

SHORT SUPPLY CHAIN KNOWLEDGE  
AND INNOVATION NETWORK

# Technologies

## Innovation Workshop

### In this report on Technologies

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The SKIN Innovation Challenge Workshop on Technologies took place on the 25th and 26th of September 2018 in Sarlóspuszta, Hungary.

The aim was to gather experts, representatives of good practices and consortium partners who can share their knowledge and ideas on innovative challenges in Short Food Supply Chains (SFSCs) within the workshop. The workshop centered around the analysis of the recurrent and emerging issues based on the good practices and other cases examined to draw future scenarios on how innovation on SFSCs could transform Europe's agro-food sector. The goal of the Innovation Challenge Workshop was to generate at least five innovative technology ideas that can be transferred into practice in SFSCs. The first day demonstrated the complexity of the topic with lectures and good practices as examples. The second day focused on the discussion of innovative technology ideas and the challenges behind them (cultural changes, financial difficulties, skills, etc.) among the participants in form of a discussion session (World café).



A **special mini kiwi fruit** (*Actinidia arguta*) plantation was created by Zoltán Lakos in Dabas. This type of kiwi fruits is new on the Hungarian market but consumers are already enjoying them around the world due to having the similar taste as fuzzy kiwis but are hairless and sweeter. The main driver behind their introduction is increased demand for exotic tastes coupled with a unique and healthy eating experience. These little kiwiberries are containing over 20 essential nutrients and a wide range of vitamins. It is one of the richest sources of vitamin C with up to 430 mg/100 g fresh weight (FW) and is considered the richest dietary source of myo-inositol (up to 982 mg/100 g FW).

### What About your Story?

I have come across mini kiwi fruit ten years ago. I have started to grow it as a hobby at home and I have discovered the advantages and the potentials of this fruit on the market. That is why in 2016 I established a plantation as an experiment. **I planted 3600 vines (6 hectares) of mini kiwi fruit from several species in order to find out which species will adapt to the local climate and soil conditions the best.** I have chosen mini kiwi because it does not have natural enemies so I do not have to use pesticides and I can run this plantation as an organic one.



# Mini kiwi fruit plantation

Dabas – Hungary

## Technological innovations: at what price?

There are two types of plant systems that are used to grow mini kiwi fruit. The T-bar trellis system was invented in New Zealand and the pregola trellis system was invented in Russia. In the T-bar system the kiwi vine fruiting canes are tied to wires on top of the cross arm of the posts. In the pregola system the wires not only extend down the row, but also are used as „cross arms“ running perpendicular to the vine rows. I have tried out both methods and at the moment it seems that the T-bar system is the best for my plants. The number and the size of kiwi fruits depend on the good pollination. The pollen of one male flower is sufficient to pollinate about 5 female flowers. In order to ensure good pollination, I use bumblebees. For irrigation purposes I use drip irrigation. In the future I plan to implement ice-nets over the plantation to preserve the quality of the fruit and to optimize the microclimate. It is a challenge to obtain the „organic“ qualification and also to resupply of nutrients in this type of precision farming. The price of the mini kiwi fruit per kilo is around 10-12 Euro in Europe.

## Why choose a short supply chain?

I have chosen the short supply chain because of the characteristics of mini kiwi and the amount of fruit produced on my plantation. This fruit is brand-new on the Hungarian market and we would like to introduce mini kiwi to the consumers first through the short supply chain. Considering the economic and efficiency aspects I believe that the best way to sell mini kiwi fruit is through the short supply chain. In the next few years we are trying to distribute to farmer's markets, organic markets and other short supply chains, e.g. Mr Fruit, where the chain between the consumers and the producers is already established. Given the size of our plantation and the fact that we are collecting the mini kiwi fruits by hand we can only expect profit if we use smaller chains for distribution. I would like to sell my fruits through a website in the future if the consumers are open to it. Currently I am working on the marketing strategy, the development of the brand and the introduction of the mini kiwi to the Hungarian market. The plants will start bearing fruit next and I am looking for solutions how to do the packaging automatically.

My motto is "If your hobby is your job, you never have to work."





In 1989 the **Szomor Farm** was founded in the Kiskunság National Park. In the area of the former state farm, the Szomor family have managed to work out new farming methods that they have been following ever since.

Thanks to the weeding with the grass-seed mixture they have experimented and produced and the undisturbed environment, **the number of bustard stock in the region has increased from 300 to 600 in number.** They opened their meat processing plant with the main profile of processing of Hungarian Grey Cattle meat in Apajpuszta.

The Hungarian Grey cattle was the most sought-after supply of beef during the 17th century. Nowadays it is regaining its old reputation. **By the 1970s the Hungarian Grey was almost extinct.** Thanks to a handful of dedicated breeders and the National Park directorates a several thousand strong stock again grazes the Hungarian puszta. Due to the diverse grasslands of the National Park pastures the beef of the breed is of outstanding quality and Hungarian Grey cattle products are distributed in several countries.

During the winter the Hungarian Grey only eats forage grown on the organic farm thus the beef is devoid of chemicals.

## Szomor Farm

<http://www.szomordezso.eu/>

(Kiskunság National Park – Hungary)

Slaughter and processing of the meat is done locally mostly by hand in the butchery of the farm. During production the meat is carved up into large pieces.

**In the Szomor butchery almost 30 types of salami, sausages and other beef products are produced.**

Base materials such as the paprika (Hungarian pepper) are also grown on the premises thus it is guaranteed that the products are free from chemicals routinely used in the food industry. The salami and sausages are cured for between 60 and 120 days. This procedure coupled with the prime beef of the Grey cattle gives an unparalleled excellent taste to the products.

**The secret of their uniqueness is that in their handicraft products from the first piece of grass eaten by the animals to all the spices added, everything comes from clean, healthy environment.**

All products in the summer butchery bear a phone number that allows customers to get in contact with the registry of the association of the Hungarian Grey Cattle Breeders. By just sending a text message with the ENAR code indicated on the package consumers can make sure that the product they bought is indeed from Hungarian Grey cattle.

The beef of the Hungarian Grey cattle is rather different from intensively bred domestic cattle. It is more like that of venison or wild boar there is a lot less water in its marbled fibrous meat. Hungarian Grey beef guarantees lasting gastronomic experiences.



**Rizikó-Ker Kft.** is a family business in Bugyi since 1995. It was founded by József Proksa and his wife primarily on agricultural products packaging and distribution. Their goal was to supply the Hungarian market with premium agricultural products. They monitor the quality of their products continuously and sell them to Hungarian multinational companies. They have started to grow **a wide variety of potatoes** 8 years ago and this year they hosted the International Potato Exhibition where farmers came from all around the world to watch how the farm works.

### What About your Story?

We decided to grow our own agricultural products due to the increasing number of orders. **Currently we are working on 80-100 hectares and we are working together with other farmers in the area.** We provide the seeds for them and if needed the fertilizers also, and at the end of the season we buy and package their products. **Annually we sell about 10 000 tons of products.** We sell yellow and red potatoes, onions, cabbages (green, red, savoy) and also cauliflowers in all kind of package sizes.



# Rizikó-Ker Kft.

Bugyi – Hungary

## Technological innovations: at what price?

We always try to use the newest technologies on our farm. We have modern power machines, sprayer machines and we have just bought new machines for harvesting and soil preparation. In addition we installed a micro irrigation system across our whole plantation. We would like to continue developing our farm since **it is important to keep up with technology innovations**. As for packaging we try to always use the newest packaging technologies since we would like to fulfil consumer needs and expectations. Currently we are trying to install a new automated washing machine.

Investing is always tricky but **we invest only if we are sure that the investment will be profitable**. Then we use that profit for new investments, for example buying new areas in order to expand our farm. Currently we own only 30% of our plantation area and we would like to increase that percent.

## Why choose a short supply chain?

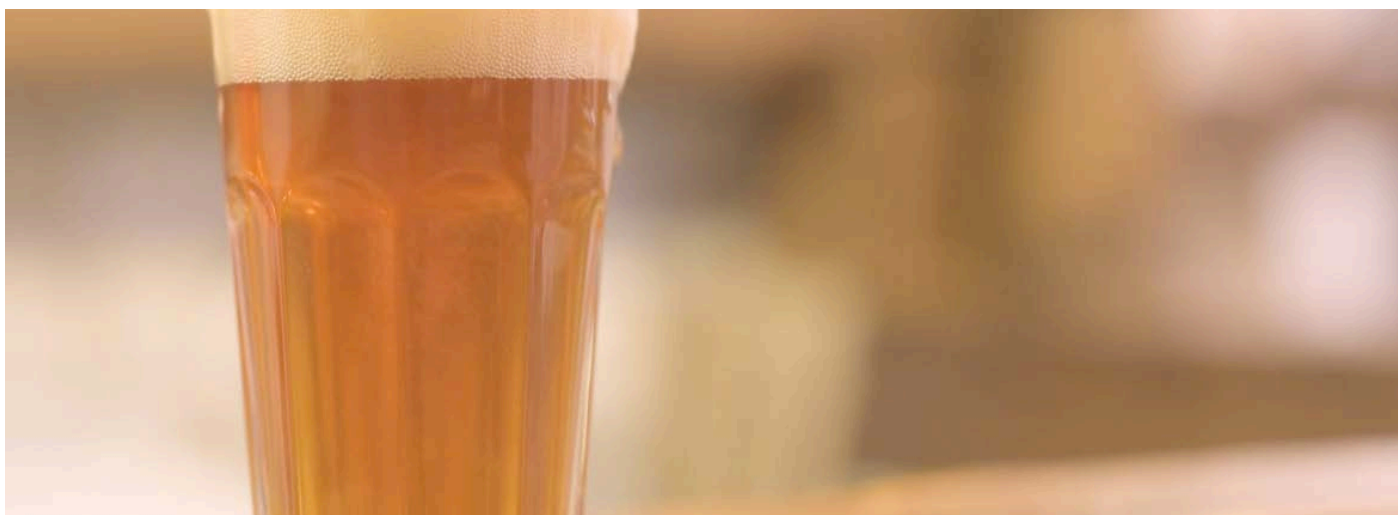
We would love to sell our products directly to the consumers however, according to our experience, it is not possible for one producer to fulfil every consumer needs. Some consumers want smaller packages, others like bigger packages. Not every consumer wants the same type of vegetables either. **It is hard to organize your farm to adapt to these different needs**, so we have chosen to sell our products to multinational food chains because more products can be sold to these chains and a multinational company has the capacity for that. This was not an easy choice, but in Hungary it is the only way to make a living from agriculture.

Just think about it, if we were selling our products on smaller markets, we would have to raise our prices by 70%. On the other hand, the multinational companies will have the same, lower prices. And that is what most consumers prefer. As I can see **in Hungary the consumers do their shopping based on price not quality**. They usually chose the cheaper products and it does not matter to them if the quality is a little lower.

My motto is "There is no unsolvable task"







The owners, Gabriella and Zsolt both love gastronomy and as result of the local craft beer revolution they decided to enroll in the course of professional brewer at Corvinus University of Budapest. They finished their studies in 2015 and established Áperte Brewery in early 2016. Their dream was to open up their own brewery and create craft beers that will warm up everybody's heart. One of their beers, names "First Kiss" (a light lager type beer made from wheat malt with an alcohol content of 5.8%) was nominated to be **"The beer of Hungary"** in 2017.

### What About your Story?

We are a small company in the region (marketing circa 10 000 – 15 000 hectolitres of beer / year) and at the moment we have two premium types of beer (a lager type beer and a dark wheat beer), but we are planning to extend our product range with some new types of beer.

At the beginning our priority was to invest in a full new craft brewery technology but very soon we realized the difficulties of this type of full scale investment.



# Áperte Brewery

## Ujhartyan – Hungary

Due to the lack of financial sources, we decided that in the first phase we only go for the "toll-brewing" model which is the following: we create/develop beer formulas by our own at home, and by contracting with a specific craft brewery we make these formulas toll brewed/produced in large volume, buy the beer back and we do the commercial activity of the produced beer.

## Technological innovations: at what price?

**An investment of high level assets with capacity of yearly 200 000 litres is circa 250 000 Euro,** not including the start up cash for packaging material, raw materials and marketing and promotional expenses. In total, depending on the commercial model, it can easily reach 300 000 Euro. The **payback period** and breakeven is at around 250 000 – 300 000 litres in 3 – 3,5 years and surely the market and the competitive situation highly affects it.

## Why choose a short supply chain?

**Our commercial channels are: local restaurants, beer pubs, some seasonal events in the nearby, direct company events and some special craft beer shops. Producing local is challenging in this sector.**

The four basic ingredients for beer are water, malt, hops and yeast. Major source of malt of Hungarian breweries is an import mainly from Germany and Czech Republic. Moreover, no hop plantation exists in Hungary. There is an initiation among local small breweries to start a plantation together on which the ingredients can be produced. Dominantly the hop used both by the large industrial beer factories and small craft breweries are import mainly from Europe and USA. Yeast is also 99% import. We see improvement in malt and hop sourcing but it surely will take several years when the local supply reach at least a considerable ration in total usage.

My motto is "Áperte – Purely, Honestly."



The **Deák Mansion** is a romantic forest country house in Kakucs. It was founded by the Deák family with the goal to establish a traditional center together with an accommodation unit of high standards. They took into consideration the opportunities of the surrounding area and combined the wisdom of the folk tradition with the expectation of the modern world.

They received funding through LEADER with the support of the Local Action Group (LAG). In the rural development context, LEADER is implemented under the national and regional Rural Development Programmes (RDPs) of each EU Member State, co-financed from the European Agricultural Fund for Rural Development (EAFRD). The total budget was 412 706 EUR from which EAFRD provided 176 712 EUR to improve the quality of life in rural areas and diversification of the rural economy and also to encourage the tourism activities (project duration DEC 2009 – DEC 2014).

The Deák Mansion is made-up of a country house with an entrance porch, a small Tulipános (Hungarian traditional house type) farmhouse, an animal petting zoo, an oven courtyard, an outdoor kitchen and a pond that is in between these buildings. The animals and the pálinka (typical Hungarian shot drink) cooking is part of the farming. Those who walk to the "old farm" will see a miracle: Mangalitzas, pygmy goats, Racka sheep, turkeys, peacocks, and hens can be seen. The animals are grown and fed by the family.

## Deák Mansion (Kakucs – Hungary)

<http://deakudvarhaz.com/>



**World Café** is an interactive and participatory event for collaborative dialogue and knowledge sharing to create a living network of ideas, conversation and action.

The World Café of this workshop centered around the discussion of the challenges that the SFSCs faces and the innovative technology ideas that could provide solutions to some burning problems in the SFSCs, and can be transferred into practice.

The goal of the discussion session was to generate at least five innovative technology ideas that can be transferred into practice in SFSCs.

**The topics of the SKIN World Café include:**

Primary processing

Production

Distribution, logistic

Consumer information – from consumers and to consumers

# SKIN – World Café

## Workshop

## Lack of information and knowledge when it comes to consumers/customers

The participants of the workshop suggested the following solutions to the problem:

- **Consumer friendly labelling**
- Organizing events where consumers/customers can meet with farmers/producers (**open days at schools, forums at farms/factories, harvesting festivals, etc.**);
- Using local channels to share information/knowledge (**farmers' markets, organic markets, restaurants, cafés, etc.**).

As a result consumers will have a better understanding on food products that they buy and consume. It is important for SFSC in order to **develop trust** in consumers/customers, to provide different channels for consumers/customers, to attract new consumers/customers and to establish a closer relationship between farmers/producers and consumers/customers. To tackle this problem some social innovations and learnings are needed. We should start the education in schools (future consumers/customers) and we should include the farmers in this educational process by seeking their cooperation. There are always obstacles and in this case **the absence of marketing tools, engagement** and lack of interest from consumer side are needed to overcome. After overcoming these obstacles we can expect increase in sale, more conscious buyers, rural development, improvement of food quality, healthier life-style and improvement in nutrition as benefits.



## Lack of collaboration (vertical and horizontal), lack of experience and willingness to collaborate

The participants of the workshop suggested the following solutions to the problem:

- **Training** (collecting and presenting best practice solutions as examples);
- **Funding collaborations** (R+D grants, collective processing)
- **Funding technology adaptations** (support with grants to develop and deploy new technology demonstrations, pay by use – service).

As a result the sharing of technology knowledge will speed up, the economy will grow and there will be more opportunities for start-ups to get started and grow.

It is important for SFSC in order to new opportunities arise as smaller producers are currently short on knowledge, information and funding.

The rest of details (social aspects, obstacles, benefits) were not worked out during the world café.



# Choosing optimal distribution channels for producers/farmers and consumers/customers

The participants of the workshop suggested the following solutions to the problem:

- **Better cooperation** of farmers/producers (online platforms);
- Using **channels** for distribution that already exist (e.g. post);
- **Re-use of packaging** (compare the cost with one-use packaging).

As a result new consumers and markets will appear and the cost of distribution will decrease. It is important for SFSC in order to up-scale. To tackle this problem some social innovations and learnings are needed. We should promote **local distribution** and we should teach consumers/customers to appreciate the freshness and safety of local products. There are always **obstacles** and in this case legislation, time efficiency, traffic jams, transport of fresh products (keeping appropriate environment) and structure of cooperatives (not flexible) are needed to overcome. After overcoming these obstacles we can expect cost efficiency, new customers/markets, higher margins for producer and keeping quality of food products as benefits.

Contacts, examples, references for further information: <https://www.bringme.com/> (Belgium), Pick-drive-deliver (Belgium), Use of post service for transportation (Austria), <https://www.boerschappen.nl/> (Netherlands), <https://www.goeieete.nl/> (Netherlands), <http://www.deplukheyde.be/> (Belgium), <https://www.skizeno.cz/> (Czech Republic), <http://freshfromthefarm.be/> (Belgium), <https://www.pajottenland.be/2010/> (Belgium), <https://veddegyutt.hu/#/> (Hungary), <http://juhas-dp.cz/> (Czech Republic), <https://www.olejebartos.cz/> (Czech Republic) , <https://laruchequiditoui.fr/fr> (France), <https://boerenenburen.be/nl-BE> (Belgium).



## Lack of trust when it comes to the origin of product (producer)

The participants of the workshop suggested the following solutions to the problem:

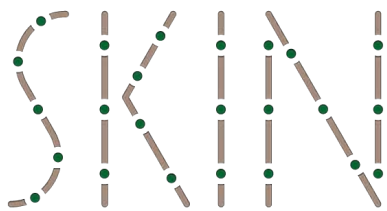
- Organization of **farm visits** (videos, signs), harvesting festivals, concerts at farms;
- **Tags** on products
- **Certificates** (trusted and well-known among consumers/customers).

As a result consumers/customers will receive the information about the products personally and they will develop trust towards farmers/producers if they see with their own eyes how the plants are grown (with or without pesticides), how the animals are kept (well-fare) and how the whole plantation or farm is working. By placing tags and symbols of certificates on products consumers can check themselves the origin of the products and that will develop trust in them. It is important to provide evidence about the products in order to increase trust in consumers/customers. To tackle this problem some social innovations and learnings are needed. We should learn how to communicate with consumers/customers (what /where/ how to tell) and it is new to farmers/producers. They **need new skills** and they can only gain these skills through education from experts on communication. There are always obstacles and in this case the lack communication, the lack of trusted and well-known certificates and the limited capacities of farmer/producers (time to communicate with consumers/customers) are needed to overcome. After overcoming these obstacles we can expect more profit, and as a result more investments and improvements will be possible as benefits. Furthermore, a positive feedback loop will be formed between farmers/producers and consumers/customers and as a result the trust will improve. The market will also be expanded and the farmers/producers can build up and focus on a clearer profile in the market and distinguish themselves from competitors.

Contacts, examples, references for further information: Origin green (Ireland) <https://www.origingreen.ie/>







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# Technologies

## Innovation Workshop



The SKIN Workshop about "Technologies" was organised by CBHU, with the strong collaboration of L&F, Biosense, Collison, WirelessInfo and all project partners

