agriculture, Food Systems and Community Development, Vol. 1, Issue 1, New Leaf Associatess Inc. 2010, p. 51.

[15] Generational renewal in EU agriculture: statistical background, Brief no 6, European Commission 2012. A group of young farmers will also be a major beneficiary of instruments to support of the second pillar of the CAP.

1.2. Management of agricultural holdings in the European Union

In 2010, there were 12.2 million farms in the EU. More than 57% of them (7 million) were located on the territory of the countries that joined the EU as a result of accessions in 2004, 2007 and 2013 (EU-13). The rest, i.e. 5.2 million units were holdings of the so-called "old Member States" (EU-15). In terms of numbers, farms in the EU are strongly concentrated in a few countries. The largest share of farms it the total number of farms was in Romania (32%), Italy (13%), Poland (12%), Spain (8%), Greece (6%) and Hungary (5%). In total, they accounted for slightly more than three-quarters of all EU units.

In 2010, the least of all farms were located in Luxembourg, Malta, Estonia, the Czech Republic, Slovakia and Cyprus. In total, these six countries accounted for only 1% of the farm population.

Eurostat data show that in 2010 in the EU agriculture, the vast majority were farms managed by one person with legal and economic responsibility. On the basis of the information gathered, it can be estimated that in about 93% of the 12.2 million cases, the **holder** of a farm was also its **manager**. Combining current management of agricultural production assets and taking legal and economic liability for it was relatively the most prevalent in the EU-13, in particular in Bulgaria, Romania and Hungary. An exception in this case were the Czech Republic, Slovakia and Estonia, where there was a relatively large proportion of legal persons, which was associated with the practice of separation of the executive of ownership functions. In these countries, the process of economic transformation of agriculture consisted in a limited decollectivization[16]. As a result, the dominant production and ownership role was played by companies and agricultural cooperatives.

Situations where the manager was a family member were rare and related on average only to 3% of EU farms. In 2010, they were most common in Spain (12% of the total) and Austria (10%). Such cases were usually associated with the farm manager being a spouse of the farm holder[17]. In almost all analysed countries, the management of farms was even less frequently the responsibility of persons unrelated to holders (less than 1% of units)[18].

At the EU level, the share of legal persons and group farms in the total number of farms was negligible (respectively 2.4 and 0.6%). The first of these types of units was the most widespread in France (22%) and in the Czech

[16] E. Mathijs, J. Swinnen, *The economics of agricultural decollectivization in east Central Europe and the former Soviet Union*, Economic Development and Cultural Change, Vol. 47, No 1, The University of Chicago Press, Chicago 1998, p. 5.

[17] According to Eurostat data of 2007, the farms managed by spouses accounted for 9% of all farms in Austria and 7% in Spain.

[18] The exception is Denmark. In 2010, Denmark had a larger share of farms managed by persons unrelated with the holder than the units managed by members of his family.

Republic (14%). The group management was characteristic mostly of Finnish, French (8% of local farms) and German (7%) agriculture.

1.3. Age structure

Age structure of managers of agricultural holdings in the EU can be considered unfavourable. It is characterized by a significant imbalance in the demographics. The group of managers is dominated by people from oldest age categories. In 2010, the managers aged 65 years or more had the largest share in the total, and they accounted for nearly 30% of the total population. The second largest category was the group of managers aged 55-64, which accounted for almost 24% of all managers. The high prevalence of older farmers in the EU is due to several reasons. First, it is connected with a small rotation of managers of agricultural holdings, in particular through generational changes. Regardless of the country, it is believed that the tendency to work as a farmer is decreasing among young people[19]. Compared to non-agricultural activities, work in the first sector is less attractive, which is associated with both low average wages, difficult conditions of work and the high level of uncertainty. Higher wages can be achieved in industries with higher productivity than agriculture, or in services, and in particular in sectors based on new technologies. Activity on farms is often associated with the need to perform hard physical work in arduous conditions, which many people would like to avoid. In addition to handling agricultural production, there is generally a need for permanent residence in rural areas, as well as frequent confrontation with the risk in the form of changes in prices of manufactured goods, loss or reduction of income, unpredictable weather events or disease of livestock.

The cause of little exchange of farms managers, resulting in compromising the age structure of the population in the EU, is also seen in the attitudes of professional farmers. More often than in the past, when they reach retirement age they decide to continue working on farms. This is for profit-making (desire to maintain the current level of life), as well as results from the need for a particular style of life, inherent in the exercise of the profession of farmer. In recent years, the succession on farms is lengthened[20]. Withdrawal from activity and taking over of farms by successors of farmers take place relatively late, which partly explains the regressive age structure of farm managers in the EU.

[19] A reflection of this phenomenon is also the tendency to liquidate holdings observed for a long time in many European countries. Ross Gordon Consultants SPRL., *The future of young farmers in the European Union*, Working Paper, Directorate General for Research Luksemburg 2000, p. 51-54.

[20] A. Copus, *et al.*, *Study on employment in rural areas (SERA). Final deliverable*, European Commission, SAC 2006, p. 199.

In 2010, by far the largest share of managers aged 65 and over in the EU was recorded in Portugal. Percentage of managers of the said age group was 47%. Portuguese agriculture was dominated by small and traditional family farms, led by older farmers. Due to the continued rural exodus, a large part of farms lacked successors[21].

A significant proportion of the oldest managers were also found in Romania (38%) and Bulgaria and Italy (37%). These are the countries with a large number of family and small farms. In Romania, a significant proportion of households headed by older farmers should be connected with ownership changes associated with the transformation of the socio-economic system, as well as having two occupations, which was especially popular in the previous system – in the communist era a significant number of Romanian workers conducted agricultural activity on the plots they owned[22]. The political changes in Romania brought, among others, privatization of state land, concentrated in agricultural cooperatives. Former members of cooperatives largely became the owners of this resource, which led to agrarian fragmentation. Bulgaria was dominated by farms providing means of subsistence for their users. Most people managing these units were of retirement age. In a situation of low pensions, agricultural activity on a small scale was for many of them the main source of livelihood[23]. Italian agriculture is also characterized by the dominance of small farms run by older farmers. It is believed that taking over such farms would not provide a satisfactory income for potential successors[24].

According to Eurostat, in 2010, the largest share of managers up to 35 years of age was characteristic of Poland (15%) and Czech Republic (12%). In the first of these countries, the large population of young managers was in part the result of demographics (baby boom of 1980s) and the impact of favourable system and social conditions. Compared to many European countries, specific regulations (tax laws, inheritance, insurance laws), economic reasons (low land prices, instruments of the CAP in support of intergenerational exchange) and patterns of succession did not constitute significant barriers in Poland for the entry of the young generation to agriculture. Sometimes those circumstances even aided this process, positively affecting the age structure of farmers.

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[21] M. Sottomayor, R. Tranter, L. Costa, *Likelihood of succession and farmers' attitudes towards their future behaviour: evidence from a survey in Germany*, the United Kingdom and Portugal, International Journal of Sociology of Agriculture and Food, Vol. 18, No. 2, Cardiff University and Florida Atlantic University 2011, p. 126.

[22] M. Rizov, D. Gavrilescu, H. Gow, E. Mathijs, J.F.M. Swinnen, *Transition and enterprise restructuring: the development of individual farming in Romania*, World Development, Vol. 29, No. 7, Elsevier Science Ltd. 2001, p. 1260-1261.

[23] P. Kostov, J. Lingard, *Subsistence farming in transition economies: lessons from Bulgaria*, Journal of Rural Studies, Vol. 18, Elsevier Science Ltd. 2002, p. 89.

[24] Ascione E., Henke R., Vanni F., *The role of small farms in Italy: between subsistence and diversification*, Wieś i Rolnictwo No. 2 (159), IRWiR PAN, Warsaw 2013, p. 78.

This does not change the fact that in the future one can expect the age structure of farm managers in Poland to worsen. The phenomenon of demographic aging will be possibly accompanied by economic factors limiting the family succession in the form of further development of non-agricultural industries and increasing demand for land. Pressure of agglomerations and the growing competition between holdings will be reflected in a continuing trend to liquidate agricultural holdings (mainly small and medium-sized) and the recovery of the agricultural land market. The analyses show that the number of farms in Poland in recent years has steadily decreased (in 2002-2010 decreased by one-fifth[25]) and the demand for agricultural land is growing[26]. At the same time one has to assume that in the case of some farmers, farm management will continue, regardless of the general economic situation and the agricultural sector. In the Czech Republic, regardless of the progressive aging of the population employed in agriculture recorded since 1989[27], in comparison to other countries the youngest age categories of farm managers were still relatively numerous.

In total, old or young age of the population is indicated by a coefficient expressing the ratio of the number of people from the youngest age group to the oldest categories of the population[28]. In 2010, this indicator reached the highest value for Polish, Austrian and Czech farm managers. In Poland, per one manager at the age of 55 there were 55% of managers under the age of 35 years. The corresponding indicator for Austria was 41% and for the Czech Republic it was 29%.

In addition to the previously described Polish and Czech managers of farms, the Austrian managers were also relatively young. In Austria, the vast majority of farms are transferred within the family. Regardless of the lack of successors, in some of them[29], the majority of young people designated as successors were interested in pursuing agricultural activities, both for economic and non-economic reasons. Farms were not only a source of income but also a place of residence, a way to maintain family traditions and professional

[25] A. Sikorska, *Przemiany w strukturze agrarnej indywidualnych gospodarstw rolnych*, Projekt badawczy 0021/B/H03/2011/40, IAFE-NRI, Warsaw 2013, p. 7.
[26] A. Sikorska, *Obrót ziemią a przemiany agrarne w indywidualnym rolnictwie*, Zagadnienia Ekonomiki Rolnej No. 1 (334), IAFE-NRI, Warsaw 2013, p. 7-22.
[27] D. Spesna, P. Pospech, F. Nohel, J. Drlik, M.bDelin, *Ageing of the agricultural workforce in relation to the agricultural labour market*, Agricultural Economics, Vol. 55, No. 9, Czech Academy of Agricultural Sciences, Prague 2009, p. 425.
[28] J. Holzer, *Demografia*, PWE, Warsaw 2011, p. 141. The research on farm structure at EU level applies the indicator of age structure defined as the ratio of the percentage of farmers under the age of 35 years to the proportion of farmers aged 55 years and more, *Rural development in the EU. Statistical and Economic Information*, European Commission, Brussels 2012, p. 121.
[29] cf. S. Vogel, *Farm succession patterns in Austria*, Eastern European Countryside Vol. 12, Nicolaus Copernicus University, Toruń 2006, p. 72.

fulfilment, which also did not rule out its development[30]. The specificity of the Austrian agriculture, with multi-functional farms often producing high quality products, made that work at farms was perceived as attractive.

Eurostat data show that in 2010 farm managers from Portugal, Cyprus, Croatia and the UK were at the opposite extreme in terms of the youth demographics. For these countries the age structure indicator stood at 4 and 7%. In Cyprus, a large category were older farmers from the interior of the island and dry areas, i.e. areas traditionally peripheral, poorly connected with cities, characterized by a low level of development of technical and social infrastructure and a significant outflow of population[31]. For some of them the main occupation was to work off-farm (transport, mining, construction industry). Involvement in agricultural activities undertaken regardless of advanced age was in their case primarily limited and often represented a way to supplement the family income[32].

A similar situation was characteristic of the Croatian agriculture. More than one-third of all farms, mostly not exceeding 3 hectares, were managed by farmers over the age of 60. Their production was mainly for subsistence, and only partially for the market. The unfavourable agrarian structure formed in times of real socialism and economic transformation and severe outflow of the young generation from rural areas during the period of industrialization and economic changes contributed to delayed transfers of holdings in agricultural families and through testamentary inheritance (frequent division of property). As a result, older farmers in Croatia were often farm managers until the end of their lives, which significantly increased the age of the population[33].

The unfavourable age structure of farm managers in the UK had the same basis. It stemmed from the low rate of inflow and outflow of persons engaged in agricultural activities in comparison with other sectors of the economy. This phenomenon was associated with relatively greater income attractiveness of non-agricultural activities for potential successors, as well as a low tendency of older farmers to retire[34].

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[30] E. Quendler, *Young farmers with future*, Federal Institute of Agricultural Economics, Vienna 2012, p. 10.

[31] G. Adamides, A. Stylianou, *ICT and Mobile Phone Use for Agricultural Knowledge Sharing by Cypriot Farmers*, Agris on-line Papers in Economics and Informatics, Vol. 5, No. 2, Czech University of Life Sciences, Prague 2013, p. 4-5.

[32] M. Upton, C. Bishop, R. Pearce, *Part-time farming. The Cyprus case*, GeoJournal, Vol. 6, Issue 4, Kluwer Academic Publishers, Akademische Verlagsgesellschaft, Wiesbaden 1982, p. 344-348.

[33] D. Zutinic, I. Grgic, *Family farm inheritance in Slaviona region*, Croatia, Agricultural Economics Vol. 56, No 11, Czech Academy of Agricultural Sciences, Prague 2010, p. 523.

[34] ADAS Consulting Ltd, University of Plymouth, Queen's University Belfast and Scottish Agricultural College, *Entry to and exit from farming in the United Kingdom*, ADAS

Unfavourable age structure of farmers in the EU is a reflection of the aging process in this population. In terms of general public, at the root of this phenomenon, characteristic of most European countries, are the long-time low fertility and increasing life expectancy. As a result, there is an increase in the share of the elderly in the total population. The aging process causes significant economic implications, both for the public (reducing the tax base, increasing financial burden on the pension system and health care) and the economy (e.g. increased demand for certain services). In the case of farm managers aging is conditioned by lengthening working lives of older people and the limited inflow of young individuals into this category. At the level of farm families, this may be accompanied by the need to take appropriate action to manage production assets (appropriate division of labour, the question of farm succession) and obtain income (definition of the functions of agricultural activity).

1.4. Age of managers and the area and economic size of farms in the European Union

One of the major premises of farm competitiveness at the micro level and at the level of the sector in international terms is the provision with the basic factor of production in the first sector, i.e. land, and the individual and global production results. Size of agricultural land is the indicator of potential competitiveness of the agricultural production unit and the whole sector[35]. Regardless of the technical progress on the side of capital resources and the progressive substitution of land and labour with this factor of production, the size of the area of agricultural land affects the scale of production on farms. In turn, production results expressed as the country's average economic size of the farm indicate even more accurately on the competitive opportunities of farms in each country[36].

Eurostat data show that at the level of EU the age of farm managers was associated with the area of agricultural land[37]. In 2010, there was a positive relationship for all Member States between the age of managers and the farm area. In other words, the higher the age factor, i.e. the younger the population of farmers, the greater was the average farm size in a given country. However,

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Consulting Ltd, report to Department for Environment, Food and Rural Affairs, Wolverhampton 2004, p. 51-54.

[35] K. Pawlak, W. Poczta, *Potencjał konkurencyjny polskiego rolnictwa*, [in:] B. Nosecka, *Wybrane aspekty konkurencyjności rolnictwa*, Multi-Annual Programme 2011-2014, Report No. 7, IAFE-NRI, Warsaw 2011, p. 44.

[36] W. Józwiak, Z. Mirkowska, *Ekonomiczne przesłanki zdolności konkurencyjnej polskich gospodarstw rolnych*, [in:] W. Józwiak (ed.), *Sytuacja ekonomiczna i aktywność inwestycyjna różnych grup gospodarstw rolniczych w Polsce i innych krajach unijnych w latach 2004-2005*, Multi-Annual Programme 2005-2009, Report No. 68, IAFE-NRI, Warsaw 2007, p. 19.

[37] These are agricultural land (utilized agricultural area – UAA), which includes: arable land, permanent grassland, permanent crops and kitchen gardens.

relationships between the characteristics under consideration were at a low level. Pearson linear correlation coefficient (r_{XY}) was 0.207. The strength of the analysed relationship was weakened by many outliers.

In the case of countries such as the United Kingdom, Slovakia, Denmark and Estonia, the high value of the average size of a holding was accompanied by a low level of the age factor. This means that older farmers, managing relatively large areas of land, had a significant part in the agriculture of these countries. In this respect, countries like Poland and Austria were at the opposite extreme. Their population of farmers was relatively young and the average farm size was small. Unfavourable agrarian structure of farms is recognized as one of the most important problems of Polish agriculture, reducing the pace of development and diminishing the competitive position of agricultural producers on a transnational scale[38]. A small acreage of agricultural land of most farms also affects the low efficiency of the sector and is not conducive to improving the income of farm families. Small and medium-sized farms dominated also in Austria. However, the shape of production structures with low competitiveness was decided there largely by natural conditions. More than two-thirds of farms were located in mountainous areas or characterized by unfavourable conditions for agricultural activities[39].

On the basis of the analysed data on area of farms and age of managers one can specify a group of countries with relatively favourable demographic and agrarian structure. In 2010, these included especially the Czech Republic, followed by Germany, France, Luxembourg and Finland. One can assume that generation changes among local managers were relatively stable (liquid) and largely applied to units rich in agricultural land.

Structural problems in the form of old population of farm managers and agrarian fragmentation were reported in many EU Member States, though they were most characteristic of Cyprus, Malta, Portugal and Croatia. It can be assumed that rotation of farm managers in these countries took place at a slow pace and focused mainly on small farms.

EU-wide data show the link between the average level of agricultural production and age of the managers. In 2010, the average size of a standard agricultural production for EU Member States positively correlated to the age factor of the population of farm managers in these countries. At the level of population of all EU members, the low values of the standard agricultural

[38] Cf. W. Poczta, *Wpływ struktury agrarnej rolnictwa na intensywność i efektywność wytwarzania w rolnictwie Polski i Unii Europejskiej*, [in:] S. Paszkowski (ed.), *Determinanty transformacji struktury agrarnej w rolnictwie polskim*, Rocznik Akademii Rolniczej w Poznaniu CCCVIII, Część 1 (53), Poznań 1999, p. 450-458.

[39] M. Schneider, Austrian agriculture: experience with the CAP and the anticipated effects of the EU's eastern enlargement, Agricultural Economics Vol. 49, No 2, Czech Academy of Agricultural Sciences, Prague 2003, p. 80.

production on the farm were accompanied by small values of the age factor of the managers. However, that correlation was of a negligible strength. Pearson linear correlation coefficient (r_{XY}) was only 0.055. Farms with small scale production, managed by older people, had a great share in agriculture of many countries. This was the situation in Portugal, Cyprus and Croatia.

The high average value of the economic size of a farm co-occurring with unfavourable demographic structure of managers was recorded primarily in the Netherlands, Denmark and Belgium. Dutch, Danish and Belgian farms were characterized by high intensity of production and labour productivity[40]. Share of units with large economic size (medium-large, large and very large) was significant and amounted respectively to 63, 42 and 48%. However, in these countries, the proportion of young age categories of managers remained at a relatively low level.

In turn, the relative youth of the population of farm managers associated with a relatively small average economic size was observed in Poland and Austria. Most farms of these countries were units with a very small economic size. Relatively high average values of the economic size of farms and age factor applied, in turn, to the Czech Republic, Germany, France and Luxembourg. In terms of demographics and production, the situation of the agricultural sector in these countries was relatively the most advantageous.

1.5. Level of agricultural education

The level of agricultural education of farm managers across the EU was varied. The record demonstrates, however, that the vast majority of countries was dominated by people whose degree of professional competence can be assessed as low. In 2010, people with only practical experience accounted for 81% of the managers of agricultural holdings in the EU. 12% of the study group completed agricultural education at the basic level. In turn, the full professional education related to 7% of the total EU farm managers. In addition to low-level vocational qualifications of the described population, it should be noted that there has been a further deterioration of the situation in this regard. According to Eurostat calculations, as compared to the previous study (i.e. 2005), in 2010 the proportion of farm managers who do not have formal professional education increased by 2 percentage points (i.e. from 79 to 81%).

In 2010, relatively the greatest number of farm managers with basic and full agricultural education were in the Netherlands and Germany. The share of such people among all of farm managers in these countries was 71 and 69%. Professional preparation of Dutch and German farmers had long been relatively

[40] W. Poczta, *Przemiany w rolnictwie ze szczególnym uwzględnieniem przemian strukturalnych*, [in:] J. Wilkin, I. Nurzyńska, *Polska wieś 2012. Raport o stanie wsi*, Wydawnictwo Naukowe Scholar, Warsaw 2012, pp. 74, 95.

the best in Europe. Relatively the smallest percentage of people with basic and full agricultural education was characteristic of Romanian and Bulgarian farm managers. Their proportion in all managers was only 3%. In the latter two countries, the education structure of the managers has deteriorated. As compared to the survey conducted in 2005, the proportion of people with relatively lowest level of education increased[41].

Eurostat data also show that in 2010, in terms of professional qualifications, Polish farm managers occupied relatively high position. 21% of them completed basic agricultural education and 25% completed full agricultural education. The relatively high prevalence among all Polish managers with professional preparation that goes beyond the practical experience should be combined with the fact that significant number of older farmers had in the past received the so-called training preparation for the profession. In addition, the category of managers with agricultural education obtained at a vocational school, secondary and post-secondary schools, was relatively large.

Eurostat data document the link between the level of agricultural education of EU farm managers and their age. On average, the number of people with full agricultural education decreased with an increase in the age of the managers. In the youngest age category of the described population, such units accounted for 14%, and in the oldest for only 1%. Relatively the greatest number of people with basic agricultural education were among the farm managers aged 45-54.

Considering all the Member States of the Union in 2010, the level of agricultural education of a manager was connected to the economic size of the farm. With the increase of this indicator for the farm, on average, the level of education of the manager increased. Every fifth manager of a medium-large unit and less than every third manager of a large unit were fully qualified. Among managers of farms with relatively smallest economic size, i.e., small and very small, there number of such people was very small. The dominant community were people whose professional qualifications are based solely on the practice.

1.6. Participation in vocational education

As mentioned earlier, constantly updating information and skills affecting production on farms is of great importance for conducting agricultural activity. Variable situation on agricultural markets, frequent modifications in agricultural policy and legal conditions for business activity, as well as technical and biological progress, require supplementing qualifications of farmers. One of the ways to broaden skills is taking part in organized (institutional) forms of non-school education, especially professional courses and trainings. Regardless of

[41] In 2010, in Romania, the increase was 5 percentage points (from 93 to 97%) and in Bulgaria by 2 percentage points (from 95 to 97%).

the profession, taking this type of activity can contribute to obtaining relatively larger income, but also prevent early withdrawal from the labour. Improvement of skills has a particularly positive impact in the case of middle-aged and older people, who took a long break from education. As indicated, relatively the greatest number of people without agricultural education was among the managers of agricultural holdings in the EU aged over 55.

Examination of the structure of agricultural holdings in the EU provides data on the prevalence of lifelong learning practices among farmers. The information gathered showed that in 2010 at the EU level the scale of participation of farm managers in vocational training within 12 months of the study stood at 6%. The degree of participation in training was connected with the age of farmers and with the number of farms in the country[42]. At the EU level and in the vast majority of Member States, the younger the age category of farmers the higher was the level of participation in vocational training[43]. For example, for all Members States, in the group of farm managers under 35 years of age, the percentage of trained people was 10%, while in the population of individuals aged 65 years and more the corresponding rate stood at 2%. The relatively larger number of farms also typically corresponded to relatively lower share of the described form of education. A very small-scale participation in trainings was recorded in Romania (less than 1% of farmers) and Greece (1%), where population of farms was significant. High degree of participation in vocational education was observed in turn in the countries with a small or very small number of farms, i.e. in Slovenia and Luxembourg. In these countries, respectively 43 and 36% of managers of agricultural holdings participated in the training.

Countries with an above-average share of farmers in vocational education, regardless of the large number of farms, are worth noting. Such a situation was recorded primarily in France, Poland and Hungary. In 2010, every tenth farm manager from these countries participated in training.

Significant participation of farmers in non-school vocational education in some countries could be the result of public support, in particular the CAP instruments. In 2007-2013, the implementation of one of the priorities of the rural development policy consisting in improving the competitiveness of the agricultural and forestry sector involved measures aimed at disseminating knowledge and enhancing the human capital of farmers. One of the instruments of this policy concerned vocational training (training) and information activities. The data show that by the end of 2011, at the EU level, 466 thousand people[44]

[42] Pearson linear correlation coefficient (r_{XY}) between the number of farms and percentage of people participating in training in the last twelve months was -0.358.

[43] This referred not only to Bulgaria, Denmark, Latvia, Malta and Romania.

[44] This number included not only farmers, but also other persons employed in agriculture, forestry and food industry.

participated in training and information activities supported by the EAFRD (measure 111), which accounted for 12% of the expected number of beneficiaries for 2007-2013 (most in Spain, France, Belgium and Lithuania). By 2010, in Poland, the scale of participation in these projects was very small. It must therefore be assumed that the surveyed farm managers used other offers of continuing education to a relatively greater extent.

1.7. Use of advisory services[45]

One of the ways of dissemination of knowledge among farmers and improving human capital is providing advisory services. Using professional advice may also contribute to a positive impact of agricultural activities on the environment and improve the economic competitiveness of agricultural holdings. For this reason, counselling has become an important element in the agricultural policy of the EU and individual Member States. First, it is seen as the way to propagate a particular approach to agricultural activities. It concerns primarily practices conducive to public health, animal health and welfare, plant health, protecting the environment and positive impact on the climate, as well as the application of good agricultural practices. Second, consultancy services provided to farmers are to be means of transferring knowledge and innovation. In the 2007-2013 programming period, the use of advisory services by farmers was supported under the Rural Development Programmes (RDP) of EU Member States, funded by the EAFRD.

According to Eurostat data, Danish farmers were by far the most active in using the advisory support offered via RDP. Consulting services provided there covered 71% of farms, which produced a significant portion of the production and held the majority of agricultural land.

The range of counselling services offered under the RDP was relatively high also in the Czech Republic and Estonia – as it related to, respectively, 11 and 7% of farms in these countries. In other countries, the scale of using this type of support was negligible and stood at around 1-2% of all farms.

The analysed data prove the fact that consultancy services provided under the CAP 2007-2013 so far enjoyed little popularity among Polish farmers. By the end of 2010 they covered less than 1% of farms, taking up 3% of all agricultural land and producing 3% of the total standard production. Causes of small-scale use of this kind of aid in Poland were attributed to low motivation of potential beneficiaries, having to pay their share of the costs in exchange for the obtained support and the short period of availability.

[45] Only the use of advisory services supported under the CAP from the EAFRD funds was taken into account. Information was collected on the use of measures to support rural development in the three years preceding the survey. One of these were advisory services.

1.8. Summary

Analyses presented in the chapter were based on the assumption of significance of socio-demographic characteristics in the process of farm management. It was considered that some characteristics of managers are linked to the economic aspect of farming. When considering production effects or development prospects of farms it is difficult to abstract from the properties or behaviour of people who manage them. In addition to the economic aspect, the increasing role is attributed to the different dimensions of agricultural production. They concern the relationship of the whole sector and its constituent units with the natural and social environment. In this context, particular attention is paid to the impact of agriculture on climate change, the landscape, the use of natural resources or food quality and safety and maintaining the viability of rural areas. All of these issues are conditioned by certain actions taken by farm managers. These practices are affected by the characteristics of farmers, such as the phase of life (age), the level of formal qualifications, knowledge and practical skills acquired as a result of participation in lifelong learning and the use of professional consulting services.

The presented data show that at the EU level, the population of farm managers was characterized by unfavourable demographic structure. In this population, the majority were people from the older category, and those of the younger age groups were in minority. This fact is associated with a certain stage of the demographic development of this population. It may also reflect the aging of the population, but also problems with generation changes in many farms. In some European countries there was in fact a slowdown in the generational rotation of farmers. It is accompanied by a decreasing rate of recruitment of young people to the sector while extending the working lives of older people. Unbalanced shape of the demographic structure of farm managers should be associated with economic processes and the perceived unfavourable prospects for agricultural activities. This is confirmed by co-existence of the advanced age of farmers and the adverse properties of holdings that can be seen in some EU countries, attesting to their limited market potential (small area of agricultural land and small scale production). In addition to these considerations, it should be added that the population of farm managers in Poland was one of the youngest in the EU.

In the analysed countries, most farmers were characterized by a low level of professional education. Their qualifications were based primarily on practical experience. The data show that at EU level, young managers and people running a farm of medium and large economic size more often had professional preparation. The relatively higher level of education of farmers was reported typically in countries with dominant effective and commodity farms. This does not change the fact that the data collected by Eurostat at the same time give evidence to a relatively good preparation of a large group of Polish farm managers.

Farm managers in the EU also varied in the scale of participation in various forms of continuing education and the degree of use of advisory services which is an important element in the implementation of the CAP. Eurostat data document that in the analysed year, Polish farmers compared to other EU managers were characterized by above-average participation in vocational training. The use of professional counselling assistance was relatively less prevalent among them.

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Chapter 2. Women – farm managers in the European Union

2.1. Scale of the phenomenon

According to EUROSTAT, in 2010, in twenty-eight countries of the EU, there were nearly 3.4 million farms run by women. Including 1.3 million in the EU-15, nearly 0.8 million in a group of countries admitted to the EU together with Poland and 1.4 million in total in Bulgaria, Romania and Croatia.

In 2010, farms in the EU run by women accounted for 28.0% of all farms. In total, more farms run by women were in the countries admitted to the EU together with Poland (EU-10 and the newly accepted Bulgaria, Romania and Croatia – EU-3), where this value in the year under review was nearly 30%, compared to 24.3% in the EU-15 (Table 2.1). However, the situation varied between countries in all listed groups.

In the countries of the so-called old Union, the highest percentage of farms run by women were in Austria, Italy, Portugal and Greece – respectively from 34.5% to 27.7% of all farms. The lowest was in the Netherlands – 6.1%, Germany – 8.4% and Denmark – 9.0%.

Among the countries accepted to the EU together with Poland, the highest proportion of such units was in Lithuania and Latvia (respectively 47.7% and 46,8% of all farms), and the lowest in Malta, where nearly every tenth farm was run by a woman. In the Czech Republic and Slovakia, this type of farms accounted for 15.1% and 17.0%.

On the other hand, in countries recently accepted to the EU, a similar degree of feminization of agriculture, measured by the percentage of farms managed by women, was in Bulgaria and Croatia (nearly every fifth household). In Romania, almost every third farm was run by a woman.

In 2010, in total in the EU countries, women managed 23 268.9 thousand ha of agricultural land, which accounted for 13.2% of the total agricultural land of the EU. In the countries of the old Union this figure amounted to 15 127.2 thousand ha of AL (12.0% of total AL).

The average size of these farms varied greatly in different countries. On average, the largest farms of that type in terms of area were in the Czech Republic – 63.9 hectares, Germany – 43.1 hectares and Slovakia (38.4 ha).

Table 2.1. Farms managed by women in the EU in 2010

UE Member States	Farms managed by women			
	in thousand	percentage of total farms	area in thousand ha	average area in ha/1 farm
EU 28	**3 432.51**	**28.0**	**23.268.86**	**6.8**
EU 15	**1 269.44**	**24.3**	**15.127.23**	**11.9**
EU 10	**778.74**	**30.4**	**4.954.36**	**6.4**
EU 3	**1 384.33**	**31.0**	**3.187.27**	**2.3**
EU-15				
Austria	51.78	34.5	764.07	14.8
Belgium	6.45	15.1	140.27	21.7
Denmark	3.77	9.0	122.99	32.6
Finland	7.1	11.1	166.93	23.5
France	117.12	22.7	3 758.01	32.1
Greece	200.07	27.7	644.76	3.2
Spain	214.38	21.7	3 422.18	16.0
Netherlands	4.42	6.1	55.85	12.6
Ireland	16.12	11.5	400.01	24.8
Luxembourg	0.35	15.9	15.03	42.9
Germany	25.22	8.4	1.087.73	43.1
Portugal	89.37	29.3	597.88	6.7
Sweden	10.95	15.4	233.56	21.3
UK	24.49	13.1	1 065.39	43.5
Italy	497.85	30.7	2 652.45	5.3
EU-10				
Cyprus	8.01	20.6	11.36	1.4
Czech Rep.	3.45	15.1	220.43	63.9
Estonia	7.02	35.8	135.60	19.3
Lithuania	95.36	47.7	757.47	7.9
Latvia	39.01	46.8	538.68	13.8
Malta	1.39	11.1	0.82	0.6
Poland	448.12	29.7	2.489.02	5.6
Slovenia	20.34	27.2	95.74	4.7
Slovakia	4.17	17.0	160.24	38.4
Hungary	151.87	26.3	545.00	3.6
EU-3				
Bulgaria	84.35	22.8	544.22	6.5
Romania	1 248.58	32.4	2 415.40	1.9
Croatia	51.4	22.0	227.65	4.4

Source: Own compilation based on EUROSTAT data.

It should be emphasized that in each of the EU countries, the average area of a farm run by a woman was much lower (in the vast majority of countries at least by half) than the average area of a farm run by a man (Table 2.2).

Table 2. 2. Average area of farms in the groups of EU countries in 2010, by gender

EU Member States	Average farm size (in hectares) managed by	
	women	men
EU 28	6.8	17.3
EU 15	11.9	28.1
EU 10	6.4	14.4
UE 3	2.3	5.2

Source: Own compilation based on EUROSTAT data.

2.2. Age structure and level of agricultural education

Overall in the EU, in 2010, more than one third of women managing farms exceeded 65 years of age, nearly a quarter were aged 45 to 54, one-fifth did not exceed 44 years of age. Women in the youngest age group (35 years) managed less than every tenth farm (Table 2.3). In the age structure of women running farms in countries accepted to the EU together with Poland, the representation of younger age groups was higher than in the other groups of countries.

Table 2.3. Age structure of women farm managers in the EU in 2010

EU Member States	Women managers at the age of:				
	under 35	35-44	45-54	55-64	over 65
	in %				
EU 28	6.2	13.3	19.8	23.1	37.7
EU 15	5.0	14.3	23.8	25.1	31.8
EU 10	10.2	18.6	25.7	21.1	24.4
EU 3	5.0	9.4	12.9	22.3	50.4
Poland	13.9	23.2	30.3	19.7	12.9

Source: Own compilation based on EUROSTAT data.

Overall in the EU-10, nearly one third of women did not exceed 45 years of age, and one fourth was in the age group of 45 to 54 years. In Poland, women managing farms were characterized by relatively more numerous representation in younger age groups than on average in the EU, both in the overall scale and in individual groups of European countries. It is true that one third of women managers in our country was above 55 years of age, but more than half were women in the age group of 35-54 years, and the proportion (percentage) of women representing the youngest age group in the general age structure was the highest in Europe. Also in the Czech Republic and Austria and Bulgaria, the share of young women among the all women managers was much higher than the total in the EU.

Relatively poorer age structure was characteristic of countries located in southern Europe. Including Romania and Croatia, where a total of more than half of women (managers) in 2010 was over 65 years old, and only every twentieth manager was under 35 years of age. In particular, a large proportion of the oldest women, with relatively low participation of the youngest in the age structure, was also reported in Portugal, Italy, Greece and Spain.

Eurostat data, as mentioned earlier, were the basis for defining three levels of education of persons engaged in agriculture. Only less than one in ten men and less than every fifth woman managing agricultural production had the highest level of education. The level of education way above the average for EU-28 was, regardless of gender, in the group of managers of countries admitted to the EU in 2004. In turn, the Czech Republic, Poland and Latvia stood out in this population, as they had the highest percentage of people, regardless of gender, with the highest specified level of agricultural education. The relatively lowest level of agricultural education was in the group of managers in Italy, where only every tenth person had higher than the basic level of agricultural education. The group of men and women in the three countries later admitted to the EU is also worth noting; the total of nearly all managers, both men and women, were trained to work in agriculture at a secondary level.

Table 2.4. Structure of education of farm managers in the EU in 2010, by gender

UE Member States	Education level of farm managers					
	Full agricultural training		Practical experience		Basic training	
	women	men	women	men	women	men
in %						
EU 15	2.9	8.3	54.8	51.0	42.2	41.0
EU 10	13.2	20.0	74.0	59.4	12.8	20.5
EU 3	0.3	0.6	98.8	96.6	1.0	2.7
EU 28	4.2	8.0	76.9	68.6	18.9	23.5
Poland	18.0	27.4	65.9	49.0	16.1	23.5

Source: Own compilation based on EUROSTAT data.

The analysis of the level of education and the size of the AL area in each group of European countries showed that in total, in 28 EU countries, more than half (59.5%) of AL was managed by women with secondary level agricultural education. In the group of men, this figure was, in 2010, 40.2% of AL. As in the case of the age structure of managers (men and women) of farms, these relationships were more favourable in the EU-10 than in the so-called old EU countries.

The level of education of managers in agriculture was associated with their age. Across the EU, the highest proportion of men with the highest level of education was in the age group 35-44. This group accounted for nearly one-third in the EU 28, EU 15 and EU 10 and more than one quarter of the EU 3. In the case of women managers, persons with this level of education were concentrated mainly in the group of 45-54 years of age in all groups of countries.

The analysis of the level of education in the different age groups showed that the highest level of education in total in all EU countries was in the group of managers under 35 years of age and this proportion underwent significant decrease among the oldest people. Among people over the age of 65, the highest level of

education was completed by only 1.8% of men and 0.8% of women. The highest percentage of people with this level of education, both women and men, was characteristic of the countries, which were admitted to the EU together with Poland. The lowest was in the Balkans. It is also worth noting that in our country, as compared to other EU countries, the persons with the highest level of agricultural education represent a significant percentage of people in each age group. Also in the Czech Republic there was a high proportion of managers with the highest level of education in each age group – from more than one-third to one-fifth of managers have this level of education. Among the countries of the old EU, the highest proportion of people with the highest level of agricultural education is in Belgium, France, Ireland and Sweden.

The analysis of Eurostat data regarding the level of education, age and area of farms across the EU showed that both women and men managing farms, representing the highest level of education and who are under the age of 35 and in the 35-44 age group, manage, in total in all EU countries, a relatively small area of AL.

Also, men and women, belonging to the oldest age group and at the same time representing the lowest level of education, in individual countries, had a small percentage of AL under their management. Managers in the EU-10 countries, including Poland, the Czech Republic and Slovakia, fared relatively well in this respect. In Poland, it was only 2.1% of AL for women and 1.2% of AL for men. In the Czech Republic and Slovakia it was even lower percentage of AL for both women and men – less than one percent.

2.3. Indicator of demographic potential of farm managers in the EU

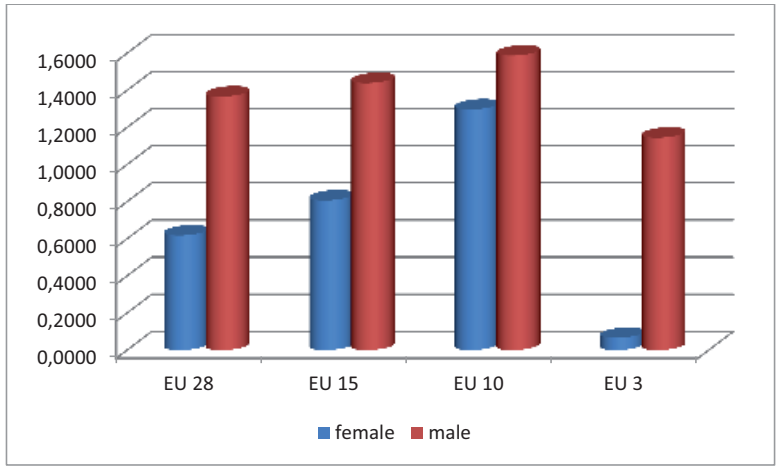
This part of the paper attempts to conduct a comparative analysis of selected features of the demographic structure of farm managers in the EU, as an indication of the demographic potential of farm managers by gender. This paper adopts the following as diagnostic variables:

X1 – Percentage of managers over 65 years of age,
X2 – Percentage of managers with the highest level of agricultural education,
X3 – Percentage of managers involved in training in the past 12 months of study,
X4 – Percentage of managers benefiting from selected RDP measures.

The stimulants are: Percentage of managers with the highest level of agricultural education (X2), Percentage of managers involved in training in the last 12 months from the study (X3) and the percentage of managers benefiting from selected RDP measures (X4). The destimulant is: Percentage of managers over 65 years of age (X1).

Zero Unitarisation Method (MUZ)[46] was used to calculate values of the indicator for the two populations: men and women managers of farms. Figure 2.1 presents the total level of this indicator by selected groups of EU countries in 2010.

Figure 2.1. Level of the demographic potential indicator in distinguished groups of EU countries in 2010, broken down by gender



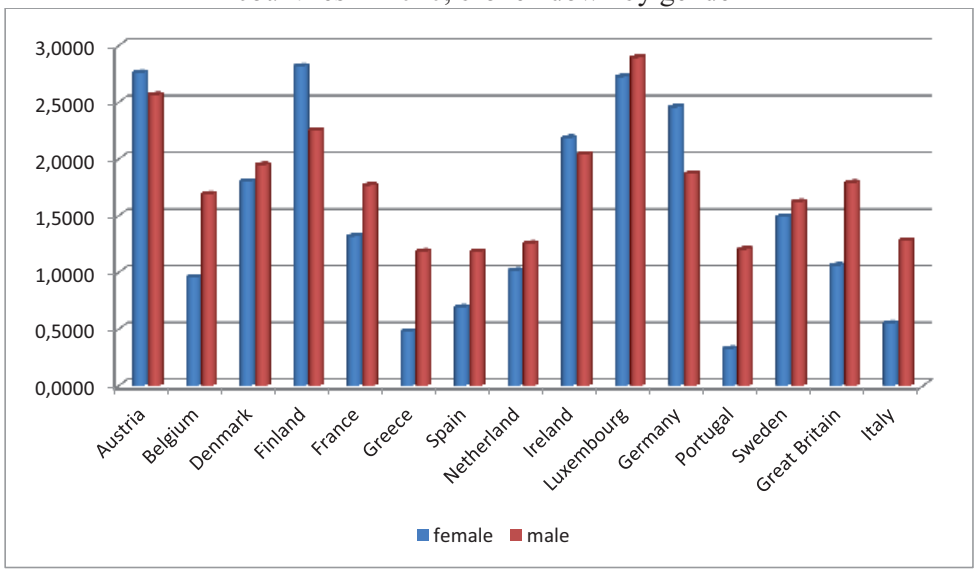
Source: Own compilation based on EUROSTAT data.

The calculations show that in the year under review there was a significant variation of this indicator, both among the distinguished groups of countries and among individual countries, and also between the population of men and women (Figures 2.2-2.3).

The highest level of this indicator for a group of women managers was reported in the group of countries admitted to the EU together with Poland.

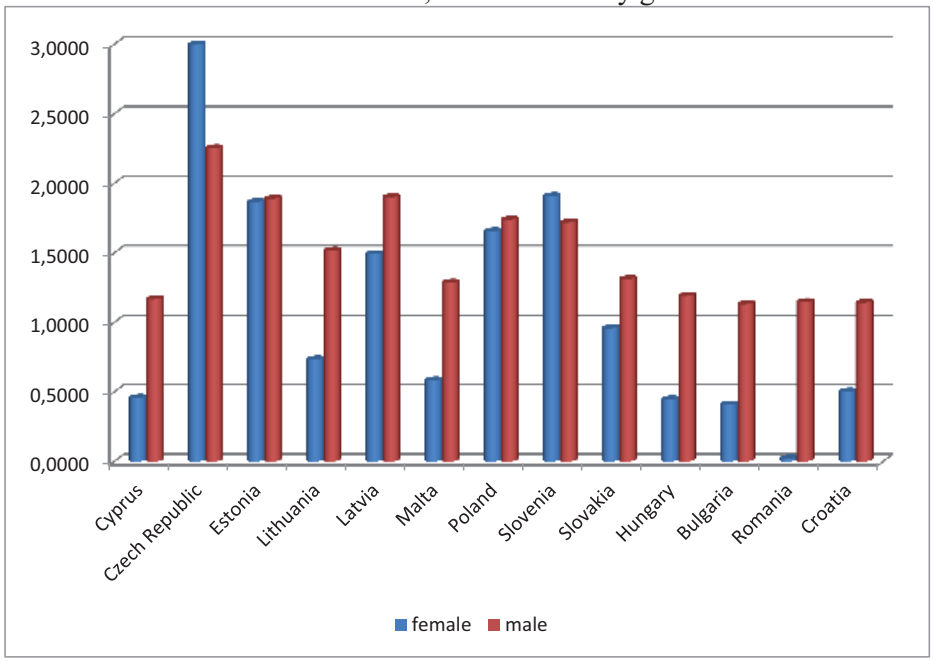
[46] K. Kukuła, *Metoda unitaryzacji zerowanej*, PWN, Warszawa 2000.

Figure 2.2. Level of the demographic potential indicator in selected EU countries in 2010, broken down by gender



Source: Own compilation based on EUROSTAT data.

Figure 2.3. Level of the demographic potential indicator in selected EU countries in 2010, broken down by gender



Source: Own compilation based on EUROSTAT data.

This indicator reached 1.3. In comparison with the average for the EU it was twice as high. The highest level of the indicator was in the Czech Republic, Austria, Finland, Ireland and Germany.

In the Czech Republic, the high level of demographic potential indicator for women farm managers was influenced primarily by a high percentage (45.8%) of women who benefited from support under the RDP and the relatively high proportion of women with the highest level of agricultural education (29.9%) and a low proportion of the oldest women managers in the age structure. In Slovenia, a relatively large group of women managers applied for support under the RDP and took part in training, but at the same time, in this country the share of women managers over 65 years of age was significant, which weakened the level of the indicator, but it should be emphasized that it is still one of the highest in Europe. The relatively low level of the indicator was characteristic of women in the countries of southern Europe, both in the old EU countries (Greece, Portugal, Spain and Italy), as well as in Romania, Bulgaria and Croatia. In these countries, the age of women managers had a primary impact on the level of the indicator.

2.4. Summary

The analysis showed that the level of demographic potential indicator in Poland for the group of surveyed women was close to 1.6. It was one of the highest results in the group of EU countries. It should be emphasized that the demographic potential of women managing farms in Poland was higher than that of the general population of women managers in all listed groups of countries, and higher than, for example, in Sweden, Denmark, the United Kingdom.

In several countries, the level of this indicator among women reached a higher level than in the case of male managers. Such a situation occurred in Austria, Finland, Ireland, the Czech Republic and Slovenia. In Poland, in 2010, there were slight differences in the level of the indicator in both populations.

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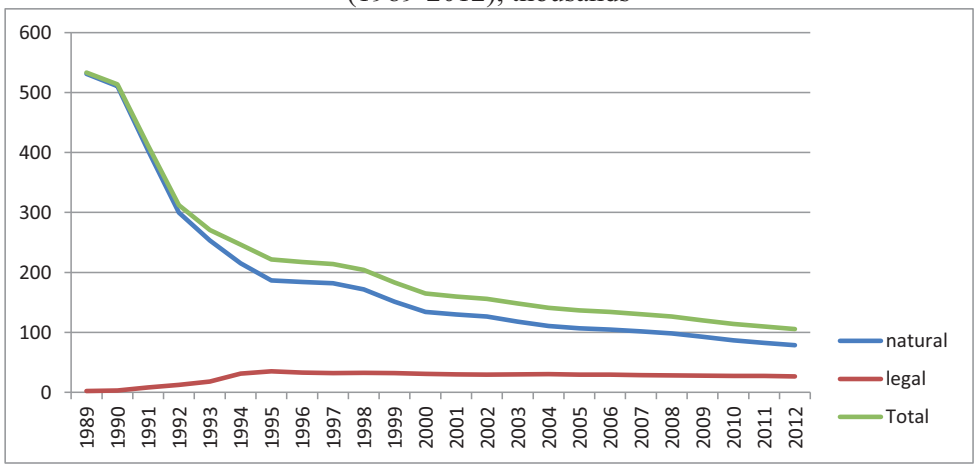
Chapter 3. Socio-economic characteristics of farm managers in the Czech Republic

3.1. Introduction

Labour force in agriculture has declined dramatically in Czech Republic since 1989. The number of people working in agriculture in 2012 is only one fifth of that in 1989. Transformation of Czech agriculture caused a departure of many people (often young and well educated) for other sectors. Some previous members of agricultural cooperatives (or workers of state agricultural holdings) have started to run an agricultural business themselves. Some people who owned agricultural land but had not worked in agriculture (nor had any experience) joined them. It is evident that the general decline of Czech agrarian labour force affected significantly also farm managers.

Figure 3.1. Number of workers in agriculture by legal form of holdings (1989-2012), thousands



Source: Ministry of Agriculture, "Green Reports" (1994-2013).

Managers of great enterprises had to start doing business without any directions from the state. Small farmers had to manage their family members at the farm (if they were able and willing to help) and some even hired workers, especially on greater holdings.

Decline in labour in agriculture is continuing. This is connected not only with technological progress, but significantly also with unfavourable changes in

the production structure of agriculture. Areas such as livestock production (especially breeding and fattening of pigs), growing vegetables, potatoes etc. are affected enormously. The sector and consequently also the whole economy are wasting many job opportunities for both "ordinary" workers as well as for qualified managers.

Long-term low rate of inflow of young people leads to a very unfavourable age structure of agricultural labour. Number of holdings of natural persons decreased in the period 2000-2010 and at the same time these farms increased their cultivated area (in line with the trend in other EU countries).

3.2. Data, methodology

A significant source of "hard" data concerning labour and holdings in agriculture is the Farm Structure Survey in Agriculture – Agrocenzus 2010 (AGC 2010, CZSO). This source is fully employed here to characterize farm managers in CR as to their age, gender, education etc. The source defines a farm manager as a person who is the head of farm (i.e. only one person per holding) – regardless of the farm's size, labour count on the farm or otherwise under the manager's supervision.

Data about farm managers' earnings are obtained from statistics on labour and earnings of the Czech statistical office (CZSO). Definition of managers there is as per CZ-ISCO classification.

Source of "soft" data (characterising young farm managers entering the sector) is an empirical survey undertaken in 2013 by ÚZEI among graduates of Mendel University, Faculty of Agronomy, in Brno, Czech Republic. Only those who decided to work in agriculture are included for this purpose.

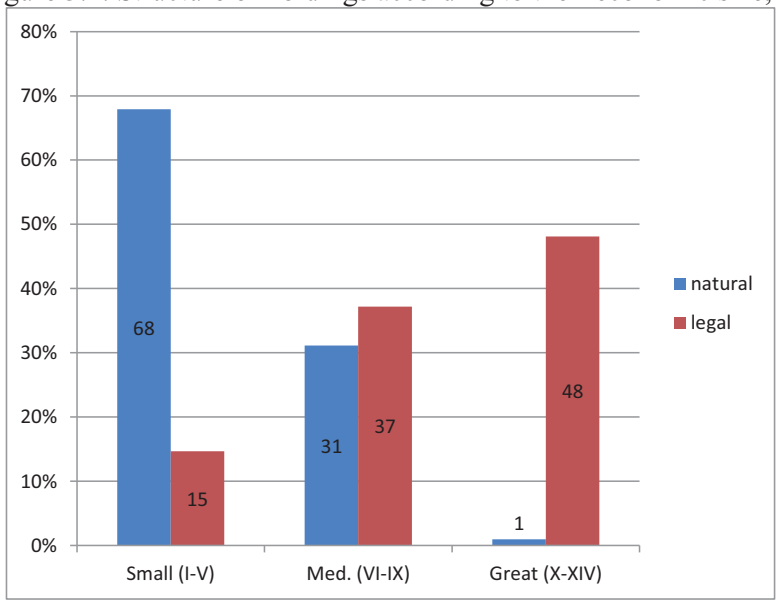
This text is supplemented by results of survey among the management of agricultural holdings focusing on their strategy of employment and remuneration – ÚZEI 2011.

3.3. Number of agricultural holdings in Czech agriculture and their structure

There are many more holdings of natural persons (about 20,000 in 2010) than enterprises of legal persons (about 3,000 in 2010). On the other hand, enterprises of legal persons are on average much greater as to the cultivated area (about 800 ha compared to 50 ha), labour (25 AWU compared to 1.5 AWU) and animal count. That means that managers of LP holdings on average manage many more workers than individual farmers. But large holdings of natural persons exist in CR, too. Management of such great farms (as to daily activities) resembles closely great enterprises of other legal forms. It is an important observation that many heads of small holdings are pensioners or have got other (main) source of earnings. The ratio AWU/persons is 0.72 for the group of farm holders (AGC 2010), indicating that some heads of farms of natural persons are not fully engaged in farm work.

A comprehensive indicator of farm size is the economic size. Results of AGC 10 show a clear picture based on distribution of holdings according to their economic size. There are altogether 14 size classes[47]. Holdings of natural persons (NP) are mostly small (classes I-V), on the other hand enterprises of legal persons (LP) are mostly great (X-XIV). The medium category (VI-IX) as a whole is almost completely balanced between both, but there differences within individual classes (holdings of NP dominate VI and VII, holdings of LP dominate VIII and IX).

Figure 3.2. Structure of holdings according to their economic size, %



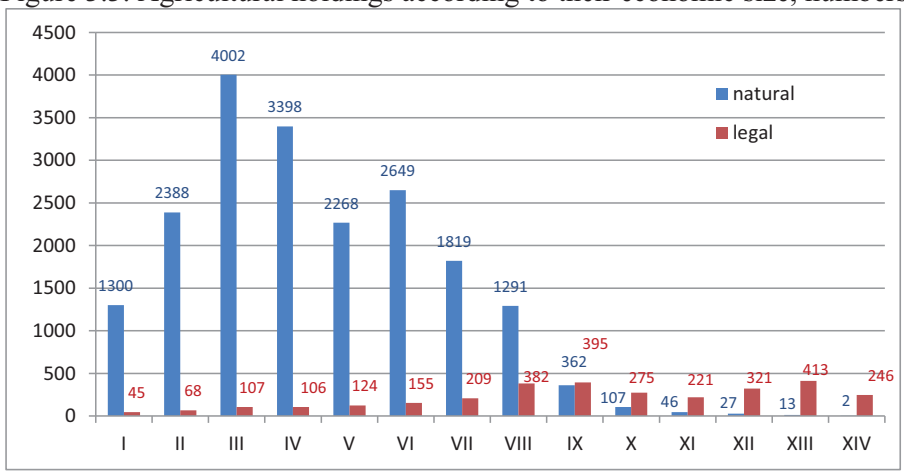
Source: Czech Statistical Office, Farm Structure Survey 2010 (AGC 2010).

In management of holdings, the number of other persons managed is an important indicator. Data from AGC 2010 give us a clear picture.

There are great differences between holdings of NP and holdings of LP. About one third of all managers in NP holdings are the only regularly employed person on farm, so they are "managing" only themselves. They can hardly be considered managers in the sense of leading workers or working teams. Most managers (about a half) in NP holdings lead another one or two people (1,3 on average). They are often family members, so their mutual relations are a combination of working and family ties.

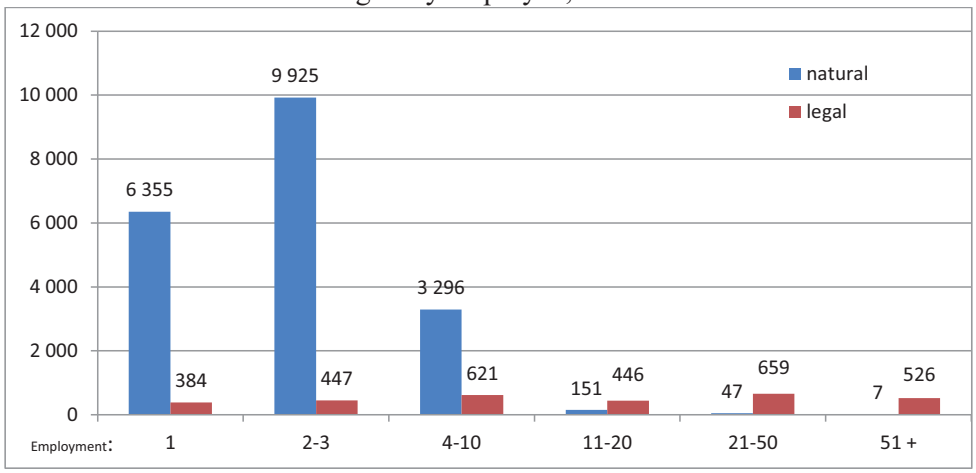
[47] Classes of economic size by standard output – in thousands EUR: I less than 2, II 2-4, III 4-8, IV 8-15, V 15-25, VI 25-50, VII 50-100, VIII 100-250, IX 250-500, X 500-750, XI 750-1000, XII 1000-1500, XIII 1500-3000, XIV at least 3000.

Figure 3.3. Agricultural holdings according to their economic size, numbers



Source: Czech Statistical Office, Farm Structure Survey 2010 (AGC 2010).

Figure 3.4. Distribution of holdings in the size groups – according to labour regularly employed, numbers

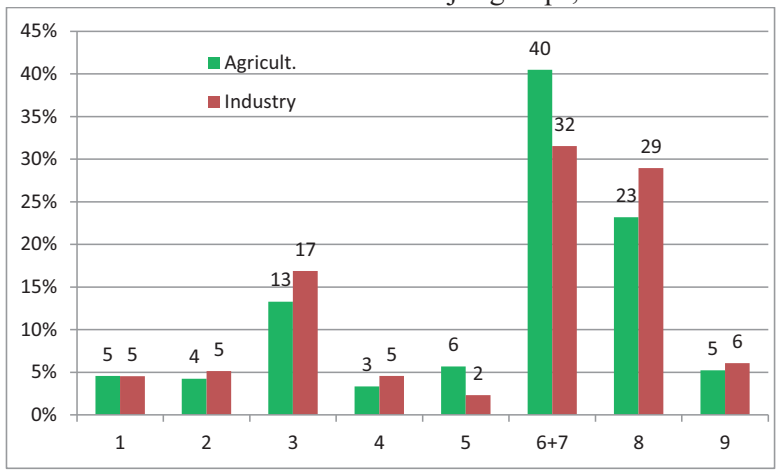


Source: Czech Statistical Office, Farm Structure Survey 2010 (AGC 2010)

This model is therefore more of a "family co-operative" than ordinary management. Furthermore, heads of family farms and of other small farms are not considered as managers in labour statistics – for instance in Labour Force Survey. Most typical Czech family farms are included in this category. The next category where the manager leads another 3-9 workers (3.9 on average) is quite substantial (about 17%). There are often other employees present in addition to family members. But some family farms can be included in this category, too. (Some farms from previous category do not fulfil characteristics of family farms

– for instance where the farm head leads 2 employees and no family members). Only 1% of farms fall into remaining 3 categories of largest farms. These do, however, employ 7.6% of labour regularly employed in holdings of NP.

Figure 3.5. Employees in agriculture and industry, share in CZ-ISCO major groups, %



1. Managers, 2. Professionals, 3. Technicians and associate professionals, 4. Clerical support workers, 5. Service and sales workers, 6. Skilled agricultural, forestry and fishery workers, 7. Craft and related trades workers, 8. Plant and machine operators, and assemblers, 9. Elementary occupations.
Source: Czech Statistical Office, Structure of Earnings Survey 2012.

Among LP holdings, the situation is quite the opposite. While holdings are distributed relatively uniformly into categories by number of regularly employed workers (lowest share in the smallest holdings category), 93.5% of all workers in holdings of LP are employed in the 3 categories of largest holdings (containing 53% of all holdings of LP). It is very important to state that especially in the greatest categories above 20 workers (21-50 and 51 and more) there are not only heads of holdings involved in managing workers, but further managers work on a second level of management (mostly zoo-technicians, agronomists etc.). Their count depends on production structure of enterprises (whether they still keep animals, grow special crops, process own products, provide services etc.) and other relevant factors.

Profession structures in agriculture and in industry are very similar. Especially the share of top-managers is the same, i.e. about 4.5% (Structure of Earnings Survey 2012, CZSO). Many technicians are on manager positions in both sectors, too. By no means all of them, naturally, but equally some persons of other profession groups can also lead working teams.

Despite these equal shares of top-managers and of other profession groups in both sectors, their absolute numbers differ significantly. There are only 4,000 top-managers in agriculture (including forestry and fishing), but 50,000 in industry.

A relevant aspect connected with the characteristics of farms and their managers is the ownership of agricultural land. About a half (48%) of cultivated land in holdings of NP is their own land – this represents about 26 ha per farm on average. Holdings of LP own only 13% of cultivated land, but its average size (107 ha per one holding) is much greater than in holdings of NP. Furthermore, we have to consider that part of the "hired" land in LP holdings is often owned by their managers and workers (and/or their families). It is a shame that there is no available information about the share of this land, nor about the average area owned by managers in LP holdings.

A general problem of Czech agriculture is an enormously fragmented ownership of land. This unfavourable situation is still worsening.

3.4. Age, education and gender of farm managers

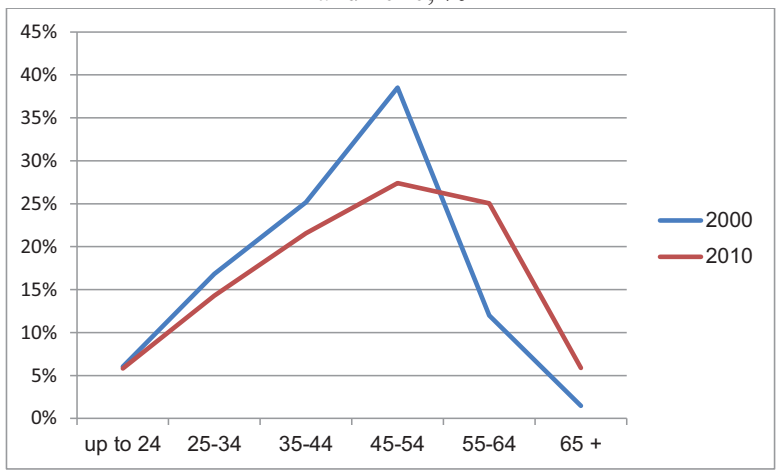
Age structure of managers

People working in agriculture are generally older than workers in other sectors of the Czech economy. The situation in agriculture in the period 2000-2010 worsened significantly (measured by labour regularly employed).

All the 3 youngest age categories (up to 24, 25-34 and 35-44) further weakened. The highest decrease (11.1 percentage points) was recorded in the middle (and traditionally strongest) category (45-54). On the other end of the spectrum both oldest categories (55-64 and 65+) increased by 13.1 and 4.4 percentage points, respectively.

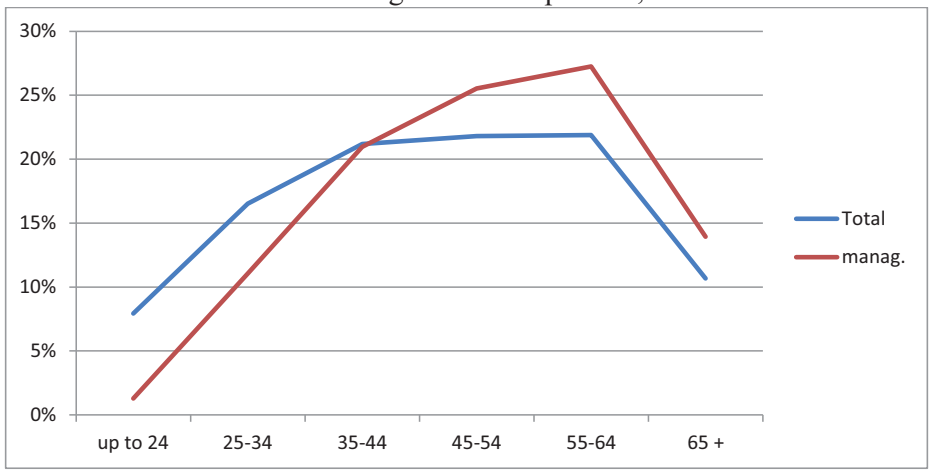
If people working in agriculture are mostly old, farm managers are even older than their working teams and collectives on average. This applies both for NP and LP holdings. Managers in holdings of NP are less represented (than the average in holdings of NP) in categories up to 24 and 25-34, about average in category 35-44 and overrepresented in the remaining older categories (mostly in 55-64 and 45-54).

Figure 3.6. Labour in agriculture (regularly employed) by age groups in 2000 and 2010, %



Source: Czech Statistical Office, Farm Structure Survey 2000, 2010.

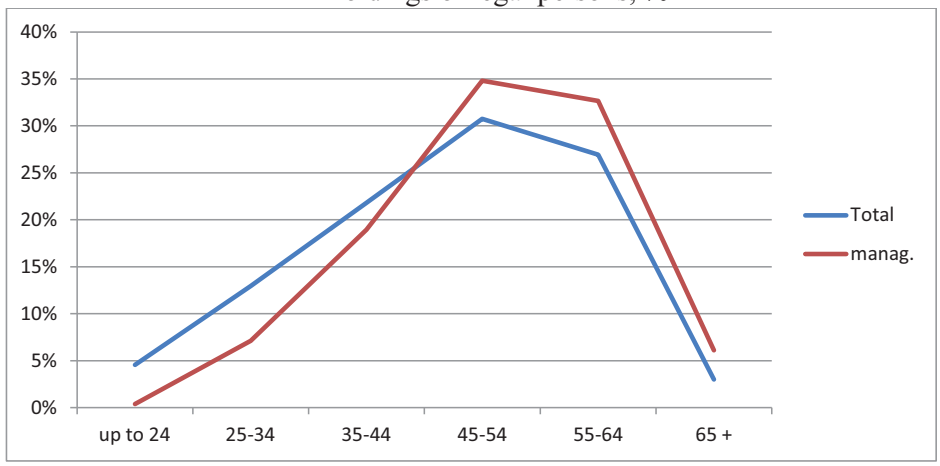
Figure 3.7. Age structure of managers and labour regularly employed in holdings of natural persons, %



Source: Czech Statistical Office, Farm Structure Survey 2010 (AGC 2010).

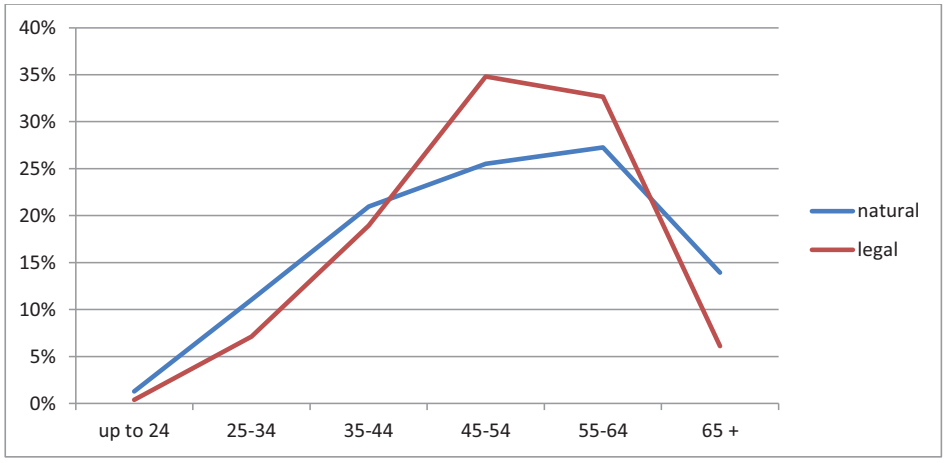
The situation in holdings of LP is not too different. Managers are less represented than other workers in the 3 youngest categories and are occupying more intensively than others the older rest. Most of them are 45-54 and 55-64 years old. Comparing the age structures of managers in both legal forms, no clear differences are emerging. Managers in holdings of NP reach higher share in younger categories, but on the other hand also in the oldest category.

Figure 3.8. Age structure of managers and labour regularly employed in holdings of legal persons, %



Source: Czech Statistical Office, Farm Structure Survey 2010 (AGC 2010).

Figure 3.9. Age structure of managers in holdings of legal and natural persons, %

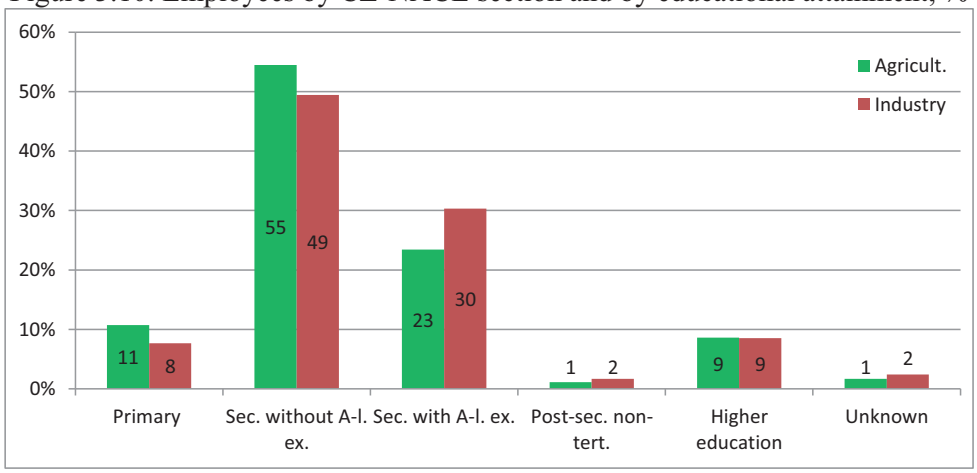


Source: Czech Statistical Office, Farm Structure Survey 2010 (AGC 2010).

Agricultural education of farm managers

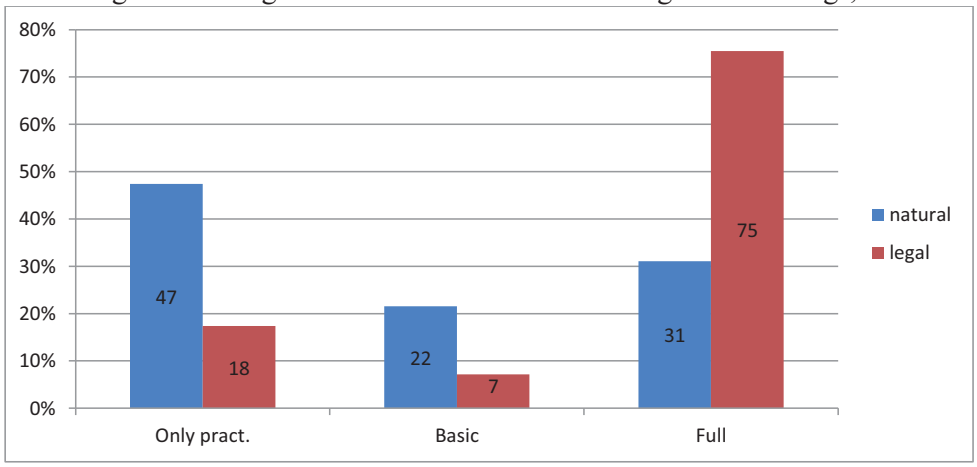
General level of education of workers in agriculture is comparable to that in industry nowadays (but there are greater differences when compared the economy as a whole because of specific branches such as education, human health etc.). Anyway, small differences still persist and situation in agriculture is slightly worse (mainly because of higher share of people with only basic education in agriculture).

Figure 3.10. Employees by CZ-NACE section and by educational attainment, %



Source: Czech Statistical Office, Structure of Earnings Survey 2012.

Figure 3.11. Agricultural education of the managers of holdings, %



Source: Czech Statistical Office, Farm Structure Survey 2010 (AGC 2010).

The survey AGC 2010 was focused specifically on agricultural education of farm managers. When managers in holdings of NP are compared to those in holdings of LP, the results are clear: the better situation is amongst managers in LP holdings. This means that they show higher share of persons with "full" agricultural education (i.e. secondary education completed with school-leaving examination or graduation at agricultural college, university or other institute of higher education in agriculture), lower share of those with only practical experience and lower share of basically educated persons (with completed agricultural apprenticeship). Also managers in holdings of LP much more often attended vocational train-

ings (50.6% compared to 21.4%). These facts do not mean that education of managers in holdings of NP is not sufficient overall. It is necessary to take into account that many such holdings are small, rather hobby-farms or croft-farms and formal education of a person operating such farm may be less needed.

At any rate, though, education is a key precondition for higher competitiveness of agriculture – in the frame of other sector in CR as well as in the frame of agriculture in the EU member states.

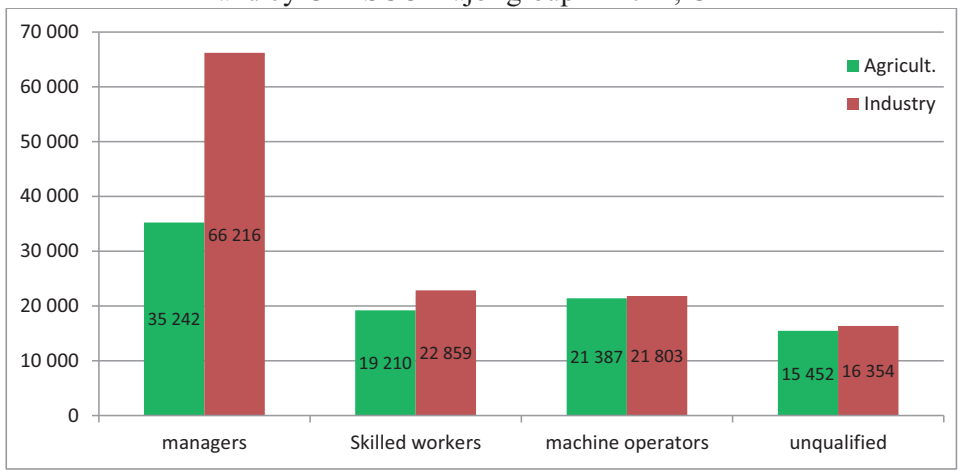
Gender structure of farm managers

About one third of labour force (defined as "regularly employed") in Czech agriculture are women (in holdings of NP as well as in holdings of LP). The share of women in all managers is much lower: 16.3% in holdings of NP and 9.3% in holdings of LP. This numerical advantage of women managing holdings of NP (as to their share among managers - compared to holdings of LP) can be deceptive – these farms are very often very small, as demonstrated above. The low share of women among managers is not any "speciality" of agriculture – similar situation is for instance in industry (share 9.5%) and other sectors. Women-managers in agriculture reach generally lower level of agricultural education than men-managers (in both legal forms).

Earnings of farm managers

There is a basic difference in how managers get monetary return from their work between holdings NP and LP. Generally, most people working in Czech agriculture are in position as employees and get wages/salaries (and work mostly in holdings of LP). Managers in holdings of NP (including their family members who work on farms and are not in positions of employees) do not get any wages for work on farm. Instead, they keep a part of their entrepreneurial profit for their needs (this money plays the same role as wages of employees). In the same situation are some managers (but only minority of them) of certain legal forms of holding of LP (this possibility exists for instance in Ltd). At any rate, most managers in holdings of LP are waged. So we can compare their income level to managers in other sectors. And this comparison is clear. Managers in agriculture are much less salaried than those in industry or in the national economy as average. This income disparity is much deeper than disparity of manually working persons in agriculture compared to industry. While managers in agriculture earn only 53% of earnings of their counterparts in industry, skilled workers earn 84% at this comparison and unqualified labour 95% (situation of machine operators is even better, but characteristics of such work differ significantly between agriculture and industry).

Figure 3.12. Average gross monthly earnings by branches and by CZ-ISCO major group in 2012, CZK



Source: Czech Statistical Office, Structure of Earnings Survey 2012.

Situation of farm managers is very unfavourable. They cannot reach such level of incomes as equally educated managers in other sectors and at the same time their education and high responsibility cannot be remunerated sufficiently compared to more simple work of other workers in their working collectives.

Managements of enterprises are aware of income disparity in agriculture and problems connected with this situation. Many holdings face difficulties when trying to get necessary quality and skilled workers. Anyway, their effort to increase wages is often limited by the economic and financial situation of their holdings (adopted from results of survey amongst managements of agricultural holdings focused on their strategy of employment and remuneration – ÚZEI 2011).

3.5. Characteristics of young farm managers entering the sector from agricultural universities

The following are results of empirical survey by ÚZEI amongst the graduates at Mendel University, Faculty of Agronomy in Brno in 2013.

Graduates who declared their decision to work in agricultural production show the following characteristics:

They come prevailingly from villages, i.e. municipalities of under 2,000 inhabitants. About half of them are women (but there is a question whether they will "survive" in agriculture for a longer time). Most of them (or their parents) own agricultural land. Parents of half of them are involved/working in agriculture (mostly one parent, in some cases both of them). As "proper patriots" (or at least local patriots) they are not too willing to move away from their place of living.

They studied mainly specializations which are directly connected to agricultural production – growing of crops, breeding of animals, feeding, and agricultural engineering. About half of them studied at agricultural schools (medium level of education in CR) before entering a university. This fact (as they declared explicitly) quite often influenced them to decide to go to agricultural university. The most frequent reason for their decision was their interest in animals (or agriculture generally). Some quotations are full of hope for better future of agriculture. Relation to their branch of study, to agriculture, or simply "animals" are also some other reasons for their decision to work in agriculture (some purely practical reasons are included, too). An optimism of some future managers is possible to see also here.

At the time of the research (just before the graduation ceremony) they were mostly actively looking for their job in agriculture, but almost half of them were already working or at least sure of their working positions (they named most often positions as zoo-technician, agronomist or businessperson). And what do they expect from their future job? Most of them want to apply their knowledge acquired during studies as well as to see direct results of their hard work (72% of them – fortunately the character of work in agriculture enables this fully). They are also looking for good working group, job certainty, possibility to work independently or to increase their expert knowledge – they mention these expectations more often than achievement of prestige position, possibility to lead other people, getting high income or other above-standard advantages. It means they are realistic and aware of limits of such goals in this sector.

They also clearly see barriers which prevent many of their fellow-students from looking for jobs in agriculture. The main clear factor is low wages/incomes. Other reasons include not enough job opportunities, unfavourable working conditions, uncertainty of agricultural branch, risks threatening agricultural production and socially unattractive working collectives. No further reasons are considered as important.

3.6. Summary

- Many job opportunities for workers and managers in agricultural sector and in sectors connected to input/output were lost due to unfavourable changes in size and structure of Czech agriculture (decline of livestock production, growing of vegetables, potatoes etc.).
- There are great differences among agricultural holdings in CR as to their economic size, number of workers, system of managing etc. While more than half of holdings of legal persons employed 11 and more workers, this share amongst holdings of natural persons reached only 1%.

- Workers in agriculture are (on average) older than those in industry and in national economy. Farm managers are older than other workers in agricultural holdings. Heads of agricultural holdings are mostly 45-64 years old.
- The higher age of farm managers also represents richer expert and social experiences, beside that they often prove sufficient agricultural education (especially in greater holdings).
- Share of women among farm managers is lower than the share of women among all workers in agriculture. This phenomenon is not exceptional in the frame of national economy – fully comparable situation is for instance in industry.
- Managers in agriculture are much less remunerated than those in industry or in the national economy on average and this income disparity is much deeper than disparity of manually working persons in agriculture compared to industry.
- Work of farm managers is demanding, requiring immediate decisions – especially in greater holdings with diversified agricultural and non-agricultural activities, with higher number of workers who live often in the same (or neighbouring) village. They so often meet each other after working time, their mutual relations can be interwoven or complicated in many ways.
- Despite low earnings and other serious problems in Czech agriculture, a certain part (albeit a relatively weak one) of graduates of agricultural universities are entering the sector. They mostly come from villages (up to 2,000 residents), have got land or/and parents working in agriculture and they often cite their interest in animals or agriculture generally.

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Chapter 4. Managing the agricultural production of Ukraine: social and economic characteristics of the management staff

4.1. Introduction

The development of rural areas is closely connected with agricultural production, which in many countries constitutes the lion's share of the overall production manufactured in rural areas. This relationship is even closer in Ukraine than in the majority of the EU countries, because of the strong functionality of the rural economy and the lack of essential conditions for active development of an alternative to agricultural types of business activity.

However, the effectiveness of manufactured agricultural production is characterised by the direct dependence on the managing processes which at the micro level are conducted by the owners and managers of economic entities. Therefore, their age, education, experience, financial capacity, propensity to change, mentality, initiative, in short – their socio-economic characteristics – play a key role in the effectiveness of the production in the agricultural sector.

Table 4.1. Basic forms of organisation of agricultural entities in Ukraine and their basic economic indicators in 2012.

Organisational forms in agriculture	Number (for 1 July 2013) of thousands of units	Gross production in fixed prices for 2010 million Euros*	Production per unit Euro*
Small family farms	5 113.5	10 464.7	2 046.5
Business family farms	40.7	1 340.3	32 932.2
Legal entities (without business family farms)	15.1	9 400.8	622 566.9

*Calculated according to the yearly average euro exchange rate of the National Bank of Ukraine in 2012.

Source: Ukraine statistical yearbook 2012, Kiev, State Statistics Service of Ukraine, 2013, p. 552.

The agricultural business entities in Ukraine can be divided into three basic forms: small family farms, business family farms and legal entities (Table 4.1). Their organisational differences have a significant impact on the productivity, however, farm management by some of them (especially by the small family

farms) is often a necessary means of survival rather than a business which could compete and be economically effective.

4.2. Family farms

According to the current Ukrainian legislation, small family farms – is a group of people (or one person) who live together in the same premises (or part thereof), together manage the farm, share the costs of maintenance of the premises, food, etc.[48]. Natural persons – business entities that are involved in agricultural production – are also included in this category. Although small family farms are minor producers, they play a significant role in the system of agricultural production of Ukraine, because ca. 50% of the country's agricultural products are produced by them.

In 2012 the number of small family farms in rural areas amounted to 5,216.1 thousand or one third (30.7%) from all of the family farms in Ukraine. Among them, 5,113.5 thousand (98%) of small family farms have land parcels and manage a household, which according to the definition means that they work in agriculture. The head of the family usually is also the manager of such a farm. Depending on the division of responsibilities and rights in the family, there are: patriarchal families (the head of the family – the father, he uses material resources and makes crucial decisions about his wife, children and all important issues concerning the functioning of the family); and matriarchal families where all managing functions are done by a woman. Families where it is impossible to differentiate the head of the family and the responsibilities are divided according to the situation, while the decisions are made together or by the person the most competent in a given field, also happen. In this case such a family is called an egalitarian family. As N. Ławirenko points out, the image of the appropriate division of power in the family, according to which the man should be the head of the family, is still prevailing in Ukraine. This is represented in the results of the survey of the PAN Institute of Sociology in Ukraine. According to them, in 2003 28% of the respondents indicated that the man should be the head of the family, and in 2007 this number increased to 30%[49].

According to the data from Table 4.2 based on the sociological research of the State Statistics Service of Ukraine, one third of the rural farms is managed by women below 55 and men over 60. Only 3.8% of the small family farms' managers are young people aged between 18 and 29, which is logical for Ukrainian family farms because of the following phenomena. First of all, ex-

[48] Methodology of calculating yearlong sum of manufactured plant production in all farm categories, State Statistics Services of Ukraine Act of 2 August 2010 #225, edited on 19 November 2010, http://ukrstat.org/uk/metod_polog/metod_doc/2005/225/metod_r.htm (date of entry 25 October 2013).

[49] N. Ławirinenko, *Relacje płci w rodzinie ukraińskiej*, Sociologia: teoria, metody, marketing, 2010, #1, pp. 138-162.

tended families living in one house are characteristic for the Ukrainian culture, so that the most experienced person is the head of the family. Secondly, many young people move to the cities in order to attain education, or find a job, which is why older people (midlife and older) who are used to the rural lifestyle and the conditions of such life, and people who lacked the possibility or those who did not want to pursue another profession are more common in the rural areas.

Table 4.2. Division of Ukrainian farms depending on the age and sex of the head of the family in 2012

Age and sex of the head of the family farm	Share in %
Woman aged between 18 and 29	1.9
Woman aged between 30 and 54	16.3
Woman aged between 55 and over	30.4
Man between the ages of 18 and 29	1.9
Man aged between 30 and 59	32.4
Man aged between 60 and over	17.1

Socio-demographic traits of small family farms in Ukraine in 2012 (according to the conditions of life in family farms survey).
Source: Kiev: State Statistics Service of Ukraine, 2012, p. 80.

During the last four years (2009-2012) the proportion between men and women was slightly fluctuating, however, it is important to remember that this division is subjective and depends on the responses of the respondents while carrying out the survey (Table 4.3).

The average age of the family farm's managers remains almost completely unchanged. It is important to note that mostly people in the retirement age are managing the farms, which is connected with the gradual decrease of population of the Ukrainian villages and the active, international labour migration of persons in the working age. This is due to the fact that the average age of rural population for 1 January 2012, amounted to 40.8 years (for men – 37.6 yrs., for women – 43.5 yrs.)[50].

In this context it is important to note that in 2011 the Parliament of Ukraine adopted an Act on measures of statutory guarantee of the retirement system reform. According to it the retirement age was raised, for women to the age of 60 and for men to the age of 62[51]. Up to this moment, women over 55 (with more than 20 years of job seniority) and men over 60 (with more than 20

[50] *Population of Ukraine in 2011 (demographic yearbook)*, Kiev: State Statistics Service of Ukraine, 2012, p. 444.
[51] *Ukraine Act on measures of statutory guarantee of the retirement system reform*, #3668-17, edited on 3 June 2013, http://zakon2.rada.gov.ua/laws/show/3668-17 (date of entry 22 November 2013).

years of job seniority)[52] had the right to retirement. This means, that the citizens of the country, including the inhabitants of the rural areas, must work longer in the conditions of shorter average life span, than in the countries of the EU. Currently, the expected average life span at birth, amounts to 71,92 years (65,98 years for men and 75,88 years for women), while the inhabitants of the rural areas live on average 2 years shorter.

Table 4.3. The division of the farms' managers in Ukraine depending on the age, sex and the size of the farm in 2009-2012 in %

Years	Sex		Including the households with agricultural land of						Average age of farm's managers in years	
	male	female	0.5 ha and less		0.51-1.00 ha		1.01 ha and more		men	women
			men	women	men	women	men	women		
2009	50.7	49.3	48.2	51.8	49.3	50.7	59.0	41.0	54	61
2010	49.6	50.4	46.8	53.2	48.6	51.4	57.4	42.6	55	62
2011	49.2	50.8	45.8	54.2	48.3	51.7	58.0	42.0	55	62
2012	50.1	49.9	48.0	52.0	48.6	51.4	56.5	43.5	55	61

Source: Key agricultural characteristics of family farms in rural areas in 2009 (statistical bulletin), Kiev: State Statistics Service of Ukraine, 2009, p.81; Key agricultural characteristics of family farms in rural areas in 2010 (statistical bulletin), Kiev: State Statistics Service of Ukraine, 2010, p.81; Key agricultural characteristics of family farms in rural areas in 2011 (statistical bulletin), Kiev: State Statistics Service of Ukraine, 2011, p.81; Key agricultural characteristics of family farms in rural areas in 2012 (statistical bulletin), Kiev: State Statistics Service of Ukraine, 2012, p. 81.

The data in Table 4.3. shows that along with the increase of the share of agricultural land, the percentage of the family farms managed by men also increased.

During the analysed period, women were in the majority the managers of farms up to 1 ha, while men mostly managed farms larger than 1 ha. This is explained by the fact that small farms pursue mainly minor, self-sufficiency farming, which is mostly managed by women handling all the responsibilities for managing all those processes. However, in the case of the larger farms, specialised in market-oriented production, men are more willing to actively participate in the management of the production and distribution, and as a result they take up more duties and responsibilities.

The managers of family farms mostly finished only high school or elementary school (Table 4.4).

[52] *Ukrainian Act on retirement insurance*, #1788-12, edited on 9 December 2012, http://zakon2.rada.gov.ua/laws/show/1788-12 (date of entry 21 November 2013).

Table 4.4. The level of education of managers of family farms in Ukraine according to the education level between 2009-2012, %

Levels of education	Managers of family farms - men				Managers of family farms - women			
	2009	2010	2011	2012	2009	2010	2011	2012
Full or basic higher education	10.6	12.0	10.3	9.1	8.3	9.0	8.2	9.2
Incomplete higher education	10.1	9.0	8.9	10.6	9.4	9.2	10.9	10.5
Full general secondary (11 grades) and basic general secondary education (9 grades)	68.5	70.4	72.7	72.8	57.9	57.2	58.9	60.4
Basic general education (4 grades)	10.2	8.1	7.6	6.9	21.3	22.1	19.5	17.6
With no basic education	0.5	0.4	0.4	0.6	2.4	1.9	2.1	2.1
Illiterate	0.1	0.1	0.1	0.0*	0.7	0.6	0.4	0.2

* The phenomenon did occur, but on a level lower than the rounded figures presented in the table.
Source: Agriculture of Ukraine 2009 (statistical summary), Kiev: State Statistics Committee of Ukraine, 2010, 375 p.; Agriculture of Ukraine 2010 (statistical summary), Kiev: State Statistics Service of Ukraine, 2011, 374 p.; Agriculture of Ukraine 2011 (statistical summary), Kiev: State Statistics Service of Ukraine, 2012, 386 p.; Agriculture of Ukraine 2012 (statistical summary), Kiev: State Statistics Service of Ukraine, 2013, 402 p.

Only around 10% of the managers have completed higher education, which is caused by the lack of perspectives after graduation and the return to the family village after obtaining the diploma. What is more, in the last four years the percentage of farm's managers with higher education decreased among men. However, among women, only a slight increase was noted in the analysed period. By contrast, the percentage of women with elementary education is significantly higher than among men.

It is important to note that the percentage of illiterate family farm's managers is very low, which is one the few positive remnants of the socialism system, which appointed literacy of the population as a main development priority. However, the percentage of illiterate women – family farm's managers is significantly higher than the value of this index in the case of men.

From the analysis viewpoint on the quality of family farm management, it is important to establish income and total funds, which enable a given family farm's development. Table 4.5. indicates that 18,5% of the total funds of agricultural holdings originate from agricultural activities. In terms of size, after salary and pension, it is the third largest source of income for a family budget of family farms.

Table 4.5. Income structure of family farms in Ukraine in 2012

#	Sources of income	On average, per month, per family farm:	
		EUR*	%
1.1	Salary	136.16	37.4
1.2	Pension payments	91.08	25.1
1.3	Income from self-employment and entrepreneurship	11.35	3.1
1.4	Income from the sale of agricultural products	32.51	8.9
1.5	Income from the sale of articles of personal and domestic use, and immovable property	0.47	0.2
1.6	Property income (dividends on shares and other securities, interest on deposits, rental income etc.)	7.49	2.1
1.7	Scholarships	1.47	0.4
1.8	Deductions, grants and compensations	13.04	3.6
1.9	Financial aid from relatives and other persons	12.60	3.5
1.10	Alimony	0.49	0.1
1.11	Other monetary income	3.95	1.1
1.12	**Total monetary income (p. 1.1 + p. 1.2 + p. 1.3 + p. 1.4 + p. 1.5 + p. 1.6 + p. 1.7 + p. 1.8 + p. 1.9 + p. 1.10 + 1.11)**	**310.61**	**85.5**
2.1	The value of a consumed production, gained from the activity of one's own family farm	34.99	9.6
2.2	Deductions and non-monetary benefits for payments for housing and utilities, electricity and fuel, health services, transport, tourism-related services, trips to resorts, etc.	2.37	0.7
2.3	Financial aid from relatives and food from other persons	5.31	1.5
2.4	**Total non-monetary income (p. 2.1 + p. 2.2 + p. 2.3)**	**42.66**	**11.8**
3	**Total monetary and non-monetary income (p. 1.12+2.4)**	**353.27**	97.3
4	Use of savings, loans, debts repaid to the family farm	9.89	2.7
5	**Total resources (p. 3 + p. 4)**	**363.16**	**100.0**

* Calculated according to the average annual euro exchange rate of the National Bank of Ukraine in 2012.

Source: Expenses and resources of family farms in Ukraine in 2012 (according to the survey data on the living conditions of the Ukrainian family farms), Part 1, Kiev: State Statistics Service of Ukraine, 2013, 377 p.

The expenditure of family farms are another important economic indicator of the ability to manage financial resources (Table 4.6). Consumption takes on a dominant position among expenses, that is for instance the purchasing of food and non-alcoholic beverages. Whereas expenditure on education, culture and recreation is low.

Table 4.6. Expenditure structure of family farms in Ukraine in 2012

#	Items of expenditure	On average, per month, per family farm:	
		EUR*	%
1	**Consumers' expenditure** including:	**269.56**	**88.0**
1.1	Food and non-alcoholic beverages	165.38	53.9
1.2	Alcoholic beverages and tobacco	9.62	3.2
1.3	Clothing and footwear	19.61	6.4
1.4	Flats, water, electricity, gas and other fuels	23.86	7.8
1.5	Home appliances, household electronic equipments and house maintenance	6.53	2.1
1.6	Health care	11.00	3.6
1.7	Transport	11.66	3.8
1.8	Communication	6.22	2.0
1.9	Recreation and culture	3.38	1.1
1.10	Education	2.67	0.9
1.11	Hotels and restaurants	3.34	1.1
1.12	Other products and services	6.29	2.1
2	**Non-consumers' expenditure**	**36.83**	**12.0**
3	**Total expenditure**	**306.39**	**100.0**

* Calculated according to the average annual euro exchange rate of the National Bank of Ukraine in 2012.

Source: Expenses and resources of family farms in Ukraine in 2012 (according to the survey data on the living conditions of the Ukrainian family farms), Part 1, Kiev: State Statistics Service of Ukraine, 2013, 377 p.

4.3. Business family farms

Business family farm is a form of an enterprise with legal personality, owned by persons who wish to undertake agricultural production, processing and other activities, aiming at obtaining profits from agricultural land used for running a business family farm[53]. According to official Ukrainian statistics, performance of business family farms is included in the indices for agricultural enterprises, taking into account their ownership form.

Business family farms in Ukraine are run mainly by men (more than 80.0%). The percentage of female managers of business family farms is considerably lower (19.3 % in 2012), but there is a tendency to increase their participation (table 4.7). The agricultural activity profitability rate does not show significant differences between farms run by men and by women. In 2012 the profitability of agricultural production of agricultural farms, which are run by women amounted to 24.9%, while for farms run by men – 28.3%.

[53] *Ukrainian Act on business family farms*, #973-15, ed. on 09.12.2012, http://zakon4.rada.gov.ua/laws/show/973-15 (accessed on 15.11.2013).

Table 4.7. Main characteristics of business family farms in Ukraine

Index	Years		
	2010	2011	2012
All business family farms, units	***41524***	***40965***	***40676***
including farms run by:			
women, %	18.4	18.6	19.3
men, %	81.6	81.4	80.7
Area of agricultural land used, thousand ha	***4313.5***	***4369.1***	***4389.4***
including farms run by:			
women, %	15.4	15.3	15.7
men, %	84.6	84.7	84.3
Number of employees, persons	***57662***	***59596***	***59192***
including farms run by:			
women, persons:	8606	8608	9369
men, persons:	49056	50988	49823
Net income from the sale of agricultural products and services, EUR million*	***990.25***	***1211.86***	***1672.8***
including plant production, EUR million*	921.14	1118.41	1568.8
animal production, EUR million*	69.11	93.45	104.0
including farms run by:			
women, EUR million*	132.68	164.75	238.6
men, EUR million*	857.57	1047.11	1434.2
Profitability of agricultural production, %	***32.4***	***33.4***	***27.8***
including plant production, %	35.4	36.8	30.0
animal production, %	1.8	2.9	1.3
including farms run by:			
women, %	29.8	30.2	24.9
men, %	32.8	33.9	28.3

* Calculated on the basis of average annual EUR exchange rate of the Ukrainian National Bank in 2010, 2011 and 2012.

Source: Ukraine's agriculture in 2010 (statistical survey), Kiev: Ukrainian State Statistical Survey, 2011, pp. 374; Ukraine's agriculture in 2011 (statistical survey), Kiev: Ukrainian State Statistical Survey, 2012, pp. 386;Ukraine's agriculture in 2012 (statistical survey), Kiev: Ukrainian State Statistical Survey, 2013, p. 402.

At the same time, there are considerable differences in the distribution of men and women in business family farms' managerial positions, in the size of the economic entity or its net income and number of employees. Male managers prevail considerably in large agricultural holdings with better market position.

The nature of business family farms has been confirmed in relevant legislation in 2003 in order to improve the efficiency of agriculture and to stimulate private farms to switch into a new level of development. Despite the fact that business family farms show quite good results, their development is not satisfactory from the point of view of the policy aimed at improving the sector's com-

petitiveness. This results mainly from the ineffective state support policy oriented at farmers, as well as regarding innovative and investment activities, without which pro-efficiency breakthrough in technologies and scale of agricultural production cannot take place. Moreover, the fact that a business family farm is a legal person constitutes a considerable barrier in Ukraine due to the pressure exercised by state bodies, including the tax office and other entities controlling economic activity (there are more than 40 such institutions in Ukraine), which leads to serious barriers in running agricultural activity.

Interestingly enough, business family farms record lower levels of efficiency indicators than general indicators for the whole agricultural sector. Thus, efficiency of cereals and legumes in business family farms in 2012 amounted to 24.0 dt per ha, sunflowers – 15.5 dt/ha, sugar beets – 387.2 dt/ha. At the same time, generally in the whole agricultural sector in Ukraine, the efficiency of cereals and legumes amounted to 31.2 dt per ha, sunflowers – 16.5 dt/ha, sugar beets – 411 dt/ha[54].

4.4. Agricultural enterprises

These are economic entities with legal personality or a selected unit of a legal person, which undertake systematic activities aimed at achieving income (profit) from agricultural activity.

Managers of agricultural enterprises are in most cases external managers employed by the enterprise or coming from the management group of former State Agricultural Farms or Agricultural Production Cooperatives.

In accordance with the results of the survey[55] conducted in the Lviv Oblast, managers of agricultural enterprises may be grouped according to the years of experience at managerial positions as follows: up to one year of experience – 6%, 1-3 years – 14%, 3-5 years – 12%, 5-10 years – 31%, more than 10 years of experience – 37%. The whole period of experience in agriculture among the managers of agricultural enterprises is 20 years for 47.1% of respondents, and at the current managerial position they have worked at the time of the survey for 8 years. Thus, statistically speaking, the group of managers of agricultural enterprises of the Lviv Oblast comprises men (88.9% of respondents), usually aged 36-50 years (46.7%), originating from rural areas (91.2%), but currently only 84% of them still live in villages, which is more and more characteristic of the managerial staff. The survey also showed that most managers have traditional, conservative approach. This is reflected in the opinions of most respondents, who say that they prefer to have a lower, but steady income, the role of the state is not the equalisation of income, and the state policy plays the most important

[54] *Plant production*, Ukrainian State Statistical Survey, http://ukrstat.gov.ua/operativ/ operativ2006/sg/sg_rik/sg_u/rosl_u.html (accessed on 25.10.2013).

[55] A. Lydniuk, J. Janyshyn, *Osobliwości socjalno-psychologiczne działalności menadżerów przedsiębiorstw rolniczych*, *Ekonomika APK*, 2010, #5, pp. 110-114.

role in solving the problems and barriers for the development of the agricultural sector[56].

At the request of the USAID Project "AgroInvest" the Social Expertise Centre of the Sociology Institute of the National Academy of Sciences of Ukraine, a survey was conducted in 2012 which covered 13 out of 25 regions of Ukraine, including: Żytomyrskiy, Czernigiwskiy, Iwano-Frankiwskiy, Ternopilskiy, Czerniweckiy, Wynnyckiy, Połtawskiy, Dnipropetrowskiy, Doneckiy, Hersonskiy, Odeskiy, Mykołajiwskiy, and Autonomous Republic of Crimea. In total, interviews were conducted with 5,164 respondents, among which 3,891 were owners of agricultural land, and 1,273 – managers of business family farms and agricultural enterprises.

The results of the survey showed that most owners of agricultural land were seniors: 79% of agricultural land owners aged 50 years or more (in this group the owner is usually also the manager of the farm), and 43% persons aged 60 years or more.

The average age of the managers of small and medium-sized agricultural enterprises was 48,7 years – youngest managers were 20 years old, and the oldest – 85. More than 65% of the managers of business family farms and agricultural enterprises were between 40 and 60 years of age.

Table 4.8. Trainings of managers of agricultural enterprises in Ukraine in 2009-2012

Type of economic activity	Years					
	2010		2011		2012	
	Total trained thousand people	Percentage of managers, %	Total trained thousand people	Percentage of managers, %	Total trained thousand people	Percentage of managers, %
Agriculture, hunting and related services	5.3	13.0	6.0	12.6	6.1	12.3

Source:Ukraine's employment in 2012 (statistical survey), Kiev: Ukrainian State Statistical Survey, 2013, pp. 321.; Ukraine's employment in 2011 (statistical survey), Kiev: Ukrainian State Statistical Survey, 2012, pp. 354.; Ukraine's employment in 2010 (statistical survey), Kiev: Ukrainian State Statistical Survey, 2011, p. 324.

Owners of agricultural land were in most cases high-school graduates, every seventh of them had higher education. As regards managers of agricultural enterprises, most had higher education, usually non-agricultural, but rather economic or technical degree. What is more, managers of small and medium-sized agricultural enterprises were in most cases male (81.9%)[57].

[56] A. Lydniuk, J. Janyshyn, *Osobliwości socjalno-psychologiczne działalności menadżerów przedsiębiorstw rolniczych*, Ekonomika APK, 2010, #5, pp. 110-114.

[57] *How do owners of agricultural land and farmers treat the land use reform?,* Results of the sociological survey presented on 25 June 2013,ttp://www.agroinvest.org.ua/files/ Resources/BaselineSurvey_July_2013_ukr_1.pdf (accessed on 22.11.2013).

Managers of agricultural enterprises usually raise their competence by participating in trainings organised by educational and scientific institutions and other agricultural or managerial organisations, which is reflected in the respective national statistics (Table 4.8). The percentage of managers raising their qualifications over recent years remains relatively stable.

Agricultural enterprises are the largest – in terms of the volume of production – economic entities among all those which were subject to analysis. Most often such enterprises are run as companies (limited liability companies, joint-stock companies etc.), therefore the responsibility and pressure put on the managers in terms of the effects of the operation of the enterprise is much more profound, especially due to the expectations of other members or investors of the enterprise. That is why the managers focus more on the financial results and efficiency of the enterprise management. Requirements concerning education of persons applying for managerial positions are thus respectively higher, as are the requirements concerning their experience in management.

Ukrainian higher education institutions prepare large numbers of future employees and managers for the agricultural sector. The proportions of men and women students in I-II level educational institutions (junior specialist and BA) in agriculture, forestry, fisheries and food processing (these sectors are presented jointly in Ukrainian statistics) in 2012-2013 were as follows: 70.6% – men and 29.4% – women. At the same time, students of III-IV level of education (MA/MSc and specialist) in this department were distributed in the same academic year as follows: 58.9% – men and 41.1% – women[58].

4.3. Summary

The potential of managerial staff in the agricultural sector in Ukraine is relatively high due to the rich experience of specialists in the functioning both at the times of system transformations and market economy. The conditions of agricultural operations in Ukraine still cannot be deemed as fully market-oriented, but many aspects of economic life indicate that the managerial staff is ready to function in the global economic system. Values that are quite traditional for the Ukrainian patriarchal society are gradually transforming into a gender equality-based system, but there are still some psychological barriers in this regard – which are also present in many EU countries.

It needs to be stressed that economic growth is a process, and thus you cannot refer to the end of it – only the stage of development may be diagnosed. The Ukrainian agricultural sector is developing, but further transformations are still necessary – changes that will accelerate the process of the creation of a competitive agricultural industry. Managerial staff will play the key role in this process. It is important here to make use of the European experience in manag-

[58] *Men and women in Ukraine (statistical survey)*, Kiev: Ukrainian State Statistical Survey, 2013, pp. 120.

ing rural areas and agriculture. Major part of the managerial staff of Ukrainian agricultural farms does not have sufficient information regarding European standards for agricultural management due to the absence of an appropriate information system, as well as due to the persistent technological and mental barriers between Ukrainian and EU agriculture. Elimination of these barriers remains a necessary element of pro-efficiency transformations in agriculture, especially taking into account the global demand for high quality food and enormous production potential of Ukrainian agricultural sector in this regard.

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Chapter 5. Analysis of the socio-demographic profile of the farm managers in Bulgaria

5.1. Overview of Bulgarian agriculture sector

Bulgarian agriculture develops under the conditions of growing competition of the national and Common European market. Bulgaria has traditions in the food production and the sustainable development of the agrarian sector depends on the further increase of the production competitiveness. The favorable age structure, the good level of professional training and base ground are important conditions for the production modernizing and the innovations introduction which are at the root of its competitiveness.

The higher human potential level would improve the farms adaptation to the natural conditions changes, the institutional and market environment. In the conditions of growing competition on the Common European Market, the improved social demographic profile of the farm managers leads to improved skills and capacity for finding of new business opportunities and application of innovative production practices, introducing the European standards and requirements. Referring to this, the aim of the survey is through analyzing of the social demographic profile of the farm managers in Bulgaria to draw up the trends and bring out the problems.

Figure 5.1. Statistical regions in Bulgaria

Source: National Statistics Institute.

The research of the social demographic profile of the farm managers in Bulgaria includes analysis by gender, age and education. The study is carried out at national and regional level. The regional level analysis covers the six statistical regions of the country – Northwest (NW), North Central (NC), Northeast (NE), Southeast (SE), South Central (SC) and Southwest (SW). For the analysis official statistical information is used from the carried out counting of the agricultural farms in Bulgaria in 2003 and 2010.

The comparison of data from the counting of the farms in 2003 and 2010 shows that the number of managers during 2003 exceeded 665.5 thousand, while in 2010 their number reached 370.2 thousand. The total decrease of the number of managers was due to the reduction of the number of farms during the analyzed period.

The distribution of the agricultural farms is not even across the territory of the country. The South Central region is outlined with highest number of farms, as for the analyzed period the difference deepens. In 2010, near 30% of the farms are concentrated in the SC Region. The next place belongs to the SW Region – with a share of almost 18%.

Table 5.1. Distribution of the number of farm managers by statistical regions

Statistical Region	2003		2010	
	Number	%	Number	%
Northwest	119 650	18.0	51 290	13.8
North Central	88 305	13.3	43 281	11.7
Northeast	79 134	11.9	43 746	11.8
Southeast	100 451	15.1	56 945	15.4
South Central	165 129	24.8	109 450	29.6
Southwest	112 879	16.9	65 510	17.7
Total for the country	665 548	100.0	370 222	100.0

Source: Results from the counting of the agricultural farms in Bulgaria in 2003 and 2010, MAF, Agro statistics.

The predominant share of the managers is only and basically occupied in the farms. The results from the comparison of the number of these managers, (Table 5.1) with the quantity of the put in by them labor (correspondingly in 2003 – 342 332 Annual Working Units (AWU) and in 2010 – 164 426 AWU indicate that due to the small size of part of the farms, cannot achieve a full working day employment.

The number of farms, not generating sufficient incomes is considerable, which imposes the provision of additional employment for some of the managers. In 2003 20% of the farm owners, being managers of these farms meanwhile, were practicing another non-agricultural activity in order to receive additional incomes. Their share varies depending on the economic size of the farm – from

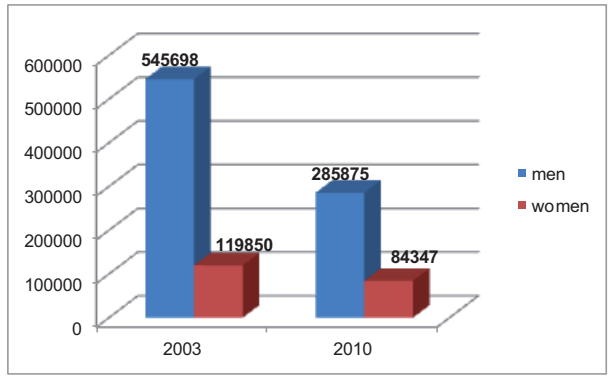
8% for farms sized over 100 Economic Units to over 23% for farms of size under 1 ESU (according to data of MAF). During 2010 has been observed an increase of the share of farm managers with additional employment with almost 27%.

Table 5.2. Total number and distribution of the farm managers by significance of activity on farms

Year	Total number of managers	Significance of the activity on the farm			
		Only or main employment		Additional employment	
		Number	%	Number	%
2003	665 548	516 164	77.5	149 384	22.5
2010	370 222	271 658	73.4	98 564	26.6

Source: Results from the counting of the agricultural farms in Bulgaria in 2003 and 2010, MAF, Agro Statistics.

Figure 5.2. Distribution of the farm managers by gender



Source: Results from the counting of the agricultural farms in Bulgaria in 2003 and 2010, MAF, Agro Statistics.

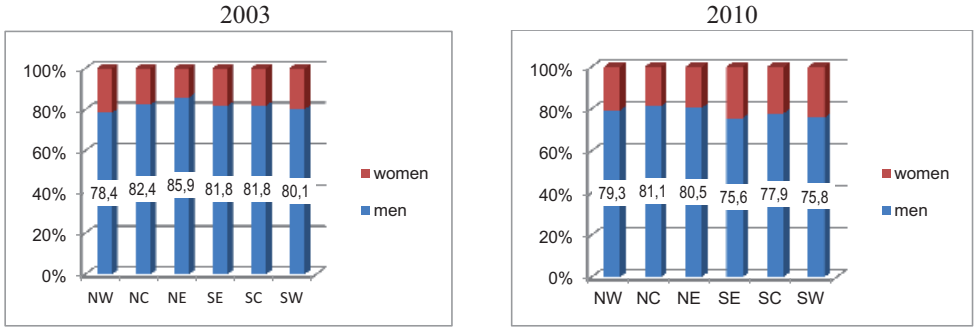
At national level, the data of farm managers by gender shows considerable superiority of men over women, preserving the trend during the whole analyzed period. The comparative analysis shows a notable decrease of the number of managers – men, towards the number of managers – women, as a result – a slight improvement of the ratio between genders is observed at the end of the analyzed period. The determined ratio 1:4.5 women to men in 2003 changed to 1:3.4 in 2010.

5.2. Regional-level benchmarking by age, gender and education

The benchmarking at regional level does not show considerable differences by statistical regions in the country. In comparision to the average relative share of 81.9% of the managers-men for the country in 2003, a slightly lower

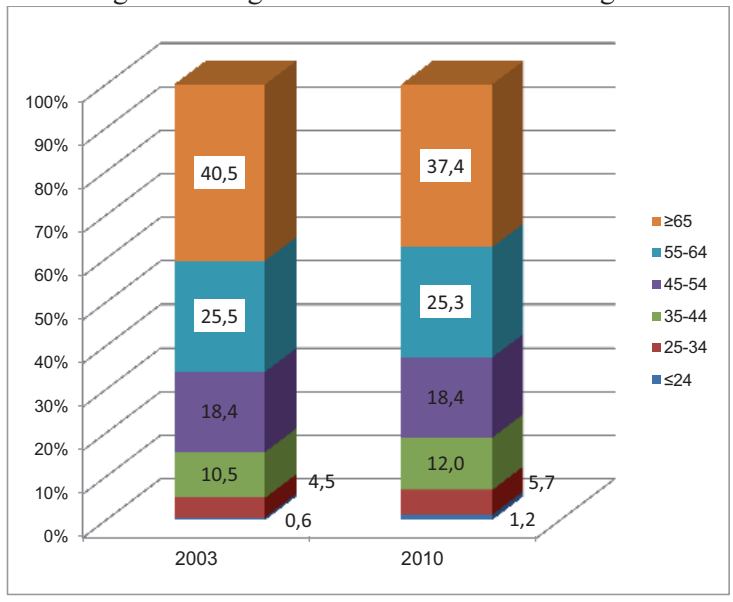
relative share is marked only in the Southwest Region. The rest of the regions have the same or higher values of this index.

Figure 5.3. Distribution of the farm managers by gender by statistical regions



Source: Results from the counting of the agricultural farms in Bulgaria in 2003 and 2010, MAF, Agro Statistics.

Figure 5.4. Age structure of the farm managers



Source: Results from the counting of the agricultural farms in Bulgaria in 2003 and 2010, MAF, Agro Statistics and own calculations.

During 2010, only two of the regions – the Southeast and the Southwest have a lower relative share of the managers – men than the average level for the country – 77.2%. In dynamics, with the exception of the Southwest Region is notable a slight trend of increase of the number of the farm managers – women.

The data analysis shows unfavorable age structure – the number and share of the farm managers in retirement age remains predominant. The managers share over 55 years of age in 2003 is 66% and although the trend of decrease in 2010 remains high – almost 63%.

The number and share of the young farm managers is very low. For example, in 2003 the share of managers up to 24 years of age was only 0.6 % and the aged from 25 to 34 years – 4.5%, i.e. the total share of young farm managers up to 35 years of age was 5.1%. For comparison this share in the EU-25 was 18%. On the one hand the young farmers are the guarantee for the future of agriculture. They are the carriers of new skills and professional qualifications in the sector. The higher educational level of the young farmers will lead to an easier adaptation to the future changes in the agricultural sector, and the finding of new opportunities for the achievement of a higher productivity and compatibility. On the other hand, the lack of initial capital and management skills are considerable thresholds for the mass entering of young people in the agricultural sector and for the development of vital agricultural farms.

After Bulgaria's accession to the EU in 2007, main contribution for the entering of young and educated people in the agriculture has the support under the Measure 112 of the PDRR – Establishment of young farmers' farms.

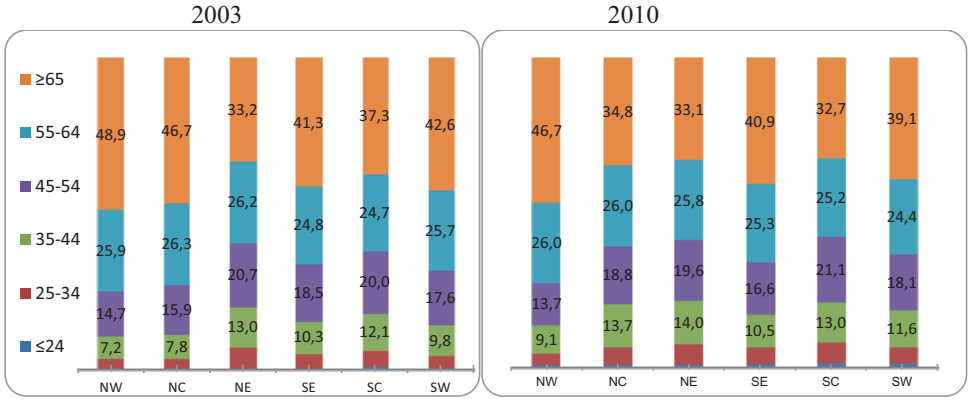
Positive moment is that support is given not only for the establishment of a new farm, but for the obtaining of an existing one, helping its structural adaptation and modernizing. Due to the high grade of interest to the measure, the financial resource is absorbed and the indicatively laid down index "Number of supported beneficiaries" has been exceeded. According to data of State Fund Agriculture at a target number of farms for support 4 096 in the PDRR have been signed 5 375 contracts under the Measure 112 to 01.06.2013.

Main effect under the measure is the improvement of the age structure of the farm managers, which raises the quality of the human potential. Particular expression of the effect of the Measure is the growth of the young farmers share with over 2% and the decrease of the number of managers in pre-retirement and retirement age with more than 3%. Despite the positive trend, the managers' age structure remains unfavorable. This circumstance implies the continuation of the support for young farmers during the new Programming Period 2014- 2020 by the CAP of the EU. Under the new scheme of distribution of the package of the direct payments, of Bulgarian interest is to apply the highest allowable amount (2%) of payments for additional support of the young farmers (up to 40 years of age).

The regional level trends by statistical regions closely follow the national level ones. The benchmarking shows that in 2003, the highest share of the young farm managers – up to 35 years of age belongs to the Northeast and South Central Regions, correspondingly 6,9% and 5,9%. During the analyzed period for all the regions is reported an increase in the share of the young managers. During 2010, the above mentioned two regions preserved their position of a highest lev-

el of the young farm managers, correspondingly for the Northeast Region – 7.5% and for the South Central – 8%.

Figure 5.5. Age structure of the farm managers by statistical regions



Source: Results from the counting of the agricultural farms in Bulgaria in 2003 and 2010, MAF, Agro Statistics and own calculations.

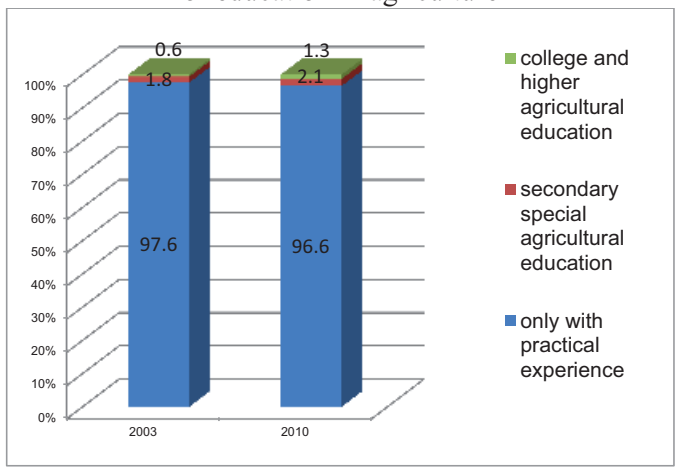
On the other pole, at an average relative share of managers at a retirement age – of 40.5% in 2003, for the country, only two of the regions have a lower relative share: the Northeast – 33.2% and the South Central – 37.3%. In dynamics for all the regions is notable a trend toward decrease of the relative share of the managers in a retirement age. In 2010 there are three regions with a lower relative share than the average for the country – 37.4%: North Central – 34.8%, Northeast – with 33% and South Central – 32.7%.

For the whole analyzed period, with a most unfavorable age structure is outlined the Northwest Region, where the young manager's share remains lower – 4.5% in 2010 and the share of managers in pre-retirement and retirement age – highest, almost 73% for 2010.

The analysis of the educational level of the farm managers draws an extremely unfavorable situation:

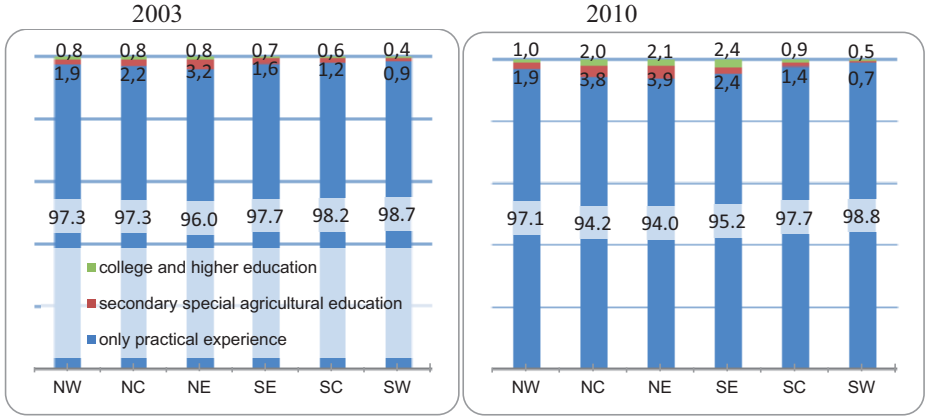
- the majority of the farm managers have not specialized skills in the branch of agriculture and the economic management;
- low educational level of the farm managers.

Figure 5.6. Distribution of the farm managers by level of education in agriculture



Source: Results from the counting of the agricultural farms in Bulgaria in 2003 and 2010, MAF, Agro Statistics and own calculations.

Figure 5.7. Distribution of farm managers by level of education, by statistical regions



Source: Results from the counting of the agricultural farms in Bulgaria in 2003 and 2010, MAF, Agro Statistics and own calculations.

In 2003, 97.6% and in 2010 – 96.6% of the farm managers were only with practical experience preparation. Only 2.4% of the managers in 2003 and 3.4% in 2010 had specialized education in the field of agriculture – secondary, college and university degree and postgraduate qualification.

In dynamics, the change in the educational level of the farm managers is minimal – of about 1%. This indicates that the problems of the lack of adequate

level of the economic and technical knowledge of the farm managers remain unsolved. The situation imposes the necessity of continuing the function of the system of continuous vocational training and improving the quality and range of the System Agricultural Advisory during the new programming period of the action of the CAP of the EU.

The benchmarking of the education level of the farm managers by statistical regions does not show significant fluctuations. All the regions are characterized with extremely unfavorable structure of education level of the farm managers. For three of the regions (North Central, Northeast and South Central) is notable a positive trend of a more significant improvement – in the range of 2-3% of the education structure of the farm managers in direction of a decrease of the share of the managers with practical experience only, and an increase of the share with specialized agricultural education. During 2010, the mentioned three regions are with comparably best structure of managers by level of education. At the other pole, with extremely poor structure remains the Southwest Region where 99% of the managers are with only practical experience.

5.3. Summary

On the base of the carried out analysis can be drawn the following general conclusions:

- The structure of the farm managers by gender, age and education level is extremely unfavorable. Main problems are the aging, the low education level and the lack of specialized training and not sufficient women participation in the management;
- The drawn positive trends do not lead to considerable changes in the social demographic characteristics and structure of the managers in the country;
- The condition and the tendencies by statistical regions follow these at national level. A comparably better structure have the farm managers in the South Central and the Northeast Regions;
- Under the conditions of the CAP of the EU during the new programing period (2014-2020), becomes necessary the wide application of the specific mechanisms of support of the human resources quality improvement – employment promotion of young people in agriculture, increase of the knowledge and skills of the managers which will strengthen the sustainability and efficiency of the agricultural farms.

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Chapter 6. Socio-economic characteristics of farm managers in Romania and their implications upon farm performance

6.1. Introduction

The socio-economic profile of the manager in Romania' agriculture, after 20 years of transition to the market economy, can be synthetically described as follows:

- old-aged man (around the legal retirement age – 65 years old);
- owner of about 2/3 of the agricultural area that he operates;
- with a farm with a small-sized agricultural area (3,6 ha utilized agricultural area – UAA) that he uses on a rather extensive basis;
- with a small livestock density on the agricultural area unit, but with a great diversity of animal categories, specific to the needs of his own household;
- who utilizes a large labour input in the production activities;
- obtains low economic outputs, characteristic for the subsistence and semi-subsistence agriculture.

In addition to this general picture, it is necessary to highlight the main socio-economic tendencies of farm management in the Romanian agriculture in recent years; these tendencies reveal structural changes that will impact the future agrarian structure of Romania. Thus, in the recent years, we experienced the following:

- acceleration of the transfer of land resource operation to younger managers (under 45 year old);
- shrinking livestock herds;
- diminution of the consumption of labour force in the Romanian agriculture;
- increased productivity of labour involved in agricultural activities.

The way in which these tendencies are distributed in the socio-economic structures of farm managers in Romania, as well as their implications upon the managerial performance are the object of the following discussion.

6.2. Demographic and social characteristics of the managers in the Romanian agriculture

Age of managers and descriptive parameters of farms

The age structure of managers in the Romanian agriculture corresponds to a "reversed pyramid" (in conformity with the demographic language) in which the most weakly represented is the age group under 35 years old, while the elderly managers (aged 65 years and over) represent the group with the highest frequency (37.9%).

While the greatest part of farms is administered by managers who exceeded the retirement age, the largest part of the utilized agricultural areas (50.3%) is managed equally by the two groups of managers who reached their active life maturity (aged from 45 to 54 and 55 to 65 years). Although the old managers (65 years or over) farm only 22.1% of UAA, in the year 2010 they had the largest number of livestock herds on their farms (27.3% of total LSU[59] at national level). High consumption of labor demanded by livestock animal raising activities, together with the conservatism in agricultural production practices[60], that are specific to managers over 65 years old, make these use the greatest part of the annual work units (36.6%) in the entire Romanian agriculture.

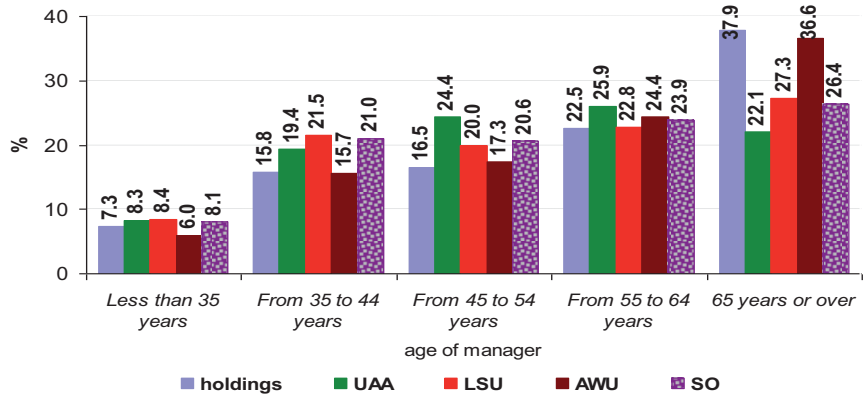
The younger managers, under 55 years old, seem to have a larger opening to innovation in the management techniques of the farm activity. A proof in this respect is the fact that these have an increased interest in the maximization of the economic effects of the agricultural work, the contribution of farms with managers under 55 years to the consumption of annual work units[61] being smaller than their percentage share in the agricultural land area or livestock herds.

[59] The **livestock unit**, abbreviated as **LSU**, is a reference unit which facilitates the aggregation of livestock from various species and age as per convention, via the use of specific coefficients established initially on the basis of the nutritional or feed requirement of each type of animal (see table below for an overview of the most commonly used coefficients). The reference unit used for the calculation of livestock units (=1 LSU) is the grazing equivalent of one adult dairy cow producing 3000 kg of milk annually, without additional concentrated feed.

[60] Conservatism – use of old agricultural techniques and technologies, which imply a higher labour input; weak opening towards technical and technological innovation.

[61] One **annual work unit**, abbreviated as **AWU**, corresponds to the work performed by one person who is occupied on an agricultural holding on a full-time basis. Full-time means the minimum hours required by the relevant national provisions governing contracts of employment. If the national provisions do not indicate the number of hours, then 1800 hours are taken to be the minimum annual working hours: equivalent to 225 working days of eight hours each.

Figure 6.1. Structure of the main parameters of agricultural farms by managers' age in the year 2010



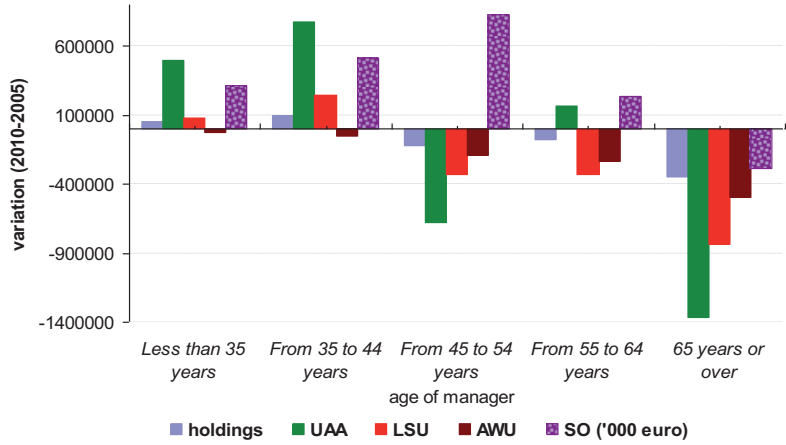
Source: Self-elaboration of data from EUROSTAT database.

The contribution to the total value of the standard output[62] (SO) of farms grouped by managers' age directly depends on the production structure adopted at farm level, on the manager's experience or attitude in relation to change. Thus, the higher integration of crop production with animal husbandry generates higher incomes on the farm level than the sale of crop production. Based on the higher value-added obtained by using the crop products in animal feeding, the farms run by managers aged 35-44 years have a bigger contribution to the creation of the national standard output for agricultural sector (21%) than the percent of lands which they manage (15,8%). A weaker development of the livestock sector in the case of farms managed by persons aged 45-65 years results in a lower contribution to the creation of standard output than the UAA share of these farms.

In Romania, the tendency of rejuvenation of the managerial body in agriculture was manifested in the period 2005-2010. It is worth mentioning the increase in the number of farms managed by young people under 35 years of age (by 54 220 in absolute figures, which represents a 24% increase compared to 2005), as well as of those managed by persons in the age category 35-44 years old (by 95 900 farms, equivalent of a 19% increase in the investigated period), accompanied by a transfer of the land areas from older managers to young managers (Figure 6.2).

[62] The **standard output** of an agricultural product (crop or livestock), abbreviated as **SO**, is the average monetary value of the agricultural output at farm-gate price, in euro per hectare or per head of livestock. There is a regional SO coefficient for each product, as an average value over a reference period (5 years). The sum of all the SO per hectare of crop and per head of livestock on a farm is a measure of its overall economic size, expressed in euro.

Figure 6.2. Variation of the main socio-economic characteristics depending on the managers' age in the period 2005-2010



Source: Self-elaboration of data from EUROSTAT database.

It seems that after Romania's accession to the EU, there is an increased interest of the young people in agriculture, which began to be perceived as an attractive business with a significant growth potential. This is also proved by the successful implementation of Rural Development Measure 112 for setting up young farmers, for which over 22 000 funding applications were submitted, and the European funds dedicated to it were fully contracted before the first half of the year 2013. With younger farm managers, we can hope for an improvement of the farm practices and a bigger opening towards technological innovation which together will bring about an increase in the competitiveness of the Romanian agricultural sector. At the other extreme, of elderly managers (over 65 years old), in the period 2005/2010 we could notice a diminution in their number and importance in the operation of agricultural areas, which was largely due to the life annuity scheme application to the land owners over 62 years old who gave up working their land areas by themselves and transferred land use or ownership to other farmers. The application of this scheme was possible in the period 2005-2009 (after this year, as it was considered state aid, it was no longer allowed by the EU legislation); this resulted in the transfer of 329 620 ha UAA[63] from the old farmers (that is 7.7% of the area owned by them in 2005) to other farms, leading to the adjustment of the farm structure both by ages and by the size of utilized agricultural area.

In the same period (2005-2010) we can notice an increased tendency of decoupling the animal production from crop production in the managers over 45

[63] M. L. Ghib, L. Luca., *Cum putem resuscita Renta viageră – ca o măsură compatibilă cu Politica Agricolă Comună*, CRPE, Bucharest, 2011.

years old, who owned the greatest part of the livestock herds. The causes of the decrease in importance of the livestock sector in Romania's agriculture are multiple, on one hand stemming from the absence or diminution of the financial support to livestock production through CAP or national support schemes, the severe sanitary-veterinary restrictions (i.e. those applied in the case of products of animal origin, milk, etc.), the restrictions to the exports to EU imposed, for instance, by the swine fever. However, the domestic livestock production is far from covering the national consumption needs and the self-sufficiency level from domestic resources decreases with the diminution of livestock herds. As a result, the domestic supply of animal products is deficient (in the year 2010, for instance, Romania's imports of live animals and products of animal origin totaled 984 million euro, the trade balance at this chapter being negative: -551 million euro). This uncovered market niche could represent a strong incentive for the medium-sized farms to get oriented towards livestock production. However, the younger managers do not increase the number of animals at the same rate at which the farms run by old farmers give up animal raising, and in Romania we can notice a decrease of total animal production that would probably continue, with negative effects upon the total value of agricultural production.

6.3. Gender structure at farm management level in Romania

The manager's role at farm level is mostly assumed by men, who own and use, within the farms they manage, the largest part of the utilized agricultural area. The greatest part of agricultural land is utilized on the farms managed by men (81.8%), out of which fifty percent are over 55 years of age. A particularity is worth mentioning here, i.e. after the age of 65, there is an increase in share of agricultural land operated on farms managed by women. This has a merely demographic justification, being related to the higher longevity of women, women's life expectancy being by 8 years longer than that of men in rural Romania[64]; out of this reason, the surviving women take over the management of agricultural farms that had been managed by their husbands.

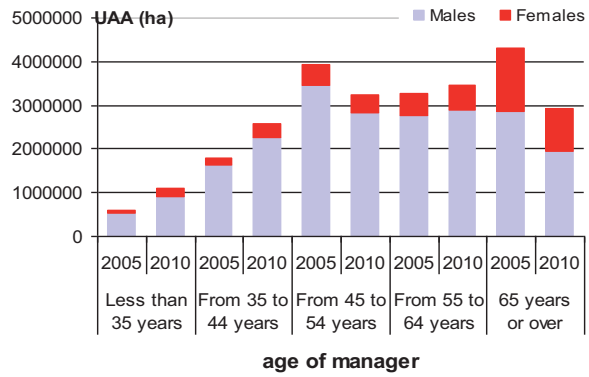
Generally, the comparison between the farms managed by women and men puts into evidence certain particularities (Annex 1), namely:

- regardless of the manager's age, the average land size of farms run by women is considerably smaller than that of farms managed by men;
- women managers' propensity for the livestock production is lower than in men's case, the livestock units loading per hectare of agricultural land being smaller in the case of farms run by women at all categories of age. As a result, we can state that men managers prefer more than women to increase the value added obtained on the farm by raising animals;

[64] National Institute of Statistics NIS (2011). *Tendinţe sociale 2009*, ISSN 2067-2551, p. 129.

- women managers generally use a higher labour input per utilized agricultural area unit in their production activity, which results in their farm production orientation to growing crops that require a higher labour input;
- the different patterns of agricultural production intensification (livestock orientation on the farms managed by men and orientation to crops with high value added in the case of women managers) lead to relatively similar economic results per unit of area, regardless of the manager's gender.

Figure 6.3. UAA distribution per agricultural farms by managers' age and gender, 2005- 2010



Source: Own calculations based on EUROSTAT database.

6.4. Agricultural training level of Romanian managers

Most managers in Romania's agriculture have only practical experience. Only 2.5% graduated an agricultural school (generally *basic agricultural training*), with ages ranging from 35 to 64 years (Table 6.1). The new young managers (under 35 years), who got involved in agricultural business in the period 2005-2010, unfortunately are not among those who attended any agricultural training. While their number increased by 24% in the investigated period, the share of managers under 35 who have only practical experience reached 97% in 2010, compared to 86 % in the year 2005.

On the farms managed by persons without specialized agricultural training (97.5% of total farms in 2010), 72.4% of Romania's UAA is farmed, these utilizing 93% of the agricultural labour force and contributing by 78% to the standard output. Almost in their entirety (95%), these farms can be classified as being subsistence or semi-subsistence farms because the standard output value per holding obtained from their agricultural activity amounts to under 8000 euros (Figure 6.4).

Table 6.1. Romanian farm structure by managers' agricultural training level, by age and gender, 2010

% in total no. of managers

Age groups of managers	% of holdings according to managers' agricultural training level											
	Total			Practical experience only*			Basic training**			Full agricultural training***		
	Total	M[i)]	F[ii)]	Total	M[i)]	F[ii)]	Total	M[i)]	F[ii)]	Total	M[i)]	F[ii)]
< 35years	7.27	5.72	1.54	7.06	5.54	1.51	0.17	0.15	0.03	0.04	0.03	0.01
35 to 44	15.80	12.84	2.96	15.15	12.27	2.88	**0.59**	0.51	0.07	0.06	0.05	0.01
45 to 54	16.49	12.56	3.93	15.92	12.07	3.85	**0.47**	0.40	0.07	**0.10**	0.09	0.02
55 to 64	22.52	15.40	7.12	21.85	14.82	7.03	**0.53**	0.46	0.07	**0.14**	0.12	0.02
≥ 65years	37.93	**21.13**	**16.80**	37.51	20.79	16.73	0.36	0.29	0.06	0.06	0.05	0.01
TOTAL	100.00	**67.65**	32.35	97.48	65.49	31.99	**2.11**	1.81	0.30	0.40	0.34	0.06

**only practical experience*: experience acquired through practical work on an agricultural holding

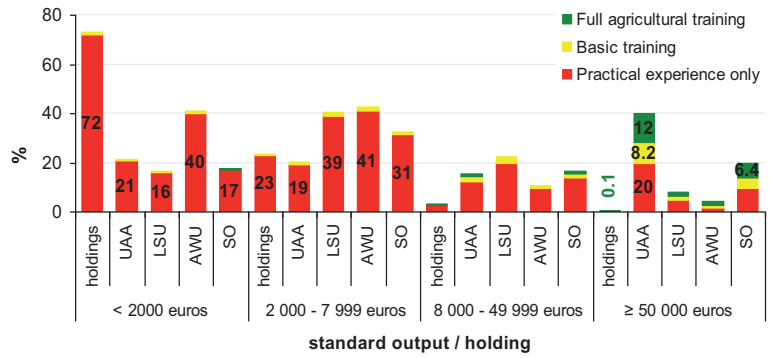
*** basic agricultural training*: any training courses completed at a general agricultural college and/or an institution specialized in certain subjects (including horticulture, viticulture, sylviculture, pisciculture, veterinary science, agricultural technology and associated subjects); a completed agricultural apprenticeship is regarded as basic training

**** full agricultural training*: any training course continuing for the equivalent of at least two years full-time training after the end of compulsory education and completed at an agricultural college, university or other institute of higher education in agriculture, horticulture, viticulture, sylviculture, pisciculture, veterinary science, agricultural technology and associated subjects

[i)] Males, [ii)] Females

Source: Own elaboration of data from EUROSTAT database.

Figure 6.4. Structure of agricultural farms by economic size and manager's training level



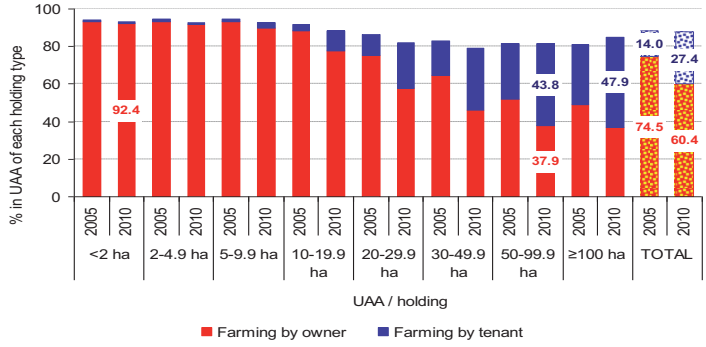
Source: Own elaboration of data from EUROSTAT database.

At the other extreme, the managers with *full agricultural training* represent only 0.4% of the number of farms, but they farm 15.9% from UAA, utilize only 3.1% of the labour force and contribute by 13.4% to the national standard output. Out of them, one in five administers farms for which the annual value of the standard output exceeds 50,000 euros. Generally, the managers with vocational specialized training manage farms with larger land areas (about 20% of Romania's UAA), with production structures specialized in crops, an intensive utilization of the labour force and strong commercial orientation.

6.5. Holder-manager relationships in Romanian agriculture

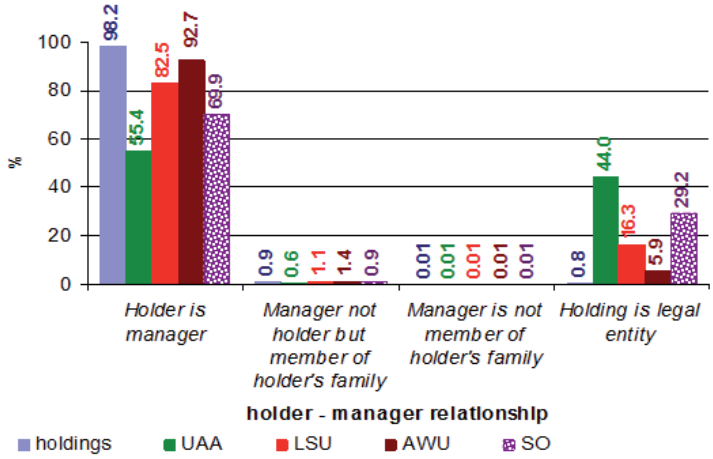
In Romania, in the year 2010, over 60% of the agricultural land areas were farmed directly by their owners. This proportion is on a decreasing trend; in 2005 the share of agricultural land farmed by the owners was 74.5%. Farming the land "on own account" is specific to farms with small land areas, so that over 90% of UAA operated by the farms under 5 ha is into their ownership; this percentage decreased up to 77% in the case of farms between 5 and 20 ha. After the 20 ha threshold, there is a significant increase in importance of the land areas operated on the farm, but which are not in the farmers' ownership. For the farms larger than 30 ha, the ratio becomes favourable to the land farmed on the basis of leasing or concession contracts. In the period 2005-2010, there was an accelerated tendency to attract new land areas on the medium-sized farms (20-100 ha), which practically led to the doubling of the agricultural area farmed mainly under leasing contracts.

Figure 6.5. Holder-ownership relation by agricultural size of farm (UAA)



Source: Own elaboration of data from EUROSTAT database.

Figure 6.6. Holder-manager relationship



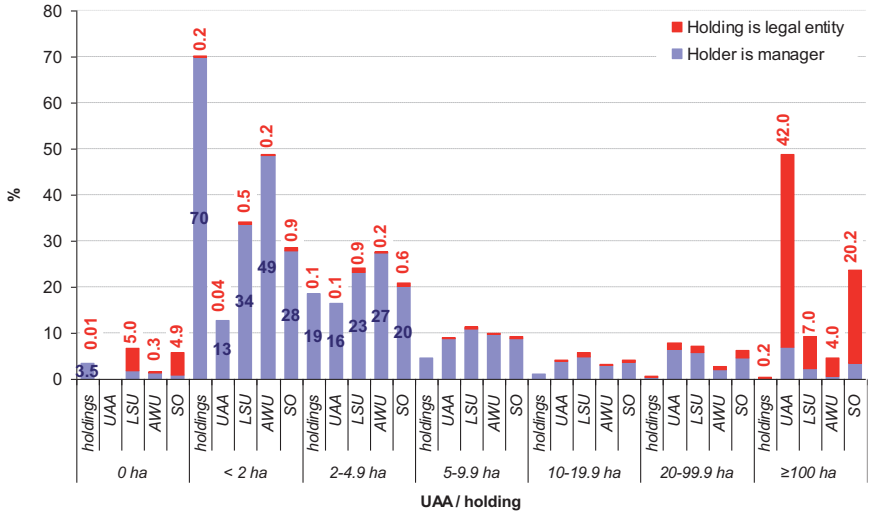
Source: Own elaboration of data from EUROSTAT database.

Generally, the farms with large land areas, which lease agricultural land, are established under the form of economic entities with legal status, while at the level of small farms, the farm head is also the manager of the respective farm. As a result, in Romania, on 98% of the farms, the holder is the manager of the farm, representing 55.4% of UAA, and only 0.8% of the farms have legal status and operate 44% of UAA.

The agricultural enterprises with legal status and large land areas have production structures more specialized in crop production, while the farms without land but established as agricultural commercial companies are specialized in livestock production. These also seem to be more efficient in the utilization of labour force; on the basis of the technical endowment and the advanced technologies they use in the production activity, the labour consumption on these farms represent only 5.9% of total AWU at national level.

On the one hand, the farms where the owner of the agricultural farm is also the manager of it are concentrated in the category of farms smaller than 5 ha, they have production structures that integrate livestock production (they own 82.5% of LSU) and crop production, are big consumers of labour force (92.7% of national AWU) and contribute less than their proportional quota in the number of farms to total standard output of Romanian agriculture (69%); on the other hand they contribute more than the percentage quota in the utilized agricultural area. The explanation resides in integrating the livestock production with an economic value net superior to the crop production.

Figure 6.7. Importance of main holder-manager relationships in the area, livestock, labour force and standard output (SO) by agricultural size of farm (UAA)



Source: Own elaboration of data from EUROSTAT database.

The effective utilization of land resources depends on the production structures of the different types of farms. There are significant disparities with regard to the production structure by categories of farms. However, at the extremes of the distribution by UAA size, they are largely oriented towards the same specializations in agricultural production. While the farms without agricultural land are specialized in animal husbandry (granivorous and herbivorous animals), most holdings over 100 ha UAA (about 80%) are specialized in crop production (cereals, industrial crops and other field crops). This tendency in the specialization of large farms is justified by the intrinsic characteristics of the crop production technologies and by the agri-food market characteristics: the production of cereals and technical crops can be easily organized on large areas, based on mechanized agricultural works; the final products are suitable for long-term storage; they have multiple utilizations in the intermediary consumption (as animal feed, raw products for food industry), and last but not least, they are in great demand on the international market.

For the holdings under 10 ha UAA we can speak about a relative specialization only in the case of half of the number of farms, the other half growing crop mixes or raising animals or practicing the integration of crop and livestock production. As far as the farm sized increases, an increasing share of farms adopt the production structure pattern characteristic to the large farms – orientation towards crop production and field crops (Annex 2a).

The crop production structures are, similarly to agricultural holdings, characterized by bipolarity. While the small-sized farms have a diversified pro-

duction, largely corresponding to their social function to ensure food security for the household members, the large farms practice a specialized production. In the period 2005-2010, a transfer was produced in the operation of land resources suitable for the field crops from the smaller farms (< 20 ha UAA) towards the large commercial farms (over 100 ha) which, being better equipped from the technical point of view, significantly increased their cultivated areas, in general, and the areas under cereals and industrial crops in particular (Annex 2 b).

In Romania's agriculture, the livestock herds followed a decreasing trend, from 6,60 mil. LSU in 2005, to 5,44 mil. LSU in 2010. The most severe diminution of livestock herds was produced on the farms that had the largest herds (those having < 5 ha UAA). However, the small farms continue to have the largest livestock herds at national level (59.1% of total in 2010). In structure, the evolution of Romania's livestock herds by categories reveals livestock production orientation to smaller-sized animals (sheep, goats, pigs) and poultry, simultaneously with the diminution of the number of bovines. In the period 2005--2010, the bovine herds decreased by 28%, mainly as a result of the diminution of the number of bovines on the farms with less than 5 ha (Annex 2 c), where this category of animals is mainly raised. On the contrary, under the influence of the demand on the agri-food market, there is increased interest in the small-sized herbivores (sheep and goats), their total number increased by 11% and 59% respectively, from the part of large farms inclusively, so as to best use the pastures they owned.

6.6. Performance of the farm management in Romania

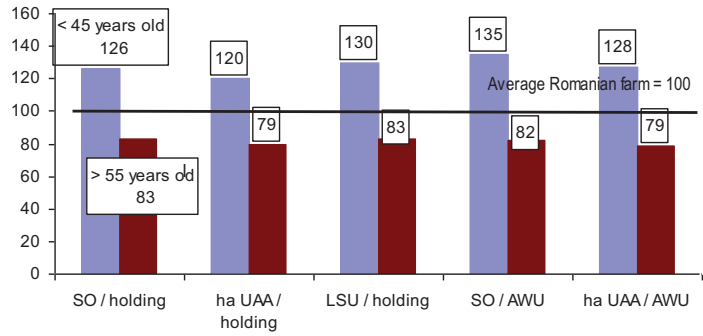
The socio-demographic characteristics of the farm managers influence the structure and organization of their production activity, both influencing the farm economic performance. Thus, managers' young age and agricultural training are significant predictors of a good organization of farm activity, so that it can generate higher agricultural production values. On the other hand, the farms with larger land areas have a higher labour productivity, yet the standard output value per 1 ha UAA is lower than that generated at the level of small-sized farms, due to the different production structure of these categories of farms (the small-sized farms integrate crop and livestock production, while the large-sized farms are mostly specialized in crop production).

6.7. Performance of managers according to their socio-demographic characteristics

Generally speaking, the young farmers perform better than older ones. The holdings managed by young farmers are different in many ways from the holdings managed by elderly farmers. Younger farmers (< 45 years old) show higher levels than the Romanian average for the following characteristics: 26% more in terms of standard output per holding, 20% more hectares of UAA and 30% more

LSU/holding. Likewise, their labour productivity in terms of economic output per full-time equivalent worker is higher than the average, as is the number of hectares managed per AWU. Farmers older than 55 years perform below the average for all indicators: 17% fewer in standard output value, 21% fewer hectares of UAA and 17% less in LSU per holding. They produce less economic output and manage fewer hectares per full-time equivalent worker than the average, with values significantly below those of young farmers (Figure 6.8).

Figure 6.8. Performance of young and elderly managers in Romania, 2010



Source: Own elaboration of data from EUROSTAT database.

In general, the farms managed by women obtain similar economic performance per unit of area, the standard output value per hectare UAA being equal to that of farms managed by men in the year 2010. It is labour productivity that makes the difference in managerial performance evaluation between the two categories of managers, as expressed in the standard output value per annual work unit.

Thus, the farms managed by men obtain higher values of SO/AWU than in the case of women managers, which can be explained by the combined action of three factors that differentiate the two categories of farms: i) their production orientation – the men managers have the tendency to integrate crop and livestock production to a larger extent than women, which results in higher standard output values at farm level; ii) the intensity in labour force utilization (women have the tendency to use a higher labour input than men for the operation of the same land area); iii) the adopted production techniques – 52% of women farm managers are over 65 years old (in men this percentage is only 31%), who most often took over farm management after their husbands' death, have a low work capacity and ask for third parties to carry out the agricultural works, are more conservative with regard to farm production technologies.

Table 6.2. Gender influence upon managers' performance, 2005-2010

Manager	Year	UAA/ Holding (ha)	LSU/ holding	UAA / AWU (ha)	LSU/ UAA (LSU/ha)	SO/ UAA (€/ha)	SO/ AWU (€/1AWU)
TOTAL holdings, out of which upon the gender structure of managers:	**2005**	3.27	1.55	5.36	0.48	756	4052
	2010	3.45	1.41	8.26	041	783	6471
Males	**2005**	3.72	1.84	5.54	0.50	762	4221
	2010	4.17	1.75	8.78	0.42	783	6876
Females	**2005**	2.16	0.84	4.71	0.39	731	3444
	2010	1.93	0.69	6.53	0.36	783	5113

Source: Own elaboration of data from EUROSTAT database.

Farm economic performance is closely linked to managers' training level in agriculture; putting into practice the technical and technological knowledge and skills acquired by attending agricultural training courses increase managers' capacity to optimize labour consumption in the farm production activity.

Table 6.3. Main characteristics of Romanian farms according to their economic dimension (2010)

Standard output group	% in total no. of holdings	% in total UAA	SO/ holding	SO/ AWU	UAA/ holding	AWU/ holding	UAA/ AWU	LSU/ UAA	% in no. of managers of each group	
									tenant	agricultural training (full+basic)
< 2 000 €	72.98	21.5	666	2772	0.9	0.2	3.8	0.4	0.5	1.7
2000 - 3999 €	15.61	10.6	2845	4469	2.3	0.6	3.7	0.8	2.1	3.0
4000 - 7999 €	8.11	9.7	5387	5532	4.1	1.0	4.2	0.9	4.8	4.4
8000 -14999 €	2.03	5.2	10426	7532	8.8	1.4	6.4	0.9	12.9	8.7
15000- 24999 €	0.58	3.8	18960	10916	22.9	1.7	13.2	0.6	27.4	16.0
25000- 49999 €	0.35	6.4	34359	16192	63.3	2.1	29.8	0.3	40.7	24.2
50000- 99999 €	0.17	8.3	69429	24012	171.8	2.9	59.4	0.1	53.8	37.8
100000- 249999 €	0.11	13.1	153885	30988	423.6	5.0	85.3	0.1	63.6	49.3
250000- 499999 €	0.04	9.3	345317	32920	855.1	10.5	81.5	0.1	68.3	60.0
500000 € or over	0.03	12.1	1909287	58613	1588.4	32.6	48.8	0.5	56.4	63.4

Source: Own elaboration of data from EUROSTAT database.

Thus, as the economic size of farms increases, the level of labour productivity in terms of economic output per full-time equivalent worker at farm level also increases and it is positively correlated with the share of managers with full

agricultural training (0.963) and of total managers who graduated an agricultural education form (0.942) (Table 6.3).

The managers with agricultural training manage farms with larger land areas, and, following the putting into practice of their technical abilities, they succeed in intensively using the agricultural labour force (the correlation coefficient between UAA/AWU and the share of specialized managers reaching 0.905).

6.8. Performance of Romanian holdings according to their economic characteristics

The farms with small economic size are mostly operated by the owners of agricultural land areas. There is a strong positive correlation between the farm economic size and the "tenant" status of the person who farm the land. While for the small farms, agricultural production is a way to meet the agro-food consumption needs of the household members, to lease in agricultural land or to take land under concession arrangements means to perceive agriculture as a profit-generating activity. As a result, the small farms have rather a social function, and the activity of large-sized farms is governed by the economic efficiency principles. This makes labour productivity be positively correlated with the "tenant" status of the farm manager.

The crop and livestock production integration is specific to small, subsistence and semi-subsistence farms, the products of which mainly go to self-consumption; it is out of self-consumption reasons that these farms have an integrated farm production system. The commercial farms are more specialized in crop production (cereals and industrial crops for processing), the LSU/UAA ha ratio decreases as the economic size of farms increases. However, the farms with very large economic size (over 500 000 euro) reach significant standard output values also because they oriented their productive strategies towards animal husbandry as well, by which value added is significantly increased by using the obtained crop products (with low market value) as feed for animals (with high commercial value that directly contributes to a significant increase of the value of standard output obtained on the farm).

The particularities of resources distribution and utilization in Romania's agriculture result in a bipolar configuration as regards the distribution of agricultural land areas and of the number of holdings as well as in the case of the production structure of the different categories of holdings. Thus, while 98% of the agricultural holdings from Romania have under 10 ha UAA (out of which 93% operate less than 5 ha), accounting for only 39% of UAA at national level, the farms larger than 100 ha (i.e. 0,4% of total holdings) operate half of the total agricultural land area. In Romania's agriculture, two extreme farm categories coexist: the small, subsistence farms (in 94% of farms under 10 ha, more than 50% of production is self-consumed by the holder's family) and large and very large

farms; the category of medium-sized farms is poorly represented both as regards their number and as share in the country's agricultural area.

The production structures of the different categories of farms are also bipolar, closely depending on the scope governing the farm manager's activity: I) *the economic efficiency*, which presupposes the tendency to focus mainly on obtaining crop or livestock outputs that should maximize the farm profit; II) *the social effectiveness,* which presupposes orienting the agricultural production of the farm in accordance with satisfying the social function of agriculture, for the household members in the first place (by an agricultural production that should respond to their agro-food consumption needs both in quantitative and qualitative terms). The managers of commercially oriented large farms increase their specialization in crop production (field crops, in particular), the technologies of which can be applied on large areas. At the other extreme, the small farms are managed by the land owners themselves, and they have extremely diversified production structures, integrating crop and livestock production, so as to meet the consumption needs of the extended family members[65].

The agricultural bipolarity is maintained by the lack of non-agricultural occupational opportunities in the rural area, which increases the dependence of a large part of the rural population on the small rural household farm. At present, more than 60% of the employed rural population is working in agriculture, most of them being under-employed labour in agricultural holdings of their own families. Out of total regular labour registered in Romania's agriculture in the year 2010, 96% was represented by the managers' family members with farms under 10 ha. On average, the number of full time days effectively worked by these persons on the agricultural farm was only 44 days/person/year in 2010[66].

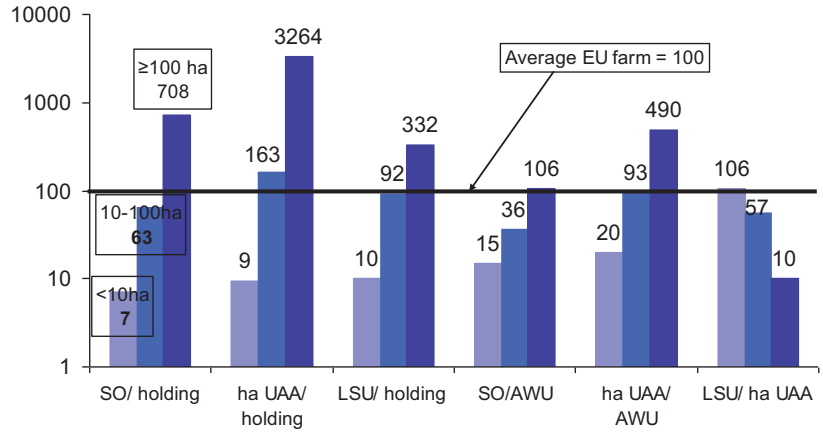
All these bear an influence upon farm productivity in Romania and make only the farms over 100 ha UAA exceed the EU-27 averages with regard to the indicators assessing economic performance. The farmers who work on land areas smaller than 10 ha perform below the average of EU-27 for all indicators: 93% fewer in standard output value, 91% fewer hectares of UAA and 90% less in LSU per holding. They produce less economic output (85%) and manage fewer hectares per full-time equivalent worker (80%) than the EU-27 average, with values significantly below those of large farmers (Figure 6.9).

The medium-sized farms (with utilized agricultural areas ranging from 10 to 100 ha) are relatively less important in Romania's agriculture structure, accounting for only 2% of the number of holdings and operating 12.3% of total UAA; in the period 2005-2010, no accelerated increasing trend was noticed in

[65] M.M. Tudor, *Exploitation of land resources in the Romanian agriculture - agricultural bipolarity and its consequences,* working paper, in the Romanian Academy priority program: *Romania's natural resources. Evaluation, preservation, exploitation, efficiency*, 2013.
[66] Ibidem.

the consolidation of this category of farms. This farm management form, the medium-sized farm, gets closer to the European model, the medium-sized farm performance indicators having the tendency to get closer to the EU-27 average. Thus, the farms with 10-100 ha obtain, on average, about 63% of the SO value/holding, 63% more hectares of UAA and 8% less in LSU per holding. Likewise, their labour productivity in terms of economic output per full-time equivalent worker is lower than the EU-27 average, as is the number of hectares managed per AWU. This farm category consolidation should be mostly encouraged and supported in order to create a sustainable agricultural structure in Romania, as it simultaneously complies with the economic efficiency and social effectiveness principles.

Figure 6.9. Performance of the Romanian holdings according to their agricultural area, 2010



Source: Own elaboration of data from EUROSTAT database.

6.9. Final remarks

The socio-economic characteristics describing farm management in Romania proved to have significant incidences upon the economic performance of each agricultural holding in part, and upon the entire agricultural sector. Generally speaking, the young farmers perform better than the older ones, and the farm economic performance, evaluated in terms of labour productivity and land resources, is greater as far as the farm managers' agricultural training level increases.

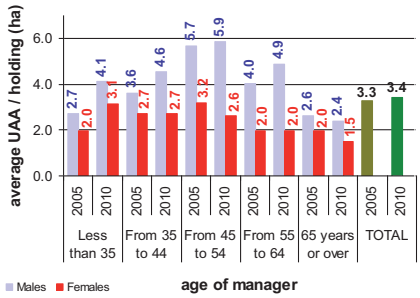
The managerial body at farm level in Romania is older compared to that in the agriculture of EU-27. While in Romania the young managers, under 35 years old, account for 7.3% (compared to the EU-27 average of 7.5%), the share of those over 55 years old reached 60.4% (by 7.3% higher than the EU average in the year 2010). In these conditions, we totally agree on EU initiative to im-

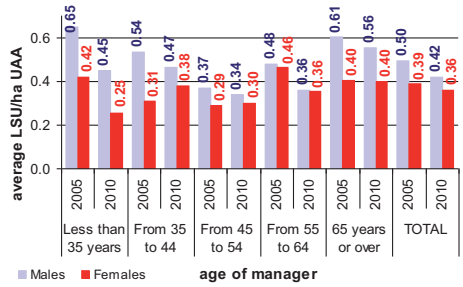
plement, within the future CAP, of certain measures to encourage the setting up young farmers. But, in the same time, due to the social character of small farms in Romania (especially for elderly farmers and their families), for encouraging the exit from agriculture of older farmers and the land transfer to the younger farmers, would be useful to find a solution to finance a similar extent to the *Agricultural life annuity scheme* (that was applied in Romania between 2005 and 2009 with good results in adjustment of farm structure [Ghib, Luca, 2011]).

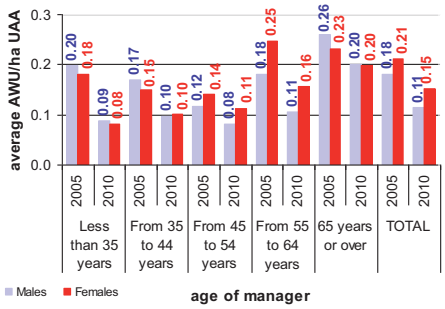
Also, because the youthfulness of Romanian' managers body was accompanied by a decrease in agricultural training of young farmers (which induce negative effects on the farms performance due to the lack of knowledge necessary for the proper application of agricultural techniques and technologies), in Romania two directions of action are absolutely necessary: i) training programs in agriculture that will be accessible even for the managers with less financial resources and ii) implementation of an agricultural advisory system, that will provide specialized technical assistance to farmers, especially for those that do not have expert knowledge or experience in agriculture.

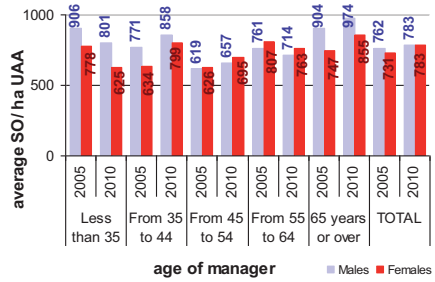
Annex 1

Evolution of the main socio-economic characteristics of Romanian farms by farm managers' age and gender





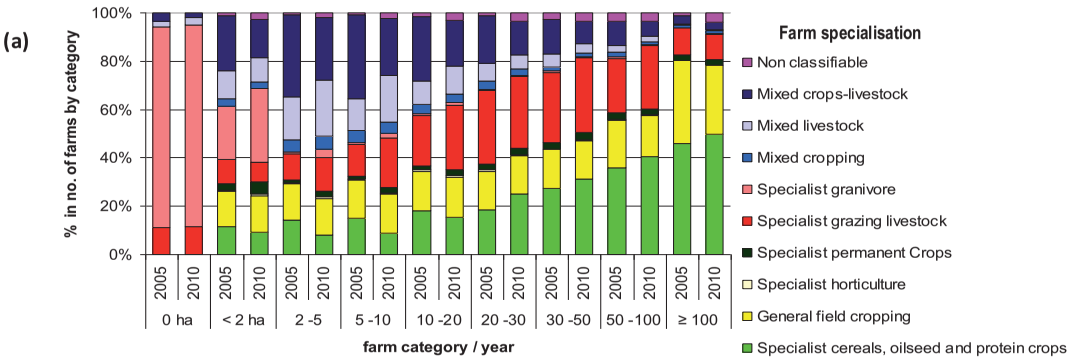


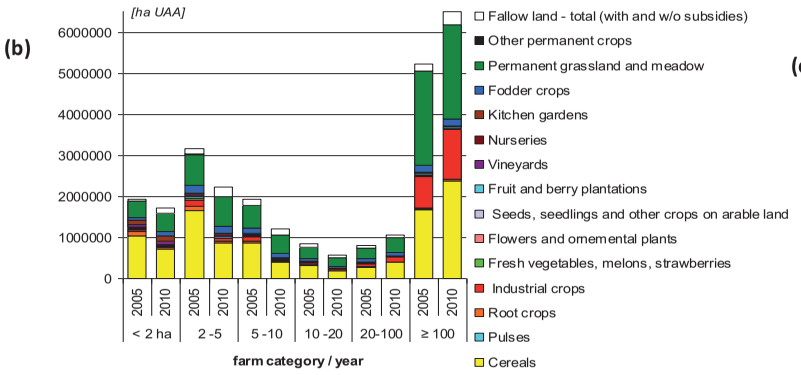


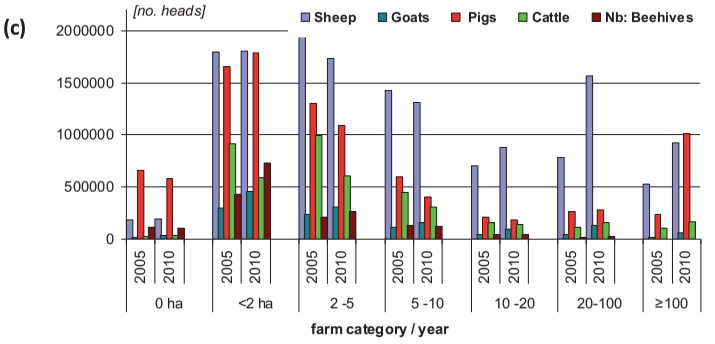
Source: Own elaboration of data from EUROSTAT database.

Annex 2

(a) Farms specialization, (b) Agricultural land distribution by categories of crops and (c) Structure of livestock herds of main categories of animals in Romania, according to the farm size in ha UAA







Source: Own elaboration of data from EUROSTAT database.

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Chapter 7. Transformation of socio-demographic characteristics of Polish managers of private farms in the conditions of growing competition in the light of field studies

7.1. Introduction

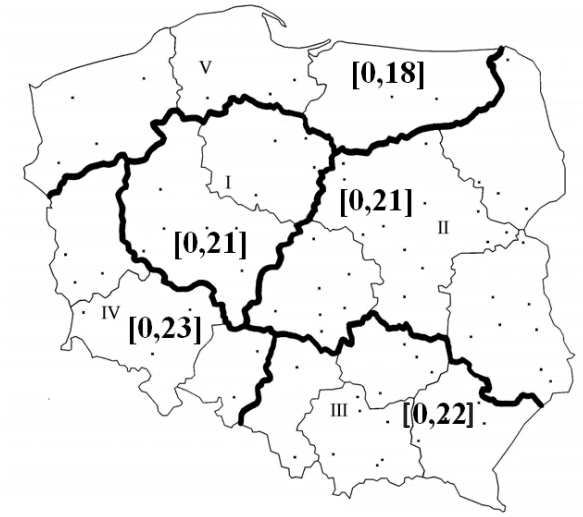
The importance of socio-demographic characteristics of managers in the development of the economic situation of individual farms and, consequently, the whole sector of production of agricultural raw materials, impels to characterize the changes in the population in terms of selected economic characteristics of managed entities. Determination of these characteristics was guided by the fundamental determinants of the main function of the farm for the holder and his family. This circumstance to a large extent determines the prospects of development of individual entities. In this regard, the divisions by area structure, scale of production and allocation of economic activity were primarily taken into account. At the same time due to the large diversity of Polish agriculture, transformations in the socio-economic situation of the population of farm managers are shown in macro-regional terms (Map 7.1).

The empirical basis of investigations were the data from IAFE-NRI field studies. These are long-term studies carried out periodically (4-6 years) in the same 76 villages, in all farms with an area of more than 1 ha of agricultural land (AL), used by individuals, i.e. individual farms, which are de facto family farms[67]. The villages were selected deliberately, so that the area structure of surveyed units[68] reflected the actual size of the total number of individual farms[69]. However, in individual farming, and this more clearly marks its dominance in the Polish agricultural sector[70], the acreage of a farm is closely

[67] see: J.St. Zegar, *Niektóre problemy rolnictwa w świetle spisów*", [in:] „*Zróżnicowanie regionalne rolnictwa",* J.St. Zegar (ed.), CSO, Warsaw 2003, p. 23-45.
[68] The terms farm, unit and entity are used interchangeably.
[69] Despite some conceptual differences, this study uses interchangeably terms individual agricultural farm and family farm.
[70] The data of Agricultural Census 2002 show that at this time individual farms had 87.9% of the total area of agricultural land. For the most part these were the entities of the area exceeding 1 ha of AL. This group had 85.6% of the total land used for agricultural purposes. Data of AC 2010 confirmed the strengthening of the dominance of individual family

linked with the level of other components of production assets[71], socio--demographic characteristics of farmers[72] and the main objectives of agricultural activity[73]. For this reason, it can be concluded that the studied population reflects the socio-economic structure of Polish agriculture.

Map 7.1. Location of villages and IAFE sample size in 2011, in macro-regional terms



The bold lines indicate the boundaries of the macro-regions, which include the following voivodeships:

I *Central-Western – Kujawsko-Pomorskie, Wielkopolskie;*
II *Central-Eastern – Łódzkie, Mazowieckie, Lubelskie, Podlaskie;*
III *South-Eastern – Świętokrzyskie, Małopolskie, Podkarpackie, Śląskie;*
IV *South-Western – Opolskie, Lubuskie, Dolnośląskie;*
V *Northern – Zachodniopomorskie, Pomorskie, Warmińsko-Mazurskie.*
[ ] *sample size (% of the real number of rural households).*

agriculture. In 2010, individual holdings had 88.1% of the total agricultural land used for agriculture, which comprised 86.6% of individual farms.

[71] See M. Dudek, *Kapitał ludzki w rolnictwie oraz wybrane instrumenty wspierające jego rozwój,* Komunikaty, Raporty, Ekspertyzy issue 540, IAFE-NRI, Warsaw 2010, and B. Krawat-Woźniak, *Wyposażenie gospodarstw indywidualnych w techniczne środki produkcji,* Komunikaty, Raporty, Ekspertyzy, issue 554, IAFE-NRI, Warsaw 2011, p. 16-17, 23, 30, 37, 42, 46, 54.

[72] See J. Buks, B. Buks, *Cechy społeczno-demograficzne i aktywność ekonomiczna kierowników gospodarstw rolnych,* Komunikaty, Raporty, Ekspertyzy, issue 495, IAFE, Warsaw 2004, p. 7-11, 13-18, and M. Dudek, *Kapitał ludzki w rolnictwie ... op. cit.* p. 18.

[73] See A. Sikorska, *Przemiany w strukturze agrarnej gospodarstw chłopskich,* IAFE-NRI, Warsaw 2006, p. 5-6.

In each case, the study sample, both in terms of the whole and within each separate five macro-regions, covered approximately one five hundredth of the actual number of individual farms. In the most recent study (2011), their number was 3.3 thousand entities.

Empirical data from field studies used in the analysis each time related to the state at the end of the marketing year. These were respectively 1999/2000, 2004/2005 and 2010/2011, referred to in the study simply as 2000, 2005 and 2011.

In IAFE-NRI studies, the function of a farm manager is not identical with possession of a farm (use[74]). However, as is apparent from the collected material, it is a rare situation where different people are owners and managers. On the basis of the analyzed data, it can be estimated that such a difference occurs in less than every twentieth farm. Similar correlations between owning the farm and managing it are confirmed by the results of universal statistics. According to the Agricultural Census 2010, among all the managers of individual farms, 95.3% were holders of farms, 2.8% – spouses of holders, 1.6% – other members of the holder family, and 0.3% – people outside the family, or hired employees[75]. However, IAFE-NRI studies found no case of managing an individual farm by people outside the family. In contrast, incidentally (1.9%), there was a situation where the manager lived in one place and the managed entity was in another one.

7.2. Demographic characteristics of managers of individual farms

Many studies emphasize that mainly relatively young people are likely to make changes and developments. This thesis is also a reference to the problems associated with the redevelopment of the agricultural sector and, in principle, to the strategies of adapting entities operating in the sphere of agricultural production to relatively rapidly changing external conditions of operation.

Farmers adapt their farms to changing economic conditions in various ways, because there is no universal model of practical adaptation for a farm[76]. Individual way of adjustment is the result of independent decisions of managers, which are a consequence of many complex factors, some of which are difficult or even impossible to measure[77].

Although the implemented adaptation strategies are very diverse, taking into account their nature, one can generally isolate two adjustment procedures:

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[74] The holder (owner) of individual farm is considered to be a natural person (natural persons), regardless of the legal title to the used agricultural property and location of land in one or several gminas.

[75] *Pracujący w gospodarstwach rolnych,* Agricultural Census 2010, CSO, Warsaw 2012, p. 39.

[76] A. Woś, *Wzrost gospodarczy i strategie rozwoju polskiego rolnictwa. Eseje 2,* IAFE, Warsaw 1998, p. 75.

[77] A. Woś, *Mechanizmy restrukturyzacji rolnictwa,* IAFE, Warsaw 1999, p. 20.

- **active** – i.e. taking regular action to increase the productive capacity of farms, improving the efficiency of the factors of production and improving the competitiveness of manufactured goods on the market of agricultural raw materials, and thus a pro-effective conversion of existing agricultural structures;
- **passive** – focused on survival, which is a derivative of the passive attitude of the farmer; reflected in the production of agricultural commodities solely or principally for the purpose of subsistence.

When taking one of the above mentioned methods of dealing with managed farm, the age of the person managing the farm is important. Although there are people of all ages among the farmers pursuing the ways of adapting farms, the first of these strategies was implemented mainly by relatively young people, and the second – mostly by people of retirement age[78]. For this reason, this feature of a farmer is systematically adopted as one of the criteria for financial support for operation and modernization of agricultural holdings from public funds[79].

Table 7.1. Structure of farm managers by age

Year	Percentage of managers*			
	of working age			of post-working age
	of mobile age	including up to 35 years of age	immobile age	
1992	49.1	23.1	40.2	10.7
1996	47.9	21.6	40.2	11.9
2000	46.6	20.2	43.1	10.3
2005	43.8	19.5	46.6	9.6
2011	36.0	12.8	51.8	12.2

** Study adopted economic age groups used by the CSO: **pre-working age** - up to 17 years of age; **working age** - women aged 18-59 and men aged 18-64; **post-working age** - women aged 60 and over and men aged 65 and older. The **working age** distinguishes two groups: **mobile age** (younger working age) - persons aged 18-44 years and **immobile** (senior working age) - women aged 45-59 and men aged 45-64.*

Source: Prepared on the basis of IAFE-NRI survey data of 1992, 1996, 2000, 2005.

The analysis of the data on the succession of individual farms shows that dynamic (almost 4% on average per year) generational replacement of managers recorded at the turn of 1980s and 1990s[80] somewhat slowed down in later

[78] See B. Karwat-Woźniak, *Gospodarstwa rozwojowe w procesach dostosowawczych do gospodarki rynkowej*, Studia i Monografie No. 125, IAFE, Warsaw 2005, p. 34-35, 121-123.

[79] Under the current legislation at national and EU level, there is the concept of a "young farmer", according to which financial assistance for the development and improvement of professional skills can be obtained by a manager under the age of 40 years.

[80] See B. Karwat-Woźniak, *Młodzi rolnicy i ich gospodarstwa. Wyniki ankiety z 1992 roku*, Komunikaty, Raporty, Ekspertyzy, issue 381, IAFE, Warsaw 1995, p. 5.

years[81]. It should be emphasized, however, that the reduction in the rate of generation replacement did not significantly worsen the age structure of farm managers (Table 7.1). Despite the noticeable symptoms of aging, the age structure of Polish farmers can be considered as relatively favourable, especially against the background of the situation in this respect in EU agriculture.

According to data from field studies, in 2011 the share of farmers in the mobile working age was 36%, including nearly 13% of managers under 35 years of age. However, the proportion of managers in the above mentioned age groups was significantly lower than in earlier years. At the same time, the percentage changes in the reported age groups of managers of private farms were particularly pronounced in the most recent of the studied periods, i.e. 2005-2011. At this time, the share of farm managers of younger working age declined by an average annual rate of 1.3 percentage points, and for the age up to 35 years – by 1.1 percentage points. In 1992-2005 the respective ratios were 0.4 and 0.3 percentage points.

At the same time, the group of managers of immobile working age systematically increased. In 2005-2011, the share of the managing population increased from almost 47% to about 52%, so on average by almost 0.9 percentage points a year. In comparison, in 1992-2005, this age group of managers was growing on average by 0.5 percentage points (from over 40 to almost 47%).

The analysis of changes in the proportion of farmers of the retirement age shows that trends identified in different periods had different character, but still, the size of this group was characterized by a relatively high stability. In l992-1996 there was a small (from 11 to 12%) increase in the size of this age group of managers. In subsequent periods (1996-2000 and 2000-2005), the share of managers of post-working age slightly decreased and in 2005 stood at less than 10%. In contrast, the study of 2011 documented that the proportion of farm managers of retirement age was just over 12%, i.e. increased by about 2 percentage points over the past six years.

When interpreting the relatively small changes in the size of the group of farmers of retirement age, as recorded in 1992-2011, it should be noted that this situation, especially in the initial period, was a result of changes in pension legislation for farmers and liberalization of the legal requirements in relation to inheritance and family divisions of agricultural property. At the same time, the imbalance in the non-agricultural labour market, agricultural economic recovery and increasing chances of achieving a satisfactory income from work in a family farm, increased the propensity of young people to agricultural activities. In later

[81] The survey data shows that in 1992-2000, young successors received on average per year 2.4% of individual farms. The intensity of these changes was slightly higher in 2000-2005, when such cases concerned an average 2.6% of entities per year. Between surveys of 2005 and 2011, there was a significant slowdown in the exchange of generations among managers of individual farms. Young successors took over on average only about 0.9%.

years, the generational replacement in Polish agriculture, in addition to the circumstances (ASIF early retirement and early retirement system) to encourage farmers in the pre-retirement age to cease agricultural activity and transfer the family farm to the younger generation, was increasingly influenced by the conditions associated with the criteria for granting loans on preferential terms and financial assistance for young managers from public funds, especially from the EU funds.

In summary, it should be emphasized that despite the visible symptoms of aging, the age structure of Polish farmers can be regarded as relatively favourable, especially in comparison with the situation in this respect in the EU agriculture. These conditions will probably favour the pro-effective reconstruction of structures in Polish agriculture.

Generational changes in the population of farm managers were varied, depending on production potential, which in the conditions of Polish agriculture is still in a relatively large extent reflected in the area of crops[82].

Many years of IAFE-NRI studies show that generational change is dependent on the area of the farm, and entities with a relatively larger farms are more likely to be taken over by the successors[83]. This tendency is documented, among other things, by the scale of the lack of successors by area groups of farms. At the same time, the scale of the lack of successors should be seen through the prism of circumstances of the decision on taking over the farm by a young person.

Research shows that family situation and cultural factors have consistently significant impact on the processes of succession in Polish agriculture. With the economic development, career aspirations of family members entering adult life and production potential of holdings become more important, creating the possibility of obtaining a satisfactory income[84]. Moreover, in modern conditions of management, from the perspective of the farm unit, competing and achieving an adequate level of income involves having more and more production assets at one's disposal[85]. As a result, the lack of successors applied to larger entities.

Research shows that after a period of decline in the number of farms without successors or stabilization of the situation in this respect[86], since 2005, the size of this phenomenon has grown. In 2005-2011, the percentage of farms without

[82] B. Karwat-Woźniak, *The area of cultivated land as a factor determining economic potential of private farms* Economics&Sociology, Vol. 2. No 1/2009, p. 47-57.

[83] M. Dudek, *Rola czynnika ludzkiego w rolnictwie indywidualnym na przykładzie gospodarstw emerytów i młodych rolników,* Report of the Multi-Annual Programme 2005-2009 No. 91, IAFE-NRI, Warsaw 2008, p. 10-11, 32-33.

[84] M. Dudek, *Rola czynnika ludzkiego w rolnictwie ... op. cit.* p. 34-35.

[85] B. Karwat-Woźniak, *Gospodarstwa wysokotowarowe w rolnictwie chłopskim. Synteza wyników badań 2005-2009,* Report of the Multi-Annual Programme 2005-2009 No. 151, IAFE-NRI, Warsaw 2009, p. 15.

[86] The survey data show that in 1988-1996 the share of farms without successors fell more than twice, while both in 1996, and in subsequent periods (i.e. 2000 and 2005) it was about 9%.

successors increased from 9 to 14%. This situation is the result of many factors. Improvement in the situation on the non-agricultural labour market and increase in the diversification of economic activity of family members with holder of individual farm were probably of great importance[87]. In addition, the decision on the allocation of economic activity to agricultural activities or outside was also influenced by the ability to achieve an adequate level of income from work in a family farm. In recent years, the income situation of the rural population has significantly improved[88], but still, the overall level of income derived from work on the family farm is less than the amount of income outside agriculture, especially generated by the self-employed[89], and the agricultural production is that kind of economic activity.

The increase in the phenomenon of the lack of successors in individual farming reported in 2005-2011 was universal and such trend was observed in all area groups of family farms. These trends had the greatest impact in the farms with a relatively large area of land, i.e. more than 20 ha of AL. At that time, in this area group, the number of entities without successors increased over 3.5-fold, but still the scale of the phenomenon was relatively small, because it was twice (7% to 14%) lower than the average for the set of individual farms studied in 2011. It should also be noted that in the case of the farms with largest areas, i.e. 50 ha and larger, the problems with the lack of successors appeared for the first time in 2005, and the next edition of the study (2011) confirmed the severity of this phenomenon[90]. Still, the lack of people willing to take over these entities is to be regarded as incidental; they concerned only less than 4% of 50 ha and larger farms.

In other farms, i.e. with the area of up to 20 ha of AL, the lack of successors also increased, but the magnitude of this increase was several times lower than in entities with a greater area. This does not change the fact that in 2011, as was the case earlier, relatively many farms without successors were in the area group of 1 to 2 ha of AL, where such entities accounted for slightly over 24%. A smaller proportion of entities with no successor was recorded in the area group of 2-5 ha and stood at 18%.

In summary, despite the changes in the phenomenon of the lack of successors in each area group of family farms, invariably this situation primarily

[87] P. Chmieliński, B. Karwat-Woźniak, *Zmiany zasobów pracy w rolnictwie indywidualnym w latach 2000-2005,* Zagadnienia Ekonomiki Rolnej 3/2007, p. 61-79.

[88] W. Józwiak, *Konkurencyjność oraz postęp w polskim rolnictwie i projekcja średniotermi-nowa,* [in:] *Konkurencyjność gospodarki żywnościowej w warunkach globalizacji i integracji europejskiej,* scientific ed. A. Kowalski, M. Wigier, M. Dudek, Report of the Multi-Annual Programme 2011-2014 No. 60, IAFE-NRI, Warsaw, p. 46-58.

[89] T. Panek, *Wysokość i zróżnicowanie dochodów gospodarstw domowych oraz nierówności dochodowe* [in:] *Diagnoza społeczna 2011. Warunki i jakość życia Polaków*, collective work ed. by J. Czapiński, T. Panek, Rada Monitoringu Społecznego, Warsaw 2011, p. 45-51.

[90] The survey data show that in 2005-2011 the number of farms with acreage of at least 50 ha of arable land with no successors doubled.

concerned entities of a relatively small area. In the set of farms without successors, entities with an area of up to 5 ha of AL accounted for more than 69% in 2011. It was a slightly smaller share than in 2005, when the corresponding figure was almost 71%. When assessing the scale of the lack of people willing to take over the small area entities, it should be added that farms with up to 5 ha of AL dominate the total of individual farms in Poland.

Lack of successors can speed up the decision to liquidate the farm especially when it was an additional form of economic activity of the farmer, which was only a source of supply of foodstuffs. This was the role of most entities with a relatively small area of AL[91].

The above circumstances may accelerate the flow of agricultural land to territorially larger, economically stronger and market-oriented entities and, consequently, may contribute to the pro-effective redevelopment of the agricultural sector and improve its competitiveness also in terms of the resources.

Recent trends in the exchange of generations of managers, as well as the lack of successors and the size of farms, were reflected in the progress of aging of the farming population.

Table 7.2. Age structure of the managers of individual farms by area groups

Area groups (ha of AL)		Percentage of managers of age*			
		of working age			of post-working age
		total	of mobile age	of immobile age	
Total	2000	89.7	46.6	43.1	10.3
	2011	87.8	36.0	51.8	12.2
1 -2	2000	80.1	38.0	42.1	19.9
	2011	79.7	29.9	49.8	20.3
2-5	2000	86.7	42.1	44.6	13.3
	2011	83.7	31.9	51.8	16.3
5-10	2000	92.3	48.9	43.4	7.7
	2011	91.7	38.9	52.8	8.3
10-15	2000	95.1	54.3	40.8	4.9
	2011	91.5	39.4	52.1	8.5
15-20	2000	96.7	51.4	45.3	3.3
	2011	94.7	44.7	50.0	5.3
20-30	2000	97.3	51.2	46.1	2.7
	2011	95.5	42.2	53.3	4.5
30-50	2000	96.4	63.0	33.4	3.6
	2011	96.8	42.1	54.8	3.2
50 and over	2000	96.8	61.3	35.5	3.2
	2011	98.1	45.1	54.0	1.9

**Age groups as shown in Table 7.1.*
Source: Prepared on the basis of IAFE-NRI survey data of 2000, 2011.

[91] A. Sikorska, *Gospodarstwa bez produkcji towarowej w strukturach indywidualnego rolnictwa,* Komunikaty, Raporty, Ekspertyzy, issue 549, IAFE-NRI, Warsaw 2010, p. 11-12.

Analyses show that the relationship between the age of the farmer and the area of the farm is permanent, although this relationship is not linear. Analysis of the age of managers, depending on the area of land, shows that in 2011 and earlier, the larger the area of farms the younger the persons performing this function. The least people of post-working age acts as farm managers in the units of a relatively large area (Table 7.2).

In the smallest farms (1-2 ha of AL), the share of managers of post-working age was just over 20%, in larger farms it gradually decreased and reached the lowest level in largest farms with at least 50 ha of agricultural land, which is less than 2%.

In 2011, in individual farms with an area of 1-2 hectares of agricultural land, the proportion of managers of mobile working age was less than 30%, in companies belonging to subsequent area groups it gradually increased to reach the highest level in 50 ha farms and larger, i.e. more than 45%. Thus, the larger the farm, the higher the participation of farmers of younger working age. However, the managers of individual farms at the age of 18-44 did not constitute the majority in any of the considered area groups.

The arguments for the existence of a significant relationship between demographic characteristics of the farmers and the economic potential (condition) of the farm are also provided by age structure of farm managers according to the size of agricultural production put on agricultural commodity markets.

Table 7.3. Age structure of managers of individual farms according to the scale of commodity production

Agricultural holdings	Percentage of managers of age*				
	of working age				of post-working age
	total	of mobile age	including up to 35 years of age	of immobile age	
Total	87.8	36.0	12.8	51.8	12.2
- without commodity production	78.2	28.9	9.7	49.2	21.8
- with commodity production:					
total	91.5	38.7	13.9	52.8	8.7
including the sale of agricultural production (PLN thousand)					
under 10	85.7	35.4	12.2	50.3	14.3
100 and over	95.0	38.4	14.7	56.6	5.0

**Age groups as shown in Table 7.1.*
Source: Prepared on the basis of IAFE-NRI survey data of 2011.

The analysis of the age structure of farmers by market activity documented that some of the symptoms of aging were observed both among managers of farms producing solely for own use (without commodity

production) as well as producing for the market. At the same time, those managing entities having no contact with the market of agricultural raw materials were relatively older than managers of farms with commodity production and entities with large-scale sales (Table 7.3).

At the same time, there is still a significant relationship between age of managers and size of production for the market. Even though units of the same scale of commodity production were characterized by different age of managers, the general case is that the larger the scale of commodity production, the smaller the participation of actors managed by persons of retirement age, and the higher proportion of farmers of mobile working age (Table 7.3).

According to data from field studies, in 2011, only 5% of farms with the scale of commodity production allowing a satisfactory income from work in family agricultural activity[92] were managed by persons of retirement age. At the same time, it was almost three times smaller proportion than in the group of selling small amounts (up to PLN 10 thousand) of agricultural commodities[93], while more than four times larger than the corresponding share in the group of entities with production exclusively for own use.

Table 7.4. Spatial diversity in the age structure of managers of individual farms

Macroregions*	Percentage of managers of age**				
	of working age				of post-working age
	total	including			
		of mobile age	including	of immobile age	
			under 35		
Total	87.8	36.0	12.8	51.8	12.2
Central-Western	93.5	35.8	10.2	57.8	6.4
Central-Eastern	89.1	39.0	15.7	50.0	10.9
South-Eastern	83.3	31.1	10.6	52.3	16.7
South-Western	87.8	37.1	10.4	50.7	12.2
Northern	92.0	41.0	12.7	50.9	8.0

**Names of macroregions and voivodeships they cover identical to those on Map 7.1.*
***Age groups as shown in Table 7.1.*
Source: Prepared on the basis of IAFE-NRI survey data of 2011.

In addition, farms with a relatively large scale of production were significantly more often managed by young people. If we consider farmers of

[92] A satisfactory level of income from work in the family farm was the value of agricultural income per person fully employed at least equal to the average earnings outside agriculture. In the population covered by the field survey in 2011, this income level was obtained by farms with commodity production of at least PLN 100 thousand.

[93] Farms with annual sales of agricultural commodities of up to PLN 10 thousand are described as producing mainly for subsistence.

working mobile age as young people, in 2011, this case concerned 38% of the units with commodity production of PLN 100 thousand and more and it was 3 percentage points higher than in the group of managers of farms producing mainly for subsistence. However, in the population of farmers with farms without commodity production, the share of people aged up to 44 years was nearly 29%. Thus, it was about 9 percentage points lower than among managers of units with the size allowing for obtaining satisfactory income.

When interpreting the spatial variation in the age structure of farms managers, one must emphasize that the differences are not only due to factors affecting the situation in agriculture (area structure, market activity of farms and their production potential), but also due to still persisting, historically formed differences in the level of socio-economic development of particular areas.

Today, regional differences in the level of development determine to a relatively great extent the evolution of the situation in the non-agricultural labour market and, consequently, the earning opportunities and the extent of unemployment in the area. These factors exert a significant influence on the attitudes of young people in the allocation of their working activity in the family farm or outside.

According to survey data, the age structure of farm managers constantly varied in spatial terms and macro-regional differences were relatively smaller than in the case of area groups[94] or the size of agricultural activity.

In 2011, in territorial terms, the relatively greatest differences concerned managers of post-working age. In relation to this age group, extreme values were over 6% in the central-western region and almost 17% in the south-eastern region. At the same time, the latter one was characterized by the lowest share of managers of working mobile age (31%).

Farms in the south-eastern macro-region have been for many years characterized by the largest area fragmentation in the country[95] and the largest population of entities producing exclusively or mainly for the purpose of subsistence[96]. A different situation was in the north macro-region, invariably characterized by the most favourable area structure of individual farms[97]. Among the managers in this area, people aged 18-44 years accounted for 41%, while only 8% were of the post-working age.

The above data confirm the correlation between demographic structure of managers and the characteristics of macro-regions in terms of agrarian structure, marketability of agricultural production, the level of economic development and the availability of non-agricultural jobs. In areas with a favourable area

[94] See J. Buks, B. Buks, *Cechy społeczno-demograficzne ... op. cit.,* p. 10.
[95] See A. Sikorska, *Przemiany w strukturze agrarnej indywidualnych gospodarstw rolnych,* IAFE-NRI, Warsaw 2013, p. 16.
[96] See A. Sikorska, *Gospodarstwa bez produkcji towarowej ... op. cit.* p. 10-11.
[97] See A. Sikorska, *Przemiany w strukturze agrarnej ... op. cit.*, p. 14.

structure, large-scale commodity production and high profitability of farming, the farmers invariably form a relatively younger group. For many years the conditions of agricultural structures have been conducive to the professionalization of farming in the central-western macro-region, and with the beginning of the twenty-first century also in the northern region[98]. In contrast, managers of individual farms in macro-regions with a relatively high level of urbanization and the prevalence of gainful employment among the rural people were characterized by a relatively large population of older people. Such conditions were present in the southern parts of Poland[99], especially in the south--eastern macro-region, where the unfavourable climate and natural conditions and extremely fragmented area structure constituted serious obstacles to the development of agricultural production.

7.3. Level of education

Modern agriculture requires a comprehensive knowledge[100]. This statement applies particularly to managers of farms. For this reason, an important feature of farm managers, having a significant impact on production and financial effects of the business, is agricultural knowledge and skills.

Knowledge, in a situation of increasing competition, increasingly determines the amount of income from business activities[101]. Thus, increasing skills and investing in agricultural education by individuals wishing to become professional farmers is a necessary condition for development.

The farmer gains the skills needed for agricultural activities in various ways, but their formal reflection is the level of education, both general and vocational, particularly professional, i.e. relating to agriculture.

The analysis of available empirical data suggests that generational change among farm managers went hand in hand with increasingly higher levels of schooling (Figure 7.1). These changes should be considered as very positive, because the level of education has a direct impact on the speed and effects of the implementation of technical and technological innovations in agriculture[102], and besides, there is a significant correlation between the level of education and having means of production[103].

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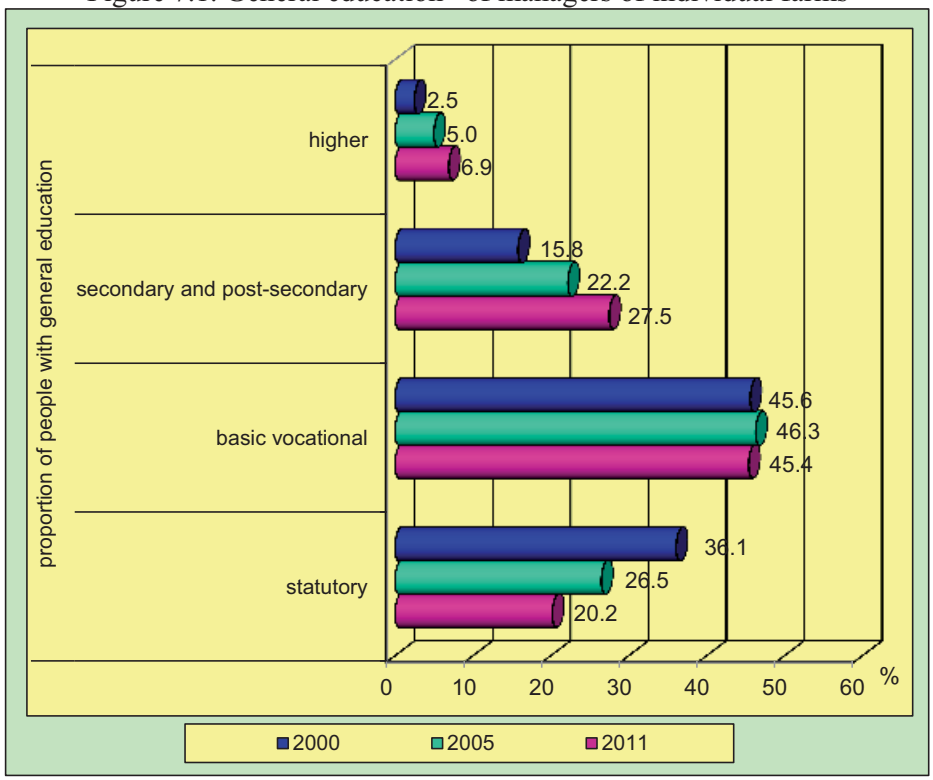
[98] See B. Karwat-Woźniak, *Zmiany aktywności rynkowej gospodarstw indywidualnych w latach 2000-2005,* Komunikaty, Raporty, Ekspertyzy, issue 519, IAFE-NRI, Warsaw 2006, p. 16.
[99] A. Sikorska, *Zmiany w wielkości badanych wsi oraz mobilność rodzin,* [in:] *Przeobrażenia w strukturze społeczno-ekonomicznej wsi objętych badaniem IERiGŻ-PIB w latach 2000-2005,* scientific ed. A. Sikorska, IAFE-NRI, Warsaw 2006, p. 7-19.
[100] A. Kowalski, *Czynniki produkcji ... op. cit.* [in:] *Encyklopedia, op. cit.,* p. 108-114.
[101] B. Klepacki, *Znaczenie wiedzy i wykształcenia w rozwoju rolnictwa,* Zagadnienia Ekonomiczne, 2/2005, p. 47-57.
[102] A. Kowalski, *Czynniki produkcji ... op. cit.* [in:] *Encyklopedia, op. cit.,* p. 111.
[103] M. Dudek, *Rola czynnika ludzkiego w rolnictwie… op. cit.*

Figure 7.1. General education* of managers of individual farms



*Includes completed education.
** Concerns education at the level of primary and secondary school. This group also included people with uncompleted primary school or secondary school who completed their education. They accounted for 0.3-1.1% of the total population analyzed.
Source: Prepared on the basis of IAFE-NRI survey data of 2000, 2005 and 2011.

According to data from field studies, in 2011, still about 20% of managers completed only primary school or secondary school. The proportion of farmers who left school at the statutory level decreased significantly compared to 2000, and was almost twice lower. Both in 2000 and in 2011, the most common was basic education; about 45-46% of farmers completed it. At the same time there has been progress at secondary and post-secondary level (increase from 16 to 28%) and higher (percentage of managers of individual farms with this education increased from 3 to almost 7%). More than twofold increase in the percentage of farmers with higher education recorded in 2000-2011 should be considered significant. Especially when the rate of return on investment in

higher education in the case of agricultural science was still the lowest of all fields of study, although steadily growing since the early 1990s[104].

The above positive changes in the level of education have been particularly marked among managers of market-oriented farms, usually with larger area. Assuming that the measure of a good education is the proportion of persons who completed at least secondary education, the higher the household, the higher the level of schooling of managers. According to the survey, in 2011, among persons running individual farms with an area of 50 hectares or more, nearly 55% had at least secondary education, including about 10% had higher education. Half of individual farmers from entities with the area of 30-50 ha also had at least secondary education, and every tenth graduated from higher school. For managers of entities with a smaller area, the level of schooling is lower.

The analysis of the survey data shows that in 2011, as in previous years, there was considerable variation in the level of education of farmers according to the size of production for the market.

Variation in the level of education of farmers by market activity of managed farms was significant, but it was relatively smaller than by area groups. The highest level of education was among managers of entities whose scale of commodity production provided for the income from agricultural activities at least at the level of average earnings outside agriculture (in 2011 it was at least PLN 100 thousand). In this population, the proportion of well-educated managers, i.e. with at least secondary education, was over 42%, while among all entities producing for sale, the corresponding rate was about 35%. In the case of farmers with agricultural production solely or principally for the purpose of subsistence, the share of people who had education at least at the secondary level stood at approximately 32%.

With respect to people conducting agricultural activities, professional preparation for the job was evidenced most clearly by agricultural education, especially school education. For this reason, in order to assess the level of education of managers of individual farms, one should also take into account education that gives qualifications, although in the case of individual farming, the important thing is experience measured in years of work on the farm[105].

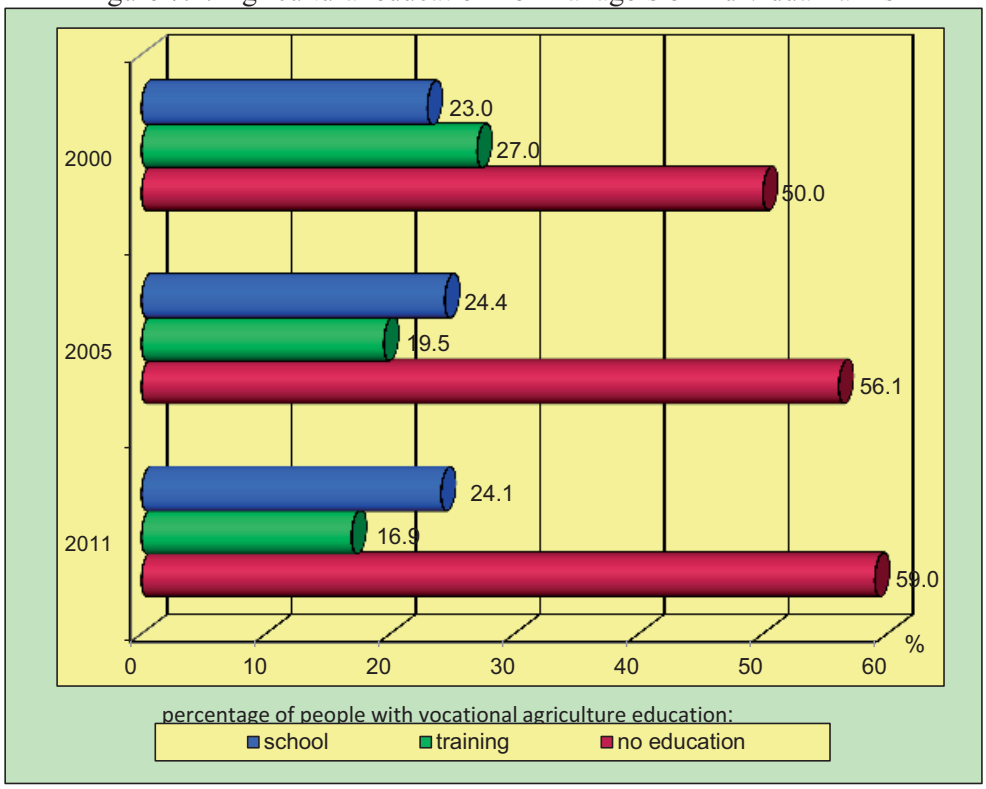
The collected survey data show that in contrast to earlier periods, in 2000-2011 there was no progress in the dissemination of agricultural school qualifications (Figure 7.2). At this time, the share of managers who have completed agricultural schools did not change and remained at the level of 23-24%. At the same time, the share of farmers with only trainings to prepare for the occupation of farmer decreased systematically (from 27 to 17%). As

[104] J. Czapiński, *Stopa zwrotu z inwestowania w wykształcenie na poziomie wyższym* [in:] *Diagnoza społeczna 2013. Warunki i jakość życia Polaków,* collective work ed. by J. Czapiński, T. Panek, Rada Monitoringu Społecznego, Warsaw 2013, p. 206-209.
[105] *Pracujący w gospodarstwach ... op. cit.* p. 44.

a consequence, the group of managers with virtually no formal agricultural qualifications increased (from 50 to 59%).

The above changes in the level of agricultural qualifications among farm managers should be associated with the liberalization of the formal requirements in terms of having a specific vocational preparation to conduct agricultural production for those acquiring agricultural property, especially those inheriting it.

Figure 7.2. Agricultural education* of managers of individual farms



*Compilation includes completed education.

Source: Prepared on the basis of IAFE-NRI survey data of 2000, 2005 and 2011.

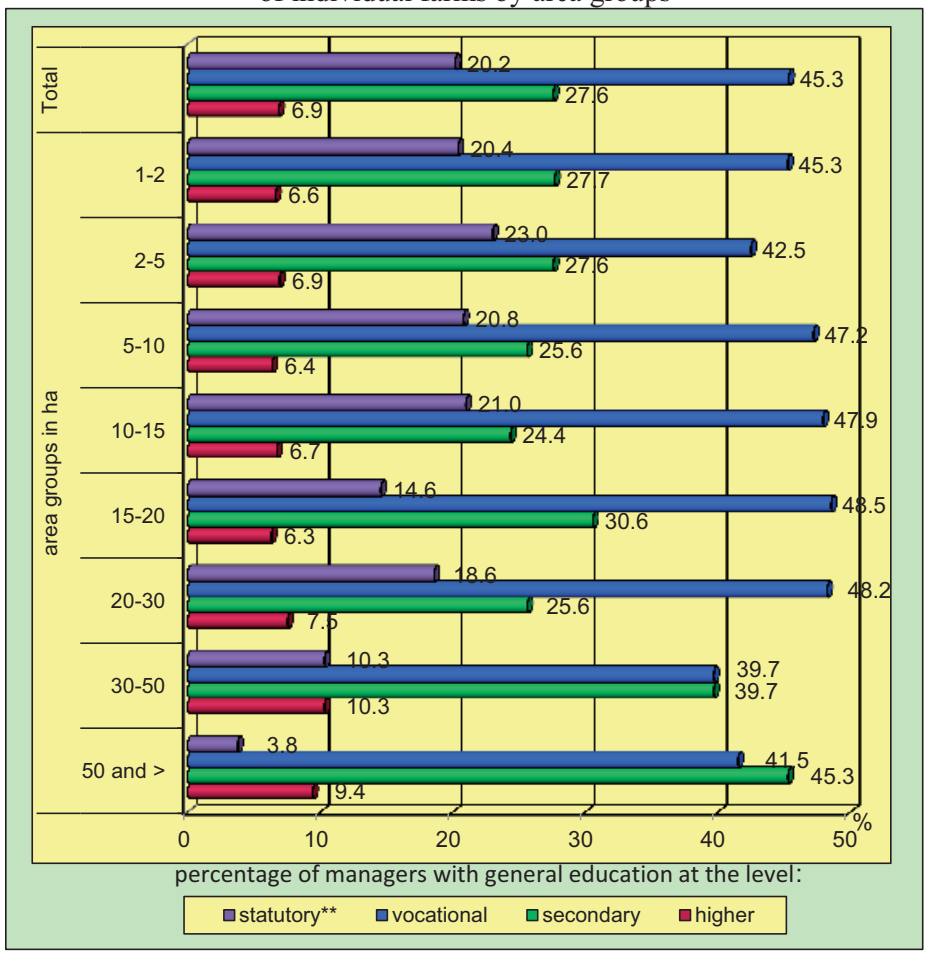
In conditions of growing competition, meeting effectively its demands is increasingly dependent on the knowledge of managers. For this reason, mainly people from farms with considerable production potential, large area of crops and market-oriented are interested in acquiring agricultural education. This is reflected in the diversity of the professional educational level among managers of entities with different area and scale of commodity production.

Together with the increase in farm area and the volume of commodity production, the number of farmers with vocational agricultural education is also increasing. This relationship manifests itself primarily in differences in the

prevalence of school agricultural education among managers of entities with different areas and size of commodity production.

Consequently, the highest percentages of people with agricultural qualifications were among the managers of largest farms, or those characterized by large-scale commodity production. In 2011, among the managers of farms with an area of at least 20 ha of AL, every second person had a school agricultural education, and every fourth – completed agricultural training. Among managers of farms with an area of 1-2 ha of AL, the respective ratios were every tenth and every eight person.

Figure 7.3. Vocational agricultural education of managers of individual farms by area groups

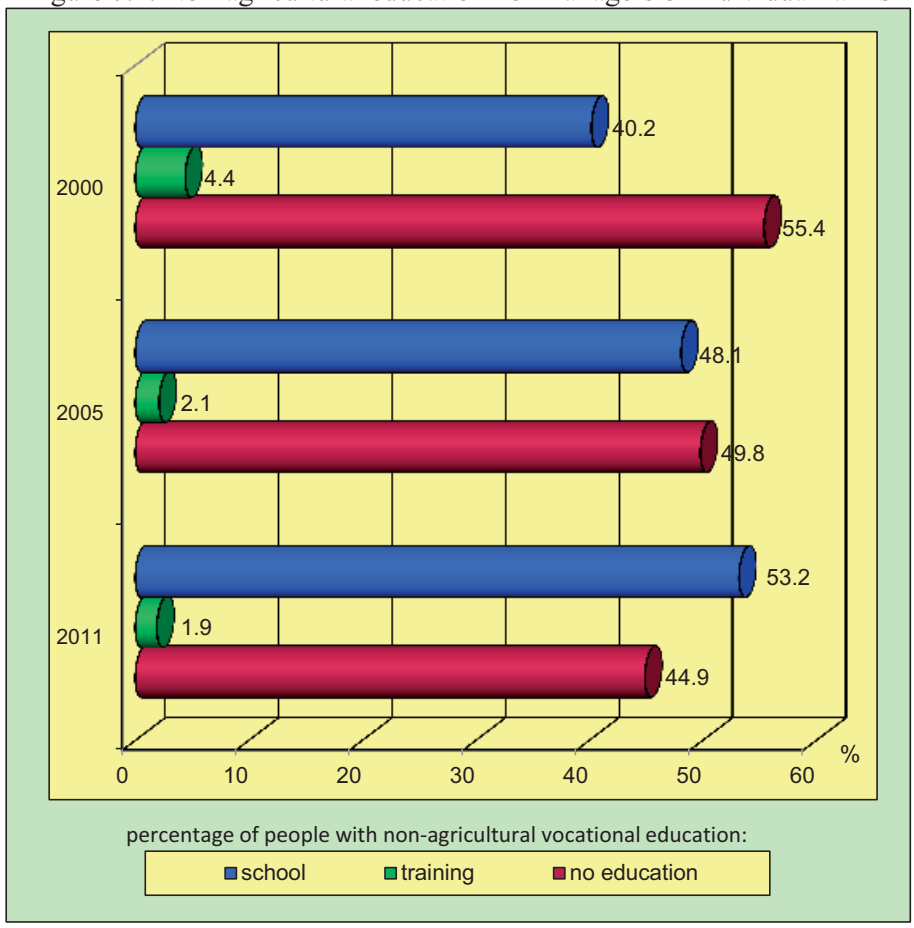


*Compilation includes completed education.

Source: Prepared on the basis of IAFE-NRI survey data of 2011.

In the case of the relationship between the level of professional education and market activity, the analysis of the survey data shows that in 2011, just as before, with the increase in the size of agricultural production for the market, the share of farmers with vocational agricultural competence is also increasing. Among the managers of entities with commodity production size of at least PLN 100 thousand, more than 51% of people completed agricultural schools, and another 19% have acquired professional education through trainings. In the group of managers of farms with commodity production of up to PLN 10 thousand, the corresponding ratios were respectively 17 and 15%.

Figure 7.4. Non-agricultural education* of managers of individual farms



*Compilation includes completed education.

Source: Prepared on the basis of IAFE-NRI survey data of 2000, 2005 and 2011.

Among the managers of farms with agricultural production solely for subsistence, the proportion of people who completed agricultural schools was 11%, another 10% had completed trainings preparing for the occupation of a farmer.

These findings support the idea that primarily people having a farm with a large production capacity are interested in acquiring agricultural education, or those having a chance to manage (take over) such an entity. This is associated with the intention to develop agricultural activities and improve the competitive ability.

Regardless of agricultural qualifications, throughout this period, there was a relatively high and increasing (40% in 2000 to 53% in 2011) proportion of people with non-agricultural education among farm managers (Figure 7.4). The increase in popularity of non-agricultural education is a result of the prevalence of education mainly for non-agricultural sectors of the economy in the rural environment[106]. In addition, improving the level of professional qualifications in the analyzed population should be considered as favourable, especially in terms of opportunities to diversify economic activity and employment outside the farm.

Many analyses emphasized that a growing number of people associated with using the individual farm are effectively seeking off-farm jobs[107]. The process of diversification of economic activity was also visible in the group of people managing individual farms. A growing group of farmers combines farm management with work outside the farm[108]. However, there is still a large proportion of people in the group of managers without full employment in agricultural activity.

Data from the Agricultural Census 2010 showed that only about 33% of managers worked on the farm permanently on a full-time basis, and so worked on the farm at least 2,120 per year[109].

The observed systematic increase in the level of non-agricultural vocational qualifications of managers is beneficial not only from the perspective of non-agricultural employment in the labour market, but also from the point of view of agricultural activity. Today, the effective operation of a farm requires a range of skills and competencies that go far beyond conventional preparation for the profession of a farmer.

The number of farmers with non-agricultural school education decreases in proportion to the farm area and the volume of commodity production. Thus, these relations are the opposite of the case of having agricultural school qualifications.

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[106] F. Kapusta, *Zmiany czynników produkcji w rolnictwie polskim w latach 1995-2000,* [in:] *Przemiany w agrobiznesie i obszarach wiejskich oraz ich następstwa*, Wrocław University of Economics, Wrocław, 2002, p. 393.

[107] B. Karwat-Woźniak, P. Chmieliński, *Population and labour in family farming in Poland*, Report of the Multi-Annual Programme 2005-2009 No. 28.1, IAFE-NRI, Warsaw 2006, p. 19-21.

[108] Data from field studies shows that in 2011 almost 36% of farmers worked on the farm and outside farm, while in 2000 it was 25% of farmers.

[109] *Pracujący w gospodarstwach… op. cit.,* p. 155-156.

The analysis of the survey data shows that consistently people with school preparation for non-agricultural occupations were relatively the largest group among managers of farms with a relatively small area (more than 60% in the group of entities up to 5 ha of AL), producing only for subsistence (63%) or placing only small parts of agricultural commodities on the market (56% with sales of up to PLN 10 thousand).

It is also not unusual that managers of farms characterized by a relatively large scale of production and large area have a school education not directly related to agriculture. According to survey data, in 2011, more than every third manager of a farm with 50 hectares and over had school agricultural education. When we consider a group of managers of entities with the scale of commodity production of 100 thousand and more, the percentage of people with school preparation for non-agricultural occupations was more than 37%. The relatively high incidence of non-agriculture education among managers of larger and market-oriented farms indicates that conditions in the labour market and the increasing attractiveness of employment in technically well-equipped and organized farm meant that some people with non-agricultural qualifications chose employment in family agricultural activities.

When interpreting the spatial differences in the level of general and vocational education of managers of individual farms, one should consider similar circumstances as in case of the differences in the demographic structure of this population.

Table 7.5. Spatial differences in education* of managers of individual farms

Level of education	**Total**	in macroregions**				
		I	II	III	IV	V
share of persons broken down by general education						
- statutory***	**20.2**	14.1	22.9	20.1	15.8	20.3
- vocational	**45.4**	55.0	40.7	45.9	49.3	49.2
- upper secondary and post-secondary	**27.5**	27.1	27.8	28.0	27.1	24.9
- higher	**6.9**	3.8	8.6	6.0	7.6	5.6

*Compilation includes completed education.

**Designations of macroregions and the voivodeships they cover identical to those on Map 7.1.

*** Concerns education at the level of primary and secondary school. This group also included people with uncompleted primary school or secondary school who completed their education. They accounted for 0.3 of the total population analyzed.

Source: Prepared on the basis of fieldwork data collected by IAFE-NRI in 2011.

Considering the level of education of farmers in the different macro-regions, it should be noted that general education at vocational level (Table 7.5) was the most common in each area. People with such an education were relatively the largest (55%) group among managers in the central-western macro-region,

and the lowest (41%) in the central-eastern region. In the latter macro-region and in the south-western macro-region, there was the highest percentage (8-9%) of managers with higher education. A radically different situation was found in the macro central-western macro-region, where only less than 4% of farmers completed higher education. At the same time, it was found that this area had the lowest (14%) proportion of managers who completed only the statutory level of education, i.e. primary or secondary school.

In 2011, just like previously, the farm managers from the central-western macro-region were relatively best prepared for farming. In this part of the country, 41% of managers had school agricultural education. A radically different situation was in the south-eastern macro-region, where only less than 13% of farmers have completed agricultural schools. At the same time, the proportion of farm managers with school-agricultural qualifications (64%) was significantly higher than in other macro-regions. Similar to the whole country, in each macro-region, the most widespread vocational education among managers of individual farms was non-agricultural education.

7.4. Summary and conclusions

Studies have shown that the symptoms of aging of population associated with individual farms were also visible in the group of people managing agricultural activities. Although invariably, the people managing agricultural holdings in the vast majority (88-90%) were of working age, the relationship between the size of the group of managers of mobile working age and of older working age changed. A characteristic feature of this process was a systematic decrease in the share of farmers aged 18-44 years and the increase in the proportion of managers of immobile working age. As a result, in 2011, people of older working age constituted the dominant (52%) age group among the managers of individual holdings. In 2000, the most numerous (47%) population were farmers aged 18-44 years.

Despite the signs of aging, the age structure of Polish farmers can still be considered as relatively favourable. Especially in comparison to the situation in this respect in EU agriculture, where more than 34% of farm managers were over 65 years old, while among managers of individual farms in Poland about 10% were of that age.

The analysis of available empirical data shows that generational change among farm managers went hand in hand with increasingly higher levels of schooling. These transformations should be considered very positive, because the level of education has a direct impact on the speed and effects of the implementation of technical and technological innovation in agriculture.

In 2011, still about 20% of managers completed only primary school or secondary school. The proportion of farmers who left school at the statutory level decreased significantly compared to 2000, and was almost twice lower. Both in

2000 and in 2011, the most common was basic education; about 45-46% of farmers completed it. At the same time there has been a progress at secondary and post-secondary level (increase from 16 to 28%) and higher (percentage of managers of individual farms with this education increased from 3 to almost 7%).

Studies confirmed further growth in a relatively big popularity of non-agriculture education among farmers. In 2000-2011, the share of people with school non-agricultural qualifications among managers increased from 40 to 53%. Improving the level of non-agricultural professional qualifications in the analyzed population should be considered as beneficial, not only from the point of view of diversification of economic activity and employment outside the farm, but also with regard to agricultural activities. Today, the effective operation of a farm requires a range of skills and competencies that go far beyond conventional preparation for the profession of a farmer.

The collected survey data show that in contrast to earlier periods, in 2000-2011 there was no progress in the dissemination of agricultural school qualifications. At this time, the share of managers who have completed agricultural schools did not change and remained at the level of 23-24%. At the same time, the share of farmers with only trainings to prepare for the occupation of farmer decreased systematically (from 27 to 17%). It should be noted, however, that despite the stagnation in the prevalence of agricultural education among managers of market-oriented farms with a relatively high production potential, there was progress in the professional preparation for the farming profession. As a result, in 2011, the group of managers of market-oriented farms with a production capacity which creates opportunities to generate revenue comparable to the work outside agriculture, was dominated by people from school vocational education of agricultural profile.

The analysis of data from field studies documents the relationship between the age structure and the level of education of farmers and economic potential (force) of individual farms. In each study period, the greater the economic potential (area, production size), the higher the proportion of managers aged 18-44 years and with general education at least at the secondary and vocational school level with agricultural profile, and the lower the proportion of farmers of post-working age and with professional preparation for farming.

The analyses show that the age structure and the level of education of managers of individual farms still varied spatially, but the macro-regional differences were relatively smaller than in the case of area groups, or the size of agricultural activity. In areas with a favourable area structure, large-scale commodity production and high profitability of farming, the farmers invariably form a relatively younger group and are better prepared for the occupation. For many years the conditions of agricultural structures have been conducive to the professionalization of farming in the central-western macro-region. In contrast, managers of individual farms in macro-regions with a relatively high level of

urbanization and the prevalence of gainful employment among the rural people were characterized by a relatively large population of older people. Such conditions were present in the southern parts of Poland, especially in the south-eastern macro-region, where the unfavourable climate and natural conditions and extremely fragmented area structure constituted serious obstacles to the development of agricultural production.

According to survey data, in 2011, a statistical Polish manager was male (78%), aged about 47 years (half of them were of working immobile age), had a general education at vocational level (over 45%) and had no school preparation for the profession (only 24% of managers completed agricultural schools). In contrast, he had school qualifications for taking work outside the managed family farm (more than 53% of the farmers completed vocational schools of non-agricultural profile).

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Chapter 8. Economic activity of managers of individual farms in Poland

8.1. Introduction

The most optimal use of labour resources is one of the key tasks of farm managers. Given the family character of farms in Poland and the rather strongly fragmented area structure, the decisions of managers concerning the issue include not only the scope of involvement of the family members in carrying out the activity, but also the level of involvement of a person managing the farm. From the perspective of a household and its budget, the scale of involvement in agricultural activity, its complete cessation or a decision on joining it with other forms of earning a living depends on the selected economic strategy which is primarily targeted at economic benefits. Decision on the level of involvement of farm managers and their family members in the agricultural activity are preconditioned by the scale of production of a farm, which under Polish conditions is still largely dependent on the owned acreage of land, the number of technical devices in the workplace and the possibility to find non-agricultural sources of income[110]. The rather good, at the European background, age structure and the improving structure of educational attainment of farm managers results in an increased professional mobility of this group, and causes that the decision on diversification of professional activity of farmers, especially in case of small farms, allows for continuation of the pursued activity, even if the scale of production is relatively small.

The concept of the European model of agriculture assumes duality of its functions, which apart from the objectives related to food production, encompass also social and environmental functions. This model supported by the European Union measures assumed co-existence of large farms able to ensure food security and smaller farms, whose functioning would be related to maintenance of the public goods, including, above all, landscape and cultural assets of the countryside, as well as the status of the natural environment[111]. The

[110] See B. Karwat-Woźniak, *Charakterystyka gospodarstw rolnych uznanych przez użytkowników za rozwojowe*. Komunikaty, Raporty, Ekspertyzy z. 474, IAFE-NRI, Warsaw 2001, pp. 5-6.
[111] See Opinion of the European Economic and Social Committee on the 'Reform of the common agricultural policy in 2013' (2010/C 354/06), Official Journal of the European Union C 354, of 28.12.2010.

globalisation processes impose a pressure on agriculture to minimise the costs of land use and labour, and thereby to industrialise agriculture[112].

This pressure is a natural consequence of the market processes, but it constitutes a threat to the European model of agriculture, which allows for some decrease in the efficiency[113] (and thus competitiveness) to the benefit of protection of goods recognised as public. Under such circumstances the diversification of economic activity of agricultural population is considered as one of the key parts of the efforts to maintain the model of agriculture that corresponds to social expectations.

Employment at Polish individual farms is characterised by significant differentiation of the scope of involvement in work at a farm, as well as considerable spread of methods to earn a living. According to the data from the National Agricultural Census of 2010 (NAC), regardless of the amount of performed work almost 2.4 million family members worked only on individual farms, further 117 thousand joined worked at a family farm with paid employment, while the farm was the main place of their professional activity[114]. Moreover, an increasingly growing number of farms do not generate any income on a permanent basis. This situation preconditions also the level of involvement of the farm manager in the conducted agricultural activity.

8.2. Managers according to the involvement in work at a farm

More than two-thirds of managers of individual farms covered by the research in 2011 were involved only in work at their own farm, an only one-third joined this form of work with professional activity on non-agricultural labour market. This share has been on an increase for years. According to the 2000 data the share of such persons constituted less than one-quarter of the total described group[115]. At the same time, the share of unnecessary persons, among all persons working at an individual farm, is still rather high.

The research also shows that there is an interdependency between the number of people joining work at their own farm with paid employment in non-agricultural sectors and the size of the farm (Table 8.1).

[112] See S. Kowalczyk, *Globalizacja agrobiznesu: specyfika, wymiary, konsekwencje*, „Zagadnienia Ekonomiki Rolnej", no. 2/2010.

[113] COPA-COGECA's memorandum on the future development of the European Model of Agriculture, Pr(06)116F1, P(06)117F1 Brussels, 7 July 2006

[114] B. Karwat Woźniak, P. Chmieliński, *Ludność wiejska oraz jej aktywność zawodowa i sytuacja na rynku pracy* [In:] Rynek pracy wobec zmian demograficznych, M. Kiełkowska (ed.), Zeszyty demograficzne, Instytut Obywatelski, Warsaw 2013

[115] J. Buks, B. Buks, *Cechy społeczno-demograficzne i aktywność ekonomiczna kierowników gospodarstw rolnych*, Komunikaty, Raporty, Ekspertyzy, IAFE, z. 495, Warsaw 2005.

Table 8.1. Managers according to the involvement in work at the farm and size groups

Share of persons	Total	Size group (ha of UAA)							
		1-2	2-5	5-10	10-15	15-20	20-30	30-50	50 and more
working exclusively on the farm	64.0	50.6	55.8	67.2	75.1	74.8	83.4	84.1	81.1
combining on-farm and off-farm employment	36.0	49.4	44.2	32.8	24.9	25.2	16.6	15.9	18.9

Source: Compiled on the basis of 2011 IAFE-NRI survey data.

According to the field research data, in 2011 the share of managers of the smallest farms, i.e. of up to 2 ha of UAA, that were active on the non-agricultural labour market constituted almost half of the respondents in this group. This share decreases along with the increase in the size of the own farm, while even in case of the largest farms in terms of area, i.e. above 20 ha of UAA, every sixth respondent on average joined the work on a farm that he/she managed with non-agricultural employment.

Table 8.2. Economic activity of managers of individual farms according to area groups

Area groups	Working exclusively on the farm				Combining on-farm and off-farm employment		
	total	of which:			total	of which:	
		permanent full time	permanent part time	seasonal occasionally		mainly on-farm	mainly
TOTAL	100.0	63.5	20.0	16.5	100.0	9.7	90.3
1-2	100.0	22.5	32.2	45.3	100.0	1.6	98.4
2-5	100.0	42.7	33.2	24.0	100.0	2.7	97.3
5-10	100.0	72.7	16.8	10.4	100.0	9.5	90.5
10-15	100.0	84.8	10.3	4.8	100.0	20.8	79.2
15-20	100.0	89.0	9.7	1.3	100.0	30.8	69.2
20-30	100.0	91.6	4.8	3.6	100.0	54.5	45.5
30-50	100.0	93.4	5.7	0.9	100.0	65.0	35.0
50 and more	100.0	95.3	2.3	2.3	100.0	80.0	20.0

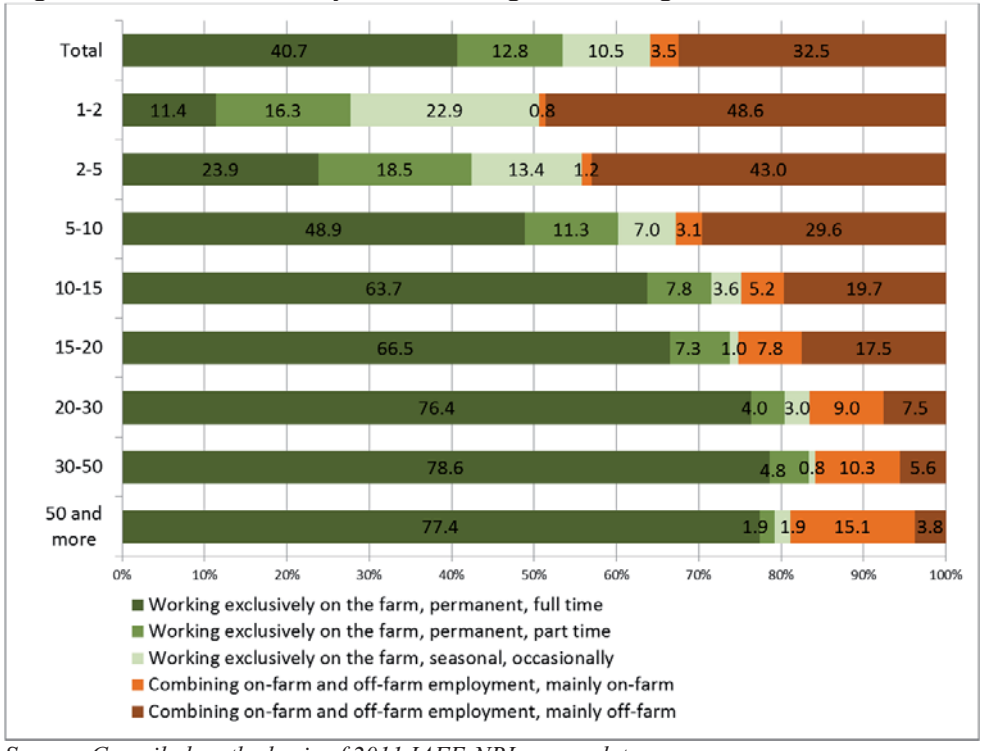
Source: Compiled on the basis of 2011 IAFE-NRI survey data.

Among persons working only on a farm, those full-time involved in agricultural activity on a permanent basis represented only two-thirds of the group of managers covered by the research. Simultaneously, in the group of farmers from the smallest farms in terms of area, this share was significantly lower and constituted only 22% in case of units of up to 2 ha of UAA and less

than 43% in case of farms of 2-5 ha of UAA. In this group part-time, casual and seasonal involvement in work on a farm was very common (Table 8.2).

Labour input of managers of their own farms increased along with the size of the owned land acreage, hence only in farms of more than 20 ha of UAA the share of managers involved full-time in production activity amounted to over 90%. Similar relations may be observed in case of farm managers, who join this function with non-agricultural employment. Persons deciding for that type of professional activity for the most part worked outside of their own farm. This group amounted to 90% of the total number of persons joining these two forms of employment.

Figure 8.1. Economic activity of farm managers according to size of the owned farm



Source: Compiled on the basis of 2011 IAFE-NRI survey data.

When analysing the interdependencies between the area size and economic activity of farm managers, it should be noted that the group of persons working full-time only in the agricultural activity on a permanent basis represents no more than 41% of the entire examined group. Others are not involved in work on a farm because there is no need for it, or they are active also on non-agricultural labour market (Figure 8.1).

This comparison illustrates low involvement in work on farms of 1-2 ha and 2-5 ha of UAA, where this share amounts to 11 and 24%, respectively, and attests to the high level of involvement in work outside one's own farm. It should be noted that the improving structure of educational attainment (along with the growing significance of non-agricultural education) and relatively favourable age structure, translate into a significant level of diversification of professional involvement of managers of family farms in Poland.

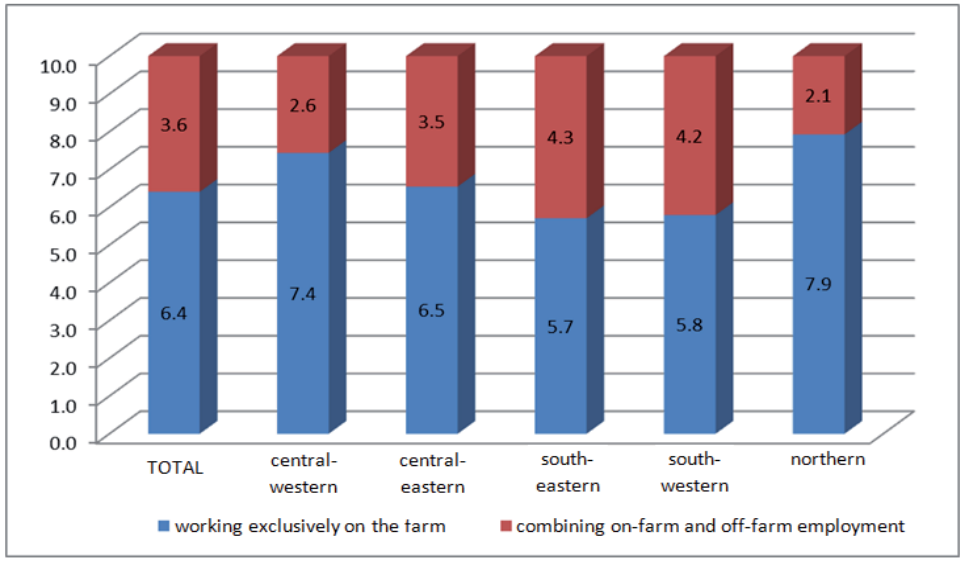
This is evidenced by the fact that even in the case of the largest farms in terms of area, farmers seek additional possibilities to earn a living, which is possible, for instance, through improvements in work mechanisation in agriculture.

8.3. Spatial differentiation of economic activity

When analysing the case of economic activity of farm managers it should be emphasised that in this area significant regional differences are visible. These are linked to a different area structure of farms in different regions of the country, but also with the differences in popularisation of non-agricultural activity among rural population, as well as functions ascribed to a farm.

The research conducted in 2011, shows that the highest share of managers of individual farms involved only in work on their own farm was noted in the central-western and northern macroregion (Figure 8.2).

Figure 8.2. Spatial* differences in involvement of farm managers in engagement in work on the farm



*Respective macroregions as described in map 7.1 - Chapter 7.
Source: Compiled on the basis of 2011 IAFE-NRI survey data.

This is linked to a relatively favourable area structure of farms in the voivodship falling within the boundaries of these macroregions which predetermines the level of involvement in the conducted agricultural activity. Whereas relatively the highest number of farmers joining work on a farm with other forms of activity was noted in south-eastern and south-western macroregions. These are areas characterised by the most fragmented agrarian structure in the country, where doing two jobs is also a common tradition among farmers and their family members. This situation pertained especially to the south-eastern macroregion, where persons working full-time only on a farm on a permanent basis represented just 42%, and among all farm managers as much as 31% was involved in work in agriculture only on seasonal or casual basis. In the central-eastern macroregion the value of these indicators amounted respectively to 86 and 4% (Table 8.3).

Table 8.3. Managers working only on a farm according to the macroregions

Macroregions	Working only on a farm			
	total	including		
		permanent full time	permanent part time	seasonal occasionally
TOTAL	100.0	63.5	20.0	16.5
Central-western	100.0	86.0	10.4	3.7
Central-eastern	100.0	67.1	19.5	13.4
South-eastern	100.0	41.8	27.6	30.6
South-western	100.0	67.1	22.4	10.6
Northern	100.0	81.5	9.5	8.9

Source: Compiled on the basis of 2011 IAFE-NRI survey data.

The scale of spatial differentiation among famers joining work on their own farm with non-agricultural employment was relatively small. Work outside of a farm predominated in the entire researched group (90% of respondents from the category), while differences between the southern and northern parts of the country were clearly marked. The share of managers working mainly on their own farms among those joining different forms of employment was on average two times lower than in case of south-eastern and south-western macroregions as compared to the remaining macro-regions (Table 8.4).

Analysis of the level of involvement of managers in work on their own farm in individual regions of the country points to continuing differences in this respect. This confirms the thesis that the image of contemporary agriculture in individual regions is still influenced by historical conditions of socio-economic development and the area structure of farms. The macro-region with the traditionally highest level of agricultural development is the central-western

macro-region, and structural problems are faced mainly by voivodship of the south-eastern macro-region[116]. This is reflected in the level of involvement in work on one's own farm.

Table 8.4. Managers working on a farm and outside of it according to the macro-regions

Macroregions	Share of person combining on-farm and off-farm employment		
	total	including	
		mainly on-farm	mainly
TOTAL	100.0	9.7	90.3
Central-western	100.0	12.6	87.4
Central-eastern	100.0	12.8	87.2
South-eastern	100.0	6.7	93.3
South-western	100.0	6.0	94.0
Northern	100.0	11.4	88.6

Source: Compiled on the basis of 2011 IAFE-NRI survey data.

8.4. Professional activity versus market activity

The decision of farm managers regarding the scale of involvement in work on a farm is closely related to the scale of market activity of the entity, since achievement of a satisfactory level of farm income depends on the fact of having at one's disposal relevant production assets[117].

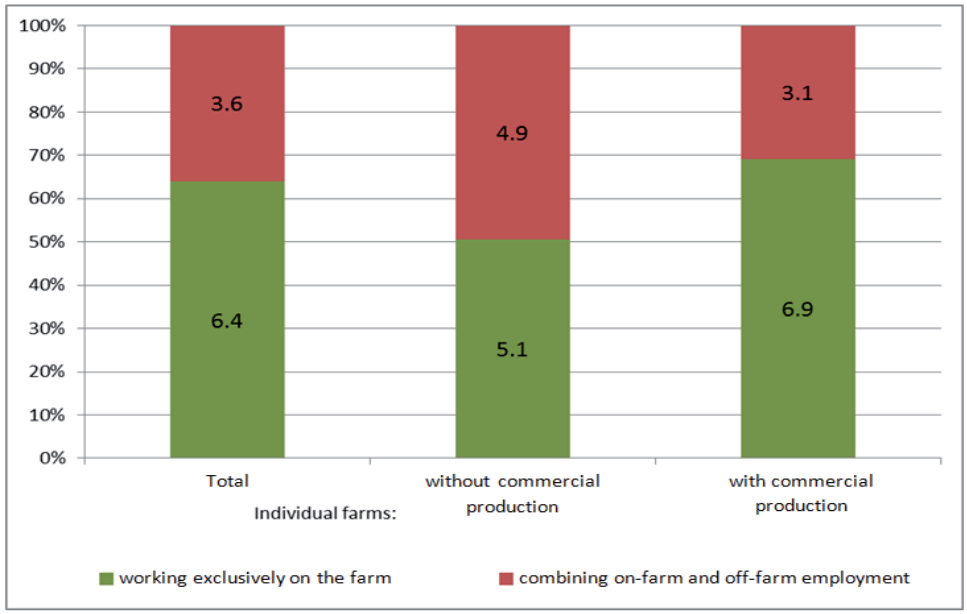
The analysis of economic activity of farmers according to their market activity documented the fact that managers of farms pursuing commercial production were relatively more often than others involved in work only on their own farm. The share of such persons amounted to nearly 70% as compared to 51% in the remaining group (Figure 8.3).

At the same time, it is still true that there is a significant dependence between professional activity of managers and the size of production to the market generated by the farm. Persons managing a farm without commercial production and declaring that they work only on their own farm were definitely more often involved in part-time work and work on seasonal and casual basis. Lack of market activity of the farm was related to a very limited working time for nearly three-quarters of the researched group of managers (Table 8.5). Among farmers from farms pursuing commercial production this ratio was reverse – nearly three-quarters of them worked full-time on a farm on a permanent basis.

[116] See: *Przemiany strukturalne we wsiach objętych badaniem IERiGŻ w latach 1996-2000*, A. Sikorska (ed.), IAFE, Warsaw 2001.

[117] B. Karwat-Woźniak, *Gospodarstwa wysokotowarowe w rolnictwie chłopskim. Synteza wyników badań 2005-2009*, Multiannual Programme Report 2005-2009 no 151, IAFE-NRI, Warsaw 2009, p. 16.

Figure 8.3. Professional activity of managers of individual farms according to market activity



Source: Compiled on the basis of 2011 IAFE-NRI survey data.

When analysing the structure of managers working on farms active on the market, it should be emphasized that their share in full-time work differed depending on the production scale.

Table 8.5. Structure of managers working only on an individual farm according to market activity

Macroregions	Share of persons working exclusively on the farm			
	total	including:		
		permanent full time	permanent part time	seasonal occasionally
TOTAL	100.0	63.5	20.0	16.5
without commercial production	100.0	26.6	24.9	48.5
with commercial production	100.0	73.9	18.6	7.4
including with commercial production				
up to PLN 10 thousand	100.0	53.0	31.3	15.7
100 thousand and more	100.0	90.8	6.6	2.6

Source: Compiled on the basis of 2011 IAFE-NRI survey data.

In case of farms with production scale amounting up to PLN 10 thousand only about half of managers fulfilled their functions full-time. Only a relatively

significant market activity of a farm guaranteed full involvement of the manager in the decision-making and production process. Such people represented 91% in the analysed group.

In general, a regularity might be indicated – the greater the scale of commercial production, the higher the share of entities managed by persons involved only in full-time work on their farms. Whereas the analysis of the structure of managers who combined work on their own farm with non-agricultural employment points to the crucial significance of market activity as a factor influencing the scale of differentiation in this regard (Table 8.6). The group of managers of farms not pursuing commercial production, who combine together different forms of earning a living and point that the farm is their the main place of work is insignificant (below 1%).

Table 8.6. Structure of managers joining work on an individual farm with non-agricultural employment according to market activity

Macroregions	Share of persons combining on-farm and off-farm employment		
	total	of which:	
		mainly on-farm	mainly off-farm
TOTAL	100.0	9.7	90.3
without commercial production	100.0	0.2	99.8
with commercial production	100.0	15.5	84.5
including with commercial production			
up to PLN 10 thousand	100.0	3.8	96.2
PLN 100 thousand and more	100.0	76.6	23.4

Source: Compiled on the basis of 2011 IAFE-NRI survey data.

In 2011, it was also observed that there is a strong differentiation as regards the predominant place of work of managers from the group of farms with commercial production. As far as 76% of farm mangers registering sales above PLN 100 thousand declared that they worked mainly in agriculture, the value of this indicator in case of entities with commercial production at the level below PLN 10 thousand amounted to less than 4%. It should be also noted that among farm managers registering production at the level above PLN 100 thousand, who combine work in agriculture with non-agricultural employment, nearly one-quarter of respondents indicated work outside a farm as their main source of income.

8.5. Summary

The presented data from the IAFE-NRI study confirm the interdependency between economic activity of managers of individual farms as regards agrarian structure, and commercial character of agricultural production. Under the Polish

conditions the link between commerciality of farms and their area is still significant, and thus both these features were strongly reflected in the decisions of farm managers concerning the level of involvement in agricultural activity as well as differentiation of professional activity. In the group of Polish farms there is a large group of entities, which do not allow for obtaining a satisfactory level of income thus people formally acting as managers of such farms are involved in the agricultural activity to an insignificant degree. It should be stressed that a significant number of managers of farms relatively large in terms of area, decide to combine the farm work with non-agricultural employment. This allows for an increase in the labour saving production techniques.

The level of involvement of managers in work on their own farms continues to be considerably differentiated. Historical differences in this regard have not been obliterated which is evidenced by the long-lasting high level of rural residents doing two jobs (including farm managers) on southern areas, where the scale of agrarian fragmentation is high. At the same time, it might be assumed that the high share of people managing small farms of little value or without commercial production forms a part of family-support strategy which assumes optimization in the structure of income of family members and covers also the decision on economic activity of a farm manager.

The European model of agriculture provides for support to farms whose functioning, from the perspective of roles it fulfils, is significant for the environment and maintenance of natural and cultural heritage. Thus from this point of view, the decisions of small farm managers to diversify economic activity and limit the scope of work on one's own farm may be regarded as a positive phenomenon.

Conclusions

- At the EU level, the population of farm managers was characterized by unfavourable demographic structure. In this population, the majority were people from the older category, and those of the younger age groups were in minority.
- In the analysed countries, most farmers were characterized by a low level of professional education. Their qualifications were based primarily on practical experience.
- The demographic potential of women managing farms in Poland was higher than that of the general population of women managers in all listed groups of countries, and higher than, for example, in Sweden, Denmark, the United Kingdom. In several countries, the level of this indicator among women reached a higher level than in the case of male managers. Such a situation occurred in Austria, Finland, Ireland, the Czech Republic and Slovenia.
- Many job opportunities for workers and managers in agricultural sector and in sectors connected to input/output were lost due to unfavourable changes in size and structure of Czech agriculture (decline of livestock production, growing of vegetables, potatoes etc.). Workers in agriculture are (in average) older than those in industry and in national economy. Farm managers are older than other workers in agricultural holdings. Heads of agricultural holdings are mostly 45-64 years old.
- The potential of managerial staff in the agricultural sector in Ukraine is relatively high due to the rich experience of specialists in the functioning both at the times of system transformations and market economy. The conditions of agricultural operations in Ukraine still cannot be deemed as fully market-oriented, but many aspects of economic life indicate that the managerial staff is ready to function in the global economic system.
- The structure of the farm managers by gender, age and education level is extremely unfavorable in Romania. Main problems are the aging, the low education level and the lack of specialized training and not sufficient women participation in the management. The drawn positive trends do not lead to considerable changes in the social demographic characteristics and structure of the managers in the country.
- According to survey data, in 2011, a statistical Polish manager was male (78%), aged about 47 years (half of them were of working immobile age. Had a general education at vocational level (over 45%) and had no school preparation for the profession (only 24% of managers completed

agricultural schools). In contrast, he had school qualifications for taking work outside the managed family farm (more than 53% of the farmers completed vocational schools of non-agricultural profile).

- Under the Polish conditions the link between commerciality of farms and their area is still significant, and thus both these features were strongly reflected in the decisions of farm managers concerning the level of involvement in agricultural activity as well as differentiation of professional activity. In the group of Polish farms there is a large group of entities, which do not allow for obtaining a satisfactory level of income thus people formally acting as managers of such farms are involved in the agricultural activity to an insignificant degree.

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