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THE IMPORTANCE OF ENVIRONMENTAL PROTECTION FROM THE PERSPECTIVE OF YOUNG FARMERS IN THE HOMOKHÁTSÁG REGION¹

ZNACZENIE OCHRONY ŚRODOWISKA Z PERSPEKTYWY MŁODYCH ROLNIKÓW Z HOMOKHÁTSÁG

Key words: young farmers in Hungary, Homokhátság, sustainable agricultural, environment, aridification, greening

Słowa kluczowe: młodzi rolnicy na Węgrzech, Homokhátság, zrównoważone rolnictwo, środowisko, wyjałowienie, zazielenie

JEL codes: Q19

Abstract. It could be stated of the European Union member states that the proportion of workers in agriculture is steadily declining which in addition is coupled with a low proportion of young farmers. The issue of young farmers and sustainability is a top priority in the strategy “Europe 2020: Smart, Sustainable and Inclusive Growth”, as the importance of young people’s involvement and environmental protection is indispensable to the future of agriculture. In my research, I look at the young farmers of the Homokhátság (Sand Ridge) region of Hungary searching for answers to the challenges young farmers face today in these special areas. How do they deal with environmental protection, how does their farming influence the problem of aridification?

Introduction

Environmental protection, as an expression, did not appear in dictionaries, scientific literature and encyclopedias until the 1970s. The emergence of environmental consciousness and environmental responsibility only strengthened at the end of the 20th century although by the 1960s approx. 20 million people were affected by drought, and in the 1970s, nearly 25 million people were at risk. The 1st World Environment Conference was held in Stockholm in 1972 where 113 states were represented. The aim of the conference was to make the world aware of the threats to man’s natural environment and to draw attention to its global nature. Aridification, global warming, the destruction of acid rain and the thinning of ozone layer all led the United Nations to create the World Commission on Environment and Development in 1983, also known as the Brundtland Commission [Szabó 1996]. In 1987, the Commission created the report “Our Common Future” laying down the principles and thoughts through which the Earth can be rescued for future generations [Slovak 2007]. The following slogans appeared: „The Earth was not inherited from our ancestors but borrowed from our grandchildren.”, or „Think globally, act locally.”

In 1997, the European Commission published the Agenda 2000 document in which a multifunctional agriculture receives an increasing role. According to this, agriculture has three functions. Besides the production and social functions the environmental function of agriculture also appears [Kovács 2012].

Nowadays, one of the main goals of rural development is the protection of environmental and natural values, the preservation of the European rural heritage, in which the preservation

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of the environment, the elaboration of the need for environmentally friendly agriculture and the multifunctionality of agriculture are of particular importance [Buday-Sántha 2001].

In the current budget cycle the European Commission has set its targets in five areas - Employment, Research and Innovation, Climate Change and Energy, Education and Combating Poverty – to be met by Member States' goals by 2020. Europe 2020 has three priorities, such as:

- smart growth: creating a knowledge-based and innovation-based economy;
- sustainable growth: creating a resource-efficient, greener and more competitive economy;
- inclusive growth: creating high employment and social and territorial cohesion [EC 2010].

The EU has to decide what it would like to achieve by 2020. With regard to the environment, the Commission has proposed the following: to meet the „20/20/20” climate energy objectives (including a 30% reduction in emissions under appropriate conditions) [Copus, Well 2015].

It is of the utmost importance for farmers to preserve and maintain the productive capacity of their natural resources, but the long-term environmental impacts of production have not always been emphasized [Takácsné György 2008]. In the developed countries, after WWI, an industrialized production model has emerged and by the turn of the '50s and '60s it has caused a shift in the relationship between agriculture and the environment. In agriculture, the schematic view has become general which has devalued the role of natural resources such as soil, wildlife and arable lands [Buday-Sántha 2001]. In the 21st. century, however, every landowner must be aware of the environmental impacts of their production and make every effort to maintain the productivity and environmental security of resources [Takácsné György 2008]. The problem with the Homokhátság, however, is that farming and the use of land is not always in accordance with ecological conditions. The goals for sustainable development of the Sand Ridges in the Danube-Tisza River must include the protection of resources, their sustainable utilization and the increase of its population retention capability.

middle regions/*regiony środkowe:*

- ▲ winter rains and floods/*pory deszczowe i powódzie*
- ▼ summer rise/*pory słoneczne*
- ▲ drought, lack of water/*susza, niedobory wody*
- ▲ the risk of soil erosion/*ryzyko erozji gleby*
- ▼ crop yields/*plony*

north regions/*regiony półn.:*

- ▼ summer rise/*pory słoneczne*
- ▲ winter storms and floods/*zimowe burze i powódzie*
- ▲ harvest period, crop yield/*okres zbiorów, plony*
- ▲ good soil quality/*dobra jakość gleby*
- ▲ a risk of crop pests and diseases/*ryzyko szkodników i chorób uprawy*

west, atlantic regions/*regiony zach. i atlantyckie:*

- ▲ floods/*powódzie*
- ▲ warm and drier summers/*cieple i suchsze lata*
- ▲ change of the sea level/*zmiana poziomu morza*
- ▲ a risk of crop pests and diseases/*ryzyko szkodników i chorób uprawy*
- ▼ veterinary hygiene and wealth/*higiena weterynaryjna i dobrostan*

south, southeast regions/*regiony płd. i płd.-wsch.:*

- ▼ quantity of water/*ilość wody*
- ▲ drought and heat wave/*susza i fale upałów*
- ▲ soil erosion/*erozja gleby*
- ▼ harvest period, crop yields/*okres zbiorów, plony*

- middle regions/*regiony środkowe*
- north regions/*regiony półn.*
- south, southeast regions/*regiony płd. i płd.-wsch.*
- west, atlantic regions/*regiony zach. i atlantyckie*



Figure 1. Possible impacts of climate change on agriculture in EU Member States

Rysunek 1. Możliwe skutki zmian klimatycznych w rolnictwie w państwach członkowskich UE

Source/Źródło: [EC 2013]

Material and methods

The Homokhátság covers an area of 8714 km² encompassing a total of 117 settlements. It covers mainly the small localities on the plains of the Danube-Tisza interfluvium. It is often listed as being part of the Danube-Tisza or Kiskunság geographical areas, however, the Homokhátság cannot be neatly fitted in any of these classic regional categories. The area cannot be clearly defined in public administration either as much of it is found in Bács-Kiskun county, and significant parts of it extend to Pest and Csongrád counties [Glatz, Csatári 2004].

For this area a very poor quality agricultural land is typical. Nevertheless, people living here always manage to find the most favorable forms of farming. They cultivated fruits and grapes, arable crops and even fresh vegetables. For other poorly-populated areas this is not at all typical, so Homokhátság can be considered a positive example [Kovács 1996].

The landscape of the Ridges is unique, characterized by excellent climatic and soil conditions for agriculture, a coherent settlement structure and exceptional landscape values (running sand, primordial junipers, salty lakes, etc.). The area is characterized by rainfall dependence, desertification, and a slowly falling behind, depopulating area which leads to population migration and aging [Terra Studio 2007].

My primary focus was the young farmers of the Sand Ridges of Central Hungary. I applied primary data collection method for the realization of research tasks and research objectives. The questionnaire method was utilized to ask farmers, however some questionnaires were conducted in an in-depth interview style. I have personally visited farmers under the age of 40 thus a total of 122 young farmers were selected using the snowball scheme. The snowball method is not a probability selection procedure, which refers to a gradual accumulation. People already reached suggest newer people. This procedure is usually applied for exploratory purposes [Babbie 2008, p. 207]. Questionnaires or interviews were conducted from October 2016 until March 2017.

The data was evaluated with SPSS. I looked for links between the questions by cross-table analysis that examines the relationship between two or more variables. The analysis is used to find out whether two nominal or ordinal variables are related to each other. The correlation between the two variables is shown in the Pearson Chi-square table [Sajtos, Mitev 2007].

Results and discussion

There is no correlation between the farmers involved solely in organic farming and the question of environmental sustainability which means that conventional farmers also consider their farms to be environmentally sustainable (fig. 2). Out of the 122 interviewees, eight are involved in organic farming, 20 are planning to migrate to organic farming and 95 of them do not plan on switching. The main reasons mentioned were: „I do not believe that it can be produced without chemicals” (25) and „labor shortage” (25 people). Among other things, it was mentioned that the varieties cultivated cannot be produced within the framework of organic farming (e.g. apple pesticides are necessary 23-28 times a year).

During the personal visits it turned out that out of the total merely five individuals were thinking about the future environmental sustainability of their farm. Those farmers growing horticultural crops in greenhouses and foil tents are particularly affected by the problem of water usage. Extracting water from illegally drilled wells, for which users are not paying, leads to wasteful usage of water. Some farmers also reported bad water quality which now makes growing some produce, for example parsley, impossible. Economic sustainability of the farm is not influenced by its size (ha). Owners of smaller and larger farms also claimed to comply with the criterion of economic sustainability (development) (fig. 3).

I also asked farmers about the use of renewable energy sources. A total of 20 farmers use renewable energy in their household or farm. It can be concluded that there is a weak correlation (11.3%) between the per capita monthly net income of the family and the use of renewable

Chi-Square Tests/ <i>Test Chi kwadrat</i>	Value/ <i>Wartość</i>	Df	Asymp. sig. (2-sided)/ <i>Istotność asympotyczna (dwustop.)</i>
Pearson Chi-square/ <i>Chi kwadrat Pearsona</i>	2,776*	2	0,250
Continuity correction/ <i>Korelacja ciągła</i>			
Probability ratio/ <i>Współczynnik prawdopodobieństwa</i>	4,611	2	0,100
Linear-by-linear association/ <i>Liniowo-liniowe asocjacja</i>	0,525	1	0,469
No. of valid cases/ <i>Liczba istotnych rekordów</i>	122		–
* 3 cells (50,0%) have expected count less than 5. The minimum expected count is 0,71/3 z rekordów nie miały wartości mniejszej niż 5. Minimalna oczekiwana wartość to 0,71			

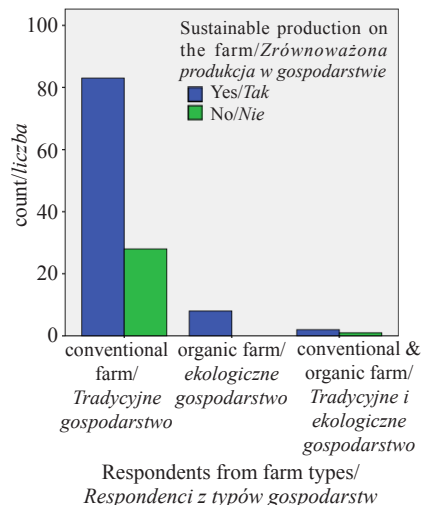


Figure 2. Relationship between the type of business (eco, conventional, transitional) and the environmental sustainability of the farm

Rysunek 2. Związek między typem działalności gospodarczej (eko, konwencjonalny, przejściowy) a zrównoważonym rozwojem gospodarstwa

Source: own research

Źródło: opracowanie własne

Chi-Square Tests/ <i>Test Chi kwadrat</i>	Value/ <i>Wartość</i>	Df	Asymp. sig. (2-sided)/ <i>Istotność asympotyczna (dwustop.)</i>
Pearson Chi-square/ <i>Chi kwadrat Pearsona</i>	3,436*	6	0,752
Continuity correction/ <i>Korelacja ciągła</i>			
Probability ratio/ <i>Współczynnik prawdopodobieństwa</i>	4,809	6	0,568
Linear-by-linear association/ <i>Liniowo- liniowe asocjacja</i>	0,036	1	0,849
No. of valid cases/ <i>Liczba istotnych rekordów</i>	121		–
* 8 cells (57,1%) have expected count less than 5. The minimum expected count is 0,26/10 rekordów nie miało wartości mniejszej niż 5. Minimalna oczekiwana wartość to 0,26			

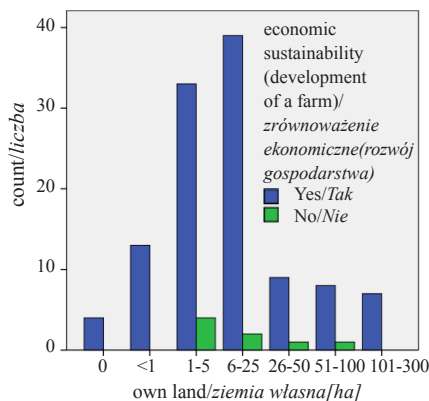


Figure 3. Relationship between the size of the area and economic sustainability

Rysunek 3. Związek pomiędzy powierzchnią gospodarstwa a trwałością gospodarczą

Source: own research

Źródło: opracowanie własne

energy sources, but most farmers with higher incomes (100 000 HUF/person) can afford to use renewable energy sources (fig. 4).

Renewable energy sources are not primarily used by farmers who own farmsteads, as I have not found any connection between the use of renewable energy sources and farm owners with farm real estate (fig. 5). This finding suggests that these farmers did not utilize the farmstead development subsidy to invest in renewable energy but used their own resources.

Chi-Square Tests/ Test Chi kwadrat	Value/ Wartość	Df	Asymp. sig. (2-sided)/ Istotność asymptotyczna (dwustop.)
Pearson Chi-square/ Chi kwadrat Pearsona	12,959*	8	0,113
Continuity correction/Korelacja ciągła			
Probability ratio/ Współczynnik prawdopodobieństwa	13,823	8	0,087
Linear-by-linear association/Liniowo- liniowe asocjacja	6,940	1	0,008
No. of valid cases/ Liczba istotnych rekordów	121		—
* 10 cells (66,7%) have expected count less than 5. The minimum expected count is 0,03/10 rekordów nie miało wartości mniejszej niż 5. Minimalna oczekiwana wartość to 0,03			

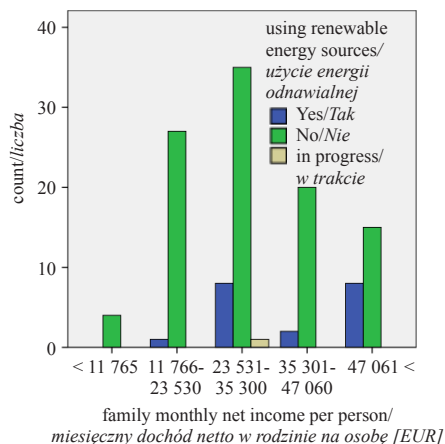


Figure 4. Relationship between the usage of renewable energy sources and monthly net income per capita of the family

Rysunek 4. Związek między zużyciem energii pochodzącej z odnawialnych a miesięcznym dochodem netto na mieszkańca rodziny

Source: own research

Źródło: opracowanie własne

Chi-Square Tests/ Test Chi kwadrat	Value/ Wartość	Df	Asymp. sig. (2-sided)/ Istotność asymptotyczna (dwustop.)
Pearson Chi-square/ Chi kwadrat Pearsona	1,949*	3	0,583
Continuity correction/Korelacja ciągła			
Probability ratio/ Współczynnik prawdopodobieństwa	2,762	3	0,430
Linear-by-linear association/Liniowo- liniowe asocjacja	0,734	1	0,392
No. of valid cases/ Liczba istotnych rekordów	121		—
* 3 cells (37,5%) have expected count less than 5. The minimum expected count is 0,83/3 rekordy nie miały wartości mniejszej niż 5, stąd minimalna oczekiwana wartość to 0,83			

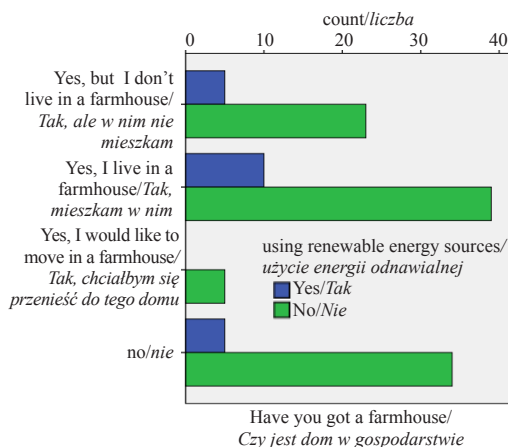


Figure 6. Relationship between the farm real estate and renewable energy sources

Rysunek 6. Powiązanie między nieruchomościami gospodarstwa źródłami energii odnawialnej

Source: own research

Źródło: opracowanie własne

Conclusions

Based on cross-analysis, it can be concluded that there is no correlation between the environmental sustainability of the farms and the agricultural education of the subjects involved in the research. Not only organic farmers deem their farms environmentally sustainable but also conventional ones. Farmers managing smaller areas also meet the requirements of economic sustainability (development), because they trust in further opportunities for land acquisition and development. In my opinion, this may also be due to the fact that most farmers do not want to abandon agricultural activity and in their case there is also no lack of generational knowledge. There is weak linkage between monthly per capita net income of the family and their use of renewable energy sources. For those with a net income of 100 000 HUF / person (approx. 325 euros), however, the usage of these resources was greater. Very few of the homestead owners used renewable energy sources which to me shows that few of the respondents took advantage of the farm development tenders to resolve the energy supply problem of their homesteads.

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Streszczenie

Celem artykułu jest określenie znaczenia działań z zakresu ochrony środowiska z perspektywy młodych rolników z regionu Homokhátság na Węgrzech. Stwierdzono, że zarówno w całej Unii Europejskiej, jak i na Węgrzech spada udział osób młodych zatrudnionych w rolnictwie. Jednocześnie w dokumentach strategicznych UE wskazuje się na istotne znaczenie ludzi młodych w kreowaniu zrównoważonego rozwoju rolnictwa. W badaniu posłużono się opiniami młodych rolników z regionu Homokhátság na Węgrzech. Zwrócono szczególną uwagę na opinie dotyczące ich podejścia do ochrony środowiska i określenia, jak stosowane przez nich praktyki wpływają na region podlegający procesowi wyjaławienia.

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