

# Innovation in Horticulture - the answer to the challenges of the near future

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# Biggest challenges in nearest future:

- Weather conditions
- Lack of labor
- Prices
- Professional education



# Weather conditions are not predictable

2017 very rainy autumn



# Weather conditions are not predictable

2018 very dry and hot summer



# Weather conditions caused problems

A lot of pests and weeds, but very short list of allowed plant protection products



# What can we do?

Nets and mulch can help  
against cold and weeds



# What can we do?



Growing of pumpkins from  
youngplants in farm «Kliblapsas»  
for more assured yield

Photo: «Kliblapsas»

# What can we do?



Early potatoes under nets in Bauska district

# Very helpfull is irrigation



# Irrigated cabbages in Trikata 2018



# Irrigation protects plants and flowers from frost

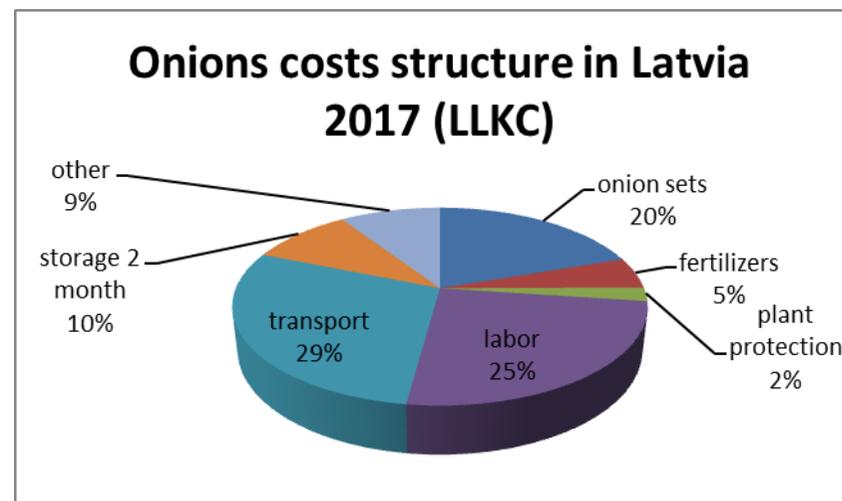
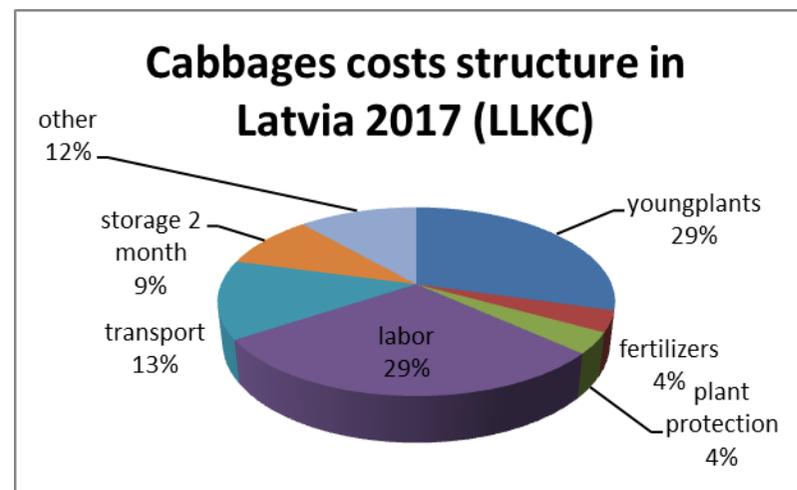
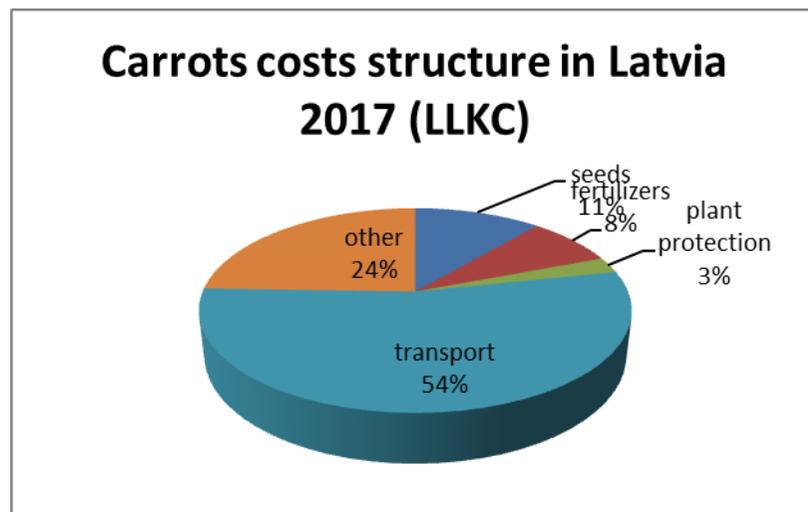


Strawberries fields in farm  
«Mālpils zemeNes» 2017

# Drip-irrigation on cucumbers fields in Bauska



# Prices are low, but costs are rising, what can we do?



Most important costs` positions are labor and transport

# Lack of labors is biggest problem in horticulture in all the world

The only answer is mechanisation



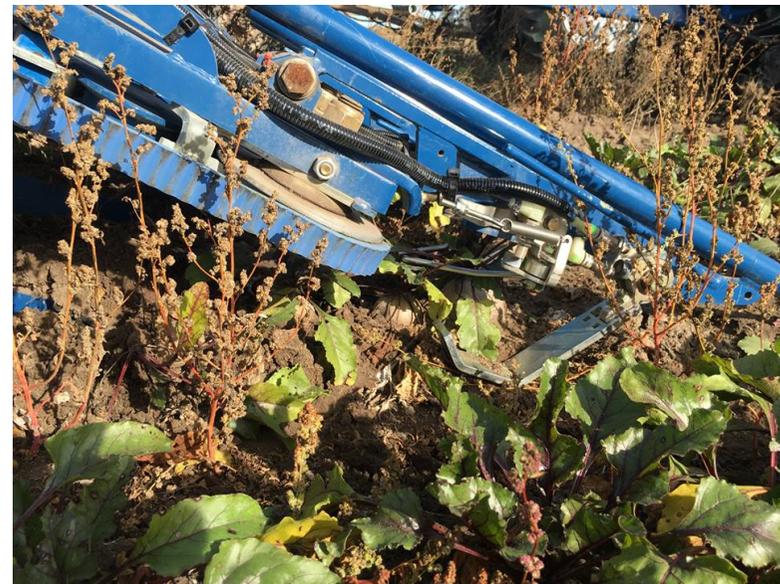
Harvesting of cucumbers in farm «Neil»

# The only answer is mechanisation



Harvesting of red beets with  
Asa-Lift in farm «Tiečas»

Photo: «Tiečas»

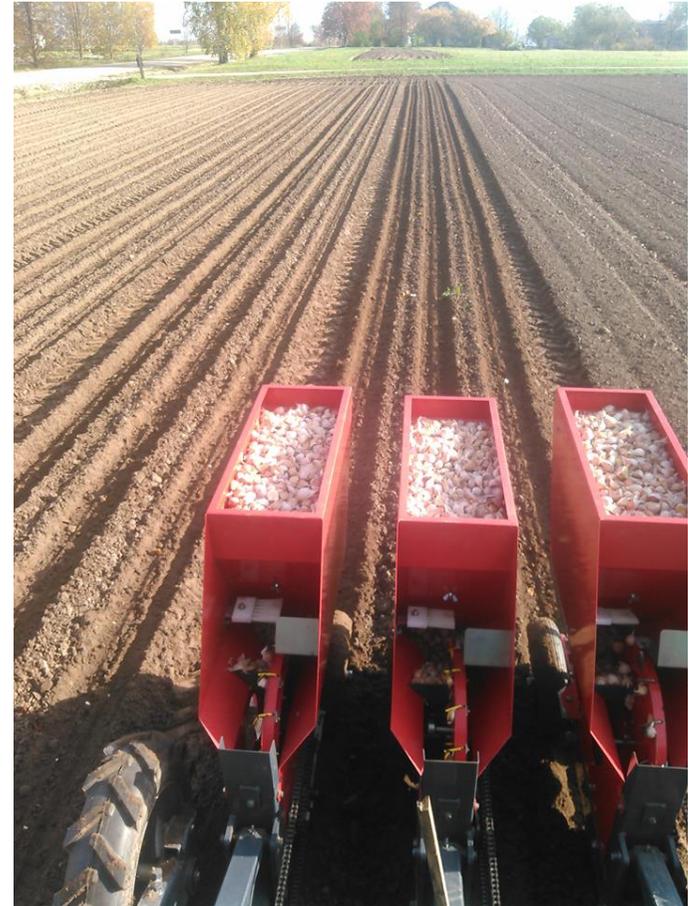


# The only answer is mechanisation



Garlic planting in farm «Kalnavīteri»

Photo: «Kalnavīteri»



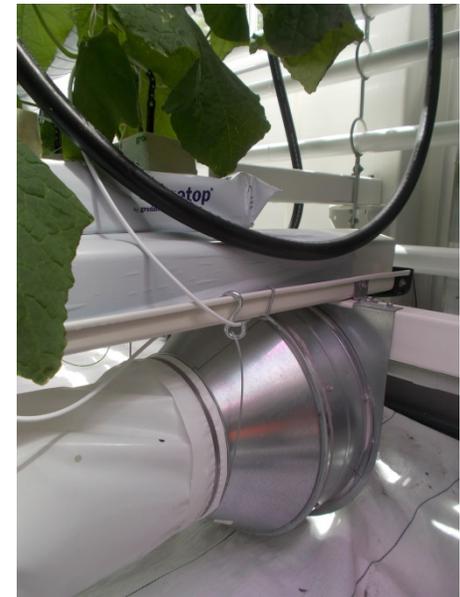
# More productivity per 1 working hour



In modern glasshouses yield is higher.  
With artificial lighting is possible to produce all year round.



# Full-led glasshouse in farm «GetliņiEko»



Heat recuperation sistem

# Cold storage helps extend shelf-life and minimizes losses in big and small enterprises



Farm «Mālpils ZemeNes»



Farm «Kāpostnīca»

# Some crops need warm storage



- Pumpkins are very popular, but need warm storage ( $>12^{\circ}\text{C}$ ).

Photo: «Kliblapsas»

# What about organic?

Organic fruits and vegetables are going popular in all Europe, but there are some problems:

- High production costs
- Lower yield
- Competition is high

In Latvia small farms work on local market with short supply chain



# Professional education



We need high skilled professionals, but only few.  
We need new educational methods.

# Short term courses for growers, webinars

Profesionālās pilnveides KURSI

## DĀRZENĀKOPIBAS PAMATI

VIETA: Bulduru Dārzkopības vidusskola, Viestura iela 6, Jūrmala.

SĀKUMS: 2018. gada 13. janvārī. Pilns kurss 160 stundas (20 nodarbības).

MAKSA: 500 EUR par pilnu kursu (maksājumu var dalīt), iespējams apmeklēt atsevišķas nodarbības, maksa par vienu nodarbību 30 EUR.

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**Programma:**

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- Augu aizsardzība. Kaitēkļi un slimības, to ierobežošanas iespējas.
- Siltumnīcas. Lecekļis.
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Optimizing Quality - Haifa U Webinar



Hoofdstukken

- Welcome
- Introduction
- Content
- Cation supply**
- Uptake of cations
- Quality in relation to calcium
- Quality in relation to magnesium
- Quality in relation to potassium
- Quality in relation to sodium
- Conclusions
- Questions? Thanks for you attention

Change of one cation in experiments and trials

- The dilemma of nutrient solutions
- either
  - increase EC / osmotic pressure
  - shift in cation ratios

WAGENINGENUR  
For quality of life

13:39 / 1:01:47

## **Conclusions:**

- Innovations are only possibility to answer challenges, but innovations are expensive
- We should make innovations step-by-step keeping eye by costs and prices development
- Education and information can help to compete on market

Thank you for your attention !

