# The possibilities and challenges of sustainable agriculture in Hungary

–

*Searching for pathways for a feasible conversion in the agricultural sector*

AALBORG UNIVERSITY
DENMARK

*Aalborg University*

*Environmental Management & Sustainability Science*

Mátyás Gombos

*Cover picture: http://www.ox.ac.uk*

## *Preface*

This Master's Thesis was written Mátyás Gombos, graduating student of the Environmental Management and Sustainability Science study program at Aalborg University. The thesis was written between the 1st of February 2017 and the 2nd of June 2017.


## *Acknowledgements*

I would like to extend my sincerest gratitude to my semester supervisor, Ole Busck, who has put up with me for the third consecutive semester and has been my guide in my academic endeavor and writings. I would also like to thank the interviewees of this thesis: Gyöngyvér Székely, Era Kármán, Katalin Szlovicsák, Csaba Bolvári, Zoltán Dezseny, and Logan Strenchock who have provided me with great insight in my chosen topic.

AALBORG UNIVERSITY
STUDENT REPORT

Department of Development and Planning
Environmental Management and
Sustainability Science
Vestre Havnepromenade 5
DK-9000 Aalborg
http://www.environmentalmanagement.aau.dk/

**Title:**
**The possibilities and challenges of sustainable agriculture in Hungary**

*Searching for pathways for a feasible conversion in the agricultural sector*

**Theme:**
Master's Thesis

**Project period:**
Spring semester 2017

**Author:**
Mátyás Gombos

**Supervisor:**
Ole Busck

**Page numbers:**

**Date of completion:**
June 2nd, 2017

ABSTRACT:

Since the 1980s, organic farming has been gaining ground, becoming more and more popular and has been appointed as one possible sustainable alternative to conventional agriculture. While its popularity has grown in foreign and international consumer markets, the practice has been facing kind of a crisis in Hungary. This master's thesis addresses the problems of the organic farming sector in Hungary mainly in connection with the reluctance of conventional producers to consider organic farming, and the false myths and negative perception of consumers. The goal of this thesis is to answer the question: *'What would encourage more Hungarian farmers to convert to organic farming?'* In support of this research question the thesis overviews the European and Hungarian organic scenes processing the history of the Common Agricultural Policy, the Hungarian agricultural sector since the regime change in 1989, and the brief history of organics in Hungary, separately. The methods used in this paper were literature review, data collection and interviewing experts in the field. The Analysis & Discussion chapter contains the findings of this thesis project, where besides data analysis and resolutions from the expert interviews, the theories of Diffusion of Innovations and Institutional Change were utilized.

Mátyás Gombos
Study No. 20152815

gmatya15@student.aau.dk

# Table of contents

# List of Tables and Figures

# 1. Introduction

Agriculture provides food, feed, fiber, fuel and other goods and it also has a major influence on other essential ecosystem services such as water supply and carbon sequestration or release (IAASTD 2009). Agriculture plays an important social role, providing employment and a way of life, and can play a key role in achieving global sustainable development as it provides food for humans, feed for animals, fiber and fuel. It is a major occupational sector in developing countries (global average of employment was 30,7% in 2014 (FAO 2015)), with poor countries mostly adapted agricultural economies and societies (IAASTD 2009). In 2014, the global share of agricultural land in total land area was 37%, taking up 2,8 billion hectares worldwide (The World Bank 2014; FAO 2015). The agricultural sector also produces an estimated 21-26% of global greenhouse gas emissions, depending on the inclusion of transport & infrastructure, production, and foodwaste (FAO 2017). Over the past decade it has been widely accepted by scientists that the increased emission of greenhouse gases has been a main contributor to global warming and anthropogenic climate change (Smith et al. 2014). Organic agriculture can contribute to sustainable development from all aspects: social, economic, and environmental. Organic practices use local resources, increase biodiversity, improve soil quality and water management, and provide social benefits for communities, while the organic market has high potential in increasing farmers' income (IAASTD 2009).

In Europe the market for organic products has experienced a steady growth, demand growing at a higher rate than the area of organically farmed land (Solti 2017b). Although recent trends mainly have been positive, the problems within the organic sector are different in Hungary, than in Europe. This paper aims to uncover the lingering issues of the organic agriculture sector in Hungary, set in Central-Eastern Europe, member of the European Union since 2004. In this thesis first I overview the recent history (from the regime change of 1989, post-socialism) of the agricultural sector in Hungary, to understand the decades-long processes that resulted in the current institutional and cultural setting, review the history of the Common Agricultural Policy of the EU, as it greatly influences the Hungarian agricultural sector, just as it is the case with the other Member States, and present the organic sector in Hungary since its appearance in the 1980s. The investigation of this paper mainly focused on differences between Hungary and Europe and the possibilities for Hungary to connect to the infrastructure of the international organic market, and the main issues and difficulties of Hungarian agricultural producers, especially in terms of problems preventing conventional producers from converting to organic practices.

After the problem presentation, the main Research Question of my thesis is revealed, accompanied by the sub-questions, set to structure and assist in answering. After the research questions, the thesis continues with the presentation of the methodology that was implemented in order to appropriately carry out the research, and the presentation of the theoretical framework, which includes the scientific theories that were applied in this thesis to assist in answering my research questions. Finally, the Analysis & Discussion chapter contains my findings of the research carried out, and the answers to my research questions.

# 2. Problem Presentation

## 2.1. Historical overview of the agricultural sector in Hungary from 1990 (post-socialism)

With the disintegration of the Soviet Union the new Hungarian government was left to manage the socio-economic transition after the regime change (Strenchock 2012). This transition joined by the cessation of COMECON (the soviet-led economic organization that comprised mostly of Eastern-European countries and several communist states across the globe), led to the decline of economic performance and brought to surface the structural and efficiency problems of the past 60-80 years in the early 1990s (Halmai & Vásáry 2007). This turn of events unveiled similar social and economic struggles for most post-socialist countries, in Central- and Eastern Europe (CEE – countries; CEEC). In the case of Hungary, the following 15-20 years after the regime-change can be divided into three major periods: Post-Socialist Transformation (1990-1993), Consolidation & Recovery (1994-1999), and EU Accession Preparation (1999-2004), while the period 2004-present could be categorized as Accession, Adjustment and Contemporary Refinement (Fertő 2001).

### 2.1.1. Post-Socialist Transformation (1990-1993)

As means to restructure the agricultural sector the centrally built socialist structure was systematically disassembled to prepare for the European open market. The dominant aims of the new conservative government's agricultural policy in 1990 were: high level of food availability and the development of its quality; increasing export performance and production efficiency; and developing private farms, thus creating a mixed type of farm structure (Fertő 2001). The main aim of the Hungarian economic policy after the regime-change was to push back the share of state property of agricultural lands. This was done through the reform of ownership and privatization (Ivicz 2004). The focus of this redistribution process on monetary compensation for original owners is often questioned by scholars and procedures that returned land to Hungarian citizens are described as confusing and questionable (Magda 2007; Monasterolo 2007).

Nevertheless, the conversion to market economy required new ownership structure, which was done by partly the new Restitution Act, partly the cooperative Act and the new Transitional Act (Ivicz 2004; Magda 2007). With the new legislation, former land-owners or their descendants had the opportunity to buy land back from agricultural cooperatives and state farms, although because of the numerous loopholes (mostly fixed in 1994) in the new set of regulations, these pieces of land were up for grabs and the process was chaotic. Ultimately, the structure of land ownership decisively changed from large estates and state farms to smallholdings and medium-sized estates (Ivicz 2004).

All this was done in a time of economic depression and the poorly guided reallocation resulted in even less land being used for production, while industrial output decreased by around 30%. The resulting wave of unemployment caused an 'urban exodus' as jobless urban and peri-urban residents moved to the countryside in hopes of cheaper living, and after their resettling subsistence farming became common, which caused rural economies become one-sided and agriculture-dependent when the value of their land and agricultural products were already low, which in turn caused a gradual decrease in rural living conditions, increasing rural/urban disparity (Brown & Schafft 2002). This industrial decline was paired with serious fluctuation in agricultural production causing a decline in utilized agricultural area, and agriculture's contribution to GDP, a problem still surviving in the 21st century. The crop production output level of 1990 was not reached again until 2004/2005 and the output level of animal husbandry never reached the 1990's again. The agriculture-reliant areas of the country were damaged severely by this decline, contributing to increasing income disparity, while overall GDP only reached the 1989-level again in 2000. Unemployment, reduced domestic consumption, reduced export, decreasing income all contributed in widening the gap between Eastern and Western European nations in the early 1990s, with Hungary exemplifying this pattern (Halmai & Vásáry 2007; Fertő 2001; Szabó 2007; Strenchock 2012).

| Period | Agricultural production | Crop production | Animal husbandry |
|---|---|---|---|
| **1986-1990** | 100 | 100 | 100 |
| **1991-1995** | 73 | 75 | 70 |
| **1996-2000** | 71 | 76 | 65 |
| **2001-2005** | 78 | 91 | 62 |

**Table 1***: Gross Production Comparisons in % (Szabó 2007)*

During this crisis period some positives could be observed as well, like the establishment of the Ministry of Environment and Regional (Rural in Hungarian originally) Planning in 1990 and the Regional Development Fund and government officials started crafting new food-safety and quality-control legislation in compliance with EU requirements (Fertő 2001; Tanic 2007). The creation of these institutions was observed as an important step even if actual rural development initiatives and agri-environmental measures would not be promoted for a few years (Strenchock 2012).

### 2.1.2. Consolidation & Recovery (1994-1999)

Arriving at the middle of the 1990s economic and political emphasis shifted from surviving the shockwaves of the regime change to mitigate and improve the state of agriculture and steps have been taken with EU accession in mind (Strenchock 2012). Some of the goals of the progressing agricultural policy of the time were completing the land reform that has begun with the regime change; avoid land fragmentation, stabilizing the domestic market creating institutions for market regulation and reforming agricultural law consonant with EU legislation(Fertő 2001). In these years, despite economic growth and emerging employment opportunities, standard of living and income disparity continued to widen between Budapest and other smaller north-western urban centers and rural areas (Strenchock 2012). Agricultural reforms from the beginning of the decade had a major role in determining rural disadvantages and Hungary's new legislation groundwork was only better than that of other Eastern-European countries because of the methods of introducing private property and easing in the competitive market, while it failed to produce an 'efficient, private and market-oriented agricultural system' (Monasterolo 2007).

The next important step in modernizing and closing on European standards in the agricultural industry was to create the necessary institutional structures for rural development, (a newly introduced term in Hungarian professional spheres at the time) thus the 'Law on Regional Development and Physical Planning' was adopted in 1996 (Fertő 2001). Again, Hungary leaned on the inspiration provided by the EU and the law was deemed to be the most progressive in the region, based on core EU principles (such as decentralization, subsidiarity, additionality, partnership, etc.) (Strenchock 2012). Main objectives of this Law included improving economic conditions and quality of life, mitigating the negative effects of the developing market economy, creating conditions for self-sustaining development, reducing the disparity

between developed and disadvantaged regions, and encouraging initiatives by regional and local communities (Fertő 2001).

1998 was a busy year regarding the improvement of regional governance and agriculture. Consequent to the appointment of the new political regime, the leader of the Independent Smallholders' Party (the smaller contributor to the new coalition) became the Minister for Agriculture. The Ministry was renamed the Ministry of Agriculture and Rural Development (MARD) and the 7 NUTS II sub-regional classifications known today were created along with securing EU funding, focusing on creating an institutional background ready for EU accession (Monasterolo 2007; Fertő 2001). The recently restructured MARD, working together with NGOs and experts, focused on the adaptation of EU agri-environmental policies, in order to prepare farmers to qualify for EU subsidies and funds provided by the Common Agricultural Policy of the EU (CAP), which resulted in the National Agri-Environmental Protection Programme (NAPP), finished in 1999, but only launched in 2002 (Nemes 2010).

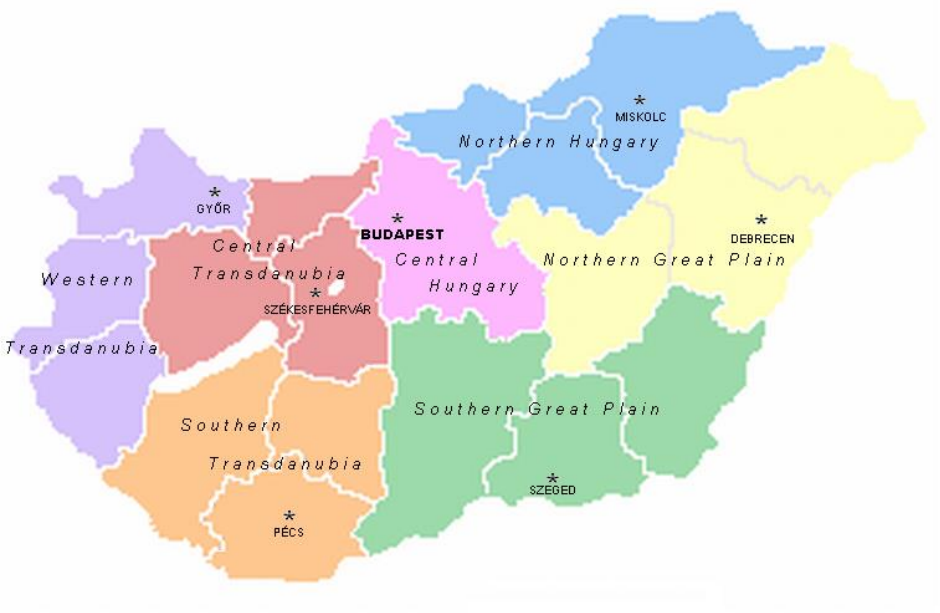



**Figure 1*:* Regional Governance: NUTS II Sub-regional Classifications (Strenchock 2012)**

Although the institutional progress was welcomed, outdated technology, lack of funds and insufficient storage and transport infrastructure for goods continued to remain a problem for agricultural production (Strenchock 2012). At the closing stages of the millennium, land holding disparity was an ever-present problem in the agricultural sector. Farms fell into the category of either large or small, with mid-sized parcels disappearing and smallholders often rented their land to coops or other entities, while large

farms' share in cultivating utilized land was slowly growing and farmers were expecting top-down policy support to favor larger operations as their influence in structuring national policy grew (Fertő 2001; Podruzsik 2003).

### 2.1.3. EU Accession Preparation (1999-2004)

At the dawn of the new millennia, the economy stabilized, national GDP reached the 1989 level again, and just as in most CEECs, the growth rate exceeded EU15 countries (Halmai & Vásáry 2007). EU accession was the main focus point for a lot of economic efforts; by 2002 nearly all goods coming into and leaving the country were tax-free in preparation for the free internal market of the EU and further agricultural reforms were thought to be needed in order to succeed (Strenchock 2012). Though the number of full-time employees in agriculture shrunk from 693,000 in 1990 to 239,000 in 2001, consequently their share in total employment of Hungarian economy dropped from 14,2% to 6,2%, while the share of agriculture in GDP fell from 7,8% to 3,8%, a majority of lobbyists and agricultural shareholders still supported the idea of joining the European Union, hoping to benefit from the liberalized market and looking forwards to the support payments of the Common Agricultural Policy, that Member States are entitled to (Burger 2006; Popp & Udovecz 2007). The term 'liberalized' market in this section refers to the Hungarian aspects of the European market and the differences between pre-accession and post-accession circumstances, e.g. the lower taxes inside EU borders, or the easier flow of foreign products into the domestic market.

| Year | Number Employed | Used Agricultural Area (thousand hectares) | Share of Agricultural in National Employment (%) | Share of Agriculture in GDP (%) |
|---|---|---|---|---|
| **2000** | 255 500 | 5 853 | 6.63 | 5.90 |
| **2001** | 243 400 | 5 865 | 6.29 | 5.70 |
| **2002** | 240 900 | 5 867 | 6.22 | 5.00 |
| **2003** | 215 200 | 5 864 | 5.49 | 4.60 |
| **2004** | 204 900 | 5 863 | 5.25 | 5.10 |
| **2005** | 194 000 | 5 854 | 4.97 | 4.40 |
| **2006** | 190 800 | 5 808 | 4.85 | 4.20 |
| **2007** | 182 900 | 5 807 | 4.66 | 4.20 |
| **2008** | 174 100 | 5 789 | 4.49 | 4.00 |

**Table 2: Decline of the agricultural sector in Hungary (KSH 2012)**

The main concerns of the EU were the institutional capacity of Hungary for rural development that was needed in order to manage CAP support measures and integrating the agri-environmental measures that were included into European frameworks into national agricultural policy. Agri-environmental measures needed to be ameliorated from multiple kinds of subsidies, area payments and fixed pricing, aimed at reducing soil-erosion and conversion to organic farming to overall raise environmental standards in agriculture, conserve natural resources and economic development in rural areas (Popp & Udovecz 2007; Strenchock 2012). During this pre-accession period (early 2000s), the EU implemented several financial instruments pursuing the objective of promoting harmonic development, meaning strengthening economic and social cohesion between Member States and aiming to support CEECs own regional policies, including agri-environmental measures (Monasterolo 2007). For countries preparing to join the EU, funding and educational mechanisms (such as the Special Accession Program for Agricultural and Rural Development – SAPARD) were recommended, while certain agri-environmental support measures were mandatory under the CAP (Strenchock 2012).

Creating institutional capacity in order to manage funding (national and EU) and to serve as a communication link between rural farmers and urban decision-makers was surprisingly ineffective. The result was an unprecedented and unexpected number of applications for several payment programs, resulting in processing applications superficially and rushed and distribution of funding was delayed, sometimes for years, meanwhile the whole policy and funding allocation were influenced by the strongest agricultural lobbyist group, acting on behalf of the industrial, large-scale farmer community (who held 60%-70% of cultivated land in the country) to favour large-scale agriculture (Nemes 2010; Strenchock 2012). This tendency severely hindered the progression of small-scale farmers, ranchers, family businesses, or organic-minded farmers likewise.

### 2.1.4. Accession, Adjustment and Contemporary Refinement (2004 –present)

May 1st, 2004 is the date of Hungary officially becoming a Member State of the European Union. While this entrance was supported by most agricultural stakeholders in hopes of much-needed improvements in the agricultural sector, EU membership came with the harsh realities of an expanded free market and as it turned out, actors within the food industry were unprepared even with pre-accession adjustment measures, increased pricing competition and higher import levels paired with quick domestic consumption changes influenced by the enlarged market (Halmai & Vásáry 2007; Popp & Udovecz 2007).

Progression brought about by the accession came with a phasing-in period in agriculture. Although the liberalized market appeared with full force, recently joining nations such as Hungary, were provided with a transitional period which meant that direct payments coming from the CAP were only progressively introduced, thus Hungary was only eligible to receive 25% of what EU15 nations received from the CAP in 2004, with reaching 100% only in 2013. The possibility of expanding the financial aid by 30% from domestic budget as a sort of top-up was given to the recently joined nations, although these Member States had difficulty with providing the additional support, leaving their agricultural producers at a disadvantage compared to growers in old member states and these old member states used the chance to manipulate the agricultural sector of their newer counterparts (Popp & Udovecz 2007; Strenchock 2012). Support payments under the EU were still higher than pre-accession subsidies issued by the national government and nationally aggregated statistics showed an increase in farm income, although the whole picture includes the fact that financial support and corresponding income stabilization were unevenly distributed between large and small farming operations, with large producers receiving the majority of support payments, widening the gap between large-scale and small-scale agricultural operations in Hungary (Popp & Udovecz 2007).

| **Sources** | **year** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** |
| **EU payment** | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| **National supplement** | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 20 | 10 | 0 |
| **Maximum payment** | 55 | 60 | 65 | 70 | 80 | 90 | 100 | 100 | 100 | 100 |

**Table 3*:* Progressive scheduling for direct agricultural payments (%)(Popp & Udovecz 2007)**

With EU accession came the incursion of cheap, foreign, lower-than-domestic-quality products causing a "delocalization of food procurement", spoiling the consumption of Hungarian goods (Strenchock 2012). Government officials and authorities generally overlooked the potential dangers of a connected free market and the inherent inertia of consumption patterns of consumers in fellow member states, lowering the price-value of Hungarian products, while previously unforeseen insufficiencies in marketing and logistics also surfaced (Szabó 2007; Popp & Udovecz 2007).

Five years after joining the internal free market of the EU, the domestic processing units and buildings changed hands, falling into a foreign ownership of 75% and the rapid spread of super-, and hypermarkets forced producers to comply with product-based value chains, instead of raw commodities-driven markets, while growers had no choice but to agree to export agreements with little profit margin, all this greatly reducing Hungary's potential to enjoy the fruits of its own agricultural output (Csáki & Jámbor 2009). Foreign influence reached both Hungarian producers and customers after the first hypermarket opened its gates in Győr, 1995, and large operators such as Aldi, Auchan, Tesco, Cora, Lidl, Spar spread through the country, fluctuating in number, but increasing in size (Strenchock 2012). The convenience of one-stop shopping became quickly apparent and lower prices made possible by the quantity-based supermarket economy, found in these large retail shops crawling with customers, changing consumption and procurement patterns, bringing along the unwelcome trend of consistent decrease in the share of domestically shared products (Csáki & Jámbor 2009).

This process was further complicated by great growing conditions in 2004-2006, which boosted farm production, what otherwise would have been a welcomed occurrence, it unfortunately delayed the effects and reality of the new market further, creating false pretenses. Declining profits felt on the individual producer level was masked by national economic growth statistics (Szabó 2007). Corporate food retailers and foreign ownership gained an unprecedented dominion in Hungarian food retail, causing great change in Hungarian consumption patterns and retail landscape (Strenchock 2012).

## 2.2. The Common Agricultural Policy of the EU (CAP) and Hungarian aspects

The history of the European Union's Common Agricultural Policy dates back to the 1950s. In 1957 The European Economic Community is created by the Treaty of Rome (predecessor of the EU), between six western European countries (European Commission 2012). With the newfound Community, the idea of a policy for agriculture is born and in 1962 the CAP is created with the aim of increasing agricultural productivity, ensuring a fair standard of living for the agri-community, stabilizing the market, assuring supply availability and ensuring reasonable prices (Baltas 1999). During the 1960s, each year farmers produced more and more food, thus the objective of food security was met first. Since the CAP settled, it has been the largest common policy of the EU, taking up around 40% of the annual financial budget

(European Commission 2012). Today the CAP is based on a two-pillar structure, supporting different policies and aspects. Pillar 1 provides direct payments and market management measures funded fully by the EU and taking up around 80% of the CAP budget, while Pillar 2 focuses on structural and environmental performance, promoting rural development (since its introduction) and is co-funded by Member States and the EU (Cantore et al. 2011).

It was important in the early 1960s to guarantee food security for a European society that had been damaged by Word War II and had its agriculture crippled, the CAP in its early years provided incentives through subsidies and other financial assistance for farmers in order to have them produce more. Growing the farms in terms of size and adopting technological skills to adapt to economic and social conditions at the time were also important objectives (European Commission 2007). The situation changed in the following decade, as the focus shifted onto supply management; due to the initial spur brought about by the CAP and the zealous production of agricultural goods by farmers a vast quantity of surplus of all kinds of agricultural produce accumulated in storage all across Europe; some of it was exported, some was stored and some had to be disposed which had a high budgetary cost and was politically embarrassing (European Commission 2007; 2012).

The first chapter of the CAP lasted until the early 1990s. Although when it was launched, it was seen as a necessary support system for European agriculture and was an invaluable help for farmers in the early stages after the shock of war, it still contained several deficiencies. The most important of these deficiencies were the quantity-based support mechanisms, which stimulated production intensification and higher farm inputs (fertilizers, pesticides, etc.); similar to the Hungarian trend, 80% of the support payments were directed to 20% of the farms, preferring the largest, most intensive farms; internal market prices were stable, but higher than world market prices; as the EU became a net exporter of agricultural products, its export policy caused serious financial trouble to both itself and market partners due to the protectionist stance, this also complicated international relations (Baltas 1999).

In 1992, the CAP was fundamentally adjusted, when the Council of Ministers agreed to the reform (also known as the 'MacSharry reform'). Emphasis shifted from market support to producer support, and while the founding principles were not changed, nor the previous objectives, the far-reaching changes included price reduction for the sake of competitiveness; compensation for price-cuts; early retirement for farmers; and concentrating on animal welfare and product quality (Baltas 1999; European

Commission 2012). This reform coincided with the Earth Summit of 1992 held in Rio de Janeiro and the CAP reform included the notions of environmental protection and sustainable agriculture (European Commission 2012).

In the 1990s the policy shifted its focus onto food quality. The first official legislation for organic farming was born on 24th, June 1991. The regulation formulated the first officially applicable definitions, labelling measures, rules of production and inspection systems (European Council 1991). The CAP now obligates farmers and producers to protect biodiversity, reasonable resource usage, and conservation of the landscape, in turn, providing income support (European Commission 2012). The results from the reform of 1992 are mixed from an environmental perspective. While the agro-chemical industry reported a decreased amount of purchase of fertilizers and pesticides, intensive livestock farming received an advantage, even though animal welfare was an important point on the reform's agenda (Baltas 1999).

The term 'Rural Development' was included in the CAP in 1999-2000 for the first time (Agenda 2000 reforms). After the changes the policy once again shifts its focus, now to rural initiatives, helping economic, social and cultural development in rural areas. Reforms continue along the lines of those in the 1990s, aiding farmers in product marketing and re-structuring their farms (European Commission 2007). The CAP puts more focus on the economic, social and cultural development of rural Europe. At the same time, the reforms started in the 1990s are continued in order to make farmers more market-oriented. A more fundamental change was effectuated in 2003, when the ties between production and subsidiary payments were severed. This decoupling of payments allowed farmers to be more market-oriented; free to produce what is most profitable, yet enjoying a certain stability of income, while respecting strict food safety, environmental and animal welfare standards – receiving reduced direct payments if failing to do so, a condition called 'cross-compliance' (European Commission 2007; Cantore et al. 2011).

In the 2000s, the EU becomes a remarkable force in the international food market – importing far more agricultural produce from developing countries than the rest of the world. Least developed countries are given free market access; a solidary openness amongst developed countries. By the two accession wave in 2004 and 2007, the EU15 becomes EU27, composed of more than 500 million citizens, with a farming population that doubled after the enlargements (European Commission 2012).

The process of the last alteration to the CAP up to date officially started in 2011 and reached consensus in 2013. The economic, environmental and territorial challenges that the agricultural sector must face inspired three long-term objectives for the CAP: *'viable food production, sustainable management of natural resources and climate action and balanced territorial development'* (European Commission 2013). A new instrument is introduced to the first pillar, called 'greening', provisioning environmental public goods, such as landscape, farmland biodiversity and climate stability, even though the effectiveness of this instrument was questioned during the phase of public debate, in early stages (Cantore et al. 2011; European Commission 2013). Part of the direct payments that have been decoupled from production has been linked to a 'per hectare' system giving an advantage to large operations against small-scale farmers.

Since the EU accession, Hungary was a (to a temporarily growing amount) beneficiary of the support payments under the CAP. In the period of 2014-2020 Hungary is expected to receive a total amount of 12,3 billion EUR, which is an increase compared to the previous period, carving out 3,2% of the CAP budget (Tamás 2014). One of the most important obligations after the accession (2004-2010) was to manage and mitigate the shock caused by the accession, certain branches of the agricultural sector experienced a negative episode, and even direct payments were unable to address the previously missed structural changes and adaptations. The CAP does not provide direct payments to support the production of foodstuff, although it is an essential part of Hungarian agriculture and is currently in the decline, due to the transformed import-export structure (Baksa 2011). Papers published by government officials all emphasized the importance of integrating a new generation of farmers, reserving subsidies and payments for young farmers as well as career-starting (Tamás 2014). It was also suggested that in order for Hungarian farmers to fully utilize the payment structure after the last reform (financial support for young farmers, small-scale farmers and newly established farms), they should be able to apply regardless of age and without land-size restriction (Biró et al. 2012). Although Hungary was and would be in an advantageous position to receive aid within the CAP framework, the views on its effectiveness is debated between the national government and its opposition. The allocation of the support payments is criticized to be highly political, handing it out based on political and personal alliance to big agribusinesses owned by oligarchs (Field 2015).

## 2.3. Historical overview of organic farming in Hungary since its birth

The history of organic agriculture in Hungary started in the 1980s, in structurally traumatic times for the greater agricultural sector and has weathered the storms of socialist centralization, a regime change, privatization and land reallocation and the recurring missteps of both the insufficient institutional background and guiding NGOs (Torjusen et al. 2004; Strenchock 2012). Although the number of organic growers, environmentalists and ecologically conscious farmers was relatively small, they established the Biokultúra Klub in 1983, as the first Central-Eastern European organic agriculture organization, which successfully grew to a point, where the organization could become the member of the International Federation of Organic Agricultural Movements (IFOAM), the first in CEE, gaining greater credibility and more serious structure, transforming into the Biokultúra National Association (Torjusen et al. 2004). Their main objectives were to familiarize farmers with the whole organic scene and convince them to join the cause, generally to spread technical and theoretical knowledge. In order to achieve their goals, the organization held educational programs, presentations, workshops all over the country, to coach and tutor farmers, processors and interested like-minded people (Majkut 2005). Although the inspection of organic produce also fell under the association's purview, due to European Union guidelines and national legislation which stated that inspecting can only be done by an independent body existing with that sole function, a branch secluded and formed the Biokontroll Hungária Kht in 1996 (Solti 2012; Biokontroll Hungária Nonprofit Kft. 2009). The current name and structure of the organization is the Biokultúra Alliance, serving as the main advocacy for organic agriculture in Hungary, collaborating with other relevant associations, producers, gardeners and activists, working through regional branches, trying to get political recognition (Torjusen et al. 2004; Strenchock 2012).

What started out as a leisure interest, a hobby grew quickly in the 1990s, and around the year 2000, organics were grown on more than 70 000 ha in 7 regions of the country. The initial momentum came to a halt in 2001 and reached a stagnating condition in 2005 (ca. 130 000 ha), until it slowly started growing again in recent years, reaching 200 000 ha in 2016 (Solti 2012; Szlovicsák 2017a). In the 1990s the Hungarian organic movement relied on being the export outlet to a few European countries, initially helped by Dutch traders to spread the goods across Europe, with Germany, Austria, and Switzerland being the receivers (apart from the Netherlands) of ca. 95% of organic goods produced in Hungary (Torjusen et al. 2004). Agricultural experts and organic growers mention more-or-less the same issues every time, e.g. in the EU's free market, Hungarian products get marginalized, the vicious circle of the

export-oriented tendency (where only raw commodities are bought by foreign entities and the finished products with extra value are imported from outside the country leaving Hungarian producers with little profit), no conventional retail-space, insufficient representation of organic growers in the political spheres and low recognition of domestic products in the domestic market (ÖMKi 2012; Solti 2012; Torjusen et al. 2004). Although it emerged as a bright future prospect, the organic sector of Hungarian agriculture ran an underwhelming course in recent past, not fulfilling the initial expectations of leading NGOs and sustainability-minded people. In comparison to fellow countries in the region, the amount of organically farmed land increased the least in Hungary, the growth being only a fraction of the growth of e.g. Austria, Romania, or Slovakia (Strenchock 2012).

The role and share of organics within the greater agricultural sector has been an important indicator of progression and being environmentally conscious in recent decades and the organic movement in Hungary also plays an important role in the image of agriculture of the country, possessing desirable geographic and climatic conditions for a thriving industry. While citizens are somewhat familiar with the ideology and benefits, the demand for officially certified organic products has been rather low nationwide, an issue further hindered by the lack of organic products in traditional retail settings (ÖMKi 2012; Strenchock 2012). By estimation, national household expenditures on food that are spent on organic products was around 1% a few years ago, possibly explained by customers' high food price sensitivity, a trait commonly found in the CEEC (Lehota 2012).

| Year | Number of farms | % incr. From previous year | Organically farmed hectares | % incr. From previous year | % total HU agricultural land |
|---|---|---|---|---|---|
| 1998 | 401 | 249 | 22 501 | 17 | 0.363 |
| 1999 | 475 | 18 | 35 979 | 60 | 0.581 |
| 2000 | 762 | 60 | 53 649 | 49 | 0.916 |
| 2001 | 1119 | 47 | 79 179 | 48 | 1.35 |
| 2002 | 1517 | 36 | 103 700 | 31 | 1.76 |
| 2003 | 1775 | 17 | 116 535 | 12 | 1.98 |
| 2004 | 1842 | 4 | 133 009 | 14 | 2.27 |
| 2005 | 1935 | 5 | 128 576 | -3 | 2.19 |
| 2006 | 1974 | 2 | 122 766 | -5 | 2.09 |
| 2007 | 2024 | 3 | 122 270 | 0 | 2.09 |
| 2008 | 2066 | 2 | 122 817 | 0 | 2.09 |
| 2009 | 2292 | 11 | 145 942 | 19 | 2.3 |
| 2010 | 2062 | -10 | 130 717 | -10 | 2.1 |

**Table 4: Organic Production Profile of Hungary (Solti 2012)**

The impacts of foreign and corporate ownership of domestic retail chains have been mentioned already in previous chapters. In the early 2000s and after EU accession, the Hungarian food retail market has been flooded with hyper-, and supermarkets and an influx of foreign products, with influence exerted by foreign corporations and global food traders. This change in the landscape of food retail resulted in a change in domestic consumption patterns, which in turn had repercussions on both the conventional and organic sectors of food production sectors. The outcome is maybe most easily understandable if we compare the percentage of export of domestically produced organic raw materials and the percentage of processed imported organic products. Around 85% of raw organic materials, or "low added value" commodities which are produced in Hungary are exported, while 90% of organic products that are purchased and consumed in the country are processed import products, showing both the low appreciation for fresh, local organic products countrywide, and giving a hint where most purchasing takes place (ÖMKi 2012). The consumption level of domestically grown organics faces a "catch-22" scenario; traditional retail outlets (where the biggest amount of shopping for food takes place) are unlikely to market fresh organics because of low demand, while this low availability in popular food retail outlets decreases the likelihood of increasing consumption levels of organic products. The issue is further deepened by the insufficient domestic processing capacity for both conventional and organic raw commodities, which has been an ever-present problem since the regime change in Hungary (Strenchock 2012; ÖMKi 2012).

| Country | Organically farmed hectares | | | | | | Changes 2004-2009 | |
|---|---|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | ha | % |
| **Serbia** | 542 | n/a | 740 | 830 | 4494 | 8661 | 8 119 | 1498 |
| **Croatia** | 2 853 | 3 124 | 6 145 | 7 561 | 10 010 | 14 194 | 11 341 | 397.5 |
| **Slovakia** | 53 801 | 90 296 | 120 417 | 117 906 | 140 755 | 145 490 | 91 689 | 170.4 |
| **Romania** | 73 800 | 92 770 | 107 578 | 131 401 | 140 132 | 168 288 | 94 488 | 128.0 |
| **Austria** | 344916 | 479 216 | 477 472 | 481 636 | 491 825 | 518 757 | 173 841 | 50.4 |
| **Slovenia** | 23 032 | 23 499 | 26 831 | 29 322 | 29 838 | 29 388 | 6 356 | 27.6 |
| **Ukraine** | 240 000 | 241 980 | 242 034 | 249 872 | 269 984 | 270 193 | 30 193 | 12.6 |
| **Hungary** | 133 009 | 128 576 | 122 766 | 122 270 | 122 817 | 145 942 | 12 933 | 9.7 |

**Table 5: Organically farmed land in Carpathian Basin Countries (Solti 2012)**

Low consumer demand, price premiums for organics that Hungarian customers are unwilling or unable to pay, the limited availability of organic products and a lack of confidence in certification have been the main obstacles for growth in domestic consumption of organics, while the biggest motivation for consuming organic products is the associated health benefits (ÖMKi 2012). The organic products that can

be found in supermarkets, and in general retail are mostly marketed as health foods; the correlation is no coincidence as the mostly Western European imports are the most readily available, or the only ones that can be found. The process of Hungarian producers sending their high quality organic products as raw commodities out of the country, while “added value” processed organic goods come back as import essentially transfers the end retail value out of Hungary and out of the hands of domestic producers, leaving it with foreign organizations (Strenchock 2012).

Despite the fact that the food market of the European Union leaves little possibility for Hungarian growers to thrive, as domestic legislation and the Rural Development Plan does not take a protectionist stand in the face of the liberalized market, instead the government and the biggest lobby groups try to integrate the domestic market in the European market’s bloodstream. Some organic producers managed to reap the benefits of the higher prices of organic raw materials, but these growers possess the necessary production scale to have the export capacity needed. Growers who do not possess the capacity for export retain different structure and decision making processes than those, who can provide for export and these producers rely on the insufficient domestic market and need high resilience to keep being present at markets and sell their produce directly. On the plus side of EU accession, the Common Agricultural Policy of the EU supports growers and helps stabilize their income in the form of direct payments, although large producers are favorited in this case as well, as payment is determined by the number of hectares of the operation (Strenchock 2012).

# 3. Problem Formulation

Reviewing the past 20-30 years of agricultural history in Hungary, certain negative trends and reoccurring problems become apparent. Considering global phenomena such as global warming and consequent efforts from national and supra-national entities (such as the European Union) towards sustainability, the time is adequate to rethink and restructure multiple aspects of our society. Agriculture is one of the most important issues of sustainability. Taking the situation of Hungarian agriculture into account and considering the possibilities of alternative sustainable farming methods, my main research question is:

***What would encourage more Hungarian farmers to convert to organic farming?***

In order to help answering the main research question and to outline the aspects that are considered important in this thesis I set up the following sub-questions:

1. ***In an overall globalized market what are the advantages and disadvantages of organic farming compared to conventional farming from an economic, social and environmental point of view?***

2. ***How can we measure the achievements of sustainable practices in farming?***

3. ***Why doesn't the domestic scene encourage conversion what are the institutional, cultural and economic difficulties?***

# 4. Methodology

This chapter of the thesis describes the means and methods that were used to create this project. As a master's thesis, just as in every proper scientific paper, this part explains the line of thoughts in connection with this paper, how the idea of the topic occurred, how was the research question and the paper created, adjusted and finalized. The chapter also explains the means of quantitative and qualitative data collection and how the gathered information was analyzed.

## 4.1. Research design

During the time of our master's course, my fellow students and I had to familiarize ourselves with creating the proper methodology for scientific research, including getting to know certain research designs that help keeping the focus of a research paper, as well as providing guidance on what methods to use for data collection and analysis, and describing appropriate forms of research questions according to the kind of research that was done. However, in this project I have not used a well-defined research design (e.g. case-study design, exploratory design, etc.), but decided to follow my own intuition and the guidance of my supervisor for creating the design of this project, finding the correct form for my research question, the correct methods to be used for data collection and analysis and the correct way to answer the questions of my thesis and provide a conclusion.

I entered the semester with having a general topic in mind that is based upon my interests and possibilities during this four month period. The first step in creating this thesis was the development of the research question. The biggest challenge while finalizing the draft of this paper was deciding on the question. Then I came up with relevant sub-questions, supporting the main question and providing a framework for the future 'Analysis & Discussion' chapter.

In the preliminary stages, the project had a similar topic, but a rather different focus. The initial research question was *"What is needed to facilitate a comprehensive transition into organic farming in Hungary*?", which was quickly overruled due to its general nature and the mistake of using the term 'transition'. Keeping both the focus and the topic of this idea but aiming to be more specific, I formed the following interim research question *"What are the key points in policy, regulation, institutional background, etc.*

*that could facilitate conversion to sustainable farming practices in Hungary?"* After some consulting I decided that this question, while being interesting and relevant, would be impossible to answer sufficiently and appropriately, as the research, legwork and digesting and analyzing the collected data and information would require a team, rather than one person and more time than four months; the produced thesis would have been unsatisfactory and without any impact and the answer to the research question would have been useless in practice, by a good chance. In order to give myself the chance to stay relevant and to write a useful, practical thesis project, after being suggested alternatives, I arrived at my final research question *"What would encourage more Hungarian farmers to convert to organic farming?"* After this progress, the supporting sub-questions stayed the same, with one exception; the last topic meant for the 'Problem Presentation' chapter was turned into a sub-question and the order of the questions were adjusted so that the structure created by them would resemble an imaginary funnel; first dealing with the bigger-scale, more general topics in order to understand the contemporary international scene, step-by-step closing in on Hungarian organic agriculture, the focus of this paper.

The second chapter written after the 'Problem Formulation' (containing the Research Question and sub-questions) was the 'Problem Presentation' chapter. The creation of this part was fairly straightforward, as there was little doubt about what needs to be presented in order to show and explain the relevance of the research topic. In order to answer the research question properly, I needed to familiarize myself with the recent agricultural history of the country and the history of organic farming in the country as well as to understand the influence of an international agricultural market and the advantages and drawbacks of the existence of the CAP.

In order to answer the sub-questions and the main research question I primarily rely on the interviews and conversations I facilitated with experts in Hungary, Budapest. The experts in question are all active in the agricultural field as either farm managers, or researchers, or expert consultant and so on. They all retain different perspectives, yet I was able to construct a coherent line of thoughts concerning my research question, showing that the topic is timely, and that there are apparent problems in the agricultural sector that need addressing. Apart from the interviews I draw upon my former studies as an agricultural engineer and my current master studies with the aim of staying unbiased when support the gathered experts' opinions with related scientific studies and research.

Secondly, my strategy to approach this issue from an academic perspective I used the theories of Institutional Change and Diffusion of Innovations. The Diffusion theory helps explain, how new ideas, new technologies, i.e. innovations are adopted; at what rate do they spread, etc. Seeing how organic farming can still not be considered as a widely adopted innovation, I use the Diffusion of Innovations theory to examine what hinders the spreading of organic farming practices in Hungary, and to try and apply the classifications and categories offered by the theory to understand where organic farming stands in the adoption process presently.

Diffusion theory can be used in order to understand institutional change. Although the two theories have different perspectives, Diffusion theory can be built upon to explain institutional change. Institutional Change theory helps to understand conventional agriculture as an institution and provides an understanding on how this institution can be changed. Diffusion of Innovations theory feeds into the path dependency aspect of institutional change and its positive feedback mechanisms.

## 4.2. Methods

Regarding the methods for data sampling that I used in this paper, both qualitative and quantitative data were collected in order to gain comprehensive background knowledge about the topic, to understand the relevance and to help sufficiently answering the main research question.

### 4.2.1. Quantitative data sampling

Quantitative data refers to the second hand sources that were used in the project. This section is also referred to sometimes as 'literature review (literature studies)' or 'second hand data collection'. The most important sources for this thesis were papers and presentations prepared for a joint seminar organized by the European/International Association of Agricultural Economics (EAAE, IAAE), providing useful explanations and description of the period after the regime change for Hungarian agriculture. Another important source were official EU Commission publications and policy documents in regards to the CAP and organic farming, although it was important to see Non-governmental organizations' opinions and experts' critique of these official documents, as authorities tend to embellish reality in

these publications. Policy paper from international institutes such as FAO and IFOAM were also consulted.

### 4.2.2. Qualitative data sampling

Interviews are considered to be a main method for qualitative data collection, thus it was deemed appropriate for this project. The interviews were conducted face-to-face for the sake of validity and reliability, as well as being able to read facial expressions and body language was important, due to the personal nature of the topic (Kvale & Brinkmann 2008). The interviews were semi-structured, meaning that each interview had a draft of questions prepared, though with the intention of letting the conversation flow, with space for additional questions or shared information by the interviewee and possibility to avoid misunderstandings (Kvale & Brinkmann 2008). The interviews were conducted in in Hungarian, as it is the interviewees' mother tongue, with the exception of Logan, whose native language is English. The interviews were carried out in April 2017.

Csaba Bolvári – Current manager of Zsámboki Biogarden, a small-scale farm, where they produce mainly vegetables in a biodynamic way, and market them directly. Csaba is a sustainable farming expert, who has a lot of experience and a lot of connections in the organic community. The interview was conducted face-to-face on the farm and lasted about an hour.

Logan Strenchock – The environmental and sustainability officer of CEU in Budapest. He is an expert in sustainable agriculture and local food systems, helps out at Zsámboki Biogarden and is a spokesperson for sustainable consumption. The interview was made with him through Skype, with a half-hour duration.

Era Kármán – Co-creator and operator of Szatyor Association, whose goal is to create a space for an eco-friendly community for common learning, experience sharing and to decrease their impacts on the environment and build a brighter future. They have a shopping community, where the key is transparency, solidarity, and helping local, small-scale farmers to market their produce. Era is an expert on sustainability and short food-supply chains. The interview was conducted face-to-face and lasted 50 minutes.

Katalin Szlovicsák – Is a coordinator of the Hungarian Biokultúra Alliance. She is an expert on organic agriculture and has a master's degree in Agricultural Environment Management. The interview was made face-to-face and lasted an hour.

Gyöngyvér Székely – Originally an agricultural engineer, specializing in animal production, today she is the CEO of the only company in Hungary that caters exclusively to organic farmers. She also works as a consultant for conventional farmers, helping their conversion to organic production and she also has experience in national and European agricultural policies. The interview was made face-to-face and lasted an hour.

Zoltán Dezsény - Currently a research specialist in the Research Institute of Organic Agriculture in Hungary. He has a master's degree in Environmental Management in Agricultural Engineering and another master's degree in International Agricultural Development. He is an expert on sustainable farming, agro-ecology, and community-supported agriculture. The interview was made face-to-face and lasted ca. half an hour.

## 4.3. Limitations and Reflections

Several drawbacks and limitations are identifiable connected to the research design and methodology used in this thesis. During the semester period my time and resources were limited due to conducting this research alone. The chosen topic presented rather complex issues that should be approached from multiple perspectives, rather than just an environmental one. Although both the problem presentation and the discussion parts contain touches of different perspectives, to be able to fully understand the present situation and offer possible solutions, a thorough economic, political, and societal/psychological analysis is also needed. Unfortunately such complex analysis exceeded my resources (time and money to travel around the country to conduct interviews and field research, and energy), and the scope of this thesis.

Considering these limitations, the initial ambitious research questions, and the theoretical framework both had to be adjusted during the writing period. An economic analysis would have given insight into the meaningful European and Hungarian policies, and the possibility to uncover loopholes or

shortcoming, while gaining a better understanding about the biggest motivator of producers. An institutional/political analysis would have helped to reveal the power structure of relevant organizations, and a psychological analysis could provide a better understanding of consumer habits, and offer shortcuts and guidance in raising the level of knowledge and awareness.

The conducted interviews had some limitations as well. Given more time, it would have been beneficial to include other perspectives, through other actors of the agricultural sector. Policymakers or government officials to share their opinion on the latest news and trends, as well as explaining their strategies and what they expect in the near future. The interview of conventional producers could have provided the thesis with invaluable information about their main concerns and thoughts about the topic of the thesis.

# 5. Theoretical Framework

This chapter presents the scientific theories and concepts that are used in this thesis. The theories of Diffusion of Innovation and Institutional Change were used in order to understand the situation presented in the *Problem Formulation* chapter of this thesis from a theoretical point of view and to assist in answering the *main Research Question* of the thesis. The evolution and change of the agricultural sector is greatly affected by technological innovations and institutional changes (Sunding & Zilberman 2000); thus understanding the diffusion processes of innovations and the institutional mechanisms is essential to this thesis.

## 5.1. Diffusion of innovation

Diffusion of innovations theory or in the beginning '*diffusion theory*' originates from the process of explaining the adoption of technological changes by farmers, in the 1950s, but empirical research associated with dates back even further, to the 1930s, when diffusion research was found useful by rural sociologists in the United States to gain favor with their university administrators (Nutley et al. 2002; Valente & Rogers 1995). Early studies done by these rural sociologists in the 1930s and 1940s mainly discussed the role and importance of communication channels amongst farmers in the diffusion of agricultural innovations (Valente & Rogers 1995). Since then, there has been an extensive research on the diffusion of improved farming practices, mainly in the US, starting after the 1st World War (Jones 1963). Until the 1960s, the diffusion paradigm was mostly confined to rural sociologists, when Rogers published his book *Diffusion of Innovations (1962)*, which made the research results of rural sociologists more accessible to scholars and the paradigm spread to the fields of economics, marketing, public health, communication, etc. (Valente & Rogers 1995). It is possible to view organic farming as a complex set of innovations and use Diffusion of Innovation theory to achieve a better understanding of adoption of innovations in conventional agricultural production systems (Simin & Janković 2014).

One of the pioneers of diffusion research, Everett Rogers, whose work on the subject is still the most widely used and adopted, described diffusion as "*the process by which an innovation is communicated through certain channels over time among the members of a social system*" (Rogers 1995, p5). Paired with this definition, an innovation is understood as *"An innovation is an idea, practice, or project that is*

*perceived as new by an individual or other unit of adoption"* (Rogers 2003, p12). Rogers's diffusion theory explains how, why and at what rate innovations spread in communities, nations, or societies.

In the 5th edition of his paper '*Diffusion of Innovations'*, Rogers defines four key components of the diffusion of innovation – innovation, communication channels, time and social system. Even if the innovation is not recent, if the individual or group in question perceives it as new, it may still be an innovation for them. The adoption of an innovation is connected to the three steps of innovation-decision (knowledge, persuasion, and decision) (Sahin 2006). Adopting or rejecting an innovation draws consequences defined as changes in an individual or group as a result of the adoption or rejection. Consequences can be desirable or undesirable, direct or indirect, and anticipated or unanticipated. Individuals should be informed about all the consequences, the advantages and disadvantages of the innovation (Rogers 2003). By Rogers's definition, diffusion is a specific type of communication made up by an innovation, adopters (individuals, or social systems), and a communication channel. Communication channels can be e.g. *mass media*, or *interpersonal communication* (Rogers 2003). Channels can also be categorized as *local*, or *cosmopolite*. Mass media channels are cosmopolite, but interpersonal communication can be either local or cosmopolite. Local/interpersonal channels are important at the persuasion stage and mass media/cosmopolite channels are important at the knowledge state (Rogers 2003). The time aspect is often neglected in behavioral research, although innovation-diffusion processes, and rate of adoptions both include a time dimension (Sahin 2006). The last element of the process is the social system, in which diffusion of innovations take place and is influenced by the structure of the system (Rogers 2003).

The Innovation-Decision Process is the process of gathering and evaluating information to reduce the uncertainty of advantages and disadvantages of an innovation. This process involve five steps, according to Rogers: *knowledge*, *persuasion*, *decision*, *implementation*, and *confirmation* (Rogers 2003).

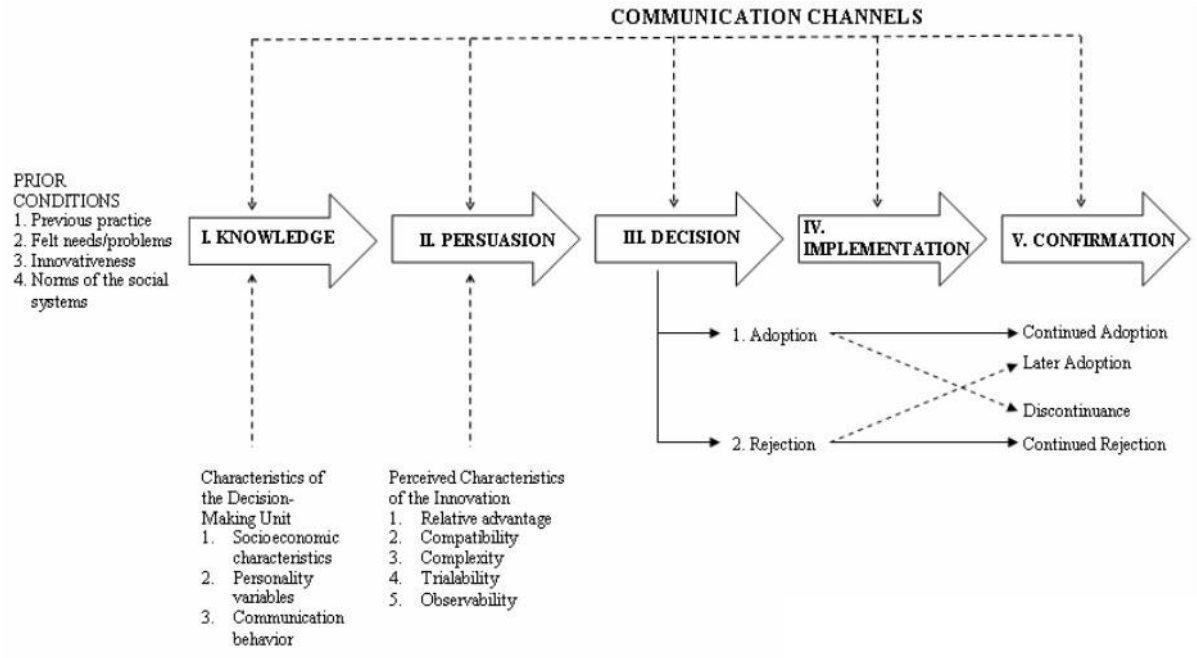



**Figure 2: The Innovation-Decision Process (Sahin 2006)**

In the knowledge stage, an individual learns about the innovation and seeks information about it. The persuasion stage comes next, where individuals shape their attitude towards the innovation. While the knowledge state is cognitive-centered, the persuasion stage is affective-centered. The degree of uncertainty about the innovation, and social reinforcement, such as peer-to-peer subjective evaluations affect the individual's opinion about the innovation. The decision stage is when the individual chooses to adopt or reject the innovation. The possibility of trying the innovation out in a trial-run helps adoption; however the innovation can be rejected all through the five steps of the decision process. The fourth stage is implementation, where the innovation is put into practice, but uncertainty can still be a problem. An important part of this stage is *reinvention*, which is the change or modification of the innovation by its user, which speeds up the institutionalization of the innovation. Confirmation is the last stage of the process, when the individual looks for support for their decision. Attitude and support for adoption is crucial in this stage (Sahin 2006).

According to Rogers, innovations have five characteristics, which mostly determine their *rate of adoption*: relative advantage, compatibility, complexity, trialability, and observability (Sahin 2006; Rogers 2003; Robinson 2009). Relative advantage is deemed as most important by Rogers (Sahin

2006). It is defined as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers 2003, p229). Elements of relative advantage are e.g. cost, convenience, satisfaction, or social status motivation. Effectiveness can be increased by direct or indirect payment incentives to support adoption (Sahin 2006). Compatibility shows how consistent the innovation is past values, needs, and experiences of potential adopters. If an innovation is compatible, the level of uncertainty decreases and the rate of adoption increases (Robinson 2009). Complexity, or alternatively, simplicity shows the degree to which an innovation is perceived as difficult to understand and use. Innovations that are easy to understand are more quickly adopted and high complexity presents an obstacle (Sahin 2006; Robinson 2009). Trialability shows if an innovation may be experimented with; the more an innovation is tried out the faster the adoption can be. During trial, reinvention may occur (Sahin 2006). The last characteristic is observability, which refers to how easy it is for individuals to see the results of an innovation. If results are visible, it decreases uncertainty and peer observation is a key motivational factor in the adoptation and diffusion of an innovation (Robinson 2009; Sahin 2006).

The last important part of diffusion of innovations theory for this thesis is the *adopter categories.* This segment classifies members of a social system on the basis of innovativeness. Innovativeness shows the willingness and earliness of adopting new ideas – before than other members of the system. By this classification, individuals can be innovators, early adopters, early majority, late majority, and laggards (Rogers 2003).

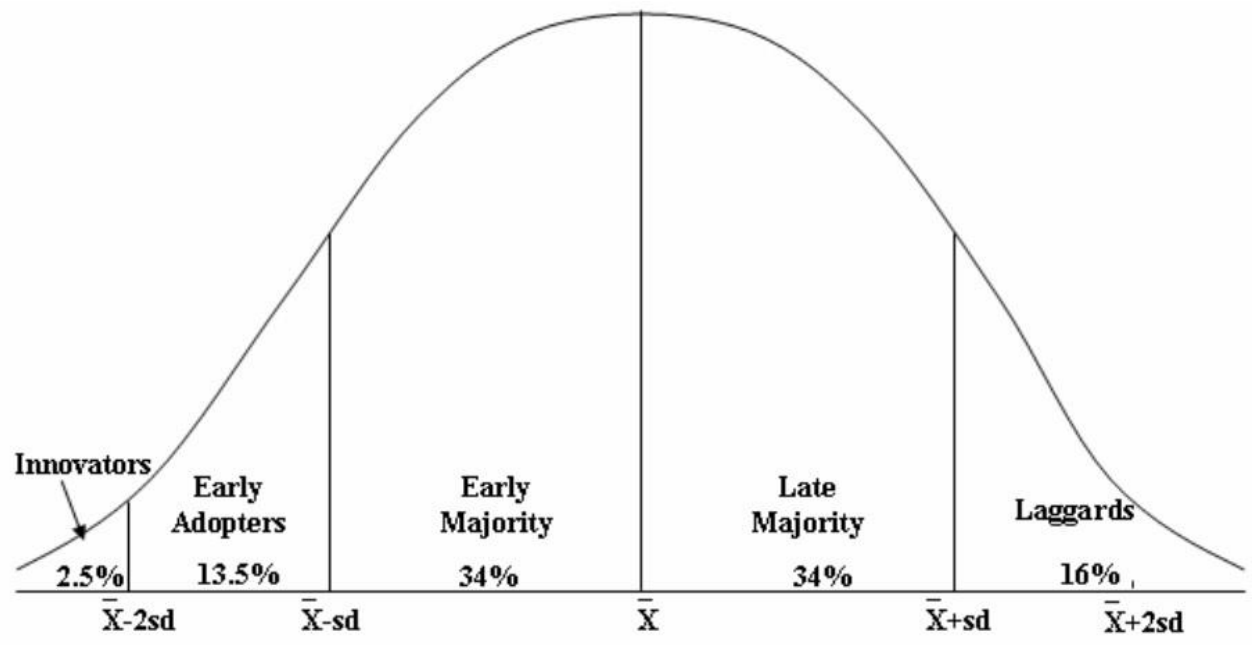



**Figure 3: Adopter Categorization on the Basis of Innovativeness (Rogers 2003)**

In the case of a normal distribution that happens during a successful innovation adoption, the adopters' 2,5% are innovators, 13,5% are early adopters, 34%-34% are early majority and late majority and 16% are laggards. If the innovation does not get accepted/adopted, or the process is still incomplete, this distribution of adopter classification is not generated (Sahin 2006).

## 5.2 New institutionalism and institutional change

Since the theory of Institutionalism first appeared in the greater field of economics, there has been a continuous debate on conceptualizing institutions or institutional change, the varying understandings of authors resulted in different terminology and adaptation of theories, contributing to a diffuse and vast literature (Kingston & Caballero 2008). New institutional economics built on fundamental assumptions such as (resource) scarcity and competition (North 1993).

The first arguments for a new theory appeared in the late 1970s, created by scholars such as John Meyer, Brian Rowan, Richard Scott, and Lynne Zucker. The new proposal was that so called institutional

forces, such as rational myths, knowledge from educational systems and professions, public opinion, the law and so on, also shape organizational structures apart from technical demands and resource dependencies, suggesting that organizations are often reflect or respond to rules, beliefs and convictions of their wider environment (Powell 2007). Theories of certain mechanisms that support institutionalization have existed since the 1980s, when coercive, normative and mimetic processes of reproduction were named. These mechanisms were further developed by Scott, who named three 'pillars' as basic building blocks for institutionalism: regulative, normative, and cultural/cognitive (Powell 2007).

Scott created the most useful interpretation of institutions for this project in the early 2000s. Contrary to the confusion brought about by the high number of competing definitions in different theories meant for different scientific fields, the work of Scott provides a transparent framework, drawing from multiple sources, and gives researchers an easily adaptable and understandable system. As provided by Scott, this thesis understands institutions as *"multifaceted, durable social structures, made up of symbolic elements, social activities, and material resources"* (Scott 2001 p.49). Their role is to generally support the behavior of individuals or groups/organizations by enabling, controlling or constraining. These institutions are built by the already mentioned three pillars, regulative, normative and cultural/cognitive (Scott 2001).

The regulative pillar emphasizes sanctioning, and represents laws and rules, representing obligatory mechanisms. In the extreme this pillar uses force, fear, and expedience, although they are usually not used alone, regimes, political parties, etc., always at least try to keep (sometimes illusory) legitimacy and belief. The normative pillar contains conceptions of the preferred values and norm, showing us how we ought to behave, sometimes providing constraints on social behavior but generally enabling social action. Values represent what is preferred or required, and norms represent goals and objectives and how things should be done in order to achieve the values. The third pillar is the cultural/cognitive pillar, where the subjective interpretation of actors is as important as objective conditions. Cultural/cognitive factors are made up of how we usually behave, triggering action because it feels appropriate because of shared conceptions. Each pillar offers a different form of legitimacy, explaining action with either being legally sanctioned, morally authorized, or culturally supported (Scott 2001; Powell 2007).

Institutions are durable, they connote stability, oftentimes they are transmitted across generations, as they tend to be maintained and reproduced; they are relatively resistant to change (Scott 2008). The

persistence of institutions is associated with the concept of path dependency. According to theory, path dependency occurs when a) a present solution leads to a limited number of future possibilities, b) past decisions influence current events, there is a higher chance that actors take steps along the same route, to follow the same path, c) depending on the length of the path that is already taken, actors end up in a single solution-situation (Ebbinghaus 2005). Path dependency and the persistence of current institutions are supported by four kinds of positive feedback mechanisms, which are *costs*, referring to the high costs of setting up new institutions compared to benefits of staying on the same path, *reluctance to change*, meaning that actors who have already put time and effort into learning how to operate within a certain set of rules are reluctant to consider new options, *peer pressure*, because individuals tend to change and adapt their activities according to their expectations of how others will react, and *political processes,* where benefits that one actor receives can depend on collective action, or stronger actors can impose rules on others (Ramirez 2016).

Institutional change can occur internally and externally. When positive feedback mechanisms are disrupted and path dependency is weakened is one possibility, and the other is the appearance of certain conditions that motivate actors into changing the institutional setting. When path dependency is disrupted, change can either be abrupt, which is called *punctuated equilibrium*, or it can be incremental, called *gradual change* (Streeck & Thelen 2005). When gradual change occurs, it can change the whole approach of the institution from top-down to bottom-up and vice versa (Ramirez 2016). When actors are motivated by new conditions, they find a problem, or defect in the current institution and decide to change it, either because of a compliance deficiency (faulty security procedures, or rule misinterpretation), or because of power imbalances between actors. The existing institution can be either reorganized differently (bricolage), or ideas can be transferred from somewhere else, combining the existing institution with new institutions (transfer) (Campbell 2007).

A handful of requirements need to be met in order for institutional change to be successful. Firstly, elements of change have to fit well with the receiving context, and actors have to be aware of the difference. Innovations and ideas have to be adapted to the receiving context to fit in well, or receivers have to adapt to new incoming ideas. Secondly, benefits have to be highlighted, so that actors will understand and accept the changes that were proposed. Thirdly, changes have to be in accordance with public sentiment. Lastly, delegates/proponents of change must have access to power resources, such as financial or technological capacity, decision makers, etc. (Ramirez 2016).

## 5.3. Global sustainable land use and systemic indicators for agriculture

In recent years, the transdisciplinary GLOBALANDS project (Global Land Use and Sustainability) was carried out, supported by the Federal Ministry for the Environment in Germany and conducted by the International Institute for Sustainability Analysis and Strategy (IINAS). In the concluding report of their working group, the project also presents open questions, possibilities for future research, showing that the concept is still evolving (Fritsche et al. 2015). Global sustainable land use is more of a concept, or a framework than a theory, yet it is useful to examine this concept to see how organic farming can fit into the definition and to inspect organic farming through a systemic indicator approach, offered by the GLOBALANDS project.

One possible definition for global sustainable land use came to be the following: *"A global sustainable land use serves the needs (for food, energy, housing, recreation etc.) of all human beings living on earth today and in the future, respecting the boundaries and the resilience of ecological systems"* (Kaphengst 2014, p12). The definition of sustainable land use and whether organic farming can be considered as such is an important, multifaceted question: how to determine local land use decisions' effect on national or global scales? What indicators can provide sufficient data and measurability on sustainable land use? Objectives are not always complementary; certain activities may affect land rights, or cultural values. There is also a relatively high level of uncertainty regarding land use decision (Fritsche et al. 2015). Measurability and uncertainty are not unknown issues for organic farming. Sustainable land use and its management imply a person/institution, some kind of authority that oversees farm operations and deal with the interconnectedness between different land users.

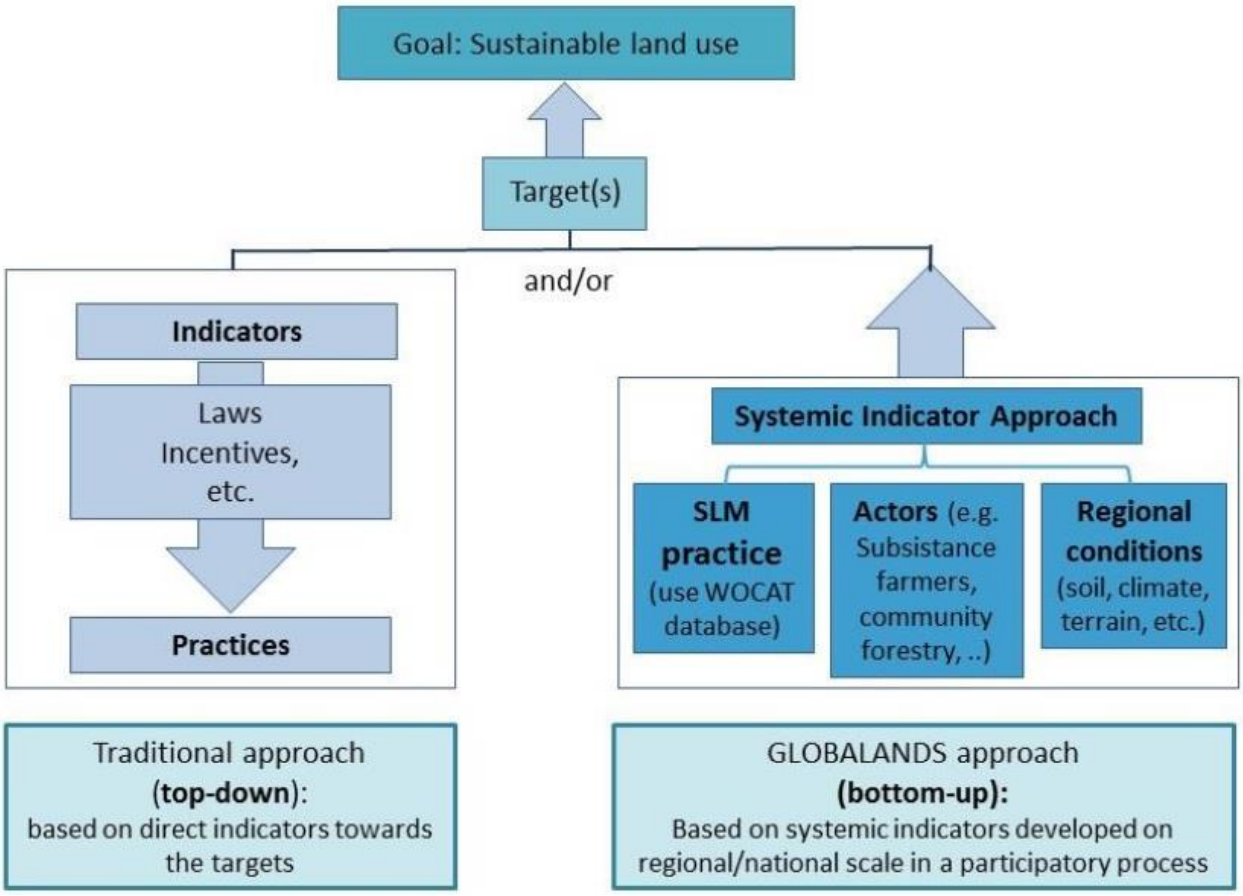



**Figure 4: Overview of the Systemic Indicator Approach (Eppler et al. 2015)**

The role of actors is especially important, since the systemic approach is a bottom-up approach, unlike the traditional top-down, in order to identify sustainable practices based on evidence, carrying out consultation processes in the given region (Eppler et al. 2015). Essentially, sustainability is only useful if it is globally applicable; as the motto that has been so fondly used by sustainability grassroots movements (e.g. Degrowth) says: “think globally, act locally” (Fritsche et al. 2015; Gombos & Párdi 2016).

The theory of sustainable land use in the case of this thesis essentially investigates the hypothesis that ‘organic farming is a sustainable mode of land use’. The criteria for sustainability is collected and organized by IINAS just as the indicator system. The Sustainable Development Goals (SDGs) created by the United Nations are potential promoters of global sustainable land use. The SDGs are meant to influence all three pillars of sustainability, and they outline goals for agriculture, such as food security,

improved nutrition, reversed land and soil degradation, overall sustainability of the sector which includes production and consumption (Fritsche et al. 2015).

Systemic indicators are needed to measure land use to provide us with the ability to judge land use sustainable or otherwise. The SDGs of the United Nations are an integrated set of global priorities, focusing on measurable outcomes, but so far only goals and targets have been proposed (Eppler et al. 2015). One significant challenge has been the large number of possible indicators, which could hold up agreements and cause proliferation. The other main challenges are being implementable without excessive costs and the possibility for continuous future improvement (Eppler et al. 2015).

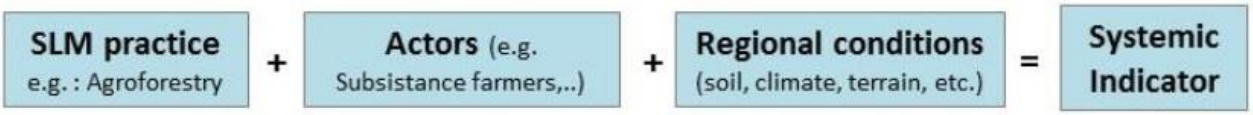



**Figure 5: Scheme for the Systemic Indicator Approach (Eppler et al. 2015)**

This approach is extremely important, because it takes the creation of indicators to local, regional level. This perspective acknowledges the importance of local specific conditions, such as soil, climate, indigenous species, even socio-cultural aspects (Eppler et al. 2015), which coincides with the notions of organic farming.

As it has been stated in the GLOBALANDS report, there have been very few mentions of 'global sustainable land use' (Fritsche et al. 2015). Although for example, the Food & Agriculture Organization of the United Nations (FAO) deals with sustainable land management and the notion of sustainability often on a global level, most concepts provide guidance on a local or regional level. Even though the UN's relevant conventions (CBD – Convention on Biological Diversity; UNCCD - United Nations Convention to Combat Desertification; UNFCCC – Framework Convention on Climate Change) deal with land-related issues, there is no overarching governing land use policy (Fritsche et al. 2015). The International Assessment of Agricultural Knowledge Science and Technology for Development (collaboration of the World Bank and the United Nations), better known as the World Agriculture Report is an extensive, detailed report from multiple perspectives and presents a framework of indicators for e.g. sustainability goals and agricultural outputs among others (IAASTD 2009), it doesn't explore the idea of a global sustainable land use policy.

# 6. Analysis & Discussion

This chapter presents the findings and arguments related to the research topic, the main research question and sub-questions. The structure follows the logic of the Problem Presentation chapter, while the chapter aims to answer the naturally emerging questions around the general topic and the main research question. First I discuss the advantages and disadvantages of organic farming, proving the *raison d'etre* of this kind of research. Then I review the latest data and trends of organic farming in Europe and Hungary. Lastly I discuss possibilities for improvements in the Hungarian organic sector partly using the previously presented theories, partly processing my own research in the topic.

## 6.1 Advantages and disadvantages of organic farming compared to conventional farming and the achievements of organic farming in sustainability

Over the past decades, extensive research has been done in order to measure and investigate the environmental impacts of organic farming compared to conventional farming. Even so, results up until now are inconclusive and difficult to compare with each other, due to differences in methodology and measurement procedures. The outcomes of these experiments are also vulnerable to weather and natural conditions, previous land management methods, etc., consequently further research is needed to accurately evaluate the impacts of organic farming methods (Lee et al. 2015). However, presently accessible studies are still useful to get a certain level of understanding about the differences between organic and conventional and to find the areas in which organic methods need improvement. From the 1970s over a hundred farm-level studies were conducted, comparing the environmental effects of organic farming to conventional and 2/3 of these studies showed positive outcomes, favoring organic farming over conventional farming (Lee et al. 2015). This comprehensive literature-analysis study that was published in the Journal of Environmental Management concluded that organic farming was found superior to conventional farming in terms of environmental effects and Greenhouse Gas emission in the case of field crops, mixed crop and dairy in most studies, but not in the case of fruit and vegetables (in which case there was no notable difference) (Lee et al. 2015). The study also notes that because of the lower yields of organic farming, choosing between output-based and area-based measures is an essential question in every comparative study.

Other studies sometimes utilize a certain LCA-approach, emphasizing that synthetic fertilizers use up a lot of fossil fuel during the manufacturing process, conventional methods produce higher amounts of $CH_4$ and $N_xO$-s, they use pesticides, herbicides that can spread and poison the local environment, while organic farming use e.g. crop rotation and natural predators against pests, but provide lower crop yields, higher upkeeping costs (thus selling produce at a premium price) and is a lot more labour intensive (Muscănescu 2013). Multiple studies discussed that organic farms most of the time produce a lower economic value (e.g. the market value of crops produced/ unit of area), but organic farmers have a greater technical efficiency (Cisilino & Madau 2007; Muscănescu 2013). Several individual studies have been made dealing with certain aspects of farming, such as yield, diversity, pest control, etc. Studies made on yield comparison show that it depends on nitrogen availability/input, soil acidity, soil fertility and management skills; explaining that organic yields are usually lower in the first years after conversion and organic yields can show significant improvement in long-term studies, but generally certain organic cereals and vegetables can show significant negative difference (Seufert et al. 2012).

In general, studies say that organic farming produce better quality food, with higher nutritional values and mineral content, while being chemical-free and tasting better. Organically grown plants have a higher resistance against diseases and pests, resulting in lower input costs regarding insecticides, fungicides, etc., and they retain an added value which customers pay a higher price for. A disadvantage of organic farming is that it puts for example soil health before crop productivity, generally resulting in lower yields. Organic farming is also more time and skill demanding, requiring farmers greater interaction with their crop, regular interventions and weed control are needed, therefore organic farming is much more labour intensive and requires planning, observation and skill (Thakkar 2013).

A recent study published in the scientific journal *Nature Plants* examined the performance of organic farming from the perspective of what the authors described as four key sustainability metrics: productivity, environmental impact, economic viability and social wellbeing (Reganold & Wachter 2016). Agriculture today takes up about 38% of the Earth's land cover (The World Bank 2014) and is a major contributor to greenhouse gas emissions, chemical pollution, soil degradation, or biodiversity loss, and to feed a growing population expected to reach 9-10 billion people in the coming decades, truly sustainable farming methods are needed (Godfray et al. 2012; Rockström et al. 2009; Amundson et al. 2015; IAASTD 2009).

A high number of individual studies and their synthesis in meta-analyses and reviews have addressed the difference in crop and animal yields and their quality between organic and conventional farming systems. Generally, these studies show that average yields of organic systems are 8-25% lower than conventional, although it has been argued that under agroecological conditions where organic farming performs best may close the yield gap between organic and conventional. Among the oncoming effects of climate change, severe drought conditions are expected to increase in many areas and organically managed farms have been shown to produce higher yields under these conditions than conventional farms (Letter et al. 2003). While organic systems produce less food, the produced organic foods contain less or no synthetic pesticide residues than conventionally produced foods (Reganold & Wachter 2016). Over a dozen meta-analyses in scientific literature in the past decade compared the nutrition of organic and conventional produce and most of these studies found evidence of organic foods being more nutritious (e.g. higher concentrations of vitamin C, antioxidants, omega-3 fatty acids, etc.), but whether these differences are nutritionally meaningful is continued to be debated (Reganold & Wachter 2016).

Scientific studies, papers and meta-analyses generally support the notion that organic farming is more environmentally sound, than conventional farming systems (Gattinger et al. 2012; Alföldi et al. 2002; Tuomisto et al. 2012). Farms that are managed organically consistently have higher soil carbon levels, less soil erosion and better soil quality (Mondelaers et al. 2009; Gomiero et al. 2011; Lynch et al. 2012). Organic farms have greater plant and faunal diversity, more diverse habitat and landscape, while pesticides and fungicides have negative effects on biodiversity and reduce the biological control potential in conventional farming systems (Kennedy et al. 2013; Crowder et al. 2010). Without the use of synthetic pesticides, organic agriculture does not pollute ground and surface waters; emit less greenhouse gases, nitrate and phosphorus than conventional agriculture (Alföldi et al. 2002; Mondelaers et al. 2009; Lynch et al. 2012). Organic farming systems generally consume much less energy per unit of input making them more energy efficient and combined with the higher soil organic matter, organic agriculture can help developing methods to build soil carbon stores and limit fossil fuel emissions which are important tools in battling climate change (Gattinger et al. 2012; Alföldi et al. 2002; Reganold & Wachter 2016).

Future possibilities to expand for organic farming heavily rely on its economic viability. The main factors determining profitability are crop yields, labour costs, cost-saving on non-renewable resources and inputs and price premiums (Zentner et al. 2011; Reganold & Wachter 2016). A meta-analysis comprised

of 40 years of studies covering 55 cases on 5 continents showed that organic agriculture proved to be significantly more profitable (22 to 35% greater net present values) with higher benefit/cost ratios than conventional agriculture if the price premiums are included (Crowder & Reganold 2015). The fact that organic premiums were/are so high, suggests that organic agriculture can expand even if premiums decline (Reganold & Wachter 2016). Although labour costs are higher with organic agriculture which has been viewed as a success for conventional agriculture (to produce more with less labour), some studies argue that the extra labour is beneficial to rural development (Reganold & Wachter 2016). The economic viability of organic farming further increases if the negative environmental externalities, such as biodiversity loss, chemical leaching, soil degradation, etc are taken into account.

The final aspect of sustainability is wellbeing. Wellbeing encompasses social equity, quality of life, issues of gender, race, class, ethnicity, and being in harmony with the natural limits to environment and its resources. The small amounts of data available from limited research in the topic indicates that both conventional and organic farming systems need to make progress in order to reach social sustainability goals (NRC 2010). However, organic farming has shown sociocultural strengths, such as increased social interactions between producer and customer, community economic development, greater cooperation between farmers, while it reduces exposure to chemicals, even if it requires more manual labour (Reganold & Wachter 2016). Social wellbeing goals have also been included in organic certification programmes, with international guidelines stating that organic farmers should receive fair incomes, maintain safe and dignified working conditions, raise animals humanely (allowing natural behavior, providing open air and grazing, and treat sicknesses) (IFOAM 2012). The necessitated diversity of on-farm crop and livestock operations of organic farming ensures multiple income sources and an improved variety in diets (Reganold & Wachter 2016).

Figure 6 shows the conclusion of the performance level of sustainability metrics compared between conventional and organic farming methods. The four circles starting from the inside represent 25%, 50%, 75%, and 100%. The different colors of the petals represent different areas, orange petals being areas of production, blue petals representing areas of environmental sustainability, red petals showing economic sustainability, and green petals representing areas of wellbeing, while the length of the petals indicate that organic agriculture balances the four areas of sustainability better, than conventional agriculture (Reganold & Wachter 2016).

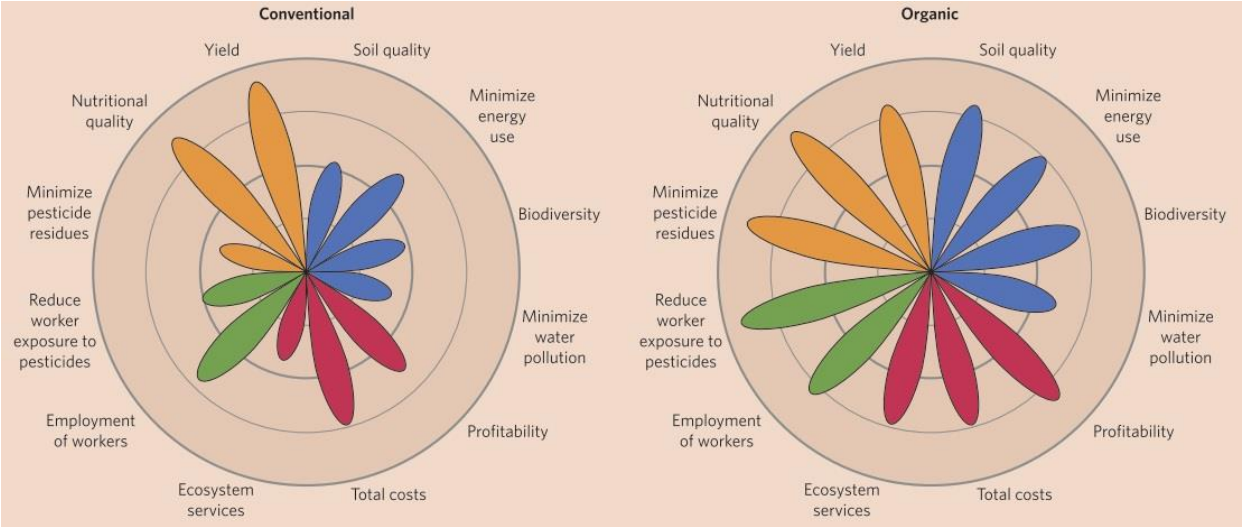



**Figure 6: Assessment of organic and conventional farming in four major areas of sustainability (Reganold & Wachter 2016)**

## 6.2 The state of organic farming in Europe and possibilities for Hungary to increase its modal share of organic farming in agriculture

### 6.2.1 The state of organic farming in the European Union

Over the last three decades, organic foods and organic farming have become increasingly popular and the total area of farmland under organic production has steadily increased. From ca. 100 000 ha in 1985, the area of organic farming increased to almost 13 million ha in 2015 in all of Europe, 11,2 million ha in the European Union (FIBL & IFOAM 2017). The growth of the organic retail market in the EU followed this growth of organic farming area. The total value of the market increased almost threefold from 11,8 billion euros in 2005 to almost 30 billion euros in 2015 in Europe, 27,1 billion euros inside the EU (FIBL & IFOAM 2017).

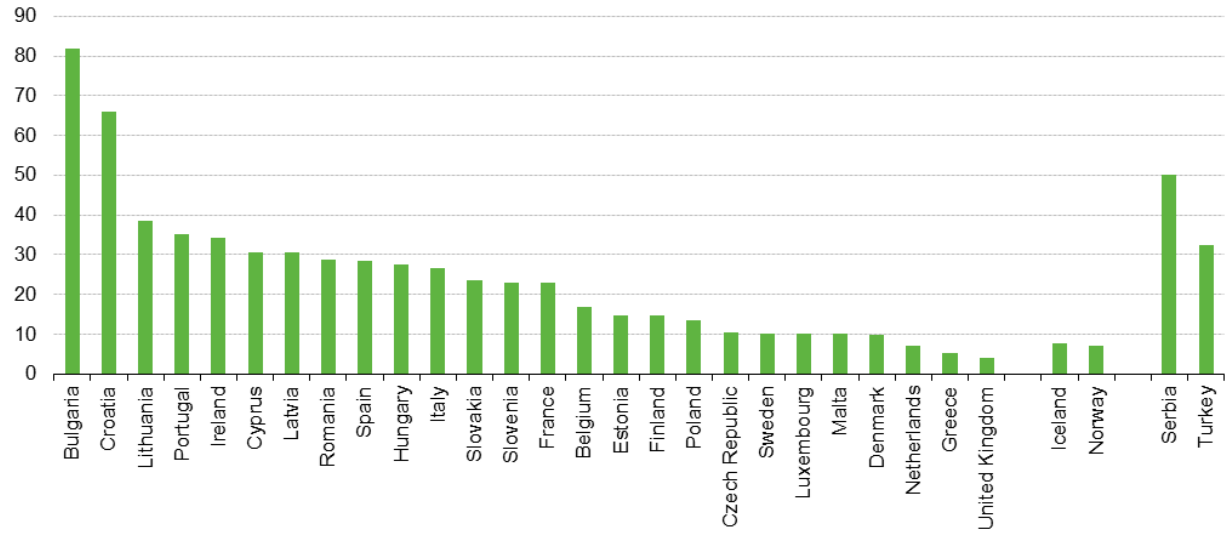
| | Organic area (ha) | | 2015–10 |
|---|---|---|---|
| | 2010 | 2015 | (% change) |
| **EU-28** | **9 195 813** | **11 139 595** | **21.1** |
| **Belgium** | 49 005 | 68 818 | 40.4 |
| **Bulgaria** | 25 648 | 118 552 | 362.2 |
| **Czech Republic** | 435 610 | 478 033 | 9.7 |
| **Denmark** | 162 903 | 166 788 | 2.4 |
| **Germany** | 990 702 | 1 060 291 | 7.0 |
| **Estonia** | 121 569 | 155 806 | 28.2 |
| **Ireland** | 47 864 | 73 037 | 52.6 |
| **Greece** | 309 823 | 407 069 | 31.4 |
| **Spain** | 1 615 047 | 1 968 570 | 21.9 |
| **France** | 845 442 | 1 361 512 | 61.0 |
| **Croatia** | 15 913 | 75 883 | 376.9 |
| **Italy** | 1 113 742 | 1 492 579 | 34.0 |
| **Cyprus** | 3 184 | 4 699 | 47.6 |
| **Latvia** | 166 320 | 231 608 | 39.3 |
| **Lithuania** | 143 644 | 213 579 | 48.7 |
| **Luxembourg** | 3 614 | 4 216 | 16.7 |
| **Hungary** | 127 605 | 129 735 | 1.7 |
| **Malta** | 24 | 30 | 25.0 |
| **Netherlands** | 46 233 | 44 402 | -4.0 |
| **Austria** | 538 210 | 552 141 | 2.6 |
| **Poland** | 521 970 | 580 731 | 11.3 |
| **Portugal** | 210 981 | 241 375 | 14.1 |
| **Romania** | 182 706 | 245 924 | 34.6 |
| **Slovenia** | 30 689 | 42 188 | 37.5 |
| **Slovakia** | 174 471 | 181 882 | 4.2 |
| **Finland** | 169 168 | 225 235 | 33.1 |
| **Sweden** | 438 693 | 518 983 | 18.3 |
| **United Kingdom** | 699 638 | 495 929 | -29.1 |
| **Norway** | 57 219 | 47 640 | -16.7 |
| **Switzerland** | 110 894 | 136 287 | 22.9 |
| **Serbia** | : | 15 298 | : |
| **Turkey** | : | 518 499 | : |

(:) data not available

**Table 6: Total organic area (fully converted and under conversion), by country, 2010 and 2015 (European Commission 2016)**

Table 6 also shows the growth in terms of percentage which presents rather varying results. Countries like Bulgaria, or Croatia has increased their organic area more than 300%, whereas this number is under 10% for some countries e.g. Czech Republic, Denmark, Germany, or Austria, although in absolute terms this means 90 000 ha growth for Bulgaria and 70 000 ha for Germany.

The percentage of area that is under conversion indicates the trend and potential of future growth of organic production. While steady growth is expected (figure 7) current trends indicate that the growth of production does not rise at the same speed as the growth of the European market (FIBL & IFOAM 2017).




Note: No data available for Germany and Austria.

**Figure 7: Share of area under conversion, by country, 2015 (%) (European Commission 2016)**

The number of processors and importers of organic produce has increased considerably in 2015 (+12% and +19% respectively), despite the smaller increase in the development of organic farms (+3%) (FIBL & IFOAM 2017). This trend shows that more and more retailers are stepping into the organic business realizing the potential of a dynamic and growing market demand bringing with them an increased number of importers, due to the lagging production of organics inside the EU.

The CAP has been a defining key policy on a European level both for the development of agriculture and organic farming and has been around for more than 50 years. In the current (2014-2020) period, organic farming is supported mostly through area payments for conversion and maintenance, under Pillar 2's Rural Development Payments, and direct payments under Pillar 1, the 'greening' payments, which organic producers automatically qualify for, constitutes 30% of all Pillar 1 direct payments (FIBL & IFOAM 2017). Despite recent reforms of the CAP, results show that the policy still disproportionally favors production and debates are ongoing about converting the CAP to a one pillar-based policy during the next reform, to move towards a payment system based on merit, meaning that producers would have to commit to social and environmental sustainability goals in order to receive financial aid (FIBL &

IFOAM 2017; Szlovicsák 2017b). One fault of the current system and CAP is that there are a number of loopholes that allow farms to register with grasslands without any livestock or grazing to receive subsidy payments, while the goal should be manufacturing organic produce, and there are a lot of pretense titles that allow farmers to receive payments who are essentially not managing their land sustainably (Székely 2017; Dezsény 2017). The proposed merit-based future system would bring the possibility to award environmental protection, biodiversity, etc., which would be a big help and incentive for organic production (Szlovicsák 2017b).

### 6.2.2 Possibilities for Hungary

During 2016, the area of organic farming increased substantially, from 129 000 ha to almost 190 000 ha, raising the share of organic farming in all agricultural land to 3%. This is mainly due to the availability of a new cycle of payments in 2015/2016 and most of the newly registered land is under conversion (Szlovicsák 2017b). This increase is probably due to the fact that a lot of farmers are not aware of the requirements of organic farming and do not intend to be in compliance with the regulation. Some farmers simply change their minds later on; some get disqualified, although this is not done in bad faith as farmers are often simply not aware of the obligations tied to conversion and this initial increase in numbers later drop as inspections start, which happens at almost every time when a new round of support is available (Szlovicsák 2017b).

The prices of organic products are high in Hungary because of low representation and small volumes. In Austria for example, organic prices can be much closer to conventional prices because they take up around 20% of their national product sales (Dezsény 2017). Where department stores made a commitment to represent organic products it is financially efficient, because the price per unit is lower. If we talk about fruit and vegetables there are almost no organic farmer in Hungary who could supply supermarkets and other retail stores with the needed quantity and quality constantly. That is one reason why Hungary imports a lot of organic products. If a turn of this balance is wanted it is essential to improve the national processing industry, but that is a very complex issue. It is a point of the rural development policy to increase the processing capacity in the food industry, with a rather serious financial capital, but organic farming was not at all emphasized in these plans (Dezsény 2017).

In the opinion of organic conversion expert Gyöngyvér Székely, there is always a possibility for export, as foreign markets would be able to accept Hungarian produce, maybe not added value products, but raw materials; as Hungary is a historically and geographically-bound industrial agriculture-country (Székely 2017). She further explained that Hungarian farmers should be taken regularly to international conventions such as BIOFACH in Nurnberg, to realize the possibilities in organic production, because if large amounts of organic produce could be exported, eventually domestic prices would drop, which could in turn start a positive feedback mechanism of growing demand and lowering prices (Székely 2017).

## 6.3 The domestic scene: difficulties in the institutional, economic and cultural settings and possibilities for improvements

Since opening the latest round of tenders of financial support for organic farming at the end of 2015, the area of organic farming grew from 125 000 ha to almost 200 000 ha, while the number of producers basically doubled, exceeding 3000 (ÖMKi 2017). Until 2015, both the area of organically farmed land and the level of consumption of organic products have stagnated for years (Roszik 2015). The financial allocation for the organic farming subsidization program under the Rural Development Plan was around 210 million EUR, with the goal of inciting conversion from conventional farming methods to organic farming methods, increasing the area of organically farmed land, as well as keeping previously converted areas (Kis 2017). Due to the chaotic and intransparent nature of the financial support system a number of farmers missed the opportunity to receive direct payments. These farmers opted for tenders under the Agri-Environmental Management Program, which provided higher payments, although the program had massive over-application and higher and different requirements to which organic producers were not fit for (Solti 2017b). Table 8 presents the two organic inspection bodies in Hungary, with the first column being the amount of inspected land and the second column is the number of inspected organic ventures. The numbers apply to 2016, representing a 53% growth in land area, and a 101% growth in the number of ventures.

| Organization | Inspected area | | Supervised operations | |
|---|---|---|---|---|
| Biokontroll Hungária: | 176 261 ha | 88.8% | 3 451 | 87.1% |
| Hungária Öko Garancia: | 22 210 ha | 11.2% | 512 | 12.9% |
| **Total:** | **198 471 ha** | 100% | **3 963** | 100% |

**Table 7: The distribution between the two organic inspecting bodies in Hungary in 2016** (Solti 2017b)

Figure 8 show the policy goals and collected data of the growth of organic farming area in Hungary between 1999 and 2000. The blue line indicates the actual data collected from surveys, while the red line represents the former National Agri-Environmental Management Policy (1998-2006), and the green line shows the numbers of the National Organic Action Plan. The almost-200 000 ha in 2016 reached 3,7% of all agricultural land (5,3 million ha) and approached the prorated target set in the National Organic Action Plan for 2020. The 350 000 ha target for 2020 will be achieved only, if organic lands grow 40 000 ha each year.

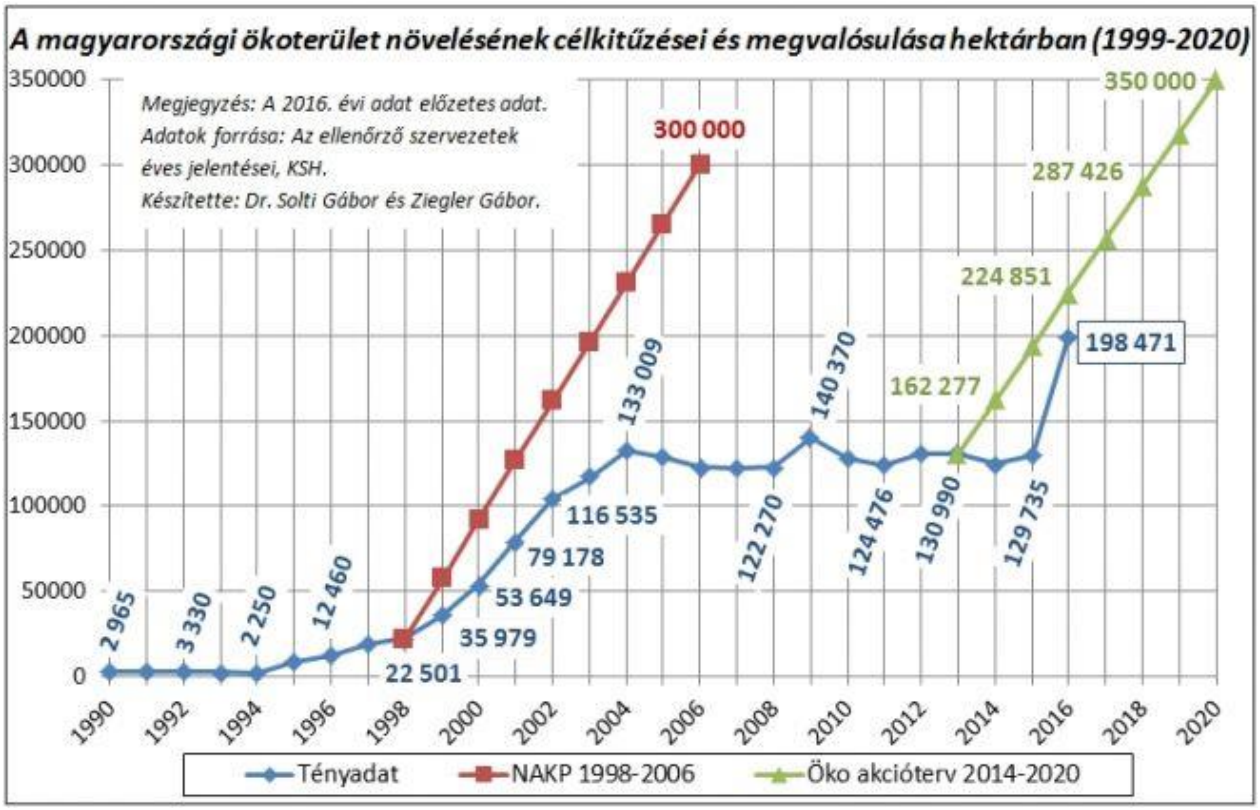



**Figure 8: Organic farm area targets (red and green) and actual growth (blue) in Hungary (ha)** (Solti 2017b)

In addition to the growth surge in 2016 it can be ascertained that despite the 70 000 ha (53%) expansion, the structure of organic farming in Hungary has not improved. The growth is mainly meadows, pastures, and arable lands, the areas of fruit and vegetable production have not increased the same amount. Animal husbandry has always been neglected in Hungarian organic farming, but with the introduction of ungrazed grassland areas in the subsidy system, its share further decreased (Czeller & Roszik 2017).

The healthy growth of the organic sector in Hungary has been hindered on multiple fronts since its appearance some three decades ago. One issue is dealing with institutional barriers. When organic

certification started in Hungary, the target audience of the inspecting organization quickly became a certain solvent, snob layer of society and it turned the financial capability of buying organics into a coveted status symbol that is for the rich (Székely 2017). Due to the unnecessarily complicated and strict certification system bio-, and health food shops sometimes end up importing the same produce from Germany that has been exported from Hungary (Kármán 2017). Another side of this issue is the evolution of the financial support system for organic farming. Before the new CAP was introduced, subsidies for organic farming were under the Agri-Environmental Management Program where it was allocated to measures such as integrated farming, or grassland management without animal grazing, what were unsustainable practices, left unsupervised and uncontrolled. The renewed CAP put organic farming under a totally separate title, which did good for the allocation of subsidies (Strenchock 2017; Székely 2017). The slowly transforming financial support system benefits the growth of organic lands and the reform of the CAP prefers farming methods with strong environmental values which is a positive step from the perspective of organic farming (Roszik 2015).

From an economic, or market point of view the issue is that producers, processors and trading companies are rather reluctant to cooperate with each other. As long as the processing level of domestically produced organics stays far behind the average European or global level, domestic organic producers will be unable to include yield losses, additional costs etc., in their prices, which in turn will discourage entrants, and young farmers to convert and to commit to organics, and will cause a loss of market to farmers that are already producing organically (Székely 2017; Roszik 2015). The prices are high in Hungary because of low representation and small volumes. In Austria for example, organic prices can be much closer to conventional prices because they take up around 20% of their national product sales (Dezsény 2017). Where department stores made a commitment to represent organic products it is financially efficient, because the price per unit is lower. When it comes to fruit and vegetables there are almost no organic farmer in Hungary who could supply supermarkets and other retail stores with the needed quantity and quality constantly that is one reason why we import a lot of organic products (Dezsény 2017). Bolvári explained that a lot of small-scale producers, whom he regularly meets on conventions and open forums, argue that if this balance is to be turned, it is essential to improve the national processing industry. Kármán, one of the founders of the Szatyor Association in Hungary argues an economic approach, i.e. part of the solution could be freeing organic products from the value-added tax, essentially lowering their prices without income loss (Kármán 2017; Bolvári 2017).

The last sphere of difficulties is the cultural barriers surrounding the topic of organic farming. According to Hubai Imre Jr., the National Vice-President for Rural Development, the largest issue is consumer behavior, because the producer-consumer relationship between organic farms and urban population is much weaker than those in Western-Europe, a tendency which is further hindered by the destructive presence of hyper-, and supermarket chains (Roszik 2015). In the past 25 years or so (as mentioned already in the Problem Presentation chapter) there was a huge turnover of retail market and now every village has a supermarket, where products are not high-quality but very cheap and that is what people buy and the reversal of this system will take time and creativity (Strenchock 2017). Demand is still concentrated around the cities and especially around Budapest and its agglomeration, where there are educated, conscious customers with the needed purchasing power (Székely 2017; Strenchock 2017). On the other side of this coin are the majority of Hungarian farmers who manage their land conventionally. One problem with the Hungarian scene is that a lot of landowners don't even know about the possibilities. They receive the land-based payments because the county-official fills out the required forms for them, but it's more or less enough for them. When a boy inherits the farm from his father, he does not know about the possibilities of organic farming, they see it as a myth, something that will not work, education is really lacking in this area (Szlovicsák 2017b). Most organic farmers do not have an agricultural background, they are mostly businessmen. According to the organic conversion consultant Székely, conventional land-owners who have an agricultural background absolutely refuse organic farming, they do not believe in it. Most of these farmers are part of the older generation and because they were present at the birth of organic farming in Hungary and saw how it failed to become widespread, they became disillusioned. Bolvári voiced his concern that an important reason is their age and lack of motivation; without ideological conviction and clear vision of profit these farmers simply do not have the energy to deal with a conversion (Székely 2017; Bolvári 2017). Both of the interviewees underlined that oftentimes farmers and producers are only motivated to convert to organics because of health issues in the family, such as diabetes, or cancer.

A positive trend could be the emergence of environmentally conscious students and young farmers. According to Székely, the generation that is now currently in their early 20s is looking to Europe and especially Western-Europe for guidance and they think in international terms, rather than domestic. A large number of these students take up only to organic farming and environmental courses and zero conventional agricultural studies, possessing the much needed drive and conviction that are needed to be successful in organic farming, but there are serious issues in education, as the professors who teach

e.g. soil science, or plant protection have been there for 30-40 years, believing only in conventional methods, they define everything and they do not believe in chemical-free agriculture, meanwhile experts who have marketable and authentic knowledge about organic farming or environmentally conscious ways of production have their influence limited only to certain optional courses (Székely 2017; Bolvári 2017).

## 6.4 The theories of Diffusion of Innovations and Institutional Change offering insight

To better understand the initial spread and the following impasse of organic farming practices in Hungary the theory of Diffusion of Innovations provides insight. From the perspective of the diffusion theory, organic farming is a social innovation aiming to change the patterns in the relationship between community and environment and is mainly 'software' based (Simin & Janković 2014; Padel 2001). The diffusion of organic farming started in the 1980s, creating its first close-knit community in a couple of years within that decade. According to the theory these individuals can be viewed as innovators. Fitting the model of diffusion theory, these innovators mostly lived in urban areas and they were mostly well educated gardening and sustainability enthusiasts.

In the case of a successful diffusion, innovators would have been followed by the early adopters, early-, and late majority, and laggards. However, even if a successful innovation would not mean that a 100% of actors in the agricultural industry convert to organic farming (international policies and frameworks always suggest a blend of sustainable farming practices); the initial momentum of organic farming came to a halt and has only been revitalized in recent years by a financial support system allocated to it. We know from Rogers that even when the advantages are clear, it is a difficult process to adopt new ideas (Simin & Janković 2014). Additionally organic farming is definitely not a typical innovation as it is a complex system rather than a single technology, which implies (and coincides with reality) an extremely slow diffusion rate, rather than a rejection of the innovation (Padel 2001). Right now in Hungary the diffusion of organic farming practices does not pass the persuasion or even the knowledge state of the innovation-decision process. According to both Székely, and Biokultúra associate Szlovicsák, the majority of conventional farmers are stuck in the knowledge state as they have insufficient or no knowledge at all of organic farming, only beliefs, which are often false (Székely 2017; Szlovicsák 2017b).

Rogers's theory states that in the persuasion stage it mostly depends on the innovation's five characteristics if it is going to be accepted (adopted) or rejected. The five characteristics are: relative advantage, compatibility, complexity, trialability, and observability, which explain the slow diffusion rate of organic practices. Relative advantage includes costs, convenience, satisfaction or social status motivation. Cost is a tricky question, considering that less input is required for e.g. fossil fuels for machinery, or chemicals for plant protection, but higher salaries need to be paid for manual labour, and lower yields might suggest lower income as it is hard to substantiate the price premium for organics in the Hungarian market. Social status motivation might be the only positive characteristic-part in relative advantage; a certain part of society bears respect and admiration for those who are environmentally conscious/sustainable. Effectiveness is greatly boosted direct payments and the subsidization of organic farming in European and national policies.

Compatibility, complexity and observability are rather troublesome categories for organic farming, making its diffusion more difficult. First of all, conventional farmers in Hungary often do not see organic farming as compatible with their means of production, as it highly differs from conventional agriculture in terms of crop rotation, plant protection, machinery, manual labour and holistic thinking, just to mention a few. This pairs with complexity, because organic farming is not a single technological innovation, and is very different in mentality, which makes it increasingly difficult for conventional farmers to understand and use. Observability, again, is rather low since the improvement in terms of soil texture, nutritional values, water management, or biodiversity for example, do not become visible for a long time, and even when they do it is not obvious. The last characteristic, trialability may show improvement, if conversion and organic farming policies in the future allow on-farm experiments of organic farming, and periods of trial-runs.

When the innovation is widely accepted it can play a part and inspire institutional change, as innovations are basic elements of institutional change (Redmond 2003; Sunding & Zilberman 2000). The general practice of agriculture (such as the general policy approach and the Common Agricultural Policy) is characterized by a high degree of continuity (Lynggaard 2006). Power and especially political power is fragmented between many actors, who also retain the ability to veto. The continuity is governed by three groups (a council, a committee, and the Directorate-General), thus it is rather resistant to outside influences. The development of the CAP has been highly path-dependent, having been a central concern

since its establishment in the 1950s (Lynggaard 2006). It can be understood that there are heavy institutional constraints that favour continuity over change, although the CAP has been subject to changes over time and with it the general agricultural practice, but regarding the latter, changes have been minor in effect.

Presently, the three pillars of institutions (regulative, normative, and cultural/cognitive) reinforce and strengthen each other. The prevailing mindset of conventional agriculture is supported by the cultural mindset of both the majority of producers and the majority of customers. Conventional producers in Hungary have a conception often passed down from father to son for multiple generations about the size of their crops, the amount of yield that is considered successful, the chemicals needed in order to stimulate growth and to protect plants, the machinery they need to be effective, etc. Customers also possess a certain understanding, or idea, about how much money they spend on vegetables and food in general, how healthy fruit and vegetable look like, and the influx of hyper- and supermarkets established the practice of one-stop shopping. Customers who contribute to the present institution of agriculture also have little to no knowledge about the health and lifestyle benefits of organic products, or issues of environmental protection or sustainability in general.

From the perspective of the normative pillar, in Hungarian society organic farming – the agricultural practices, the effects on humans and the environment, is still mainly considered to be a myth, or an urban legend. There is an increasing number of environmentally conscious young people, either because of their studies or they are just interested (enthusiasts), which is a positive trend and in their communities it is a respected and appreciated choice to be involved in organics, the rest of Hungarian society are less enlightened, purchasing organic products, or advocating it is often viewed as snobbish or even arrogant. From the regulative pillar's point of view the presence of organic farming and the importance attributed to it has been growing gradually over the past decades and the last renewal of the CAP included important environmental measures and the development of the subsidy system.

It is possible to view the events of recent decades in the agricultural sector and connected to the CAP as a slow, gradual buildup to institutional change. In my opinion, the best chance to build organic agriculture into the prevailing institutional practice may start at the regulative pillar. Even though raising awareness and spreading knowledge through formal and informal channels of education belong under the normative and cultural pillars, without the decisive policy instruments, such as financial support

systems, setting up short- and long-term frameworks, and creating educational and expert consultation bodies, an effective change will never be realized. In my understanding this idea is supported by institutional theory researchers, who argue that a particularly slow institutional change process needs a formal, top-down approach (Lynggaard 2006).

## 6.5 What would encourage more Hungarian farmers to convert to organic farming?

In the region of the Carpathian Basin, after Austria, Hungary was the second country where organic agriculture put down roots. In this region, Hungary retains the best conditions for agriculture and has the biggest population. For the developed Western-European countries, Hungary was and is an important partner both in raw agricultural products, and raw organic commodities, although the domestic market for organic products is tiny and the domestic processing industry is underdeveloped (Solti 2017a).

During the time I conducted my research certain issues resurfaced again and again, deemed to be an important issue from many perspectives. One issue like this and one of the biggest challenges in organic farming is the lack of expertise in the field, there is an insufficient amount of professional traning and education (Dezsény 2017). It is a concordant notion between experts in the topic that professional training and consultancy need to be available. One way of encouraging and persuading conventional farmers to convert to organics is to provide proper education and a network of expert consultants, preferably free, managed and employed by the government, or a professional organization created with this purpose (Székely 2017; Dezsény 2017; Bolvári 2017).

Another possible incentive could be the introduction of 0% value-added tax on organic products. The discussion about economic repercussions and consequences is beyond the scope of this project, but the idea has been supported by bio-shop owners and small-scale producers alike, and the option is definitely worth to debate (Bolvári 2017; Kármán 2017). Research organizations and other professional bodies devoted to organic farming and environmental sustainability in Hungary have a task of providing the appropriate research papers, and academic studies, but also publications of on-farm experiments and practical guides, translated to Hungarian, in order to be easily accessible for Hungarian farmers and producers to give them ideas and motivation. Presentable good examples of strategies, cultivation and

production technologies can stimulate farmers to adopt and experiment with them and further educate themselves (Dezsény 2017; Bolvári 2017)

Another fruitful method could be the establishment of an annual program where potential converters and interested conventional farmers would be taken to organic farming conventions, such as the BIOFACH in Germany, where producers would meet with their potential further market, and they would see the potential of organic production in the international markets they might develop an appetite for conversion to organics. If these producers manage to secure a position in the foreign markets, it would open the possibility of lowering their premium prices domestically. Of course this would be meaningful only, if the transformation of the farming community is accompanied by the mass education of customers and society in general, by the school system, relevant NGOs, etc (Bolvári 2017; Székely 2017). One specific technological incentive would be the augmentation of cold stores and the cold storage technology to accommodate organic produce. This development would include the creation of a kind of community cold store network with storage available at strategic points in the country, alongside with improving the current infrastructure (Bolvári 2017).

From an institutional policy perspective the needed steps to further spread organic farming practices are for example the Ministry of Agriculture to create an independent department for organic farming, a designated person responsible for organic agriculture within the State Secretariat for Rural Development, the creation of an organic action-plan and a responsible body, organic farming roundtable for expert organizations, inspection agencies, and NGOs, and a Carpathian Basin-based organic roundtable with a resolution committee, serving as a consultant agency for the government (Solti 2017a).

# 7. Conclusion

One of the main possible contributors to true sustainability is organic farming. It is the philosophy of the approach to use biological processes in order to achieve high soil quality, control pests, and to provide a nurturing environment for crop production, while prohibiting most synthetic/chemical inputs (NRC 2010). According to the latest official surveys, certified organic agriculture was present in 179 countries, on 50.9 million hectares worldwide (including conversion areas), taking up 1% of the world's agricultural areas. The regions with the largest organic agriculture area were Oceania (22.8 million ha) and Europe (12.7 million ha)(FIBL & IFOAM 2017).

In Europe, organic farming has steadily grew in the past three decades, and since the first surveys in 1985, the total area of farmland under organic production rose from 0.1 million to almost 13 million hectares in 2015, 11.2 million hectares in the European Union (FIBL & IFOAM 2017). The main trends on a European level are: the market for organic products is growing faster than previous years (12.6% in 2015), consumers are spending more money on organic food, due to the market growth more and more importers, processors, and retailers are stepping into the organic business, while organic producers are improving slower (FIBL & IFOAM 2017). While these are the main trends, markets and production are developing at different rates in each country.

The present situation of organic agriculture in Hungary is a historically evolved situation (Szlovicsák 2017b). Hungary has been a net exporter of agricultural produce for many centuries and it is not different in the case of organic production. The domestic market and societal acceptance of organic products has been derailed since the beginning in the 1980s, although recent trends can give cause for optimism, such as the conference proceedings in the beginning of 2017 between major stakeholders, or the domestic growth in organically farmed areas (from 125 000 ha to almost 200 000ha in 2016, representing close to 3% of all agricultural land in Hungary). Still, organic producers and stakeholders face an uphill task in promoting and spreading organic farming practices with the opinion of the Hungarian public, the attitude of conventional farmers, and the domestic processing industry all in need of improvement.

The answer to the main research question '*What would encourage more Hungarian farmers to convert to organic farming?*' is multifaceted. First, the underlying problem of false public perception and the lack

of proper education need solving. Ultimately we need to show current conventional producers that there is indeed a market waiting for them if they choose to convert. Today it is a mostly foreign market; with the proper educational and informational programs the domestic market would join the trend of rapid growth just as in the rest of the European Union. Lower prices thanks to the volume produced for foreign markets would ensure the increase in popularity, and the introduction of community cold storage possibility would protect producers from market fluctuations. The introduction of the 0% VAT on organic products would further increase popularity and accessibility. Paired with the conversion process we need a network of expert consultancy to guide producers in the form of NGOs or even government organizations. The establishment of a separate department for organic farming inside the Ministry of Agriculture, and the creation of a designated space for an organic farming liaison in the State Secretariat would ensure the reinforcement of a positive top-down approach, which is greatly needed.

# 8. Bibliography


Alföldi, T. et al., 2002. Organic agriculture, environment and food securit. In N. E.-H. Scialabba & C. Hattam, eds. *Organic agriculture, environment and food security*. Rome: FAO.

Amundson, R. et al., 2015. Soil and human security in the 21st century. *Science*, 348(6235), pp.647–652. Available at: http://www.sciencemag.org/cgi/doi/10.1126/science.1261071.

Baksa, A., 2011. *A Változó Közös Agrárpolitika Átvétele Magyarországon*. Szent István Egyetem.

Baltas, C.N., 1999. The Common Agricultural Policy: Past, Present and Future. In *ECSA Sixth Biennial International Conference*. Pittsburg, p. 17.

Biokontroll Hungária Nonprofit Kft., 2009. Rólunk. Available at: http://www.biokontroll.hu/cms/index.php?option=com_content&view=article&id=200&Itemid=106&lang=hu [Accessed March 15, 2017].

Biró, S. et al., 2012. *Közös agrárpolitika 2014-2020: A reformtervezetek alapján várható hatások és kihívások magyarországon* N. Potori, ed., Budapest.

Bolvári, C., 2017. Face-to-face interview. , p.3.

Brown, D.L. & Schafft, K.A., 2002. Population deconcentration in Hungary during the post-socialist transformation. *Journal of Rural Studies*, 18(3), pp.233–244.

Burger, A., 2006. Why is the issue of land ownership still of major concern in East Central European (ECE) transitional countries and particularly in Hungary? *Land Use Policy*, 23(4), pp.571–579.

Cantore, N., Kennan, J. & Page, S., 2011. *CAP reform and development Introduction , reform options and suggestions for further research*, London. Available at: www.odi.org.uk.

Cisilino, F. & Madau, F. a., 2007. Organic and Conventional Farming: a Comparison Analysis through the Italian FADN. *103rd EAAE Seminar - Adding Value to the Agro-Food Supply Chain in the Future Euromediterranean Space*.

Crowder, D.W. et al., 2010. Organic agriculture promotes evenness and natural pest control. *Nature*, 466(7302), pp.109–112. Available at: http://www.nature.com/doifinder/10.1038/nature09183.

Crowder, D.W. & Reganold, J.P., 2015. Financial competitiveness of organic agriculture on a global scale. *Proceedings of the National Academy of Sciences*, 112(24), pp.7611–7616. Available at: http://www.pnas.org/lookup/doi/10.1073/pnas.1423674112.

Czeller, G. & Roszik, P., 2017. *Félidejében az ökológiai gazdálkodás első nemzeti akcióterve**, Budapest.

Csáki, C. & Jámbor, A., 2009. The Diversity of Effects of EU Membership on Agriculture in New Member States. *FAO Regional Office for Europe and Central Asia - Policy studies on rural transition*, 4.

Dezsény, Z., 2017. Face-to-face interview. , p.3.

Ebbinghaus, B., 2005. *Can Path Dependence Explain Institutional Change? Two Approaches Applied to*

*Welfare State Reform*, Available at: http://search.proquest.com/docview/1002710808?accountid=9630 LA - English.

Eppler, U., Fritsche, U.R. & Iriarte, L., 2015. *Global Sustainable Land Use : Concept and Examples for Systemic Indicators*, Darmstadt, Berlin, Madrid.

European Commission, 2016. Organic farming statistics - Statistics Explained. Available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Organic_farming_statistics [Accessed May 24, 2017].

European Commission, 2013. Overview of CAP Reform 2014-2020. *Agricultural Policy Perspectives Brief N.º 5*, (December 2013), p.10.

European Commission, 2012. *The Common Agricultural Policy*, Luxemburg.

European Commission, 2007. *The Common Agricultural Policy Explained*

European Council, 1991. *COUNCIL REGULATION (EEC) No 2092/91*, European Council.

FAO, 2015. *FAO Statistical Pocketbook 2015*, Available at: http://www.fao.org/3/a-i4691e.pdf.

FAO, 2017. *The future of food and agriculture: Trends and challenges*, Available at: http://www.fao.org/publications/card/en/c/d24d2507-41d9-4ec2-a3f8-88a489bfe1ad/.

Fertő, I., 2001. Rural development and transition in Hungarian agriculture. , (European Rural Development : Problems, Chances, Research Needs), pp.1–22. Available at: http://www.iiasa.ac.at/Research/ERD/net/pdf/ferto_1.pdf.

FIBL & IFOAM, 2017. *The World of Organic Agriculture Statistics and Emerging Trends 2017* 1.3. H. Willer & J. Lernoud, eds., Bonn: Research Institute of Organic Agriculture (FiBL), Frick, and IFOAM. Available at: www.organic-research.net/tipi.

Field, R., 2015. Hungary to receive USD 4.8 billion in agricultural subsidies from EU - The Budapest Beacon. Available at: http://budapestbeacon.com/public-policy/hungary-to-receive-usd-4-8-billion-in-agricultural-subsidies-from-eu/23602 [Accessed March 30, 2017].

Fritsche, U.R. et al., 2015. *Resource-Efficient Land Use – Towards a Global Sustainable Land Use Standard (GLOBALANDS)*, Darmstadt. Available at: http://www.umweltbundesamt.de/publikationen/resource-efficient-land-use-towards-a-global.

Gattinger, A. et al., 2012. Enhanced top soil carbon stocks under organic farming. *Proceedings of the National Academy of Sciences*, 109(44), pp.18226–18231. Available at: http://www.pnas.org/cgi/doi/10.1073/pnas.1209429109.

Godfray, H.C.J. et al., 2012. The Challenge of Food Security. *Science*, 327(February), pp.812–818. Available at: http://www.elgaronline.com/view/9780857939371.xml.

Gombos, M. & Párdi, P., 2016. *Transition towards sustainability in Budapest through the case of a degrowth fueled social cooperative*. Aalborg University.

Gomiero, T., Pimentel, D. & Paoletti, M.G., 2011. Environmental Impact of Different Agricultural Management Practices: Conventional vs. Organic Agriculture. *Critical Reviews in Plant Sciences*, 30,

pp.95–124.

Halmai, P. & Vásáry, V., 2007. Transformational Crisis , Transformational Depression , The Changing Agriculture The Hungarian Case. In *IAAE - 104th EAAE Seminar Agricultural Economics and Transition: „What was expected, what we observed, the lessons learned."*. Budapest, pp. 1–9.

IAASTD, 2009. *Agriculture at a Crossroads*, Available at: http://www.falw.vu.nl/en/Images/4_tcm24-29515.pdf.

IFOAM, 2012. *The IFOAM Norms for Organic Production and Processing (Version 2014)*, Bonn: IFOAM.

Ivicz, M., 2004. *A magyar mezőgazdaság XX. századi helyzetének elemzése különös tekintettel a kisbirtokra*. Pázmány Péter Katolikus Egyetem.

Jones, G.E., 1963. The diffusion of agricultural innovations. *Journal of Agricultural Economics*, 15(3), pp.387–409. Available at: http://doi.wiley.com/10.1111/j.1477-9552.1963.tb02005.x [Accessed May 22, 2017].

Kaphengst, T., 2014. *Towards a definition of global sustainable land use*, Berlin.

Kármán, E., 2017. Face-to-face interview. , p.3.

Kennedy, C.M. et al., 2013. A global quantitative synthesis of local and landscape effects on wild bee pollinators in agroecosystems. *Ecology Letters*, 16(5), pp.584–599.

Kingston, C. & Caballero, G., 2008. *Comparing Theories of Institutional Change*, Massachusetts. Available at: https://www3.amherst.edu/~cgkingston/Comparing.pdf.

Kis, Z.M., 2017. Az ökológiai gazdálkodás szerepe a Vidékfejlesztési Programban , az ökogazdálkodási pályázat hatása az ágazat hazai fejlődésére. In *Az ökológiai gazdálkodás hazai helyzete – hol tartunk a fenntarthatóság felé vezető úton?*. Gödöllő, p. 14.

KSH, 2012. Mezőgazdasági statisztikák. *Multiple data-tables*. Available at: www.ksh.hu [Accessed January 1, 2017].

Kvale, S. & Brinkmann, S., 2008. *Interviews - Learning the Craft of Qualitative Research Interviewing* 2nd ed., SAGE Publications.

Lee, K.S., Choe, Y.C. & Park, S.H., 2015. Measuring the environmental effects of organic farming: A meta-analysis of structural variables in empirical research. *Journal of Environmental Management*, 162, pp.263–274. Available at: http://dx.doi.org/10.1016/j.jenvman.2015.07.021.

Lehota, J., 2012. Biotermékek marketingje, kutatási eredmények és kitörési pontok. In *Az ökológiai gazdálkodás hazai helyzete- Trendek és kitörési pontok*. Gödöllő, pp. 20–27.

Letter, D.W., Seidel, R. & Liebhardt, W., 2003. The performance of organic and conventional cropping systems in an extreme climate year. *American Journal of Alternative Agriculture*, 18, pp.146–154.

Lynch, D.H., Halberg, N. & Bhatta, 2012. Environmental impacts of organic agriculture in temperate regions. *CAB Reviews Perspectives in Agriculture Veterinary Science Nutrition and Natural Resources*, 7, pp.1–17.

Lynggaard, K., 2006. Summary: Explanations of Continuity and Change. In K. Lynggaard, ed. *The Common Agricultural Policy and Institutional Change*. CABI, pp. 25–50. Available at: https://ebookcentral.proquest.com/lib/aalborguniv-ebooks/detail.action?docID=361048.

Magda, R., 2007. Changes in Land Utilization in Hungary Since the Transition. In *IAAE - 104th EAAE Seminar Agricultural Economics and Transition: „What was expected, what we observed, the lessons learned."*. Budapest, pp. 1–11.

Majkut, S., 2005. *BIOTERMÉK – AVAGY ÚJ PIACI TREND A HIPERMARKETEKBEN*. Budapesti Gazdasági Főiskola.

Monasterolo, I., 2007. The European Regional Policy in Hungary . An Evaluation of the Objectives and Instruments for the Cohesion. In *IAAE - 104th EAAE Seminar Agricultural Economics and Transition: „What was expected, what we observed, the lessons learned."*. Budapest, pp. 1–15.

Mondelaers, K., Aertsens, J. & Huylenbroeck, G. Van, 2009. A meta-analysis of the differences in environmental impacts between organic and conventional farming. *British Food Journal*, 111, pp.1098–1119.

Muscănescu, A., 2013. Organic Versus Conventional: Advantages and Disadvantages of Organic Farming. *Scientific Papers Series Management , Economic Engineering in Agriculture and Rural Development*, 13(1), pp.253–256.

Nemes, G., 2010. *Environmental Governance in Hungary*, Budapest.

North, D.C., 1993. *The New Institutional Economics and Development*. Washington University. Available at: http://www.deu.edu.tr/userweb/sedef.akgungor/Current topics in Turkish Economy/north.pdf.

NRC, 2010. *Toward Sustainable Agricultural Systems in the 21st Century* P. T. Whitacre, ed., Washington, DC: The National Academic Press. Available at: http://www.nap.edu/catalog/12832.

Nutley, S., Davies, H. & Walter, I., 2002. *Conceptual Synthesis 1: Learning from the Diffusion of Innovations*, Available at: https://www.kcl.ac.uk/sspp/departments/politicaleconomy/research/cep/pubs/papers/assets/wp10.pdf.

ÖMKi, 2012. Az ökológiai gazdálkodás hazai helyzete- Trendek és kitörési pontok. In Gödöllő.

ÖMKi, 2017. Összefoglaló. In *Az ökológiai gazdálkodás hazai helyzete – hol tartunk a fenntarthatóság felé vezető úton?*. Budapest: ÖMKi, p. 8.

Padel, S., 2001. Conversion to Organic Farming: A Typical Example of the Diffusion of an Innovation? *Sociologia Ruralis*, 41(1), pp.40–61. Available at: http://www.researchgate.net/profile/Susanne_Padel/publication/39960974_Conversion_to_organic_farming_A_typical_example_of_the_diffusion_of_an_innovation/links/5458c1670cf2cf516483a0ff.pdf%5Cnhttp://dx.doi.org/10.1111/1467-9523.00169.

Podruzsik, S., 2003. The state of farm and rural income diversification in Hungary. In S. Tanic & T. Lonc, eds. *Farm Commercialisation and Income Divcersification on the Road to EU Accession*. Prague: FAO Subregional Office for Central and Eastern Europe, pp. 153–159. Available at: http://www.fao.org/fileadmin/user_upload/Europe/documents/Publications/farm_en.pdf#page=1

73.

Popp, J. & Udovecz, G., 2007. Hungarian Agriculture and EU Accession. In *IAAE - 104th EAAE Seminar Agricultural Economics and Transition: „What was expected, what we observed, the lessons learned."*. Budapest: Jozsef Popp and Gabor Udovecz, pp. 1–18.

Powell, W.W., 2007. The New Institutionalism in organizational analysis. *The International Encyclopedia of Organization Studies*, pp.144–145. Available at: http://web.stanford.edu/group/song/papers/NewInstitutionalism.pdf.

Ramirez, P., 2016. *Institutional Change*, Aalborg.

Redmond, W.H., 2003. Innovation, diffusion, and institutional change. *Journal of Economic Issues*, XXXVII(3), pp.665–680.

Reganold, J.P. & Wachter, J.M., 2016. Organic agriculture in the twenty-first century. *Nature Plants*, 2(February), pp.1–8. Available at: http://dx.doi.org/10.1038/nplants.2015.221.

Robinson, L., 2009. A summery of Diffusion of Innovations. *Changeology*, pp.1–7.

Rockström, J. et al., 2009. Planetary boundaries: Exploring the safe operating space for humanity. *nature*, 461(2), pp.472–475.

Rogers, E.M., 1995. *Diffusion of innovations* 4th ed., New York: Free Press.

Rogers, E.M., 2003. *Diffusion of Innovations* 5th ed., New York: New York: Free Press.

Roszik, P., 2015. Interjú ifj . Hubai Imrével a Nemzeti Agrárgazdasági Kamara alelnökével. *Biokultúra Hírlevél*, (3), pp.12–14.

Sahin, I., 2006. Detailed Review of Rogers' Diffusion of Innovations Theory and Educational Technology-Related Studies Based on Rogers' Theory. *The Turkish Online Journal of Educational Technology*, 5(2), pp.14–23.

Scott, W.R., 2001. Constructing and analytical framework I: Three pillars of institutions. In *Institutions and Organizations - Second Edition*. London: SAGE Publications, p. 216. Available at: http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Institutions+and+Organizations#0.

Scott, W.R., 2008. *Institutions and Organizations: Ideas and Interests* 4th ed., Los Angeles: SAGE Publications Inc.

Seufert, V., Ramankutty, N. & Foley, J.A., 2012. Comparing the yields of organic and conventional agriculture. *Nature*, 485(7397), pp.229–232. Available at: http://www.nature.com/doifinder/10.1038/nature11069.

Simin, M.T. & Janković, D., 2014. Applicability of diffusion of innovation theory in organic agriculture. *Economics of Agriculture*, 61(2), pp.517–531. Available at: http://bsaae.bg.ac.rs/images/Ekonomika kompletna/2014/EP - 2 - 2014 - kompletna sveska.pdf.

Smith, P. et al., 2014. Agriculture, Forestry and Other Land Use (AFOLU). In *Climate Change 2014: mitigation of Climate Change. Contribution of Working Group III to the Fift Assessment Report of the*

*Intergovernmental Panel on Climate Change*. IPCC, pp. 811–922.

Solti, G.D., 2012. A hazai ökogazdálkodás és a biokultúra válsága, a kilábalás lehetséges útjai. In *Az ökológiai gazdálkodás helyzete - Trendek és kitörési pontok*. Gödöllő: ÖMKi, p. 46.

Solti, G.D., 2017a. *A Kárpát - medence ökogazdálkodása , Magyarország régiós szerepe és lehetőségei*, Gödöllő.

Solti, G.D., 2017b. Összefoglaló. In *Az ökológiai gazdálkodás hazai helyzete – hol tartunk a fenntarthatóság felé vezető úton?*. Budapest, p. 9.

Strenchock, L., 2017. Face-to-face interview. , p.3.

Strenchock, L., 2012. *Local Food Systems in Budapest: Citizen Driven Conscious Food Consumption Initiatives and their Ability to Shape New Food Paradigms in Hungary.* Central European University.

Sunding, D. & Zilberman, D., 2000. The Agricultural Innovation Process : Research and Technology Adoption in a Changing Agricultural Sector. *Handbook of Agricultural Economics*, pp.1–105.

Szabó, G., 2007. Changes in the Structure of Agricultural Production, Farm Structure and Income in Hungary in the Period of 2004-2006. In *IAAE - 104th EAAE Seminar Agricultural Economics and Transition: „What was expected, what we observed, the lessons learned."*. Budapest, pp. 1–16.

Székely, G., 2017. Face-to-face interview. , p.3.

Szlovicsák, K., 2017a. *Biokultúra Hírlevél - A biogazdálkodók, környezetkímélők és egészségkedvelők tájékoztatója*, Budapest.

Szlovicsák, K., 2017b. Face-to-face interview. , p.4.

Tamás, T., 2014. *A Közös Agrárpolitika költségvetése 2014-2020*, Budapest.

Tanic, S., 2007. *Proceedings of FAO Workshop 2006*, Budapest.

Thakkar, S., 2013. Organic Farming : Advantages , Disadvantages and Future. , 1(2), pp.101–103.

The World Bank, 2014. Agricultural land (% of land area). Available at: http://data.worldbank.org/indicator/AG.LND.AGRI.ZS?end=2014&start=1961&view=chart [Accessed May 26, 2017].

Torjusen, H. et al., 2004. *European consumers' conceptions of organic food: a review of available research*, Available at: http://orgprints.org/2490/.

Tuomisto, H. et al., 2012. Does organic farming reduce environmental impacts? - A meta-analysis of European research. *Journal of Environmental Management*, 112, pp.309–320.

Valente, W.T. & Rogers, E.M., 1995. The Origins and Development of the Diffusion of Innovations Paradigm as an Example of Scientific Growth. *Science Communication*, 16(3), pp.242–273.

Zentner, R.P. et al., 2011. Effects of input management and crop diversity on non-renewable energy use efficiency of cropping systems in the Canadian Prairie. *Renewable Agriculture and Food Systems*, 26(3), pp.208–223.