

# Revitalization or death of farms? Cognition and attitudes in the Great Plain

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## Abstract

From geographical point of view, the farms are organic part of the rural territories. Their situation is double-faced, they are vulnerable because of their size and production capacity; but their opportunities in value creation based on local resources and leisure capacity can be transformed into advantages. Their future is closely related to the new development patterns in rural and peripheral areas. The question is how the new development policy can motivate the farm owners to continue their everyday life there and use more environmental friendly their territory and create new essential high quality product? The research aim was to have actual information about farms on both sides of the border (abandoned level, infrastructure, farms types, development, European aid use, future) and discover the mental cognition about farms through sketch maps made by the focus groups. Four focus groups (people living on farms, agriculture related people, not related rural people, and urban population) were involved.

We analyzed the attitude of the four focus groups about farms; and their mental cognition about farms. By the farm owners, the most critical point is continuous abandon of farms. The opinion of the four focus groups about farms and its future is correlated, but shows clear separators. The differences of cognition can also be observed on the drawings (elaboration, number of objects).

Keywords: farms, sketch maps, cognition, Hungary, Serbia

## **1. Introduction**

From geographical point of view, the farms are organic part of the rural territories. The scattered farms are worth to examine in the global-local context when the sustainability of the Earth is more and more important, and this type of settlement is near to the nature since the early history of the two countries. Their situation is double-faced, they are vulnerable because of their size and production capacity; but their opportunities in value creation based on local resources and leisure capacity can be transformed into advantages. Their future is closely related to the new development patterns in rural and peripheral areas.

Cognition about farms is uneven among the whole population. Everyone has knowledge about the farms, Hungarian and Serbian population, because they are present as a very special settlement type located in the Great Plain (Alföld). The aim of this research is underlying the differences of mental cognition of scattered farms by the inhabitants and by the whole population.

- 1) We suppose that with the function changes of the farms the cognition about new functions of farms in the entire population has not appeared.
- 2) We suppose that with the function changes of the farms the cognition about new functions of farms of the concerned population has appeared.
- 3) We suppose that the concerned population recognize more details about the farms.

To reach these goals, we used questionnaires and interviews in four focus groups: people living on farms, agriculture related people, not related rural people, and urban population.

The structure of the paper is the following. In the next part, we give a short introduction to scattered farms theory with a special interest to Hungarian literature on Hungarian particularities. Later, we take care of mental map and place perception theory related to our research. After, we demonstrate our database and the applied analytical tools. Following the detailed presentation of results, we conclude.

## **2. Farms in the Great Plain**

The small farms were during the 21<sup>th</sup> century more or less in the focus of Hungarian scholars of different disciplines (sociologists; geographers; agroeconomists, anthropologists; ethnographers). However; theirs roots came back to several centuries to the beginning with the animal husbandry and later cultivation through plant production. (Kovács – Farkas; 2011) The first buildings constructed by human (mainly for one person) served to control the animals during the summer period; so they were not constantly occupied by dweller that lived originally in a village; or in a market-town. It was a long process during centuries to arrive at the phase that building is made for a real dwelling-house. During the 16<sup>th</sup> century the Great Plain became occupied by Ottomans and depopulated, only in the first part of 20<sup>th</sup> century we can really underline the increasing number of farms. Historically, a farm is a type of isolated settlement in rural zone belonging or not to a village center or a little town, the inhabitants

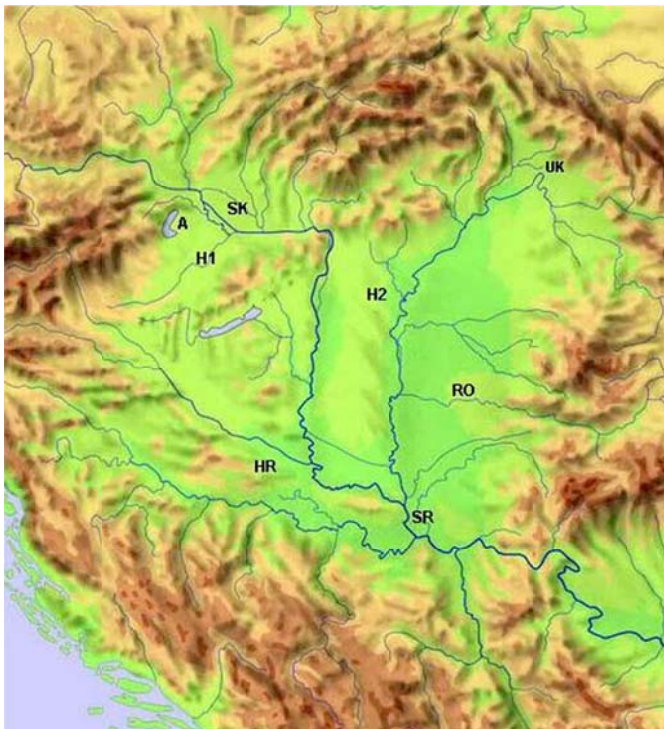
working in agriculture in the same territory around the farm. The farms are the centers of the agricultural management.

From geographical point of view; a farm is a special type among human settlements. The sociologist Erdei (1942) distinguished 4 types of farms on the base of their ownership: large farmer's farm, smallholder's farm, crofter's farm, scattered farm. Mendöl (1963) as geographer underline the importance of the human geographical conception, in his works, he distinguished the farms on two bases: on the type of settlement (in group or completely isolated), secondly, the differentiation of place of dwelling and working.

Nowadays, several morphological typologies of farms exist in the Hungarian literature. Timár (1990) distinguishes farms and temporary farms. One of the commonly mentioned types of farms (identified on their morphology) are scattered farms – “szórt tanya”, farms in line – “sortanya”, farms in a form of arbuscle – “tanyabokrok”. (Becsei, 2004) In his research Gálné Horváth (2014) took special attention among the existing types of farms on the eco-farms as a possible way to new touristic potential on the Great Plain.

**Geographical situation of the Great Plain (Pannonian Basin) lies in Hungary, in Serbia and in Romania**

Map 1: The Great Plain



\* H1: Small Plain, H2: Great Plain, A: Austria, HR: Croatia, RO: Romania, SK: Slovakia, SR: Serbia, UK: Ukraine

### **Brief History of Scattered farms**

After the 2<sup>nd</sup> World War collectivization all farms started in Hungary as in all countries in Eastern Europe. Due this this process and a purposive neglect of infrastructure, between 1950-1986 we can observe a continuous destruction of farms. However, the survival of certain farms is due to the agribusiness organization of the government, not to the free market. (Nagy – Dudás – Bodnár, 2016) After 1990, the privatization of arable land, changing of land use, resulted to renewal of farms on certain territories, but also to a high number of abandoned or ruined non-residential buildings.

Table 1: Decreasing number of private farms\* in Hungary between 1989-2003

<b>Year</b>	<b>Number of private farms</b>
1989	1 435 000
2000	958 000
2003	766 000

Source: Csátári – Farkas, 2008

\* According to official Hungarian agrarian statistics, 'private farm' means either households with a minimal size of agricultural land and livestock, no matter if it is in a city.

### **Functions changes of farms**

Originally farms had residential and economic function related to the agriculture.

Today several variants are present on the Great Plain:

- a) residential and agricultural function, but main job in the nearby town
- b) residential and agrotouristic functions at the same time (accommodation services and other possibilities e.g. animals, events, traditional goods fabrications for tourists)
- c) residential and social service function
- d) not residential, only stocking
- e) use as a second home (only in the summer season for recreational purposes for the owner)

### 3. Mental Maps and Place Perception

#### Spatial perception

The concept of the cognitive or mental map was developed in psychology, and it is widely used in different scientific fields: in geography (Downs-Stea, 1973, Beauguitte et al. 2012, Balázs-Farsang, 2016), psychology (Hirtle-Jonides, 1985) ecology (McKenna et al (2008), in socio-linguistic (Györffy, 2016) management (Eden, 1988) and in applied sciences (such as urban development and spatial planning) (Letenyi 2005). This shows well the interdisciplinary nature of the notion. The American psychologist Tolman (1948) first used the concept of cognitive map for the description of rats' spatial learning. Kevin Lynch's seminal work, published in 1960, *The Image of the City*, placed the corner-stones of cognitive mapping in urban planning. His approach was quite practical: in American megacities he analyzed the understandability of spatial structure. His theory is composed of five pieces of information: paths, edges, districts, nodes and symbolic landmarks (Györffy 2016).

The construction of mental maps can be divided into seven stages: observe, filter, color, assume, conclude, believe, and act (Senge 1994). These stages can be followed in the perception and cognitive mapping as people observe the phenomenon, filter the information (generally through preconceptions), color with not observed circumstances, assume not observed background, and conclude the observations already filtered, colored and burdened by half-truth assumptions. They believe their conclusions and act on this believing. When we analyze their actions in a given situation, but the elements of the process are hardly verifiable.

Definition and classification of mental maps is as wide in the literature as its applications in different fields of study. The most relevant definition can be found in Sulsters (2005,1): "A mental map is not as complete and objective as a topographical map. A mental map is a unique, personal and selective representation of reality. We all use mental maps; they are not identical, but have common aspects. Mental map is used as a reference for orientation and movement throughout a territory (routing), but also for associative processes and judgement valuation. Mental map is based upon personal experience with an area, but by lack of this upon indirect information from mass media or a certain reputation." Hirtle and Jonides (1985) and Sulsters (2005) show in their work that mental maps represent in a subjective way, not only spatial information is present but also introspections about the close-by or larger environment. They indicate the spatial and non-spatial character of the real word representation. The spatial characters of mental maps are the distance and the relative location. However, generally there is criticism concerning measurement, as drawings, pictures or sketches cannot be read objectively. Akcali (2010) argues that mental maps are tools of qualitative research in an interdisciplinary approach where respondents draw the mental territorial representation. She applied this method to conflict management in minority studies.

Knowing this variegation (subjectivity, interdisciplinarity, the qualitative character), it is not surprising that definitions and characterizations of cognitive or mental mapping are widely scattered in the literature, with strong views refusing of the word 'map' and accepting

only ‘image’ (Letenyei 2005). The expressions cognitive mapping and mental mapping are often used as synonyms, but are also as subset of each other. Kitchin (1994) stresses the possibility of misunderstanding and misuse among geographers and psychologists. Kitchin (1996) concludes that scholars of the two disciplines should work together and create a common view of how to measure spatial knowledge.

Didelon et al. (2011) distinguish four categories of mental maps: cognitive maps (an individual’s un-mapped spatial knowledge, its subjective space), sketch maps (realized in the framework of a survey where people are asked to draw a specific space on a *blank* page), interpretative maps (where one has to provide its appreciation of a space or to delimit a phenomenon), and the classical mental map (the cartographic synthesis of individual results obtained from a survey of the space).

According to Letenyei and Morauszki (2015), the collection of data about spatial cognition can take many forms:


- 1) a purely quantitative form
- 2) a purely qualitative, not drawing-based form
- 3) freely drawn maps, aided by free recall of images
- 4) map drawing with the purpose of standardization
- 5) data collection based on existing images or maps

No matter which method is used, two types of data are collected (Letenyei and Morauszki, 2015):

- 1) information pertaining to the area
- 2) data reflecting the interviewee’s opinion

To place our research in the widest range of possibilities, we created a scale starting from the strict mental map, where a pre-drawn map is given to the respondent and fixed settlements should be orientated on it, through the Lynch type of pre-drawn map with a larger set of allowed symbols, to the free sketch map, where respondents have only a blank page and they are free to draw anything about a geographically defined object (in our case, the farm).

Table 2: A scale of mental maps

	Strict mental map	Lynch type	Free sketch map
			
Base map	yes	yes	no
What to draw?	points for settlement names	paths, edges, nodes, districts, landmarks	not limited
The knowledge measured	geographical positioning	mental image	mental image
Possible conclusion	spatial, geographical knowledge	mixed spatial cognition	characteristics of the place (not always connected to geographical features: e.g. poet who wrote about the Great Plain)
Verifiability	objective and fully verifiable	mixed	low

Source: Own construction

Research based on mental maps shows different territorial scopes (Gold, 2009). This typology can be applied to the classical mental maps of Didelon et al. (2011) or type 5 of Letenyei-Morauszki (2015). Spatial cognition can be measured at the local (e.g. Lynch, 1960), regional (e.g. Balázs-Farsang, 2016), country (e.g. Michalkó, 1998, Kiss-Bajmócy, 1996, Uszakai, 2015) or world level (e.g. Didelon et al, 2011) depending on the scale of the map given to the respondent. This typology moves us towards the importance of distance. As Csépe et al. (2011) mentions, the level of knowledge about space can be in close connection with the measuring scale. The smaller the space is represented by the cognitive map, the experience is more direct. According to the growing scale of the territorial level, the role of secondary information and of the indirect learning processes increases. Didelon et al. (2011) affirm that nowadays the connection between geographical distance and spatial knowledge is not relevant, because the information arrives through digital channels. In our research, we examine the cognition about the farms by four focus groups, among the inhabitants, where the personal experience is strong. We have doubts about the validity of the theory neglecting geographical distance.

## 4. Data and methodology

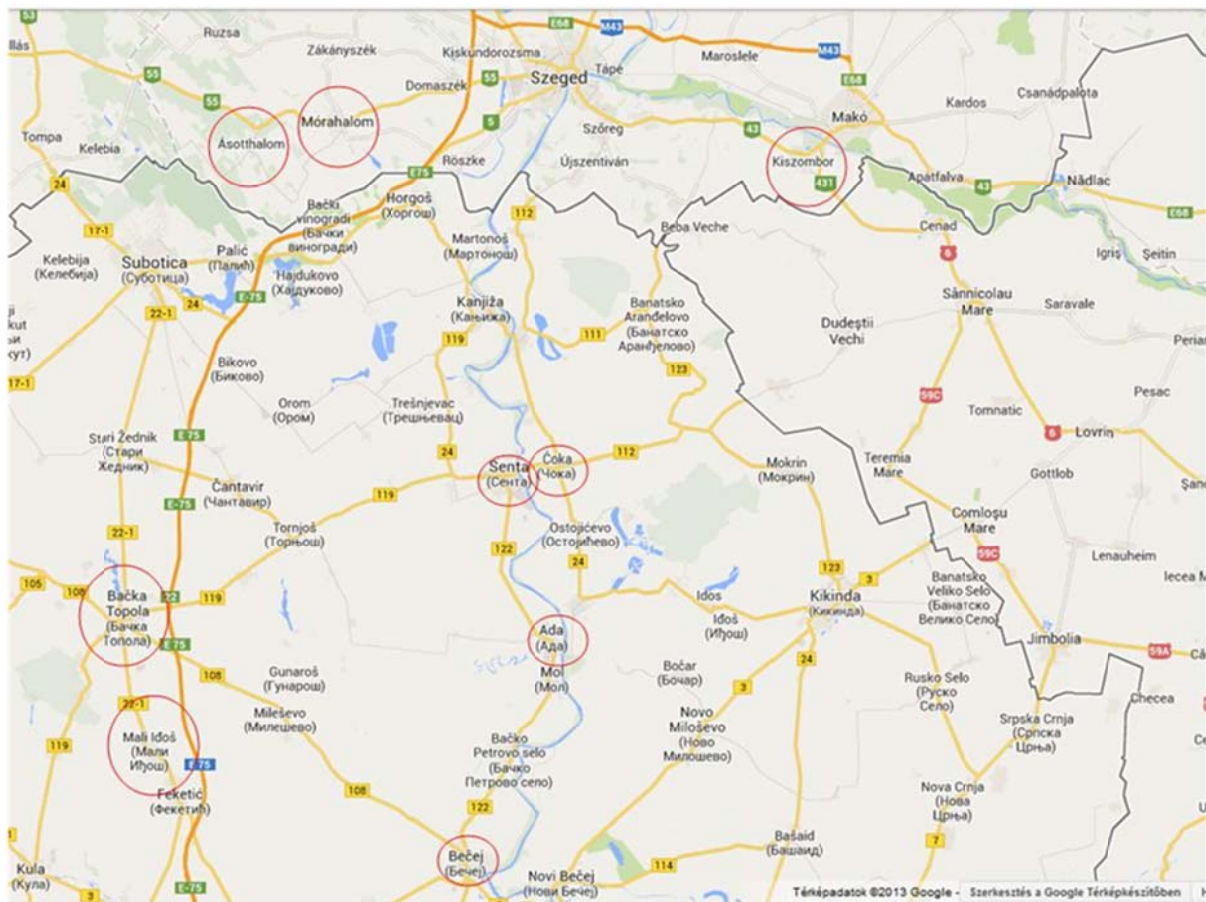
We made the research in two phases. A pilot project was launched in 2013, based on personal field work and interviews in Hungary and in Serbia with a focus on the two countries' border zone<sup>1</sup>. Map 2 shows the settlements included in this phase of the research. Over the personal interviews made in 12 farms, mental maps were made drawn by different populations:

- people living on farms – 12 persons
- agriculture related students – 42 persons

<sup>1</sup> In Hungary in Csongrád county: Ásotthalom, Kiszombor and Mórahalom. In Serbia in Voivodine – Backa county, in Backa Topola, Mali Idos, Becej, Ada, Coka, Senta.

- not related people as a control group – 141 persons

Map 2: Territorial scope of Phase 1 research



The second phase of the research has been realized in the first semester of 2017. Based on earlier personal interviews, a questionnaire was constructed to collect data about perception of farms. The questionnaire included the question of “What do you mean by the farm? Please, draw it.”

In 2017, the questionnaires filled and mental maps drawn by different populations in Csongrád and Bács-Kiskun counties in Hungary and in the Sombor-Becej-Kikinda-Horgos quadrangle:

- people living on farms – 31 persons (in the following tables: farm)
- people living in rural area, but not on farms – 96 persons (in the following tables: rural)
- agriculture related people – 90 persons (in the following tables: related)
- people living in urban area as control group – 102 persons (in the following tables: urban)

At the current stage of the research, we analyzed questionnaires by standard descriptive statistics tools (measures of centrality, dispersion, distribution), and compared the different groups by appropriate tests. As the measurement level was different for variables, and the



assumptions of specific tests were not met, we applied the Mann-Whitney test for pairwise, and Kruskal-Wallis test for multiple comparison. This choice allows us to compare the results of comparisons.

The differences of cognition can be observed on the drawings (elaboration, number of objects, their relative location); and we offer a typology based on spatial statistical analysis.

Analysis can be made on

- elaboration of the drawing,
- number of objects on a mental map,
- what objects are on the mental map (farm-house, buildings, garden, people, animals, plants, tractors, tools, special object or phenomena).

## 5. Empirical Evidence

The empirical evidence is bi-dimensional. Once, the questionnaires are analyzed by usual statistical methods, second, the drawing reflecting the mental cognition of farms are analyzed by the tools of mental mapping.

### 5.1. Questionnaire survey

As in phase 1, we used interviews and mental mapping, all evidence is for the 2017 survey.

As Table 3 shows, farm inhabitants have more positive opinion about the current and the future situation of farms. Strongly significant difference is observed between the farm and non-farm groups (with insignificant differences between non-farm groups about the present situation of farms). As a tendency in Western Europe (Torre-Wallet, 2016), urban people have a more optimistic view of the future of farms.

Table 3: Mean opinion on the present situation and the future of farms (scale from 1 to 5)

Question	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Present	3.39	2.66	2.74	2.58	2.66	2696***	15.53***
Future	3.52	2.61	2.54	2.50	2.78	2743***	16.54***

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

\* significant difference at 10%, \*\* significant difference at 5%, \*\*\* significant difference at 1%

A more detailed series of questions was applied about the satisfaction of factors in farms. Agreeing with the results in Table 3, inhabitants of farms are significantly more satisfied with their circumstances than non-farm population (see Table 4). The most serious problems are with possibilities of commerce, while medical attendance is considered is the best by the farm population. Infrastructure, education, and commerce is thought to be better by the urban population than by rural (including agricultural related). This predicts the lack of refill of

farms from the rural zones, but those who are already living in farms, are supposed to stay there. In the future, farms can be attractive for urban population.

Table 4: Satisfaction with ... in farms (scale from 1 (worst) to 7 (best))

Factor	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Infrastructure	4.19	3.07	3.14	2.73	3.33	2806***	19.95***
Public safety	3.87	3.19	3.57	2.95	3.09	3407**	10.03**
Education	3.88	2.74	2.53	2.82	2.85	2177***	15.50***
Medical attendance	4.23	2.60	2.48	2.81	2.52	2163***	25.52***
Commerce	3.74	2.83	2.87	2.45	3.16	3135***	18.58***
Local government	4.16	2.91	3.10	2.87	2.48	2395***	19.68***

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

\* significant difference at 10%, \*\* significant difference at 5%, \*\*\* significant difference at 1%

We also asked the dynamics of some specific factors. The only objective factor is the role of agriculture in employment, as a tendency in the developed world, it is worsening, it was realized by all groups. In other questions, the view of farm and non-farm inhabitants is quite different. Farm inhabitants consider worsening circumstances (except for access to culture and education), non-farm inhabitants reported progressing situation, especially urban population. This view of the urban population means that they can probably be the future farm users (belike not for farming, but for recreation, motivated by the calm environment).

Table 5: How it changed since 2004? (−2 very negatively, ... , +2 very positively)

Factor	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Jobs out of farming	-0.84***	-0.04	-0.12	-0.22**	0.22***	2444***	26.97***
Sale of homemade products	-0.74***	0.27***	0.33***	0.05	0.41***	2075***	30.92***
Role of agriculture in employment	-0.74***	-0.13**	-0.36***	-0.06	-0.01	3032***	16.66***
Transport facilities	-0.32*	0.13**	0.22**	-0.07	0.26***	3308**	12.65***
Access to culture	0.03	0.14***	0.06	0.07	0.27***	4049	3.89
Access to education	0.04	0.07	0.01	0.10	0.08	3831	2.20
Your financial position	-0.42**	0.14***	0.14	0.07	0.19*	2961***	11.62***

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

\* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%

In Table 6, we summarized the main functions of farms, perceived by different population groups. While for the farm group the most important function is living there, other groups placed the farming (agricultural activity) in the first place. Living and farming functions show significant differences, but recreation appears as an important function in the eyes of people not related to rural activities. This result confirms the optimistic view of urban people about the farms, as they consider them as future recreation centers or they think about moving there in their old age. When we asked about the farms in the surroundings (supposing that people have at least a minimum of experience about it, see Table 7), significant differences has been

detected only in the living function. It is hard to decide, whether the lack of information pushes the answers of urban people towards a multifunctional usage of farms or contrary, a wider knowledge about the future rural transformation.

Table 6: Percentage of people regarding functions of the farm generally

Function	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Living	81	60	73	68	42	3561**	27.59***
Farming	71	88	92	91	82	3695***	11.81***
Hospitality	16	27	29	32	22	3960	4.90
Recreation	10	22	14	20	29	3935	9.63**
Other	0	1	0	1	2	4418	2.29

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

\* significant difference at 10%, \*\* significant difference at 5%, \*\*\* significant difference at 1%

Table 7: Percentage of people regarding functions of the farm in the surroundings

Function	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Living	81	57	68	66	39	3406**	27.08***
Farming	81	73	77	74	69	4119	2.53
Hospitality	6	15	16	17	13	4085	2.32
Recreation	0	8	4	9	9	4123	4.63
Other	0	2	2	2	1	4387	1.13

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

\* significant difference at 10%, \*\* significant difference at 5%, \*\*\* significant difference at 1%

When we take a deeper look at the farming functions (see Table 8), crop production is quite equally regarded as activity of farms, but livestock breeding is thought more widespread in non-farm population than in the case of farmers. However, only 3% of respondents reported the lack of agricultural activity for this question. We can easily explain this fact by the historical path of farms: in the communist period, autarchic farming was allowed, thereby in small quantity it is generally not regarded as business.

Table 8: Percentage of people knowing farming activities on the surrounding farms

Activity	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Livestock	61	83	78	97	75	3496***	26.73***
Crop production	68	68	71	72	62	4450	2.88
Other	6	12	11	9	16	4210	2.94

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

\* significant difference at 10%, \*\* significant difference at 5%, \*\*\* significant difference at 1%

We also asked who buys farms. In the age distribution, there was a sharp difference between farm and non-farm population: farm population thinks more young people who are new owners of farms. The appearance of motivation of farming activities was hectic, the main difference is between agriculture related and not-related people, the first group suppose less

farming motivation for buying farms. However, rural population thinks more than urban that foreign buyers are present in the market. We let an open (other) category to learn about additional motivations. Surprisingly, all answers in this category was ‘poor people’. As farms are generally cheaper than other dwellings, poor people tend to move to farms (see Table 9).

Table 9: Percentage of people who think farm buyers are... (multiple choice was allowed)

People group	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Farmers	68	72	60	76	79	4264	10.18**
Foreign people	19	19	17	32	8	4437	19.68***
Young people	45	10	6	17	7	2882***	36.78***
Old people	10	21	10	6	5	3951	5.09
Other <sup>#</sup>	10	7	10	6	5	4342	2.27

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

# All answer was poor people.

\* significant difference at 10%, \*\* significant difference at 5%, \*\*\* significant difference at 1%

In Table 10, we summarized the special characteristics of farms, how they are perceived as abandoned, for sale, and as a control question, how they are used for recreation goals. Farm inhabitants know more abandoned farms, in the non-farm group urban people know the less. The situation is similar in the case of farms for sale, but here there is not significant difference between the farm and the non-farm group. Compared to the question where we listed different functions (Table 7), a more important proportion mentioned that they know farms used for recreation, on the average more than one such farm was known in the surroundings. This result confirms the change of functionality of farms.

Table 10: Average quantity of ... farms in the surroundings (% of non-zero answers in parentheses)

Farm type	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Abandoned	2.61 (90)	2.49 (68)	3.04 (79)	2.54 (74)	1.96 (54)	2795***	23.02***
Used for recreation	0.65 (40)	1.26 (52)	1.47 (57)	1.20 (54)	1.14 (45)	4029	3.02
For sale (%)	58	58	66	68	43	4339	13.08***

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

\* significant difference at 10%, \*\* significant difference at 5%, \*\*\* significant difference at 1%

In the questionnaire, we had 7 questions stated only to farm inhabitants. In the first, we asked about changes in the cultivated area (see Table 11). The majority of respondents reported no change, a little bit more respondents increased than decreased this area. 32% of them changed the area due to EU subventions, however 42% used them (see Table 11). Farm owners have plans to increase their agricultural activities. 39% expressed it as direct goal, but also 61% by extension of the real estate.

Table 11: How did the cultivated area change during the last decade in your farm?

Answer	Decreased	Slightly decreased	Did not change	Slightly increased	Increased
Percent	10	6	55	13	16

Source: Own calculation.

Table 12: Answers of farm specific questions

Question	Percent of positive answers
Are changes of the cultivated area related to EU subventions?	32
Have you ever used EU subventions?	42
Do you plan transformation of farm buildings?	61
Do you plan extension or restart of your farming activity?	39
Do you purpose to move from your farm?	13

Source: Own calculation.

The general satisfaction with farm living condition is reflected again here, only 13% of the farm group would like to move from the farm in their life. 48% of those who would move from the farm would sell it, but the same proportion would continue the agricultural activity from another living place. Only one respondent would use it as secondary residence.

## 5.2. Mental maps

Now we turn to the analysis of mental maps.

In the first phase of the research, we registered only the number of object types appearing on the maps. The averages of the three study groups were:

- people living on farms: 6.9,
- agriculture related students 5.8,
- control group: 5.1.

These numbers prove the validity of the theory that we have more knowledge on close phenomena.

In the 2017 wave of the research, we registered more information about the drawings. The main characteristics are summarized in Table 13 and 14. Overall, farm respondents put slightly more objects and significantly more types of objects on the drawings, so we can also prove our third hypothesis. In non-farm groups, rural population created the more detailed mental maps. It is also true when we analyze them in detail, more buildings, plants, and animals are present on these drawings. We could not find any people on the drawings of the farm population, it reflects their point of view, as they draw the farm as they see it (and they do not see themselves).

The recreational function appears more often in the related and the rural population, while – as in the case of the questionnaires – less frequently drawn by the farm population. It fits well

the results of the questionnaires. We have to remark that the classical mental map type drawings appeared with about the same frequency (ab. 10%) in each group, but low number of maps does not allow us to analyze them by statistical tools.

Table 13: Average number of objects on the drawings

Objects	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Objects (all type)	16.7	16.1	8.9	22.6	14.2	3350	27.27***
Different types	5.8	4.3	3.6	4.7	4.4	2573***	13.88***
Living buildings	0.9	0.9	0.9	1.0	0.8	3887	8.49**
People	0.0	0.2	0.2	0.2	0.2	3472**	5.93
Plants	11.4	10.8	5.1	16.2	9.2	3515	24.29***
Animals	1.3	1.9	1.3	2.7	1.6	3636	14.40***

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

\* significant difference at 10%, \*\* significant difference at 5%, \*\*\* significant difference at 1%

Table 14: Percentage of drawing types

Type	Farm	Non-farm	Related	Rural	Urban	Farm vs non-farm	4 groups comparison
Recreational	6	14	20	20	6	3757	8.04**
Map	10	10	7	16	6	3985	5.13

Source: Own calculation. Mann-Whitney and Kruskal-Wallis test statistics reported.

\* significant difference at 10%, \*\* significant difference at 5%, \*\*\* significant difference at 1%

## 6. Conclusion

The literature review, the field work, and the interviews confirmed the changes of functions of farms; new ways of utilization (social care, tourism, and secondary home) appeared. Distance matters, more related people have more detailed information. This difference confirms our third hypothesis, but not the second, even our farm study group did not report the new functions of the farms.

The general satisfaction with living conditions and facilities show a seriously Janus-faced picture. While inhabitants of farms are more satisfied with their conditions than other people, they reported deteriorating conditions. The contrary is true for non-farm living people, especially for urban inhabitants. These facts predict that people living in farms tend to stay there until their death, but farms are not as attractive places as other areas. However, a significant part of the urban population regards farms as growing potential, not in the traditional, but in a recreational manner. The silence, the less polluted air and the possibility to be owner of a secondary residence at very low price can save a part of the farms. According to Tavernier (2004), these nonagricultural incentives lead to acceleration of function loss of farms.

The questionnaires opened the possibility to a more shaped picture on farm use. A clear feedback on the desolation and depopulation of these rural settlements arrived, and this trend is foreseen for the future. In a 30-year perspective, only a tenth of these farms will stay in their traditional functions, and we estimate the same number of farms to transform to other usage. By the questionnaires, it can be mainly explained by the supposed poor level of

infrastructure: active actors of periurbanization need well-working hard infrastructure and nearby services.

In the case of mental maps, the traditional use of farms is predominant, we can say unique. In this case, more related people draw more detailed pictures, so relatedness is present in the spatial integrity of farms. Thereby our third hypothesis is proved.

As a next step of the research, international comparison with Western European countries will be made where the same questionnaire (slightly adapted to local conditions) will be applied. This research can open the possibility to determine more explanatory variables in the perception differences.

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## Appendix

Figure 1: Typical ground-plan of a farm

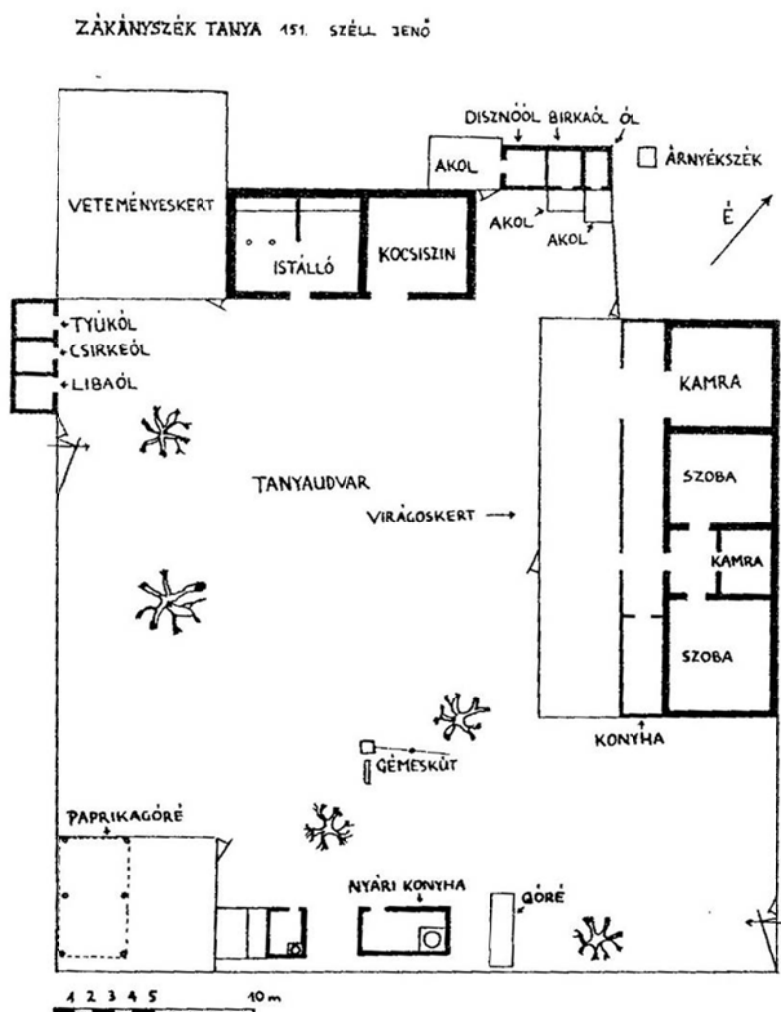


Figure 2: Typical 3D drawing



Figure 3: Typical 2D drawing

