



TAKING  
**COOPERATION**  
FORWARD

 I-CON Training Academy for I-CON facilitators  
Treviso | 20-22 March 2018

 **Mechatronics training section -  
presentation of Völgység Kincse Good Practice**

 STRIA - South Transdanubian Regional Innovation Agency | Zsolt PÁLMAI - 20 March 2018 17:30

# TRADITIONAL MACHINERY WITH IT SUPPORT IN SERVICE OF RURAL FRUIT AND VEGETABLE PROCESSING

INTRODUCTION  
OF VÖLGYSÉG  
KINCSE SOCIAL  
COOPERATIVE

THE DILEMMA  
BEHIND THE  
PRODUCTION  
TECHNOLOGY

THE  
TECHNOLOGY  
PROCESS AND  
MACHINERY IN  
USE

RELEVANCE OF  
THE  
TECHNOLOGY  
FOR RURAL  
AREAS

TECHNOLOGY  
RELATED COSTS,  
NOVELTIES,  
BENEFITS, ADDED  
VALUES



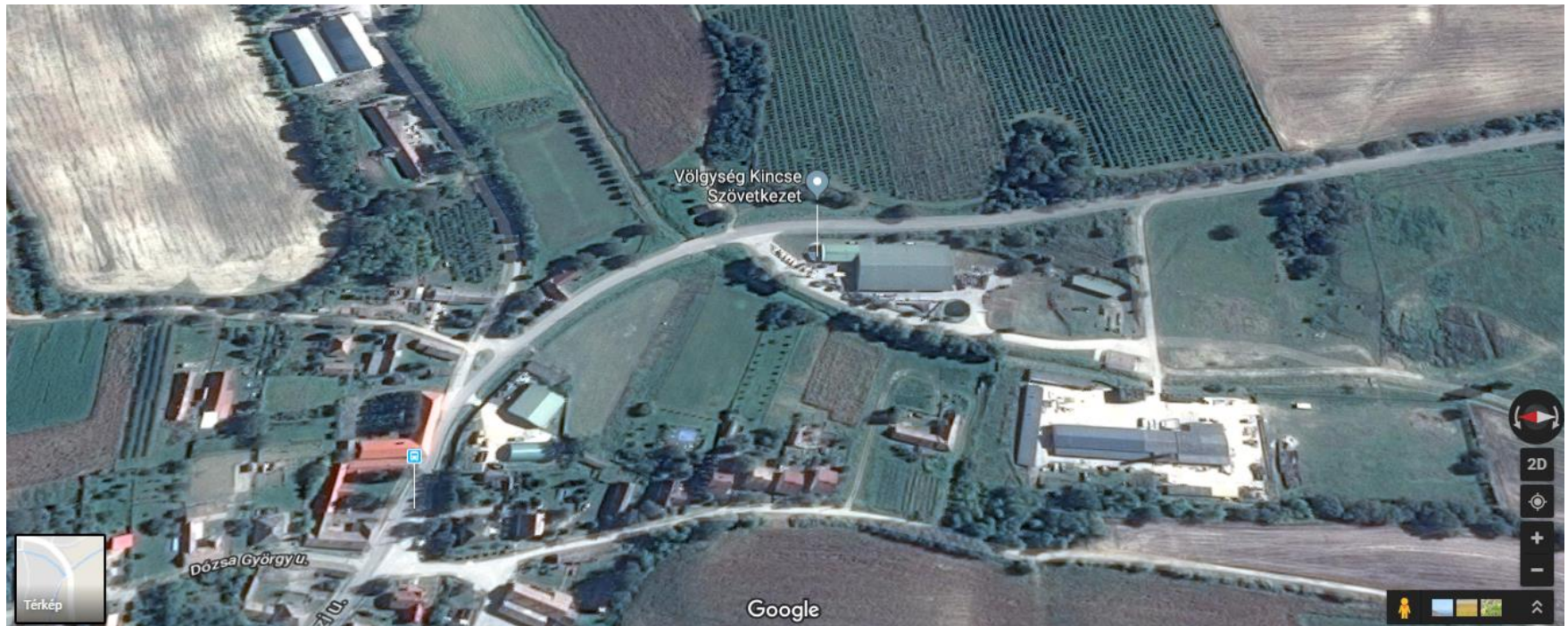
# TRADITIONAL MACHINERY WITH IT SUPPORT IN SERVICE OF RURAL FRUIT AND VEGETABLE PROCESSING

## INTRODUCTION OF VÖLGYSÉG KINCSE SOCIAL COOPERATIVE



# INTRODUCTION OF VÖLGYSÉG KINCSE SOCIAL COOPERATIVE

- *Völgység Kincse Social Cooperative* is a **fruit and vegetable processing food industry company** based on traditional rules and economic operation models of cooperatives.



- The cooperative is *located* in the East-Mecsek Hills and at southern parts of Tolna county, **at Kisvejke, in Hungary.**



# INTRODUCTION OF VÖLGYSÉG KINCSE SOCIAL COOPERATIVE

- **Main activities:** fruit/vegetable processing/pressing for its members and for third parties based on external contracts, manufacturing of own products and selling those, also retailing further (non-food) local handcraft products of the Völgység sub-region.

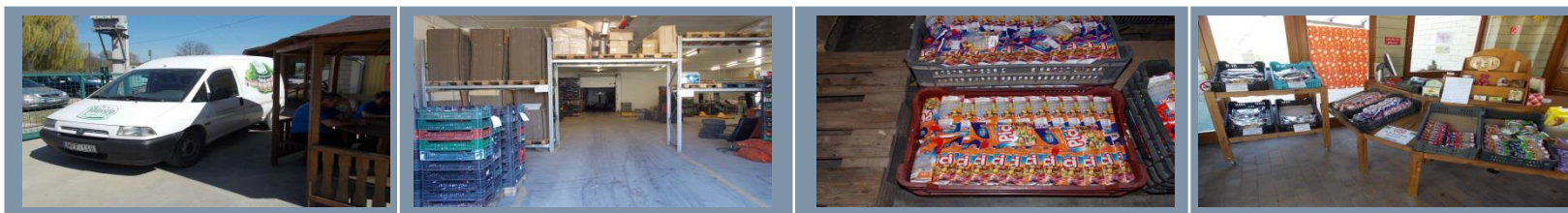


- **Main products** of the cooperative are apple, apricot, pear, cherry, sour cherry, carrot, beetroot, buckthorn, herbs fruit, vegetable, fruit-vegetable juices made with 100% pure fruit/vegetable content, without using any preservatives or additives.
- The **raw material of these products** are cultivated and harvested at different local farms and plantations at a cumulated size of 300 hectares. Main markets of Völgység Kincse products are domestic: the main Hungarian cities (Budapest, Győr, Miskolc, Pécs), and occasionally foreign markets.



# INTRODUCTION OF VÖLGYSÉG KINCSE SOCIAL COOPERATIVE

- *The fruit and vegetable processing started in 2012.* The building of the cooperative works has **processing, office, local retail shop and storage units.** Physically attached to these there is a **cold store of fruits and vegetables.**



- Cooperative operates in *peak agricultural periods* and production **lasts** long after that, typically **until March-April of the forthcoming year.**
- *The cooperative is of social nature*, it is enhanced to support the local unemployed or those people who are in disadvantaged social situation. **The provision of the local workforce**, beside the mentioned motivations, is **still challenging.** On the very first recruiting event from 22 people **seven** were **chosen** who were equally motivated and skilled as well. These colleagues were **further trained** on fruit processing, refrigeration industry skills and knowledge on different herbs.



# TRADITIONAL MACHINERY WITH IT SUPPORT IN SERVICE OF RURAL FRUIT AND VEGETABLE PROCESSING

## THE DILEMMA BEHIND THE PRODUCTION TECHNOLOGY



# THE DILEMMA BEHIND THE PRODUCTION TECHNOLOGY

- *The production line in operation* at Völgység Kincse is at the same time **traditional and of handcrafted nature**.
- The *first stage* is **selection and cleaning**. The *following* phase is **pressing**. *The next* to come is **pasteurizing**. The process is *closed with* **packaging in bag in box, sleeve pockets or jars**.
- *The technological line*, despite being very simple, is **controlled by a central IT module** which registers the raw material, production, final product flows, is also able to keep track of the energy consumption, and take account of the stock of products for selling at the retail shop or by further channels.
- The *big dilemma* is that **production has reached its current capacity limits, preventing introduction of further pressed food products**. Continuation has three ways: **a) enzymatic treatment** (the cooperative in technical terms did not see its value added); **b) purchasing new production area, new fruit press machine, new containers** (additional 129.000,00 EUR investment), **c) deployment of the quality measuring lab** (at a cost of 48-80 thousand EUR) to measure healing impacts and organoleptic values of current and further herb juices could be measured.



# TRADITIONAL MACHINERY WITH IT SUPPORT IN SERVICE OF RURAL FRUIT AND VEGETABLE PROCESSING

## THE TECHNOLOGY PROCESS AND MACHINERY IN USE



# THE TECHNOLOGY PROCESS AND MACHINERY IN USE

- The *social nature of the cooperative* also defines the type of **technology** in use: it **should be easy to use, clean and maintain at the same time**.
- Regarding the availability of high quality raw materials of fruits-vegetables, *special juice recipes were developed* by the assistance of **Toldi Miklós Food Industry Vocational School at Nagykőrös, South Great Plain region**.
- Finally *the Voran (from Austria) technology was chosen* to be operated. This is made up of **one elevator with pivoting centrifugal mill, one packing press with rotary cage**. Following comes the **heat treatment** of the fruit/vegetable juice using **530 liters container**, and the **packaging (Voran bag in box) machine** closes the line.
- Also, *further* **containers, fruit cleaning tables** were ordered to be manufactured by local companies for the smooth operation of the manufactory.



# THE TECHNOLOGY PROCESS AND MACHINERY IN USE

The elevator-centrifugal mill (left)

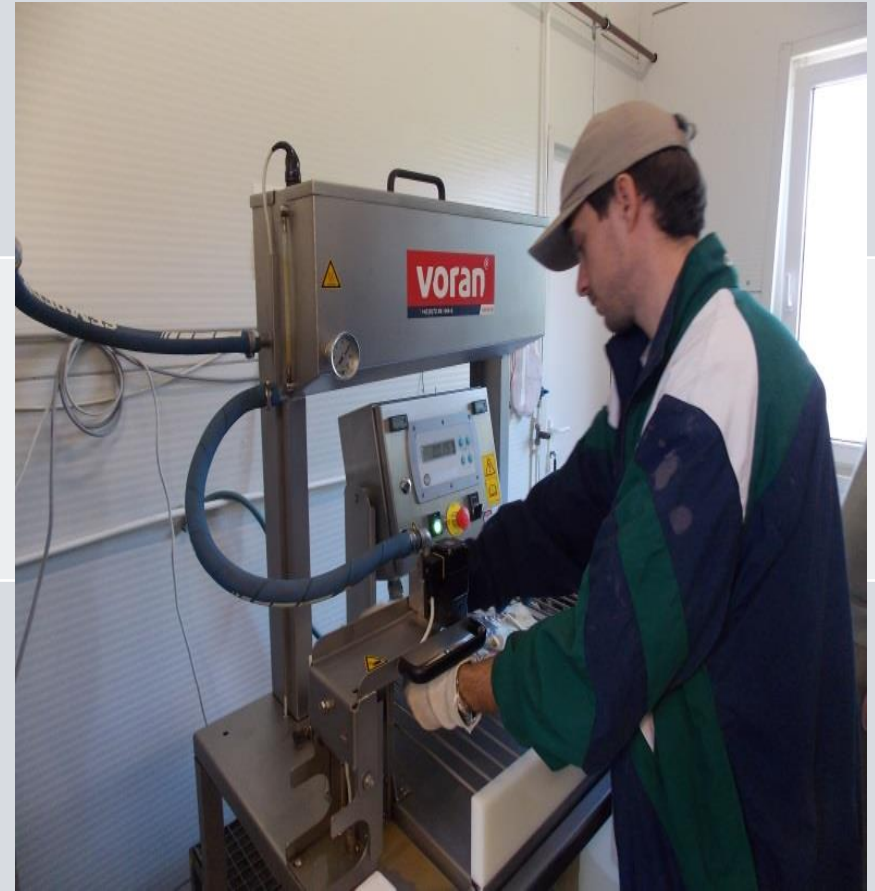
Packing press (right) at the manufactory



# THE TECHNOLOGY PROCESS AND MACHINERY IN USE

The pasteurizing unit (left)

Bag in box packaging unit (right) at the manufactory



- *The fruit/vegetable pulp in some cases is used to make marmalade/jam from that, using a **Kreuzmayr filling machine (made in Austria)**. The filling machine is used optionally for filling in jars with fruit/vegetable/mixed juices as well.*

## Kreuzmayr filling machine at the cooperative



# TRADITIONAL MACHINERY WITH IT SUPPORT IN SERVICE OF RURAL FRUIT AND VEGETABLE PROCESSING

## RELEVANCE OF THE TECHNOLOGY FOR RURAL AREAS



# RELEVANCE OF THE TECHNOLOGY FOR RURAL AREAS

- *The two brands of machines* in use at Völgység Kincse Social Cooperative are to be regarded as **modern, easy to use assets for fruit/vegetable juice production**, at a **reasonable purchase price** and **operational costs in rural communities**. The purpose is selecting, cleaning, milling, pressing, pasteurizing and packaging fruit/vegetable juices. In case of Kreuzmayr filling machine the need of filling small size jars, bags (30 cts) were also risen. Also, for the **Kreuzmayr filling machine and additional filter should be needed as the liquid and the solid (pulp) phases are separated at the moment**. Customers prefer that juices contain the two consistency together when consuming fruit/vegetable juices.
- *In case of smaller size fruit/vegetable juice producers the technology is widely in use: at 80% of such companies/cooperatives*. If the objective/nature of the production is to offer **handcrafted fruit/vegetable juices**, **Voran packing press technology is advised** to be used. The Voran belt press technology is proposed to be used when less human workforce is to be used at a company. The disadvantage of the belt press technology is that it does not press the fruits that strong and as a consequence of that the end product will have different taste with the identical fruit content.



# RELEVANCE OF THE TECHNOLOGY FOR RURAL AREAS

- There is *no special circumstance or condition for using the Voran-Kreuzmayr technologies*. Among **normal operation conditions** at food industry companies, respecting the hygienic conditions it is advised to be applied. It could be considered as obvious, but the **machines in use should be (as those are) resistant to fruit acids**.
- In the particular case of Völgység Kincse Social Cooperative the so called *global gap quality assurance system is at use*, which supports the **farm to fork approach, namely that every phase between the starting and the ending point of the production is controlled**. The **Voran and Kreuzmayr technology fits into this** quality assurance system. In Hungary the relevant HACCP rules in force are applied at the Kisvejke manufactory as well.
- *The basic prerequisite is the existence of manufactory with HACCP compliant operation*, also applying the human and food security regulation in force in Hungary.



# TRADITIONAL MACHINERY WITH IT SUPPORT IN SERVICE OF RURAL FRUIT AND VEGETABLE PROCESSING

## TECHNOLOGY RELATED COSTS, NOVELTIES, BENEFITS, ADDED VALUES



# TECHNOLOGY RELATED COSTS, NOVELTIES, BENEFITS, ADDED VALUES

- *The Voran-Kreuzmayr technology used* at the manufactory was an **investment at 40 million HUF (129.000,00 EUR) cost**. At present the manufactory, the retail shop of the cooperative, the informatics used, the digital stock inventory and the inventory management is integrated into an intelligent IT system. **Stock data, energy consumption, operational costs, etc. are regularly recorded and are available for further later use/analysis.**
- *The monthly operational costs of the manufactory* itself are as the cost types and gross amount of financial data below:

<i>rental cost of the premises</i>	<i>38.000, HUF (122,00 EUR)</i>
<i>electricity used</i>	<i>38.000, HUF (122,00 EUR)</i>
<i>industrial water used</i>	<i>35.000, HUF (112,00 EUR)</i>
<i>sewage canalization and treatment</i>	<i>35.000, HUF (112,00 EUR)</i>
<i>cost of commercial bank services</i>	<i>20.000, HUF (64,00 EUR),</i>
<i>accounting (for salaries as well)</i>	<i>40.000, HUF (129,00 EUR),</i>
<i>in terms of salaries and not mentioned further costs</i>	<i>no information available</i>



# TECHNOLOGY RELATED COSTS, NOVELTIES, BENEFITS, ADDED VALUES

- *Benefits of the technology used* at Völgység Kincse is that it is affordable, operational costs are at a rational level and the whole system **provides for spillovers in terms of local employment and processing of the locally cultivated and harvested fruits and vegetables.**
- *The only drawback* is that at the **Voran pasteurizing unit the filter quite often clogs**, though an ideal composition of the juices contains liquid and solid (pulp) elements as well.
- *The applied technologies* have I-CON **related values added** in terms of:
  - improving quality assessment,
  - contributing to compliance with regulations, and to
  - user information, satisfaction and reaction (through Völgység Kincse homepage).



# TECHNOLOGY RELATED COSTS, NOVELTIES, BENEFITS, ADDED VALUES

- *The EXCELLENT PRODUCT OF THE YEAR 2017 PRIZE* was awarded for the **apple juice** of Völgység Kincse Social Cooperative.



<https://volgysegkincse.hu/>





Zsolt PÁLMAI  
South Transdanubian Regional Innovation Agency  
I-CON



palmaizsolt@ddriu.hu



+36 30 334 7741



[I-CON Project - Interreg Central Europe](#)



<http://www.interreg-central.eu/Content.Node/I-CON.html>

