Vuodesta 1919
KAUPPAPUUTARHALIITTO RY

Euroopa Maaelu Arengu Põllumajandusfond: Euroopa investeeringud maapiirkondadesse

Glasshouse industry in Finland

Finnish Glasshouse Growers' Association
Niina Kangas

- Greenhouse production in Finland
- Sustainability of Finnish greenhouse production
- Challenges
- Consumer trends?

Kauppapuutarhaliitto ry

Finnish Glasshouse Growers' Association

- Founded in Helsinki 1919
- 300 member companies in Finland
- Office in Helsinki
- Funding
  - Member fees
  - Promotion of products
  - Puutarha&kauppa, trade magazine
  - Lepaa, trade show in August

The core of Kauppapuutarhaliitto is ensuring the future of greenhouse growing in Finland

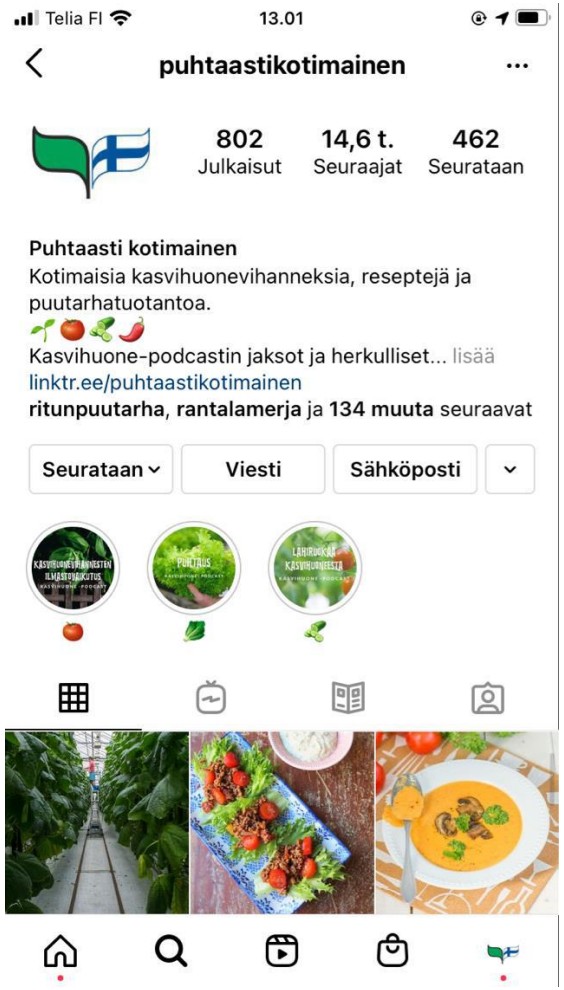
”Following the society and politics and influencing to them.”

Puutarha&kauppa -trade magazine covers the whole horticulture industry

Promoting Finnish greenhouse products under Sirkkalehti-brand. Funded by the growers.

puhtaasti kotimainen

kauniisti kotimainen



Lepaa, professional exhibition

- This event has started in 1964, and that is why Lepaa-exhibition is one of the oldest professional exhibitions in Europe.
- Covers the whole industry:
  - flower and vegetable growers
  - fruit and berry growers
  - professionals in teaching and research
  - landscape construction and design
  - landscape maintenance,
  - environment and real estate caretaking
  - golf workers, florists, garden center representatives, export and marketing personnel….

Greenhouse production in Finland

Greenhouse production in Finland

- About 900 companies, 50:50 ornamentals and vegetables
- About 370 ha
  - 240 ha vegetables
  - 115 ha ornamentals
  - 15 ha nurseries&berries

- Industry turnover was about 410 M€ in 2021 year
  - subsidies 5-6 % of companies turn over
- Family businesses
- 99 % of the production sold in Finland

Production of greenhouse vegetables in Finland

MILJ. KG	2017	2018	2019	2020	2021
Tomato	39,4	39,3	40,4	41,25	38,0
”Snack tomatoes”			5,6	6,3	7,4
Cucumber	42,8	45,5	48,3	54,1	53,1
Sweet peppers	1,0	1,0	1,0	1,2	1,1
Lettuce and herbs, milj. psc.	10,2	11,6	10,2	10,4	11,0
Greenhouse vegetables, total	87,3	89,5	94,88	100,9	97,3

Production of ornamentals in Finland

MILJ. PCS.	2017	2018	2019	2020	2021
Bedding plants	36,9	33,7	35,8	40,9	35,6
Pot plants	10,5	9,7	6,2	6,2	6,3
Bulbs	79,1	76,8	73,5	81,8	78,1
House plants	0,3	0,2	0,3	0,5	0,6
Cut flowers (ha)		4,6	5,7	8,3	7,0

Import of vegetables to Finland

IMPORT TO FINLAND					
milj. kg	**2017**	**2018**	**2019**	**2020**	**2021**
Tomato	24,8	26,1	26,8	25,8	25,3
Cucumbers	9,7	7,8	6,8	3,6	4,1
Lettuce	23,4	23,0	22,2	20,7	23,8
Carrots&turnips	8,0	14,1	9,1	5,4	3,6
Onions	16,0	18,4	17,7	14,3	16,9
Strawberries	2,5	2,7	2,9	2,8	2,8
Fruits	334,1	334,1	334,8	331,6	320,1
Import, total	**416,1**	**423,6**	**417,4**	**401,4**	**393,8**

TOMAATTI JA KURKKU POHJOISMAISSA

Tuotanto-, tuonti- ja vientiluvut tonneissa

	Islanti	Norja	Ruotsi	Suomi	Tanska
Asukkaita, milj.	*0,37*	*5,38*	*10,35*	*5,53*	*5,83*
TOMAATTI					
Tuotanto	1 163	12 745	19 052	41 247	11 390
Tuonti	1 260	23 423	89 713	26 020	36 581
Vienti	0	0	0	600	1 719
Kulutus yhteensä	2 423	36 168	108 765	66 667	46 252
Kulutus kg/hlö	6,5	6,7	10,5	12,1	7,9
Kotimaisuusaste, %	48	35	18	62	25
Kulutus, kotim. kg/hlö	3,2	2,3	1,8	7,2	2,0
KURKKU					
Tuotanto	1 808	18 879	30 259	54 063	15 592
Tuonti	127	7 864	38 851	2 870	21 726
Vienti	0	0	0	400	316
Kulutus yhteensä	1 935	26 743	69 110	56 533	37 002
Kulutus kg/hlö	5,2	5,0	6,7	10,2	6,3
Kotimaisuusaste, %	93	71	44	96	42
Kulutus, kotim. kg/hlö	4,9	3,5	2,9	9,5	1,5

Lähteinä kunkin maan viralliset tilastot/Kasvihuoneviljelijöiden liitto.

Greenhouse vegetable production in Finland - highest in Nordic countries

- Closed market until 1995
- Consumer preferences
  - Quality
  - Local
- Promotion
- Technical development

Agricultural policy, subsidies

- Subsidies for greenhouse companies
    - National subsidies for greenhouse production
        - Paid per square meter
        - Souther Finland (AB), -67 % 2023-2027
        - Northern Finland (C), permanent, but follows the South
    - Crops that get subsidies in greenhouses:
        - Tomato
        - Cucumber
        - Pepper
        - Lettuce, dill, parsley
        - Ornamentals
        - …..
- Investment subsidies for investments

National subsidies, estimation 2023-2027

Milj, euro	2023	2024	2025	2026	2027
Greenhouse companies & storage of open field vegetables	10,7	10,5	10,3	10,0	7,3

Euro / m2	2023	2024	2025	2026	2027
2-7 months	3,30	3,23	3,15	3,04	2,38
Over 7 months	9,00	8,80	8,60	8,30	6,50

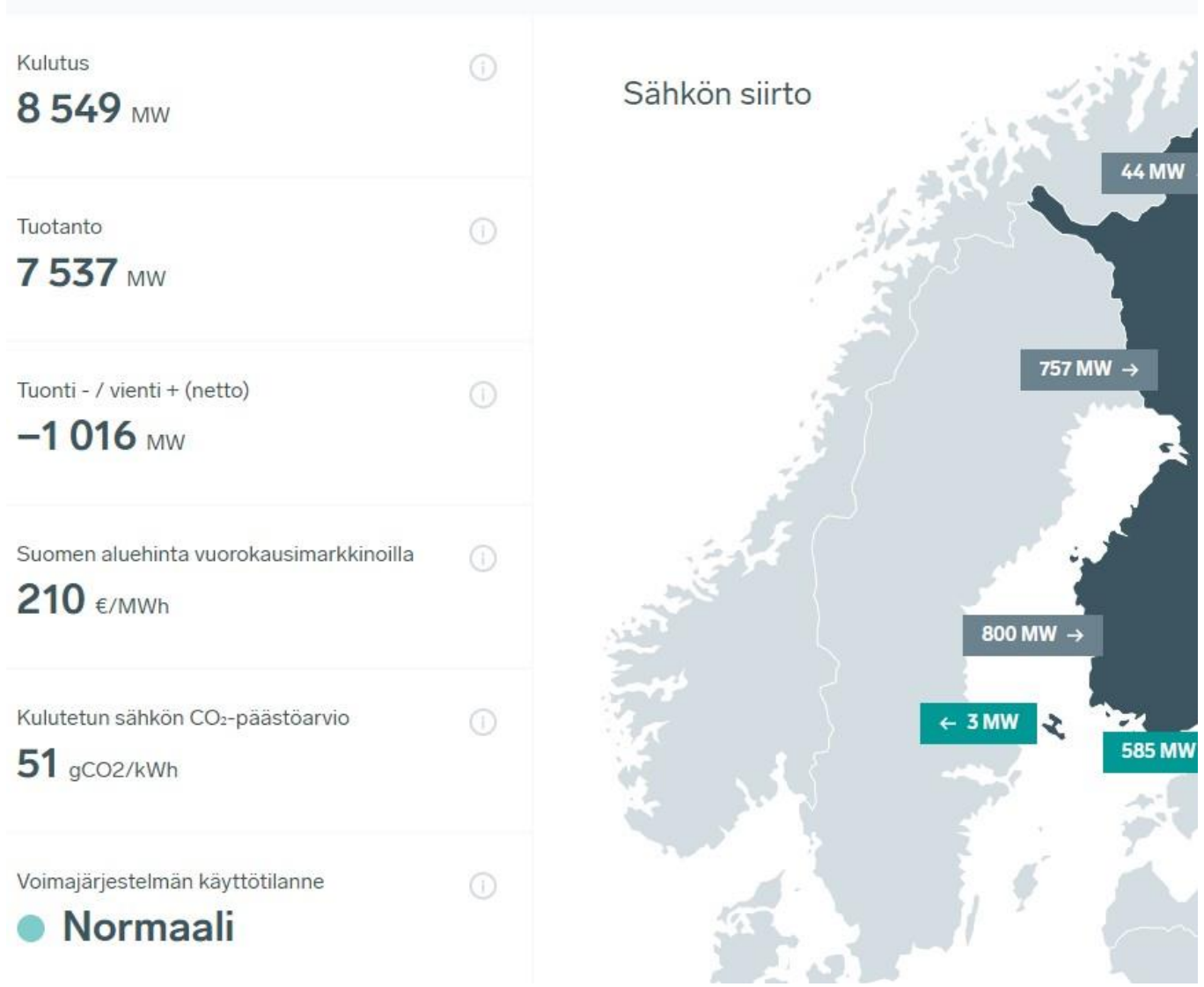
Winter production in Finland 2022

- Electricity prices affect all the companies producing year-round, but differently depending on the electricity contract

Year round production	2021	Estimation 2022-2023
Tomato	43 ha	- 50-70 %
Cucumber	26 ha	- 10-20 %
Lettuce&herbs	34 ha	- 1-4 %

Winter production in Finland 2022 shortage of electricity

- Shortage of electricity, power cuts possible
  - Glasshouse production is considered as an important industry for the national maintenance – no power cuts!
- Greenhouse companies play an important role in maintaining the balance in Finland's electricity networks disturbance reserve
  - Confirmed capacity from greenhouse companies 200 Mw
  - Need of disturbance reserve is 290 Mw
  - Missing from the greenhouse reserve 40-60 Mw



Not only the electricity - shortage of heating material

- For Finland electricity importent from Russia (10 %) bigger problem than gas
- 2023 Olkiluoto 3 – nuclear power plant is running in full capasity and we have more wind power
- But in 2023 we might be running out of important heat resources, wood and peat
  - **About 25-30 % wood chips has been importet from Russia before**
  - National politics and emission rights for using peat for heating have cut the production

Compensation from the government

- Government gave 300 milj. euros crisis package for the agriculture in April for the general cost increase
  - Double the tax refund for fuels
  - Extra subsidies for greenhouse companies as an additional national subsidies, double the normal subsidies
  - Extra budget for green energy investments

- No compensation for electricity crisis

Winter production in Finland 2022

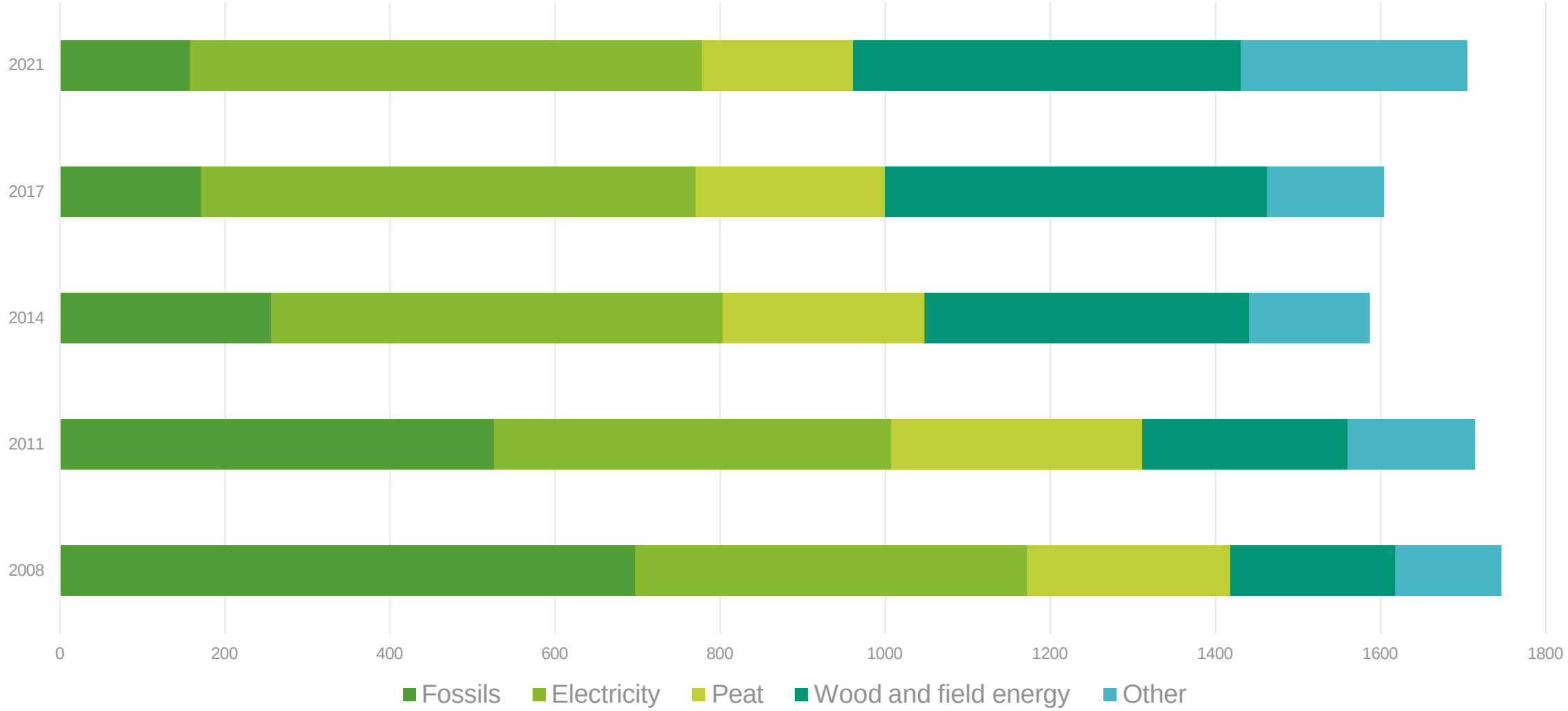
- Less local products in the market, especially tomatoes:
  - Compensated with export?
  - Higher prizes of local – last winter local tomato 5-6 € / kg – breaking news!
  - How much is the consumer willing and able to pay?
  - For spring 2023 we expect peak in tomato production, because everybody is starting the production at the same time ➔ low prizes

Sustainability and innovation

Climate goals: Finland CO2-neutral 2035

- EU Commissions goal for Finland 50 % reduction in 2030 compared to 2005
- The Finnish industry is already converting towards green energy
- The intensives for saving energy & converting to green energy:
  - Consumer demand: sustainability
  - The prize of fossil fuels and their availability
  - The investment subsidies for green energy 40 % from the government ongoing for years

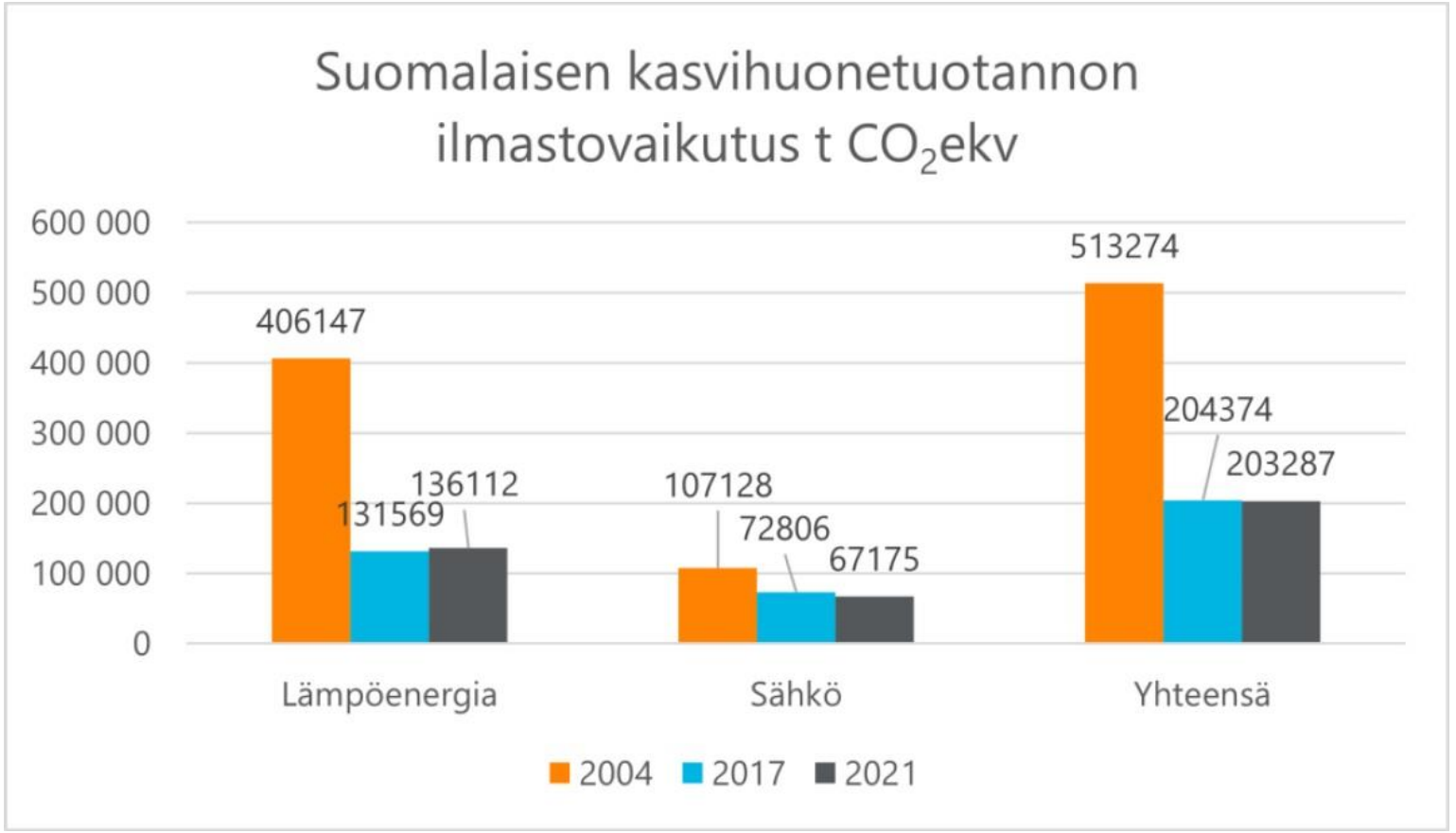
Energy profile of greenhouse companies 2006-2021, GWh



Finnish greenhouse sector reduced the carbon footprint by 50 %

- The first industry in Finland that studied the carbon emissions of the whole industry in 2013
- The research was renewed in 2019, also the water footprint was calculated:
  - 56 % reduction in CO2 -footprint
  - 91 x smaller water footprint compared to a Spanish product
  - 10 times less land used for growing compared to Spanish production
- **Greenhouse industry has filled the EU-goal already!**

CO2-footprint of Finnish greenhouse sector

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FINNISH TOMATO HAS SMALLER WATER FOOTPRINT THAN THE SPANISH TOMATO

56 % SMALLER CO_2-FOOTPRINT

TOMAATTI 2,6 KG CO_2 e/v KURKKU 2,0 KG CO_2 e/v SALAATTI 2,7 KG CO_2 e/v

Show more settings

What am I seeing here?

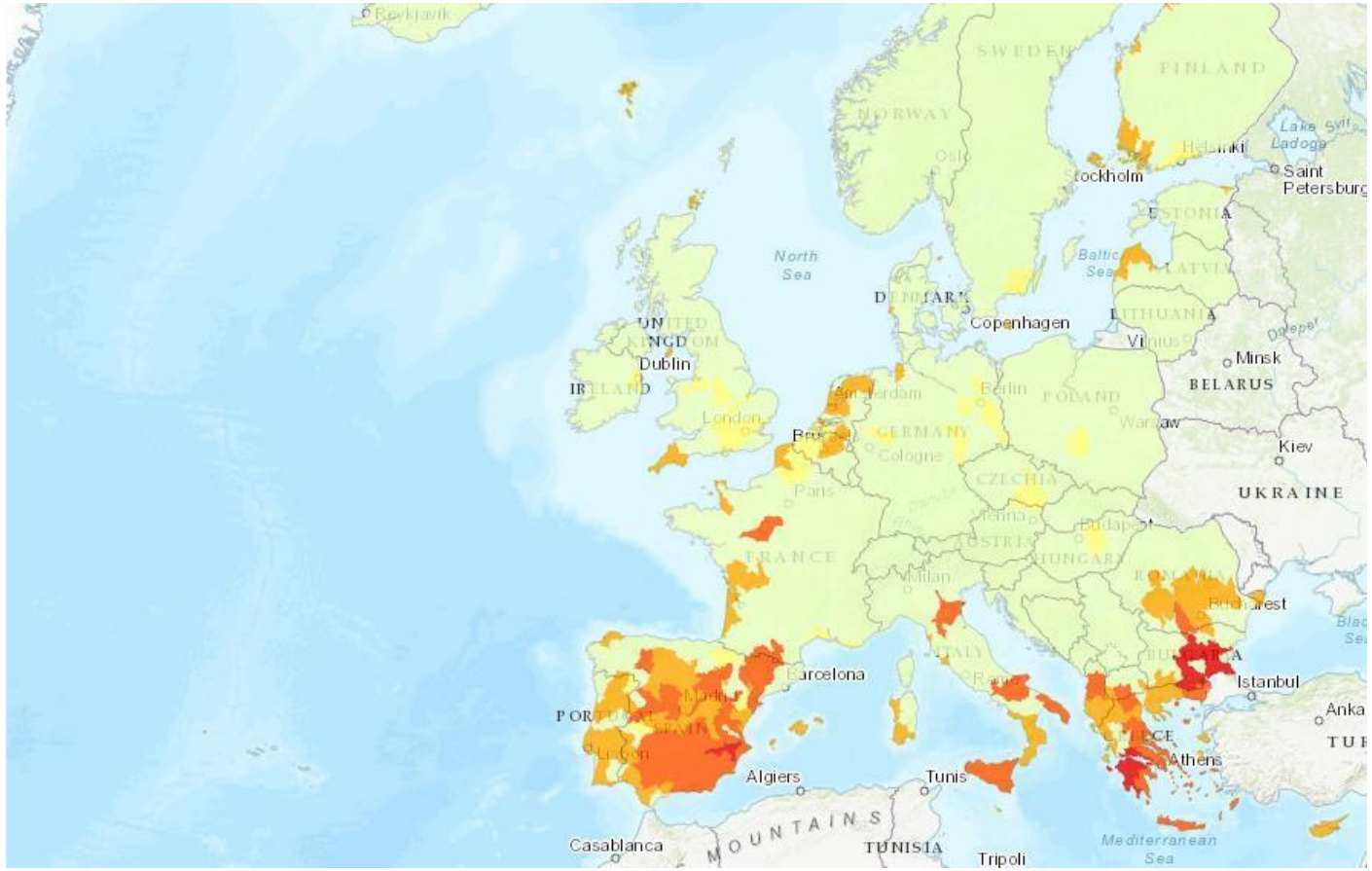
Water Depletion

Water depletion measures the ratio of surface and ground water consumptive use to available renewable water. This indicator is based on model outputs from WaterGAP3 to compute average annual and monthly values, for the period 1971-2000, and to map seasonal depletion and dry-year depletion.

See the documentation for more details.

Brauman et al. (2016)

n/a Very low risk Very high risk



Cucumber growing in 1957 ≈ 25 kg/sq.m

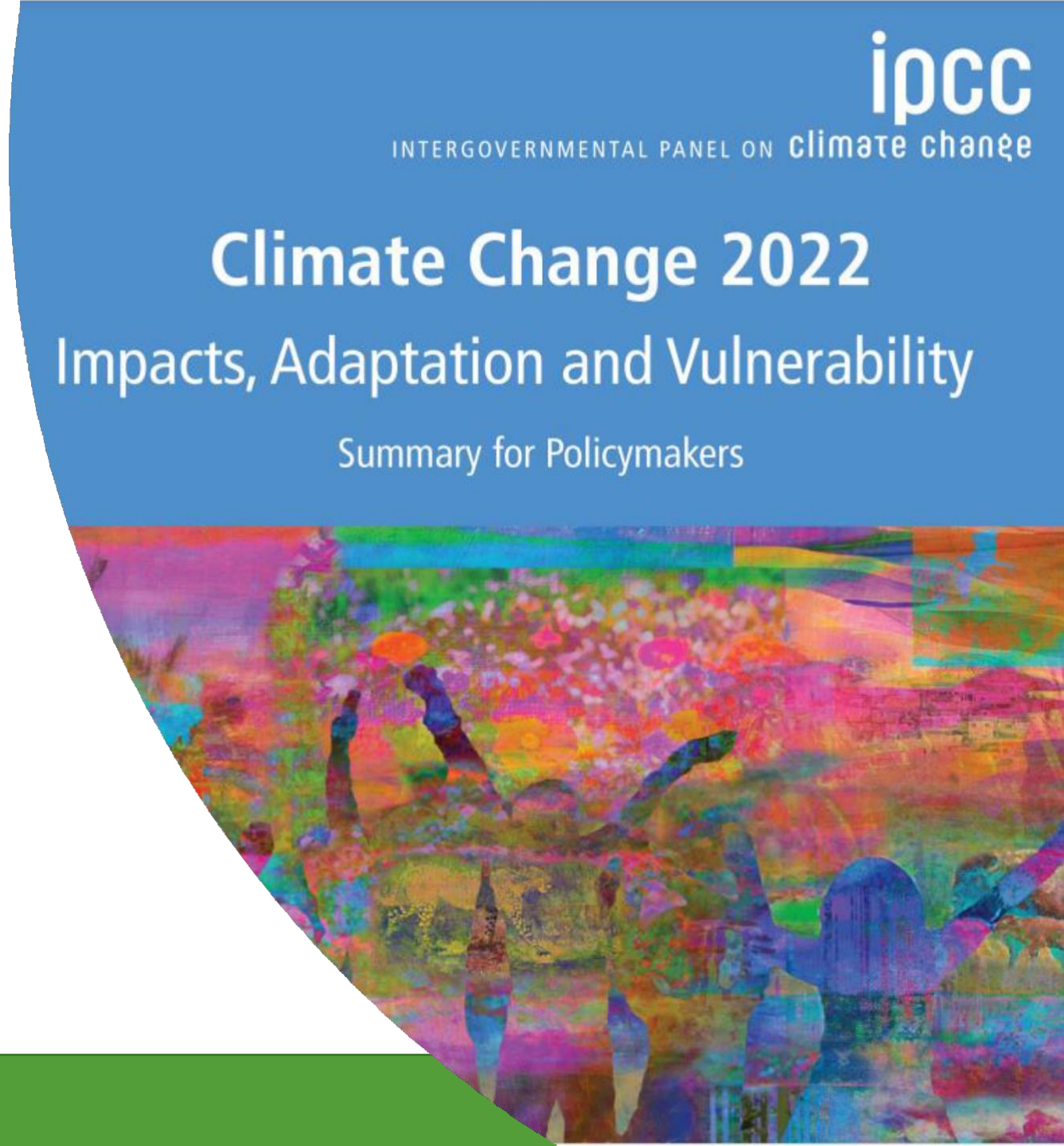
Cucumber growing in 2017 ≈ 250 kg/sq.m

Greenhouse Cucumber 2016-2021

			Viljelyala (1 000 m²)	Sato (1 000 kg)
2016	KOKO MAA	Kasvihuonekurkku	837	39 140
2017	KOKO MAA	Kasvihuonekurkku	798	42 770
2018	KOKO MAA	Kasvihuonekurkku	978	45 459
2019	KOKO MAA	Kasvihuonekurkku	1 050	48 314
2020	KOKO MAA	Kasvihuonekurkku	913	54 063
2021	KOKO MAA	Kasvihuonekurkku	853	53 089

Indoor growing is one solution of future food production

- Main driving forces: climate change & biodiversity loss
  - EU Green Deal & Farm to Fork
  - Soil contamination
  - Drought
  - Air pollution
- Circular economy
- Work force
  - Urbanization
  - Western societies: older population
- Economy
  - Prize development of production inputs
  - “The prize of Emission rights”
  - Finance, loose money on the market
- Digitalization & Technical development
- Consumer preferences
  - We say that we want value all the aspects of responsibility, but…



Challenges?

BUT…

- Fit For 55 –packages RED II -directive on renewable energy:
  - Primary production of wood no longer renewable?
  - Primary wood would be traded like fossil fuels in emission trade
  - At the same time fossil gas is renewable energy…

EU Legislation 2022-2023

Sustainable Finance Taxonomy

- How is peat as a growing media classified?

LULUCF

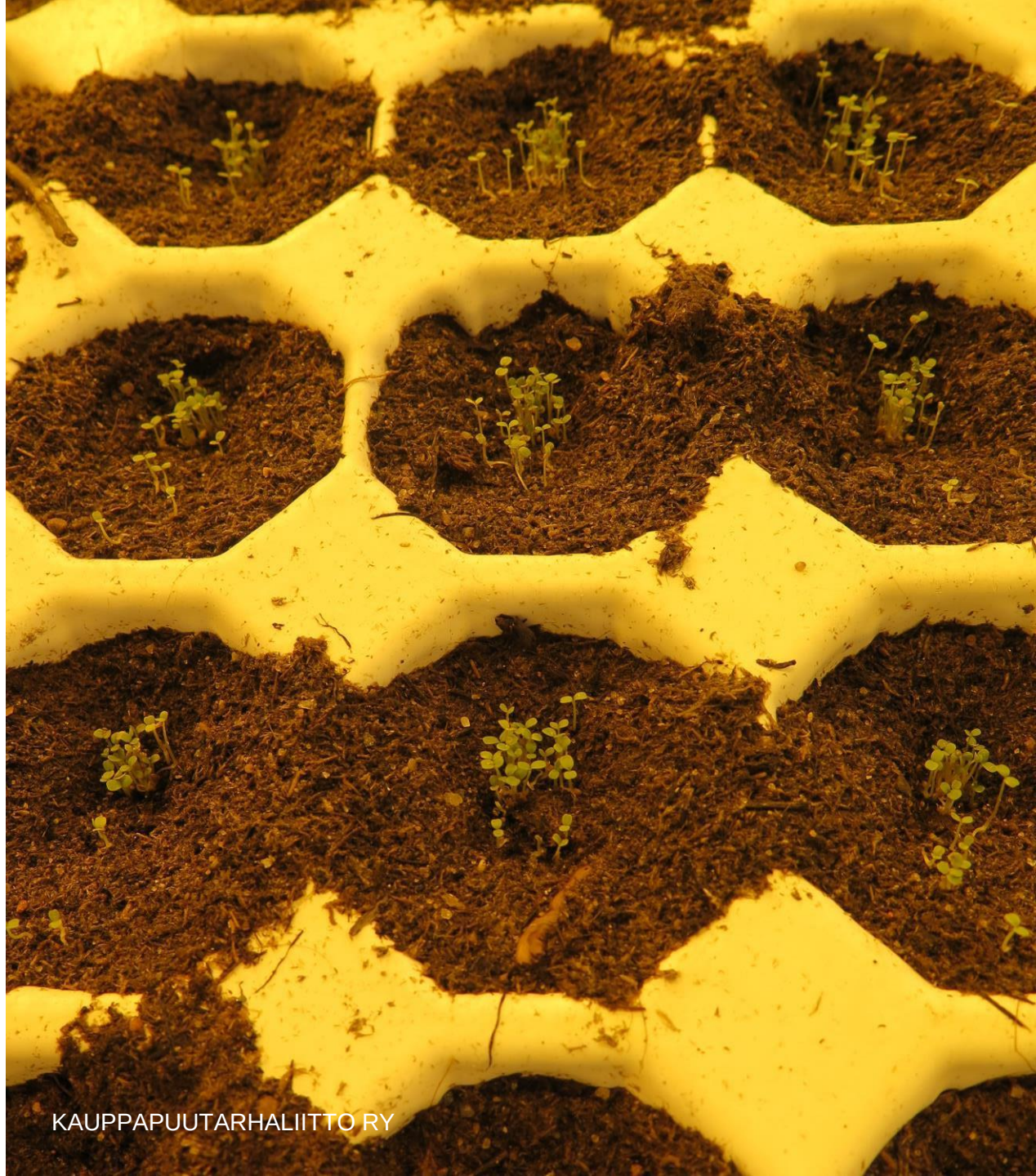
- How is peat production affected?

Nature Restoration Law

- How is peat production affected?

Sustainable Use of Pesticides

- 50 % reduction in 2030
- Increase of non-chemical, decrease in hazardous alternatives
- More obligations for growers' on documentation



The future of growing media?

- Peat as a growing medium is developed mainly in Finland
- Globally most important growing media used in modern greenhouse growing
- New substrates are developed in Filand and globally
  - Most promizing spaghnum and wood fibre
  - Also compost

	2017 ($Mm^3\ y^{-1}$)	Arvio 2050 ($Mm^3\ y^{-1}$)	Kasvu
Turve	40	80	100%
Kookos	11	46	318%
Puukuitu	3	30	900%
Puunkuori	2	10	400%
Komposti	1	5	400%
Perliitti	1.5	10	567%
Kivivilla	0.9	4	344%
Muut maalajit/tuhka	8	33	313%
Uudet materiaalit		65	
Total	**67**	**283**	

Chris Blok, Wageningen University study

Research project on finding new substrates

- Research project together with the Finnish Natural Resources Institute Finland 6/2022-8-2023
- The goal is to test and find alternative growing media materials to mix with peat: wood fiber, sphagnum moss, compost
- Test done also in greenhouse companies
  - Tomato
  - Poinsettia
  - Cucumber
  - Lettuce
  - Bedding plants

Labour issues in horticultural sector

- Important question for many industries – where to find professional workforce?
  - Physical seasonal work typical for horticultural sector
  - Aging population
  - Urbanization

- Covid19
- Seasonal workers from Ukraina

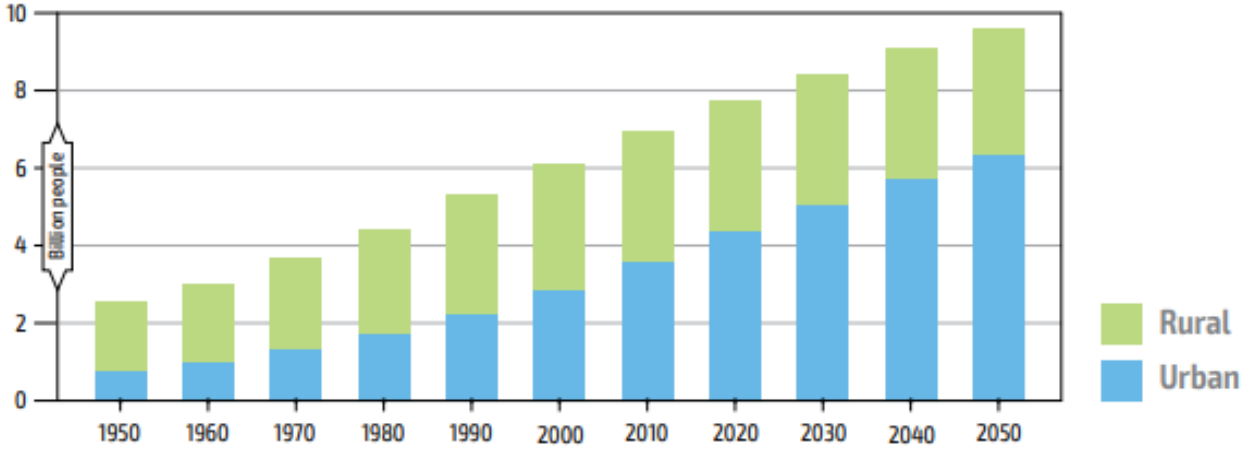
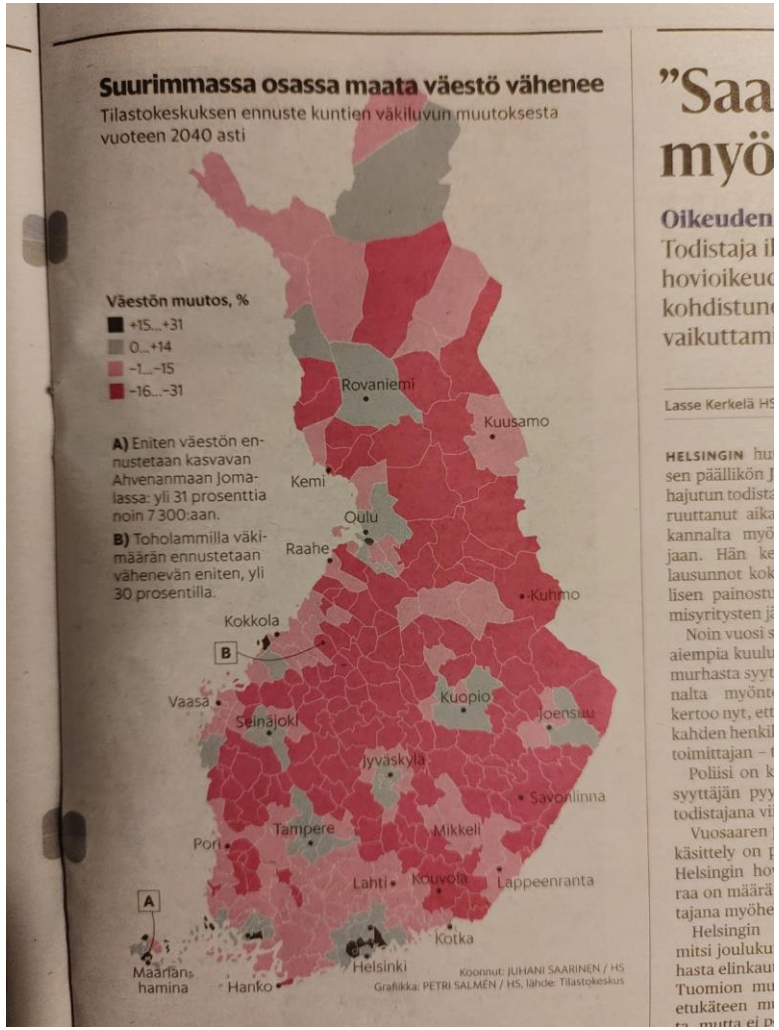


Figure 1.3 Global urban and rural populations: historical and projected

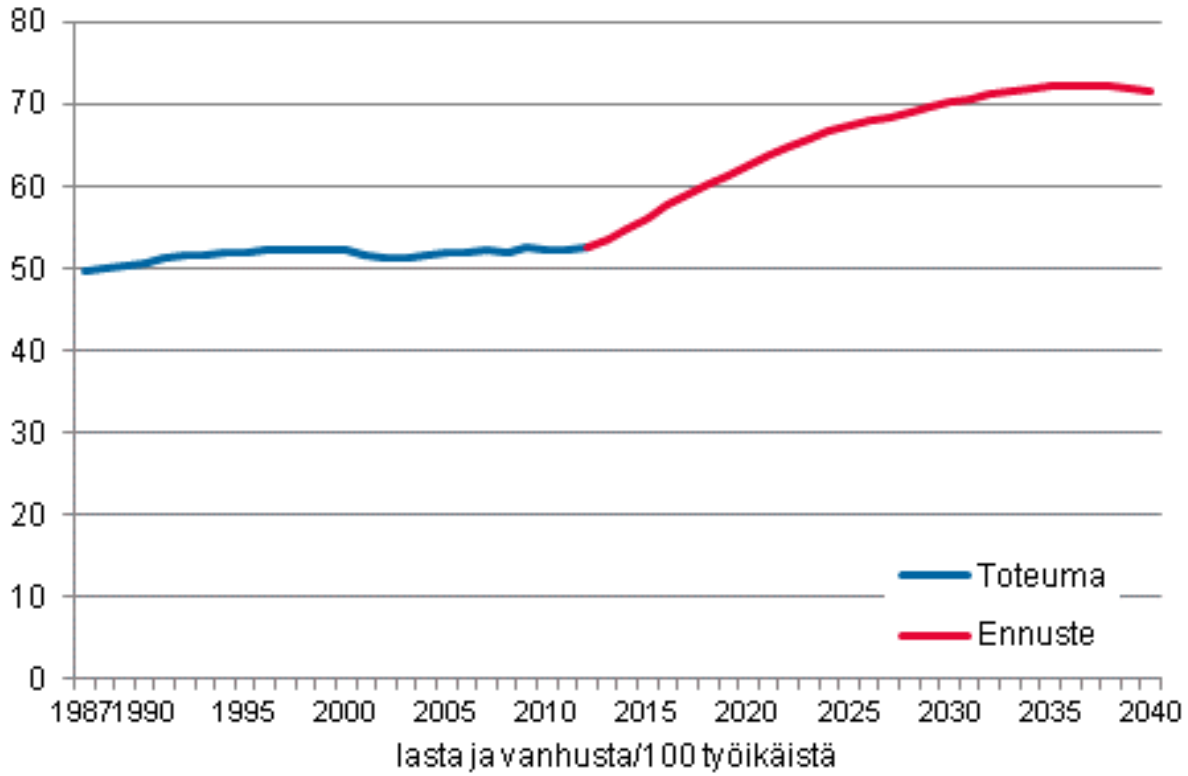
Note: Projected figures from 2015 onward refer to the medium variant scenario.

Source: UN, 2015.

https://www.fao.org/3/I8429EN/i8429en.pdf

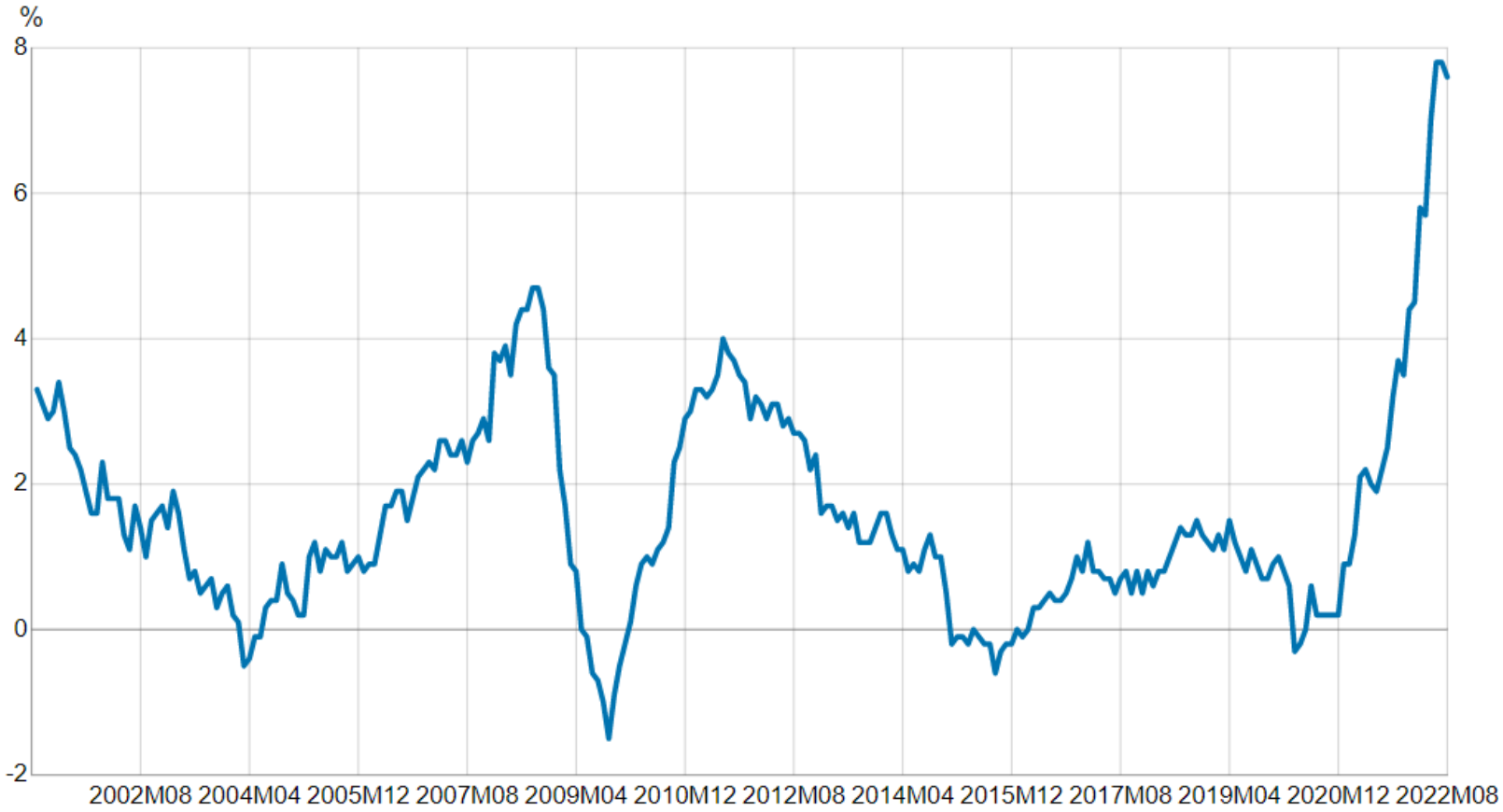


Kuvio 1. Väestöllinen huoltosuhde Suomessa vuosina 1987–2012 ja ennuste vuoteen 2040 (työikäinen väestö 18–67-vuotiaat)



Lähde: Tilastokeskus. Työssäkäyntitilasto.

Kuluttajahintaindeksin vuosimuutokset, 2001M01-2022M08



Lähde: Tilastokeskus, Kuluttajahintaindeksi

Consumer trends and expectations?

- "I prefer local and Finnish" BUT "I choose the best price"
- Easy to use
- Sustainability
- Consumers are more and more diverse
- Security of maintenance is highly valued

What do you think?

9.10.2022

Thank you!

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www.kauppapuutarhaliitto.fi