

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

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Pärnu, 01.11.2018.

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

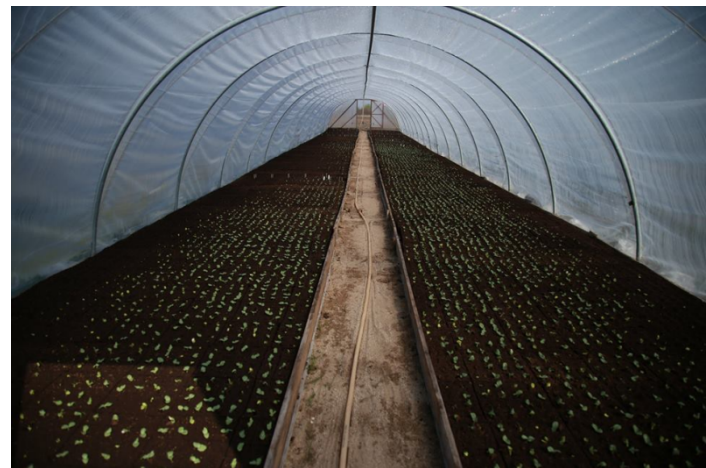


What can we to do?

Nets and mulch can help
against cold and weeds



What can we to do?



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

Photo: «Kliblapsas»

What can we to do?



Very helpfull is irrigation



Irrigated cabbages in Trikata 2018



Irrigation protects plants and flowers from frost



Strawberries fields in farm
«Mālpils zemeNes» 2017

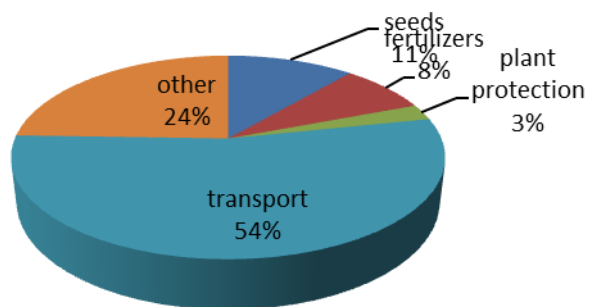


Drip-irrigation on cucumbers fields in Bauska

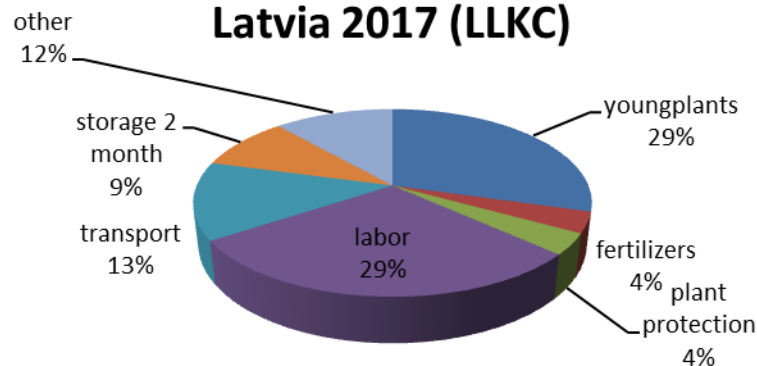


Prices are low, but costs are rising, what can we do?

Carrots costs structure in Latvia 2017 (LLKC)

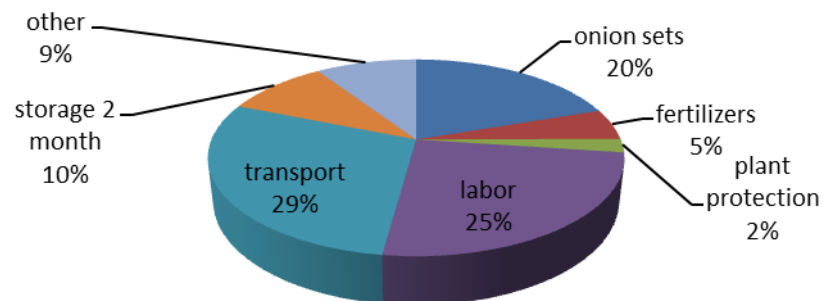


Cabbages costs structure in Latvia 2017 (LLKC)



Most important costs' positions are labor and transport

Onions costs structure in Latvia 2017 (LLKC)



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»

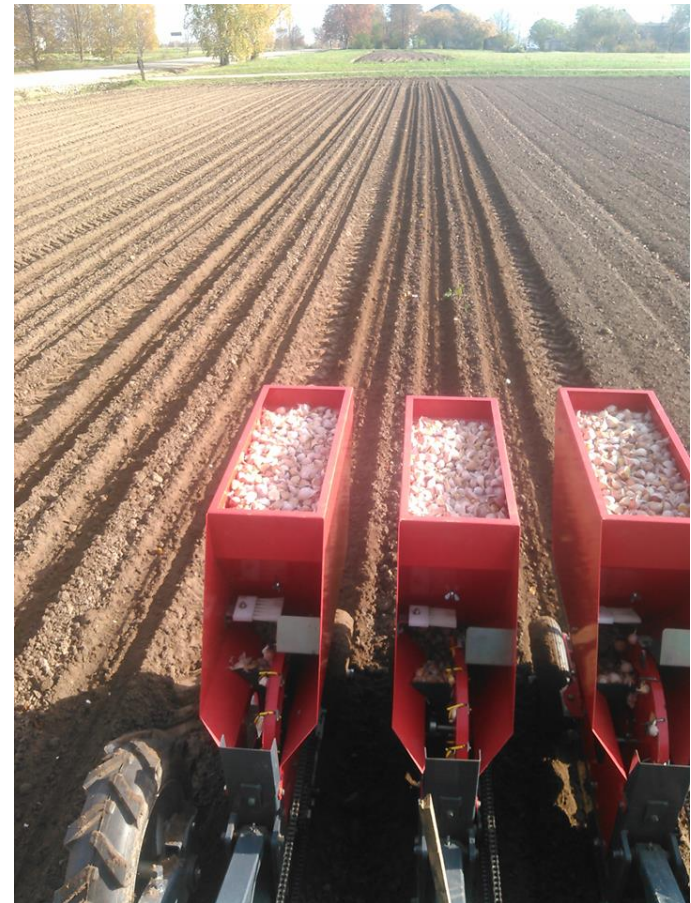


The only answer is mechanisation



Garlic planting in farm «Kalnavīteri»

Photo: «Kalnavīteri»



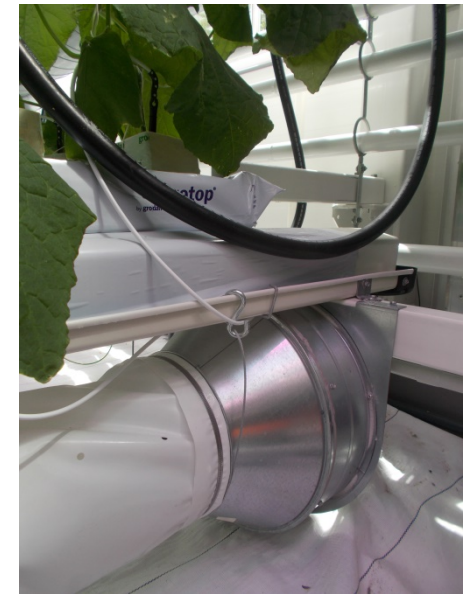
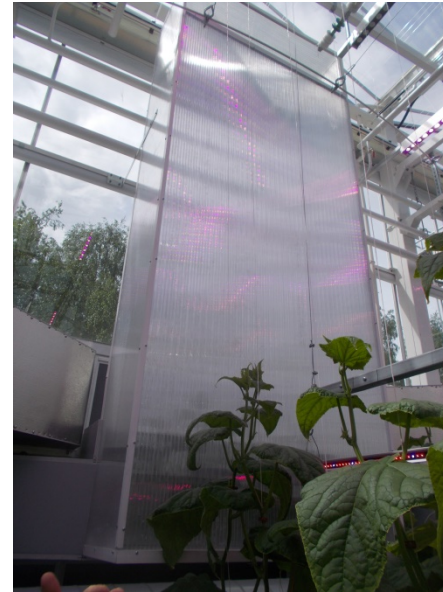
More productivity per 1 working hour



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



Full-led glasshouse in farm «GetlinEko»



Heat recuperation sistem

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



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.

LEKTORI: Bulduru Dārzkopības vidusskolas pasniedzēji un nozares profesionāļi.

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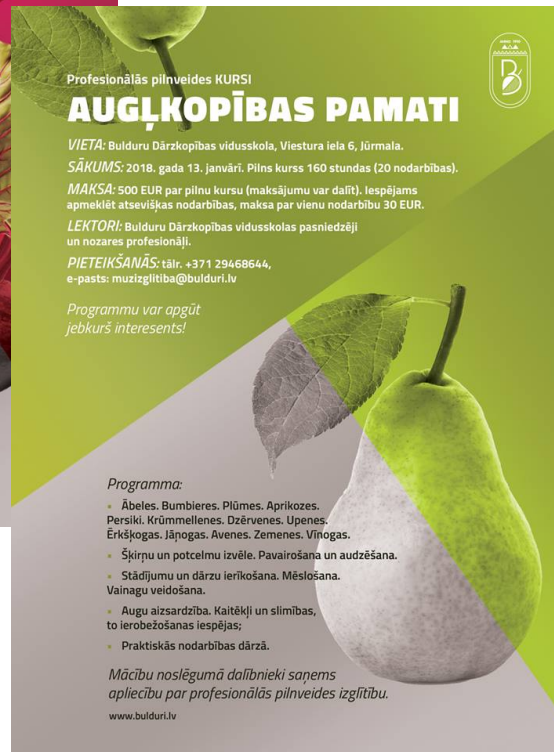
Programmu var apgūt jebkurš interesents!

Programma:

- Kāpostaugi. Sakņaugi. Sīpolaugi. Zāļumi. Tomāti. Pipari. Gurķi. Garšaugi.
- Sēklu un šķirņu izvēle.
- Pavairošana. Audzēšana un kopšana. Laistīšana. Mēslošana.
- Augu aizsardzība. Kaitēkļi un slimības, to ierobežošanas iespējas.
- Siltumnīcas. Lecēktis.
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- Šķirņu un potcelmu izvēle. Pavairošana un audzēšana.
- Stādījumu un dārzu ierīkošana. Mēslošana. Vainagu veidošana.
- Augu aizsardzība. Kaitēkļi un slimības, to ierobežošanas iespējas.
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Optimizing Quality - Haifa U Webinar

Change of one cation in experiments and trials

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

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

WAGENINGEN UR
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 !

