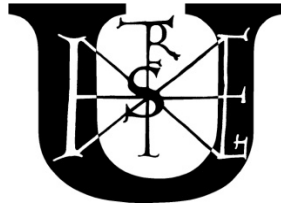


**Szent István University**  
**PhD School of Management and Business Administration**



**THE EXAMINATION OF THE APPLICATION OF  
SUSTAINABILITY AND SHORT SUPPLY CHAIN MODELS**

**- ADAPTATION POSSIBILITIES IN THE CASE OF  
FARMSTEADS IN HOMOKHÁTSÁG**

**SUMMARY OF Ph.D. THESIS**

**KATALIN OLGA KUJÁNI**

**GÖDÖLLŐ**

**2014.**

**Name of Ph.D School:** Szent István University  
PhD School of Management and Business  
Administration

**Scientific branch of PhD  
School:** Management and Business  
Administration

**Head of PhD School:** István Szűcs DSc, professor,  
Doctor of Science,  
Szent István University, Gödöllő  
Faculty of Economics and Social Sciences  
Institute of Law and Methodology

**Supervisor:** István Fehér PhD, emeritus professor  
Szent István University, Gödöllő  
Faculty of Economics and Social Sciences  
Institute of Law and Methodology

**Co-supervisor:** Bálint Csatári CSc, candidate of  
Geographical Studies  
Hungarian Scientific Academy Institute  
of Regional Researches,  
Emerited Director of Scientific Institute  
of Alföld, Kecskemét

.....  
**Approved by the Head of PhD  
School**

.....  
**Approved by the supervisor**

.....  
**Approved by the co-supervisor**

## **Contents**

<b>1. THE ANTECEDENTS AND MOTIVATION OF THE RESEARCHES .....</b>	<b>3</b>
1.1 The actuality and significance of my thesis .....	3
1.2 Research objectives and hypothesis .....	4
<b>2.MATERIALS AND METHODS .....</b>	<b>6</b>
2.1 The source and elaboration of data.....	8
<b>3.RESULTS .....</b>	<b>10</b>
3.1 Application of the system theoretical approach in food supply .....	10
3.2 The different approaches of food systems theories.....	10
3.3 The most relevant definitions of short food supply chain and those classification.....	13
3.4 The relation among the sustainable family farms and the local food systems .....	13
3.5 Measurement of the sustainability in IDEA model.....	14
3.6 Statistical analyses based on the indicators of IDEA method.....	17
3.7 Creation of farming groups under the IDEA model.....	18
<b>4.HYPOTHESIS RESEARCH .....</b>	<b>22</b>
<b>5.NEW SCIENTIFIC RESULTS .....</b>	<b>24</b>
<b>6.RECOMMENDATIONS.....</b>	<b>25</b>
<b>7.THE MOST SIGNIFICANT PUBLICATIONS OF THE AUTHOR.....</b>	<b>26</b>

# **1. THE ANTECEDENTS AND MOTIVATION OF THE RESEARCHES**

## **1.1 The actuality and significance of my thesis**

In 2013 the reform of European Union's Common Agricultural Policy was concluded of which preliminary discussions dealt with the dilemmas of models of food supply and food security. On the one hand, the world's ever-growing population and the concentration of agricultural areas require the agriculture to produce at industrial level. On the other hand, the change of developed countries' consumer behaviour and the desire for healthy lifestyle brought the renaissance for the traditional, small-scale markets round in the last few years. This new trend is noticeable in both the Western European countries as well as among the member states that joined after 2004, arousing the farmers', researchers' and decision makers' interest. Due to this trend the interest increased towards the small-scale holders and the changes of the role for family farms being deemed as the creators of rural good. As a result, the society and rural centered way of thinking came into prominence instead of the up to this point exclusive economy approach. The European research tendencies, which formulate brand new rural development theories, will not regard the small-scale holders as a support requesting farming group, but their positive external effects on general rural development are taken into account. This means that environmental protection (the so-called landscape management, maintenance of biodiversity, using traditional environment-friendly production methods, activities against climatic effects, careful management of natural resources) and the opportunities of dynamising rural society must be highlighted among the results of agricultural production (MUCHNIK et al. 2010). This also means that today's small-scale farmers and family farmers must become sustainable from the aspects of environment and society in addition to the so far exclusive economic (viability) aspects. On this basis we can raise the European Union's Common Agricultural Policy's question, which has already been raised by the member states in the first phase of the negotiations; what is the condition of small-scale holder's sustainability and how is it possible to help these farmers enter the market while they still continue the environmental-friendly farming with satisfying the needs of the surrounding communities?

Besides the CAP's above expressed actuality the significance of small-holders renewable role is evidenced by the fact that the FAO declared 2014 as the "Year of Family Farming" highlighting the importance of farms based on family relations among the small-holders. World organizations like the FAO, UN and the EU share their view that family farms might have a key role in the current food and food supply issues besides their efforts to preserve rural areas and develop them.

However, a dynamically developing new consumer trend is getting to be outlined in the background of political decisions, which corroborates the validity of the above mentioned issues. These shopping habits indicate the consumption of healthy

food made of reliable sources, which helped the spread of farmers' market. An increasing number of consumers look for a direct meeting point with the food producers and they also pay more attention to the origin of the products. Nowadays, this trend is called relocation orrelocalized food system. This phenomenon is influenced by many factors like the tradition of local products or marketing, new consumer trends, level of food processing, rate of craftsmanship, etc.

On this basis the main questions are as follow: what is the attitude of these new tendencies and the new scientific theories related to relocation activities to the paradigm of sustainable economy?What environment models can facilitate the areal revival in certain rural lands?What measures are necessary to develop an effective agricultural policy?To answer these questions I aimed to measure the significance of two theoretical models in my thesis: the theory of area related food system and the theory of sustainable family farms.

## **1.2 Research objectives and hypothesis**

The actuality of my subject-matter required the detailed comparison of two theoretical models, which were aimed at answering the following questions:

1. What does food system mean and what is the importance of implementing the new approach mentioned above?
2. How to construe the areal related food systems and the so-called short food-supply chain within it?
3. What are the conditions of family farms' sustainability, which are located in the Danube-Tisza Interfluves and at the downhill of the Pyrenean?

During the processing of specialized literature my goals were the followings:

- **O1:** Presenting the food system and the different approach of its localized forms, its role in food supply and rural development; ascertain how and where the farmers join into the food systems, and what developing opportunities might emerge by the shortening of food systems
- **O2:** Linking the concept of sustainable family farms to the local food systems under the so-called Landais theoretical model.

I attempted to support the adaptability of theoretical models with local research to which I carried out empirical researches in two regions: the Homokhátság between Danube and Tisza rivers in Hungary and the Midi-Pyrénées region in France. In connection with this research I looked for answer for the following questions:

1. What are the requirements of multifunctional farms – what environmental, social, and economy conditions do they have to meet?
2. What method may be used for the combined application of the two models mentioned in the scientific literature, how is it possible to measure the indicators that are needed to set up the model?

Related to methodology I formulated the following objectives:

- **O3:** Studying the local food systems by using the production centered approach, which is the objective measuring of the family farms' sustainability with a new searching method in the above defined economy-centered systems thinking (so-called IDEA model).
- **O4:** Carrying out a new "hybrid model" and its adaptation experiment, which can be used to examine besides sustainability, the system conditions of areal related food systems, moreover it might be used for carrying out other nation-wide or territorial analysis.

Finally, following the application of adapted methodology, the undermentioned dilemmas emerged considering my empirical studies:

1. Are the Hungarian farmsteads sustainable? Is this sustainability verifiable by the application of an indicator-based integrated model?
2. What are the weaknesses and strengths of the examined farms?

Related to methodology and main issues I set the following objectives:

- **O5:** Defining and distinguishing the producer groups on the basis of deep-interview conducted in Hungary and describing the characteristics of these groups, highlighting the sustainability of certain producer groups and their required and potential development opportunities.

On basis of the objectives for the thesis I set up the following hypothesis:

**H1:** The family farms are sustainable if they maintain active relations and multilateral cooperation with their surrounding rural lands (with the participants living there: with the consumers, traders, markets, and different organizations).

**H2:** The important condition of sustaining domestic family producer groups is their accessing the short food supply channels and the frequent usage of these channels.

**H3:** The model's adaptive difficulty, which is the largest difference between the farmers, is not caused by the problem of economic sustainability but the difference of social criterion.

**H4:** There is a determinable, well-trained, competent, engaged in many activities group between the domestic homestead farmers and the producers, which might be an active participant of rural development concentrated on Danube-Tisza Interfluves region, the Homokhátság's homestead area, in the case of properly aimed subsidy.

## 2. MATERIALS AND METHODS

I mainly used foreign language sources to review the theoretical scientific literature as well as the basis to researches, which I supplemented with processing domestic literature. I mostly relied on the approach related to French rural development, of which the main reason is the fact that the areal-centered approach has a much older tradition there. In my thesis I formulated the number 1 objective as to interpret and structure the different approaches of food system and the different level of relocalisation. During my research I systemized the following concepts:

- dual food supply system,
- relocalized food system,
- alternative food networks,
- short food supply chains.

During the study of domestic and international scientific literature in the scope of secondary research I examined the correlations between the concepts of sustainable family farm and local food system. During the integrated approached research I analysed the target group of my empirical research, the homestead farms situated in the Homokhátság of the area between river Danube and Tisza. In this case I examined the following definitions:

- system of family farms,
- the homestead as a system,
- Landais' sustainable family farming model.

One of the integrated parts of the research is the adaptation of an original integrated approached method, which can be suitable for the combination of different theoretical methods and for the evaluation of the farms' activity. Having studied several sustainability models (Indigo, Rise, Dialect) I chose the IDEA model and attempted its domestic application for this purpose. This justifies that this method takes the social conditions, which are typical for family farms, of high priority among the sustainability factors. Its main reason is the fact that the Landais' model is based on the theory of sustainable family farms (Table 1). The theory and the method meet the following criterion:

- examination at farm level,
- leaning mainly on primary database,
- interpretation and analysis of the concepts of family and multifunctional agriculture
- handling the different environmental, economic and social – sustainability – pillars at an integrated level.

Table 1: IDEA model adapted on domestic demand and opportunities

	<b>Reproducible</b>	<b>Livable</b>	<b>Transferable</b>	<b>Viable</b>
General questions	<ul style="list-style-type: none"> <li>• Sustainable farming with natural sources</li> <li>• Agri-environment</li> <li>• Biodiversity</li> <li>• Environmental management</li> </ul>	<ul style="list-style-type: none"> <li>• Preserves the values for its environment and future generations</li> <li>• Becomes an active participant of local economy</li> <li>• Supplies food for urban population</li> </ul>	<ul style="list-style-type: none"> <li>• Creates workplaces</li> <li>• Maintains and supplies the farming family</li> <li>• Transfers knowledge</li> <li>• Supports diversity</li> </ul>	<ul style="list-style-type: none"> <li>• Effective</li> <li>• Economical</li> <li>• Financially independent</li> <li>• Developed infrastructure, economic transferability</li> <li>• Creates workplaces</li> </ul>
	<b>Environmental</b>	<b>Social</b>		<b>Economic</b>
Special questions of homestead family farms	<ul style="list-style-type: none"> <li>• Reduces deflation</li> <li>• Pays attention to water management</li> <li>• Maintains the biodiversity of the Plain – landraces, drought-resistant varieties</li> <li>• Carries out animal keeping, recycles organic materials</li> </ul>	<ul style="list-style-type: none"> <li>• Use the diversified farming forms featured in the Homokhátság</li> <li>• Produces local products</li> <li>• Demonstrates the farm life</li> <li>• Carries out rural tourism based on homestead farming</li> <li>• With the development of landscape and farming makes the staying and the moving into a homestead possible</li> <li>• Builds an informal network with the homestead and rural population, reduces cultural isolation</li> <li>• Cooperates with other homestead farms</li> </ul>		<ul style="list-style-type: none"> <li>• Self-sustaining/semi self-sustaining farming</li> <li>• Creates local products and touristic sights such as: horse tourism</li> <li>• Accessibility</li> <li>• Keep more states to prevent the negative effect of climatic factors (anomalies)</li> </ul>

Source: Edited by the author2013



On the basis of the foregoing conditions the IDEA model constitutes the methodological foundation of the research. I adopted the indicators needed for the model one by one in accordance with the purpose of my research on the examination of the homestead farms in the Homokhátság of the area between rivers Danube and Tisza. I also took into account the fact that the short food supply chain has a vital role in boosting the viability of family farms; therefore I supplemented the used model with the criteria of food supply system. For this latter one I used the indicators of the so-called DiagSYAL method. After considering and devising the methodology I created a database during my primary research then it was subjected to descriptive, statistical and multivariate examination.

## **2.1 The source and elaboration of data**

The data acquisition was carried out through several interviews in several stages. The characteristics of the IDEA method applied require the use of primer database exclusively to try it out.

The timing of the survey was the followings:

1. Depth interview research in Midi-Pyrénées region, France
2. Depth interview surveys in the region of homestead farms in the Homokhátság area between the rivers Danube and Tisza, Hungary
3. Adaptive experiments on smaller samples from the aspect of domestic economic and social environment

During my French research scholarship I made interviews with 30 local farmers, besides additional 10 farmers filled out my questionnaire and I carried out marketing centered analyses on the three points of sale (farmers' shop) jointly operated by them. Then in the first half of 2013 I conducted deep interviews in Hungary by using the questions, I used in France, with the modification to the domestic characteristics. The Alliance for Living Tisza Association supported the surveys from the SwissFund. When selecting the producers I paid particular attention to families that have already done food processing before and taken part in direct sales. There are only estimates about number of farmers making direct sales but mostly they deal with multifunctional activity in the examined target area, the Homokhátság in the area between river Danube and Tisza. Based on previous surveys the market study counted 263 returned questionnaires and information on the data and products of the 115 farmers can be found on the website "Chamber Tour". From this circle I chose 41 farmers who met the conditions of the researches, that is:

- their activities are diversified,
- they may process their products,
- they sell directly,
- or offer rustic kitchen on the farm with the help of their family members or other, for example: touristic, social activities.

I worked with small samples in France and in Hungary too, (Table 2) and one of its reasons was the fact that I had to create a very complex questionnaire, the answers of which were collected by me through personal contacts. The other and more relevant reason of the small number of the elements is that in the target group's number of farmers performing multifunctional activity and selling primarily through the short supply chain is low in both countries. The results of my previous research underpin my assumption that the IDEA model is interpretable and applicable with small number of elements (M'HAMDI et al. 2009, DEL'HOMME and PRADEL 2005, CORADE and DEL'HOMME 2013).

Table 2: The main data of farms processed for my research

<b>Aspects</b>	<b>Hungarian (N=41)</b>	<b>French (N=36)</b>
<b>Legal form</b>	(%)	(%)
individual entrepreneur	17,0	36,0
primary producer	61,0	-
joint venture (Ltd. deposit company.)	2,0	3,0
family farming	15,0	61,0
Other: small producers, individual taxed private person	5,0	-
<b>Management form</b>		
Stock-breeder	34,2	46,9
Fruit-vegetable grower	48,8	28,1
Grape-wine producers	4,9	15,6
Mixed farming	4,9	3,0
Apiarist	4,9	3,1
Other: herbal, dried mushroom grower	2,4	3,1
<b>Carries out tourism or hospitality</b>	58,5	87,5
<b>Carries out biological management</b>	22,0	40,0

Source: Edited by the author 2013

### **3. RESULTS**

During the secondary research my first objective (C1) was to introduce the different approaches of localized food chain system and its role in food supply and rural development. I attempted to find the answer for the question: how do the producers join the food systems and what development opportunities will they get by the shortening of food chains? As the result of studying scientific literature, I classified the concepts of local, relocalized food chain system, and the direct sale of agricultural products. Having deducted from the theory of food system I compared two different approaches: the aspects of rural development and the aspects of marketing-centered. The results of the categorization of scientific literature are summarized below.

#### **3.1 Application of the system theoretical approach in food supply**

It is advisable and also possible to examine the issues of environmental, social and local farms in systems theory so as to make it feasible to find complex solutions. It follows that the examination of the processes (from production to consumption) related to food system can be properly solved by a system-centered approach. The concepts of food systems, networks and chains have been put in the systems theory worked out by RASTOIN (2010) in order to make it easy to survey the role of food chain at both global and European level. Although the so-called traditional market model, which can be interpreted as the collective noun of short food supply chains and markets, is not the determinant of food supply, its role is still crucial. However, it is also important to take into consideration that the ambitious but traditional food supply forms have a rather different form in the developed countries than in the developing ones. The situation of farmers and their relation to the changes of food channels are decisive.

In brief, while we witness the growth of food consumption and the phenomenon that the retailers and global brands are coming into the limelight, another kind of take-off in the field of food consumption trends can be noticed. It predicts the boom of quality food consumption and shows the tendency to traditional eating habits. Naturally, the food consumption tendencies influence the adaptability of local farmers and the change of their production structures and this phenomenon is well-known across Europe.

#### **3.2 The different approaches of food systems theories**

On the basis of the processed specialized literature - written in French and English - I learnt that the holistic approach based theories dealing with localized food systems could be classified into two schools: rural development or marketing-centered approach. During the structuring of literature sources I ascertained that marketing-centered specialized literature is based on economics especially and

mainly on the determination of quantity indicators. For instance, the neoclassical economic approach of marketing-centered specialized literature is also related to alternative food systems. This means that the alternative food systems can be construed as an element of defence strategy or as a kind of survival mechanism against the inevitable global – economic and market – trends. The abolition of international customs enhances the importance of defence. On the basis of the above facts, certain countries are capable of avoiding the degradation of its rural areas with the application of alternative food systems (MARSDEN et al. 2007) and are also able to offer alternatives against the globalised, industrialized trends.

The theories building on the basis of rural development primarily apply areal approach, examine the effects of political decisions related to food systems, moreover the real boundaries of the system's local development. These theories use the following denominations: local, territorial, relocalized, and proximity as attributes. Besides, they put the areal relation systems and the modernization or the underdevelopment of family farms in the centre of their research (KAYSER 1990). They represent the importance of multifunctional agriculture as a novel approach and strive to create regional or areal explanation. In these cases they measure the effects of „bottom-up” initiatives and the mapping of the networks emerging locally. According to their social, economic analysis they make suggestions for the necessary local political measures (BARTHE and MILIAN 2012, DUVERNOY et al. 2006).

As I focused on the territorial-centered studies in my research, I introduced the interpretations and concepts related to SYAL (Système d'Alimentaire Localisé – Relocalized Food System) and to short food supply chain. To sum up, the SYAL differs from the concept of local food system in involving the consumer and the factors of local culture. It builds on the consumer habits, traditions and follows from its effects; it lays emphasis on the formation of local – territorial – systems. While earlier the producer, the production method and the relations of rural areas were studied, the SYAL system provides a kind of holistic approach, which is conducive to make rural (regional) development decisions. It is possible, because the system is capable of the combined studying of the rural participants and the institutions as well. I introduce the concepts of the processed specialized literature on the next figure (Figure 1)

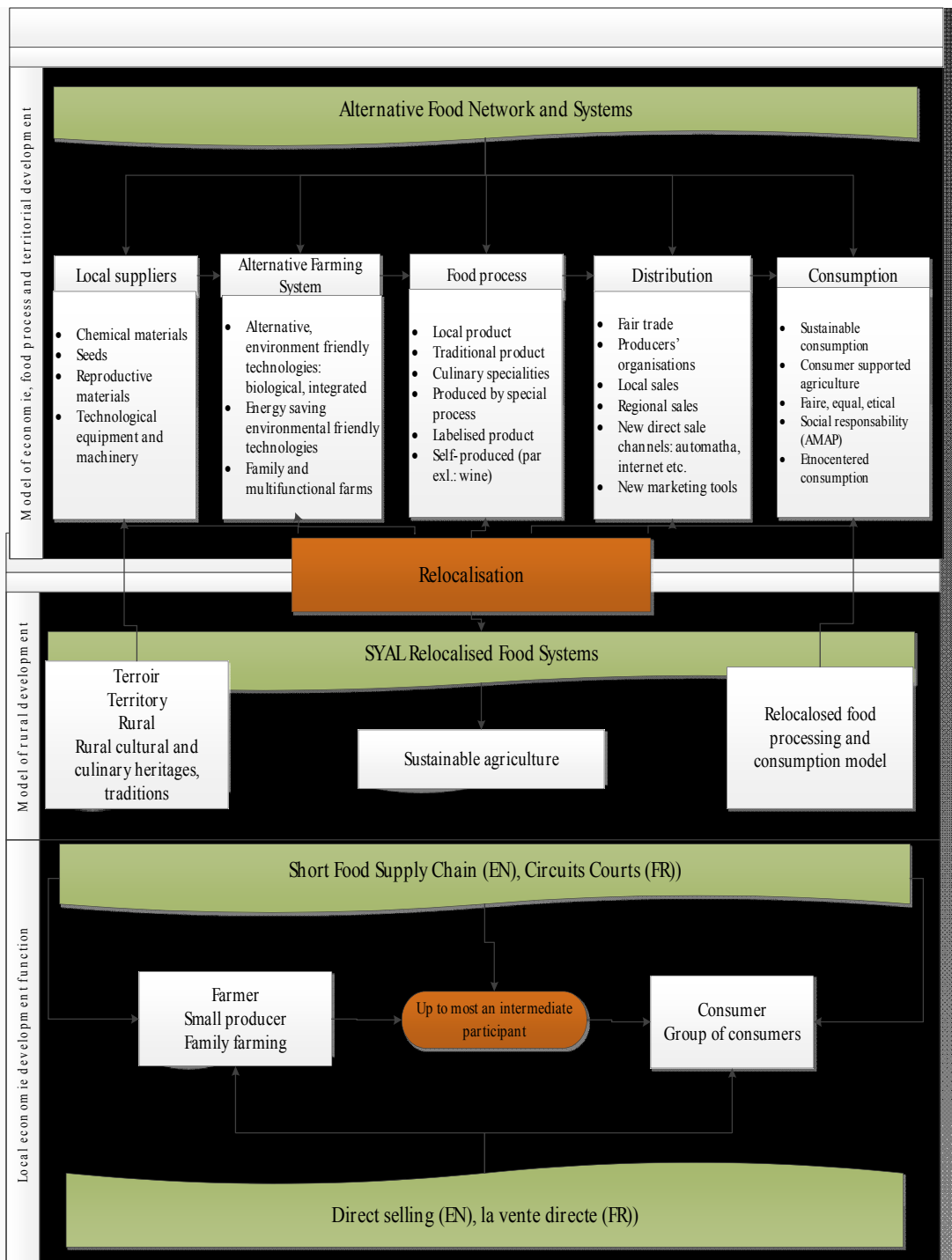


Figure 1: Structure of definitions of local food system  
Source: Edited by the author 2013

### **3.3 The most relevant definitions of short food supply chain and those classification**

Most processed specialized literature interprets short food supply chain (SFSC) mainly in system approach and explain it as a part of the alternative (regional, local) food system (AFS). According to it, SFSC is the revitalized (re-organizing) network of producers, consumers and people living in and dealing with rural parts (ALLAIRE 2011), which is a renewing food production, -processing, -sale, and -consumption system, and above all it means a bottom up cooperation. Besides it offers alternative opportunities against industrial production (MURDOCH et al. 2000). Most authors think that the point of networking is the tight relations and the shortening of communication path and also the operation of networks. Its motivations are: consumer attitude change and versatile producer activity.

The authors dealing with the foregoing almost unanimously agree that the short food supply chain has become an important instrument of rural development - by means of direct relations and the smallholders' market access - in the shortened food system. The differences between the French, English and Hungarian definitions stem from the divergence of national characteristics such as distance, the kind of farmers, group of urban or rural consumers, number and type of participants. In my view, among the processed and systematized knowledge the Hungarian approach principally concentrates on the physically, really interpretable and tangible, most practical formulations, while the French, British and American authors often apply philosophic, holistic comparisons and extend their thought in the direction of a wider rural development interpretation then put the operation of short food supply chain in it.

### **3.4 The relation among the sustainable family farms and the local food systems**

In the second part of the literature's review I surveyed the theoretical criteria of family farms' sustainability. It was done to reconsider my first hypothesis with reviewing the specialized literature and also to realize my second object. In the framework of the latter one, I reached the Landais's sustainable family farm model, which provides a theoretical basis for my primary research, because it puts the family farms in the centre of sustainability. According to LANDAIS (1998), sustainable development is a long-term goal, which is going to represent the growth of revenue, the complexity of work, the number of employees, and assure the preservation of the environment and the protection of the region's biodiversity as well. Sustainability as a complex factor shows a kind of connection to its surrounding environment. These links can be classified into 4 groups (Figure 2) (economic conditions, social relations, socio-economic relations and relation to

environment). This means that the Landais’ model states that the sustainable family farms are: reproducible, viable, and livable (socially acceptable), and transferable. The reproducibility depends on the rational use natural assets and on the observance of proper agricultural practice. Having processed the model, during the adaptation and creation of new models I applied the Landais’s four-fold criteria model.

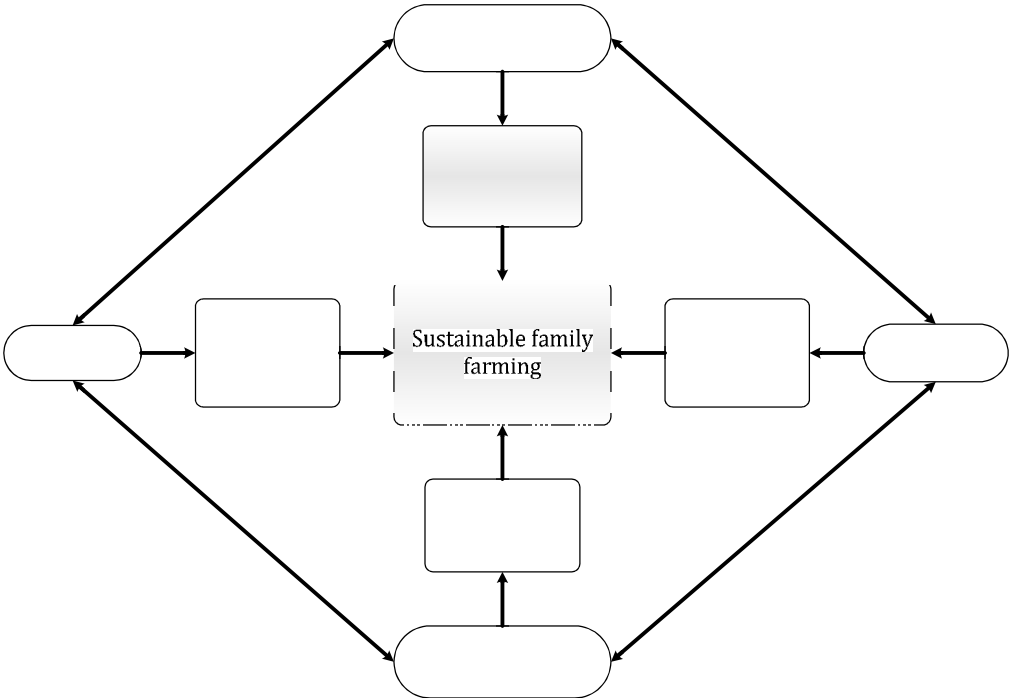


Figure 2: Sustainable family farming model by Landais  
 Source: LANDAIS 1998

**3.5 Measurement of the sustainability in the IDEA model**

Another important challenge of my research was to study methods, which can be suitable for measuring the sustainability of region in Danube-Tisza Interfluve, the Homokhátság’s homestead area. I tested several models then as the result of the adaptation studies I chose the IDEA model. It clearly seemed suitable to me for handling the sustainability indicators – with special regard to social indicators. The IDEA mosaic word stands for the following: Farm Sustainability Indicators (Indicateurs de Durabilité des Exploitations Agricoles) (VILAIN et al. 2008) (Figure 3). As for the structure of the model, each of the pillars can score 100 points, which makes it possible to compare and weight the different sustainability axis. It groups into the examined factors into three-three groups of factors within each pillar, of which totally available score number is 33-34. Thus, each farm can

gain overall 300 points, from which each farm can score 100-100-100 points for environmental, social and economic pillars. So the farms will be comparable according to sustainability factors and at the level of research, too.

The bottleneck of the Hungarian adaptation of this model was the indicators of social pillars, because those factors show the most significant difference between the Hungarian and French approaches. These include the cooperation of rural participants, the application of the cooperation of agricultural machine use, collective sales, multi-generational farming, family farms as a matured legal and social form. The indicators used in France could not be fully implemented, because due to their too large differences the results of these two countries could not be interpreted.

On the basis of the above-mentioned, my first domestic experiments proved that family cannot really be the basic unit of the survey in Hungary. Smallholders had to be chosen instead. In spite of that fact, I considered it to be expedient to examine some family farms related questions such as the transfer of the farm to the younger generation or the significance of work labour employment. The researches also verified my hypothesis, which suggests that the key factor of domestic social and economic sustainability is the way how the semi-subsistence farms and the smallholders can become the participants of the market. The farms, which became the participant of the market, obtain their services from the market, thus they have face with an ever-changing external factor by leaving their self-sufficiency. So the question: which indicators are needed to reduce their dependency; remains unanswered (KUCZI 2000). To sum it up, the IDEA model, which I had compiled in a new kind of hybrid model, is capable of domestic adaptation, and also can be used for the joint application to determine criteria system for sustainability and short food supply chain.

Since the IDEA examines the producer exclusively, I found it necessary to extend the scope of my research on farmers as well. So as to present the regional conditionality I used the IDEA model to serve as a sample for the model applied. The DiagSYAL is also indicator-based and supplements the business-oriented indicators with indices, which are suitable for measuring lands. Its name is DIAGnostic du SYstèmeAlimentaireLocalisé, which comes from the relocalized food system. The method identifies 3 major projects of which subjects' analysis are essential during the practical application of alternative food system:

- conditions bound to area,
- in field of local products,
- and finally the conditions of regional development.



Table 3: Factors of IDEA model

Factors	Indicators	Ind.	Value	Max.value
<b>Ecological sustainability (pillar)</b>				
Diversification	Diversity of annual and temporary crops	A1	14	33
	Diversity of perennial crops	A2	14	
	Diversity of livestock	A3	14	
	Protection of native and landraces	A4	6	
Environmental protection	Crop-rotation	A5	8	33
	Size and location of parcels	A6	6	
	Using of organic materials	A7	5	
	Creation of ecological puffer zones	A8	14	
	MAEandNatura 2000	A9	4	
	Pasture utilization	A10	5	
	Satisfying the fodder forage requirements	A11	3	
Agricultural practice	Fodder forage supply	A12	8	33
	Handling slurry	A13	3	
	Plant protection	A14	13	
	Veterinary treatments	A15	3	
	Soil protection	A16	5	
	Water conservation	A17	4	
	Energy dependence	A18	10	
<b>Social and regional sustainability (pillar)</b>				
Local products and regional binding	Trademarks and local feature	B1	5	33
	Amount of products	B2	5	
	Quality control system	B3	5	
	Own brand, issued	B4	5	
	Innovation ability of farms	B5	6	
	Sales through short food supply chains	B6	7	
Employment and services	Qualification	B7	7	33
	Self-sufficiency and usage of local sources	B8	5	
	Service, diversification	B9	5	
	Creation of workplace and family employ.	B10	6	
	Local cooperation	B11	5	
	Long-term planning	B12	3	
Local contact system	Cooperation ability	B13	10	34
	Accessibility of the area	B14	5	
	Partnership grants	B15	5	
	Participation in training and knowledge transfer	B16	3	
	Motivation: for maintaining	B17	5	
	Isolation	B18	3	
Tourism	B19	3		
<b>Economic sustainability (pillar)</b>				
Profitability	Profitability rate	C1	20	30
	Off-farm income	C2	10	
Self-sufficiency	The existence of necessary infrastructure	C3	10	25
	Application of food channels	C4	15	
Transferability	Transferability	C5	25	25
Efficiency	Effectiveness of producer processes	C6	25	25

Source: VILAIN et al. (2008) and self-edited on basis of my adaptation experiment (carried out in 2011-2012)2013

The model, similarly to IDEA, contains 43 indicators and its weighting method is quite comparable. The overall obtainable score points are 300, each pillar can gain 100-100-100 points. However, the new method currently does not contain the value of each pillar, since their testing has been in progress in several European regions. Despite, I found the model's theoretical approach suitable to be integrated into my research. This means that during the process of deep interview I evaluated the results in accordance with the DiagSYAL criteria. From the 43 indicators of this method 11 study the farms from the views of multifunctional activity, food processing and sale through short food supply chains. On the basis of the above-mentioned, I studied the producer groups created by cluster analyses (Table 4).

Table 4: The remained and examined indicators of the model

Name of the indicator	Number	Category
Multifunctional farms and production as diversified as possible	T1.2	Functions of food processing
Tradition of food processing in the region on basis of the farmers' participation	T1.3	
Production adjusted to agri-environmental aspects	T1.4	
Producers motivated in local sales	T1.5	
The existence of infrastructure needed for food processing (for example: cutting point, fruit processing)	T1.6	
Consumers' and producers' identity related to „terroir”	T2.2	Regional cohesion
Entrepreneurs' relation to R+D	T3.3	R+D functions
Farms' innovation skills	P2.1	Sales
Sales opportunity of local food in canteen meals and in restaurants	P2.2	
Opportunities in tourism	P2.3	
Raising attention with the help of education and culture	P2.4	

Source: on the basis of EPL Toulouse's work 2013

### 3.6 Statistical analyses based on the indicators of IDEA method

In the Results chapter of my thesis I reviewed the characteristics of different areas, and the features of each examined target group, which led me to carry out, on the basis of it, the necessary surveys with the help of IDEA model indicators. At first, I made the descriptive statistical analyses in order to reveal the basic attributes of the sample and its elementary correlations. After the quantitative evaluation of the deep interviews used in the IDEA model I created a 77X50 matrix and from its data I studied the sustainability of environmental, social and economic pillars separately in two different regions; in Kiskunság, Hungary and in the Midi-Pyrénées, France. We can differentiate factors in each pillar, of which examination can figure out significant divergence. In the first place I examined the farms by sectors then I carried out the comparison of the patterns and presented them in a web chart (Figure 3). The figures clearly exhibit essential differences between the two studied groups. As for the environmental factors, the diversification, in field of the study of

social indicators the relations and as for the economic scores effectiveness showed significant divergences.

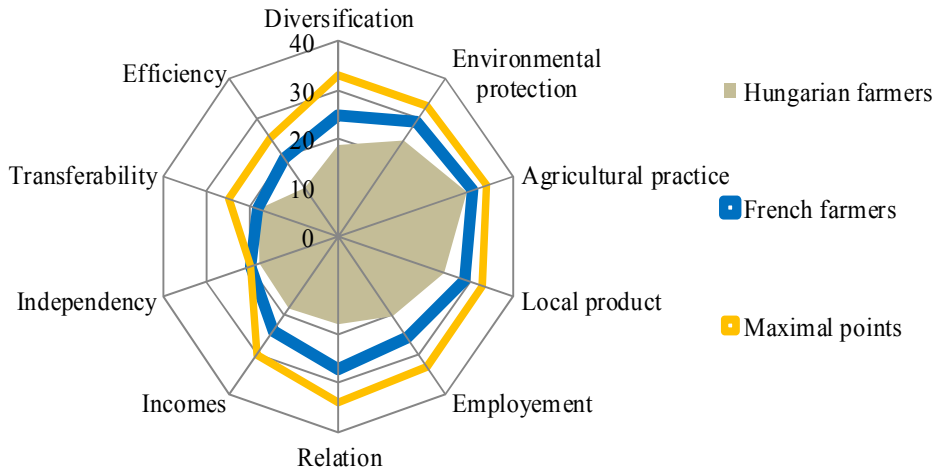


Figure 3: Radar diagram about Hungarian and French farmers by components  
Source: Edited by the author2013

I drew the conclusion from the descriptive statistical study of IDEA model that:

- There is a difference from the aspect of sustainability between the data of Hungarian and French farms, which derived from similar patterns
- The form of farming determines the sustainability of family farms
- Biodiversity determines the sustainability of the whole farm
- The diversification of the activities, direct sales and local process could be the solution for the economic and sales problems of small and medium-sized farms

### 3.7 Creation of farming groups under the IDEA model

As the second part of my research, I examined the indicators of IDEA model with a multivariate statistical analysis (principal component and cluster analysis). As a result of it, the French and Hungarian farmers both became well classifiable on the basis of sustainability criterion; moreover, the strong and weak points of certain clusters also became determinable. During the analysis of the principal component of domestic farmers, 4 different components were established for Hungary and five in the case of the examination of French farmers. After I examined the principal components with K-middle cluster analysis, which enabled me to differentiate four-four clusters. (Table 4-5) In the course of the interpretation of the clusters I examined the new homogenous group under same criterion.

Table 5: Cluster centers in accordance with the k-mid process in the case of the Hungarians

	Marketing smallholders n=9	Engagedmedium-sized n=14	Keeping more states progressives n=7	Lagging self-sufficient n=11
Indicators of animal keeping	0,03	0,77	-0,57	-0,65
Gene and nature conservation	-0,04	0,63	-0,01	-0,77
Environmental protection	-1,22	0,56	0,58	-0,08
Product and quality	0,24	0,53	0,75	-1,35
Multifunctional farming	-0,22	0,34	1,04	-0,92
Sales channels	0,54	0,05	0,40	-0,77
Isolation, semi self-sufficient	0,68	-0,55	0,61	-0,24
Economic factors	-0,96	0,10	1,00	0,01

Source: Edited by the author2013

Table 6: Naming of the clusters in the case of French producers

	Laggingresigner (n=5)	Traditional processor (n=13)	Environmentinnovators (n=5)	Leading breeders (n=13)
Animal keeping	-0,79	-0,73	- 0,22	1,12
Environmental burden	-1,09	-0,11	0,84	0,20
Agri-environment	-0,28	-0,42	0,78	0,23
Traditional, environmental farming	0,027	0,63	0,19	-0,72
Product and quality	-1,53	-0,19	0,58	0,56
Multifunctional farm.	-1,52	0,00	-0,28	0,70
Short food supply chain.	-1,99	0,05	0,49	0,53
Processed products and their sales	-1,50	0,31	-0,06	0,29
Economic factors	-0,47	0,50	-1,47	0,25

Sources: Edited by the author2013

By arranging the characteristics of the groups into a new matrix (Table 7), a divergence is noticeable between the sustainability of certain groups. I supplemented the table with the criterion (factors of the homesteaded in Homokhátság between Danube-Tisza in Hungary and in the case of French farmers the factors of Mid-Pyrenees mountainous region) named in the Method part of my thesis. In fact, I compared every kind of producer groups under the Landais' sustainable pillars (reproducible, viable, transferable, livable), on the basis of the strength of their correlation between each other. The most important characteristics of farming method were outlined in the course of the correlation studies, and then I

pointed out those special features, with the help of model-combination, which I named the sustainability conditions of family farms. Although the samplings focused on farms, which perform multifunctional activities and mostly sell in the short food supply chains but a significant difference can be demonstrated in the judgment of their sustainability. Finally, I underpinned the existence of certain groups by presenting case studies.

The results of the groups study verified my second hypothesis, which stated that the important condition of the surveyed sustainability of domestic family farms circles are the achievement of short food supply chains and the application of more and more SFC channels. The statistical and cross tabulation proved the first half of my hypothesis, and the clusters (farmers classification) created by multivariate analyses supported the importance of short food supply channels in the field of sustainability.

The correlations explored by the multivariate statistical analyses verified that in the case of dual food system's traditional markets, the sustainability of smallholders' activity and the local food supply directly effect on each other's development. Besides, the practical usefulness of my research lies in the fact that I presented a new method for the quantitative measure of the farms sustainability. In the framework of it, I applied new environmental, social, economic indicators, which can be suitable – depending on the level of elaboration - for incorporating the impact assessments in the Common Agricultural Policies' interference into the rural development's target areas. In addition, the results point out the importance of the niche's existence, which can be a key factor in the development of family farms and in the maintaining of rural areas' cultural heritage.

Summarizing my results, it can be stated that the studied family farms are sustainable if these are “reproducible” from the aspects of environment, viable in the economic view and socially acceptable, livable and can be transferable to the next generations. However, the studies of IDEA model have shown that several combinations of sustainability are possible, even if not every of the criteria meet the requirements at the expected level.

My researches have proved that the examined family farms – in spite of the strict criteria for selection –compose a highly diversified, vivid group among the agricultural producers. Their roles are continuously increasing in local food system, because they play a very important role in food supply. The environmental protection pillar has been also outlined, that is to say, not only does the quality of farming establish the sustainability but it also has an impact on its economic importance.

Table 7: Summary table on the basis of sustainability

	Homokhátság N=41				Midi-Pyrénées N=41			
	Smallholders on markets N=9	Engaged medium-size N=14	Multifunctional progressives N=7	Lagging self-sufficient N=11	Lagging resigners N=5	Traditional processors N=13	Environmental-friendly innovators N=5	Leading animal breeders N=13
Reproducible	strength	strength	yes, but can be strengthened	moderate	moderate	moderate strength	strength	strength
Attentive to the environmental characteristics of the areal features	peculiarity	peculiarity	moderate strength	partly	partly	peculiarity	peculiarity	moderate strength
Livable	moderate	strength	strength	weakness	moderate	moderate strength	strength	strength
Characteristics of homestead farms/mountain farming appearing in a social context	yes, but development needed	yes	yes	it appears rather as a disadvantage	it appears rather as a disadvantage	partly	yes	yes
Transferable	weakness	moderate strength	strength	no	weakness	strength	strength	strength
Becomes transferable between generations, Creates a special farming form	no	yes	yes	no	no	partly	yes	yes
Viable	moderately weak	strength	strength	no	weakness	strength	moderate	strength
Capable of entering the market/Expanding the farming activity and diversifies its activity	weakness	yes	yes	no	partly	partly	partly	yes

Sources: Edited by the author 2013

#### **4. HYPOTHESIS RESEARCH**

##### **Hypothesis (H1):**

The effectiveness of multifunctional agricultural family farms have a strong correlation to the emergence and development of local food system in Hungary too, furthermore, the family farms are sustainable if they have an active relationship and multilateral cooperation to the environment surrounding themselves.

##### ***Status: Partially verified hypothesis***

The first part of the hypothesis has not been fully verified by the Hungarian homesteads' analyses. Local food system is truly an important element of it and also has been emerged in each cluster but it is also noticeable that multifunctionality – the diversified and the by all means self-sufficient Hungarian family farm - exists under essentially undeveloped local food system as well. It means that there is no dependency between the two systems but they complement each other.

The second part of the hypothesis is acceptable, because in Hungary the low cooperation willingness and their minimal participation in the local group initiatives have been verified by the principal component analyses. The study of short supply chains and the multivariate results have also verified that the more group initiatives the family farms take part in and at more places, the more secure and more sustainable are their economic and social background.

##### **Hypothesis (H2):**

The important condition of the sustainability of the examined domestic family farms circle is the attainment of short food channels and the application of this kind of channels as many as possible.

##### ***Status: the verified hypothesis***

I have concluded, when selecting the sale channel that it is an important sustainability criterion to make the producer capable of applying as many sales channel as possible (and also make them reachable in regarding to both geographical distance and social relations). The lack of collective sales – which prerequisite is cooperation skills – is a serious issue.

##### **Hypothesis (H3)**

The adaptation difficulty of IDEA sustainability model, which is also the biggest difference between the French and Hungarian farmers, is not caused by the economic difficulties of sustainability but the differences of social criterion.

***Status: verified hypothesis***

During the study of the changes in social indicators, the divergences between the features of French and Hungarian rural parts became distinct (for example: cooperation of rural participants, application of the cooperation in agricultural machine use, collective sales, multi-generational farming, family farms as the development of social and legal forms, etc.). The original French indicators may not have been adaptable completely. That is why I created new indicators for the Hungarian facilities on the basis of Hungarian researches and for those I applied the French and Hungarian surveys. By this approach I got more relevant and analysable results that are responsible for Hungarian circumstances.

**Hypothesis (H4):**

Among the domestic farmers there is a well-trained, competent, engaged in many activities group, which might be active participants of rural development concentrated on Danube-Tisza Plain, Homokhátság's homestead area in case of properly aimed subsidy.

***Status: verified hypothesis***

The validity of my claim has been supported by the results of my cluster analyses: among the Hungarian clusters two groups (engaged medium-sized farmers and multifunctional progressives) have verified that there are farmers who perform many kinds of multifunctional activities and capable of sustaining their farm, families and even creating workplaces with stable economic background.



## 5. NEW SCIENTIFIC RESULTS

During my research, I interpreted the concepts of localized, and landscape related food systems, the relocalized food system, short food system and the direct sales of agricultural products in a new approach, instead of the former marketing-centered studies (**T1, O1**).

Based on the theoretical models, I succeeded in pointing out the correlations between the subjects of localized food system and the sustainable family farms and related to them and I also pointed out the necessity of a novel research method (**T2, O2**),

I interpreted and adapted the theoretical approaches, the concepts of the so-called “SYAL” that is the relocalized food system, and the Landais’ sustainable family farm model in the social and economic environment of the Hungarian countryside(**T3, O3**).

*(Thus I applied a novel four-pillar theory, instead of the traditional three-pillar sustainability study, which suggests that the sustainable family farms are reproducible, viable, livable (socially acceptable) and transferable.)*

I reformed and applied the IDEA model on Homokhátság in Danube-Tisza Plain and I succeeded in verifying its applicability for the objective measure of family farms’ sustainability (**T4, O4**).

On the basis of the sustainability for the examined Hungarian and French farmers I created well-separable homogenous groups– with the help of IDEA model– and I made suggestions on their development opportunities, special requirements as well as their multifunctional activity with regard to their role(**T5, O5**).

## 6. RECOMMENDATIONS

**R1:** As my thesis concentrates on the holistic approach therefore the certain components of the alternative food chains have only partly been clarified. That is the reason why the further specialized literature study of the components are recommendable then also the measure of their role in order to be capable of determining the further development directions.

**R2:** It is necessary to compare the domestic processes with other countries' practices in the field of food system development. In my view, it is supplementary to make an international legal and tax environmental assessment on the family farms and their sustainability, which results might contribute to the genuine development of smallholders' operational environment.

**R3:** I find it reasoned to extend the sampling to the other domestic region for the domestic smallholders' own good, especially to the lowland landscapes where the one-time homestead areas would probably show relevant social and economic differences like Homokhátság' homestead in the Danube-Tisza Interfluve area.

**R4:** It would be worth extending the scope of the study to a wider farmer groups whose form of sales are significantly diversified. I find it also necessary to compare the sustainability of farmers – possessing a considerably higher operation plant (conventional or even industrial sized) – with the “small riches” whose sustainability is based upon family relations.

**R5:** Similarly to sustainability indicators the DiagSYAL proved to be applicable – in practical use – for monitoring studies. Nevertheless, as the international development of this method is still in progress, their continuous domestic actualization is needed as well, in order to create monitoring indicators.

**R6:** The IDEA method has been developed into a pedagogical method, because it is a useful measurement tool for students in a simpler form. The application of this method in domestic higher education would help to understand the holistic approach and would contribute to the attainment of sustainability attitude.

**R7:** I consider the classification of domestic farms circles – on the basis of sustainability, multifunctionality and on the basis of local food system's features - as one of the important results of my dissertation. I recommend the application of the evolved producer segments when creating the ongoing SFSC thematic subprogram.

**R8:** The results of my thesis and the assessments of demands might serve as a guide in agricultural consultancy and in education as well. Thus, for organizers who arrange trainings on producer markets, box schemes and other market entering opportunities might be instrumental in better understanding the farmers' activity and segmentation, which might be helpful for contributors in consultancy.

## 7. THE MOST SIGNIFICANT PUBLICATIONS OF THE AUTHOR

### Scientific articles published in foreign language:

1. Kujáni K. (2011): The French multifunctional model and the sort food supply chain as the adaptable examples in the case of small and self-subsistence farms of the New Member States; 44-53 p. Economy Policy and Agri-food Sector. Varsó: 2011. december 11. In: Problems of world agriculture (Szerk: Manteuffel Szoegé, H.) Warsaw University of Life Sciences Press, Varsó, 181 p. ISSN 2081-6960. [http://www.wne.sggw.pl/czasopisma/pdf/PRS\\_2011\\_T11\(26\)\\_z3.pdf](http://www.wne.sggw.pl/czasopisma/pdf/PRS_2011_T11(26)_z3.pdf)
2. Kujáni K. és Fehér I. (2012): Adaptation of a new model for assessing the sustainability at farm-level. 63-73 p. Gödöllő: Economics of Sustainable Agriculture; Szent István Kiadó, 256 p. HU ISSN 2062-445X

### Scientific articles published in Hungarian language:

1. Fehér I. és Kujáni K. (2010): A vidéki hálózatok tevékenysége és eredményei az Európai Unióban – Kételyek és esélyek. *Gazdálkodás* 55 (3) 296-308 p.
2. Kujáni K. és Varga H. (2012): A méhészeti családi vállalkozások fenntarthatósági kritériumainak vizsgálata IDEA módszerrel. *Acta Ovariensis*. 54 (2) 45-59 p.
3. Kujáni K. (2012): A közvetlen értékesítés módszerei a francia vidékfejlesztésben. *Falu* 27 (4) 59-68 p.
4. Kujáni K. (2014): Az alternatív élelmiszerellátó rendszerek gazdasági és társadalmi beágyazódása az európai vidékfejlesztésbe. *Gazdálkodás* 58 (1) 30-40 p.

### Books and chapters in Hungarian language:

1. Kujáni K. és Fehér I. (2012): Franciaországi tapasztalatok az európai agrár- és vidékpolitika megítélésében. (Improvizáció a dzsesszben alapvető, azonban az agrárpolitikában keressük a konszenzust!) 207-218 p. In: Csete, L., Fehér, I. (Szerk.): Az Agrár-vidékfejlesztési és élelmiszer-marketing trendek. Gödöllő: Szent István Egyetemi Kiadó 269 p. ISBN: 978-963-269-6
2. Fehér I. és Kujáni K. (2012): Térségfejlődés és a kultúra összefonódása. 86-101 p. In: Farkas A. et al. (Szerk.): A filozófia párbeszéde a tudományokkal - A 70 éves Tóth Tamás professzor köszöntése. Budapest: Protokollár Tanácsadó Iroda 447 p. ISBN: 978-963-7044-61-8
3. Mácsai É., Kujáni K., Juhász A. (szerk.), Hamza E., Györe D. (2012): A közvetlen értékesítés szerepe és lehetőségei a hazai élelmiszerek piacra

jutásában. – Élet a modern kiskereskedelmi csatornákon kívül? Budapest: Agrárgazdasági Kutatóintézet. Agrárgazdasági Tanulmányok. 121 p. ISBN 978-9-634915-76-8, ISSN 1418-2122

**Scientific conferences exposé published in conference publication in foreign languages:**

1. Kujáni K. és Varga H. (2012): Challenges and opportunities of the beekeeping family farms measured by the IDEA model. XI. Wellmann International Scientific Conference 10th May 2012., Book of abstract Hódmezővásárhely. s.l.
2. Kujáni K., Fehér, I., Flamant, J.C. (2012): A new holistic approach in the investigation of farms in the Danube Region. 138-143.p. 7th International Conference for Young Researchers 12-14 November 2012 Gödöllő (Hungary) (CD kiadvány). ISBN 978-963-269-319-4.

(D:\ 7th International Conference for Young Researchers\Poster\Kujani\_Feher\_Flamant.pdf)

3. Kujani K. (2013): Innovation in alternative food supply systems – New interpretation of agro chain model. 157-167 p. In: Szendrő K., Soós M., Nagy M. (szerk.) Proceedings of the 4th International Conference of Economic Sciences Konferencia. Kaposvár: Kaposvár University, 2013.05.09-2013.05.10. ISBN:978 963982161 3.

(D:\ Proceedings of the 4th International Conference of Economic Sciences Konferencia\Kujani.pdf)

4. Kujani K. Csíkne M. E. Fehér I.(2013): Exemple d’exploitation agricole en circuits courts - Une analyse comparative régionale entre la Hongrie et la France; CCP 2013 – Les circuits courts de proximité : renouer les liens entre territoires et consommation alimentaire Konferencia 2013. június 4-5. AgroParistech, PárizsKonferenciakülönkiadás – EconomieRurale – *under publication process*

**Scientific conferences exposé published in conference publications in Hungarian language:**

1. Kujáni K. (2009): A homokhátságvidékfejlesztés eredményességének vizsgálata franciaországi példák alapján. 802-806 p. Kecskemét: Erdei Ferenc V. Tudományos Konferencia 2009. szeptember 3-4. Kecskemét; In: FERENCZ, Á (Szerk.): Erdei Ferenc V. Tudományos Konferencia II. kötet Felelős kiadó: Kecskeméti Főiskola Kertészeti Kar. 991 p. ISBN: 978-963-7294-75-4

2. Kujáni K. és Varga H. (2011): Méhészettel foglalkozó családívállalkozások fenntarthatóságvizsgálata az IDEA modell alkalmazásával. 1-6 p. Keszthely: XVII. Ifjúsági Tudományos Fórum 2011. április 21. CD kiadvány (D:\6\_Agrargazdaságtan\_Vállalatigazdaságtan\_Informatika\_06\_Kujani\_Varga.pdf)
3. Kujáni K. és Varga H. (2011): Az IDEA fenntartható Mezőgazdasági modell alkalmazási lehetőségei a Nyugat-dunántúli region méhészeti vállalkozásaiban. 89-95 p. Csíkszereda: Gazdasági és Üzleti Kihívások a Kárpát-medencében Konferencia 2011. május 6-7., SAPIENTIA Erdélyi Magyar Tudományegyetem, In: LÁZÁR, E. (Szerk.): Gazdasági és üzleti kihívások a Kárpát-medencében konferenciakötet. Csíkszereda: Státus Kiadó. 353 p. ISBN: 978-606-8052-52-6
4. Fehér I. és Kujáni K. (2011): Új IDEA, egy új módszer a fenntarthatóságkérdésére – Esettanulmány Dél-Franciaországból. 487-492 p. Kecskemét: Erdei Ferenc VI. Tudományos Konferencia 2011. augusztus 25-36. In: FERENCZ, Á. (Szerk.): Erdei Ferenc VI. Tudományos Konferenciakiadvány II. kötet, Felelőskiadó: Kecskeméti Főiskola Kertészeti Kar. 561 p. ISBN: 978-615-5192-00-5
5. Kujáni K., Varga H. (2011): A méhészettel foglalkozó családigazdaságok előtt álló kihívások és lehetőségek az IDEA modellszerint. 386-390 p. Kecskemét: Erdei Ferenc VI. Tudományos Konferencia 2011. augusztus 25-36. In: FERENCZ, Á. (Szerk.): Erdei Ferenc VI. Tudományos Konferenciakiadvány II. kötet, Felelőskiadó: Kecskeméti Főiskola Kertészeti Kar. 561 p. ISBN: 978-615-5192-01-2
6. Fehér I., Kujáni K. (2011): A tejtermelő gazdaságok kihívásai és esélyei egy új kutatási módszer alkalmazásával. 264-272 p. Gödöllő: III. Gödöllői Állattenyésztési Tudományos Napok Gödöllő 2011. október 14-15., Animal welfare, etnológia és tartástechnológia Különkiadás 7 (4). <http://www.animalwelfare.szie.hu/sites/default/files/cikkek/201104/AWETH2011264272.pdf>
7. Kujáni K. (2012): A kiskunsági tejtermelő tanya gazdaságok vizsgálata IDEA modell alkalmazásával. Keszthely XVIII. Ifjúsági Tudományos Fórum, 2012. április 19., Keszthely. CD kiadvány 1-6 p. (D:\5\_Okonomia\_Informatika\_07\_Kujani\_Katalin\_Olga.pdf)
8. Kujáni K. és Varga H. (2012): A fenntarthatóság vizsgálata a homokhátitanyásgazdálkodás esetében. Vállalkozói és gazdaságitrendek a Kárpát-medencében konferenciaprogram 2012. április 21. In: Sapiientia Erdélyi Magyar Tudományegyetem. Gazdaság- és Humántudományi Kar.

Üzleti Tudományok Tanszék [2012]: A Vállalkozói és gazdaságitrendek a Kárpát-medencében., 2012. ápr. 20-22-én rendezett konferenciaelőadásai. 109. p. ISBN 978-606-8052-76-210

9. Kujáni K. (2012): A franciatípusú rövidelmiszerlánc eredményességét meghatározó tényezők vizsgálata a fenntarthatóság tükrében. Budapest: Professzorok az Európai Magyarországiért Egyesület „Nemzedékek együttműködése” című IV. PhD konferencia 2012. november 15. Online kiadvány 77-85 p. <http://www.peme.hu/userfiles/file/Gazdas%C3%A1ltudom%C3%A1nyi%20szekci%C3%B3.pdf>
10. Kujáni K. (2013): Egy új vidékfejlesztési modell adaptációs lehetőségei a homokhátitanyavilág rehabilitációjában. 363-372 pp. In: Troján Sz, Teschner Gergely (szerk.): Hensch Árpád nyomdokain - A Gazdálkodásban publikált PhD hallgatók és kutatók III. Országos Tudományos Konferenciája. Hensch Árpád Nyomdokain Konferenciakötet. III. Országos Tudományos Konferencia. 2013. április 25. Mosonmagyaróvár. 492 p.

**Vocational book in Hungarian language:**

1. Kujáni K. (2009): A mezőgazdaság funkciói a Kujáni tanyán 85–89 p. In: GLATZ F, CSATÁRI B, T GÉMES T. (Szerk.): A magyar tanyás vidékek (A kötet a II. Országos Vidék Fórum, Lajosmizse, 2009. június 3–4. előadásai és hozzászólásai alapján készült.) Lajosmizse, Magyarország, 2009.06.03–2009.06.04. Budapest: MTA Történettudományi Intézet – MTA Társadalomkutató Központ, [Párbeszéd a vidékért]. 143 p. ISBN 978–963–9627–32–1.