



Greenport



Global horticulture network
Food, Health & Well-being

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Greenport

A **High Tech** extensive **cluster** of horticultural breeders, producers, suppliers and traders, R&D, education and service providers.

Greenport and the Mainports Rotterdam Harbour & Schiphol Airport.



World leading cut flowers, plants, vegetables

3^e Dutch economic Cluster



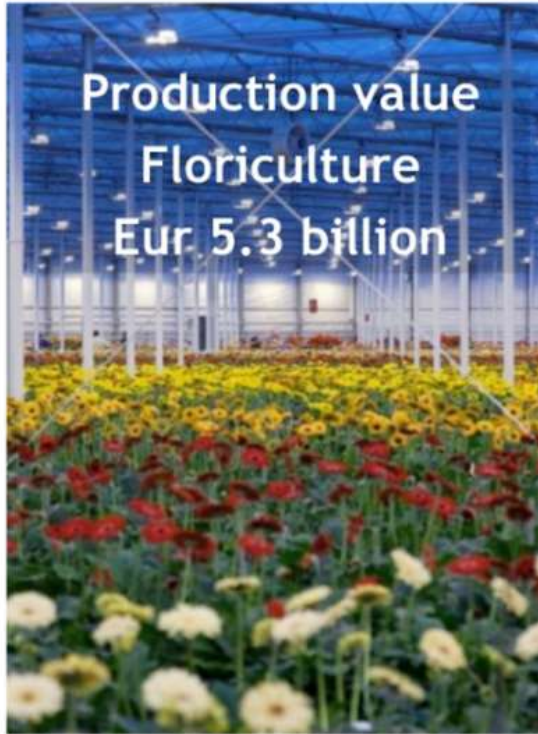
Horticulture
Export
Eur 16.5 billion



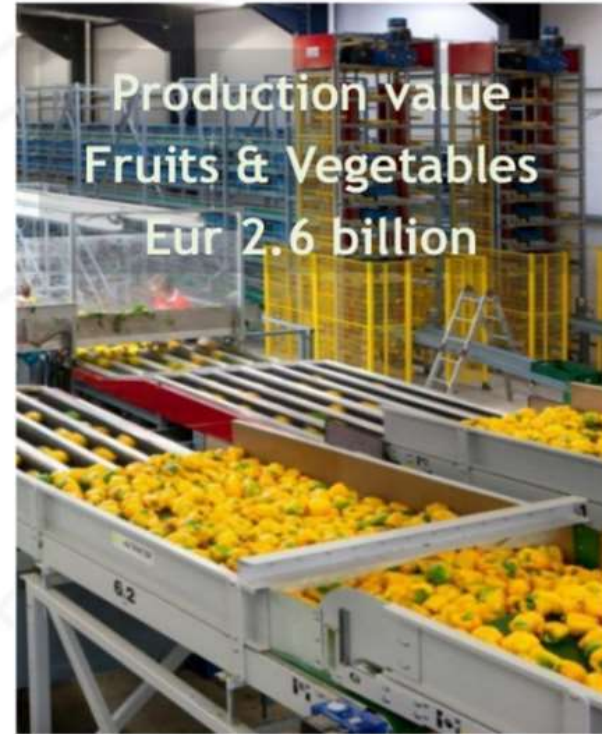
Horticulture
Import
Eur 8.2 billion



Production value
Floriculture
Eur 5.3 billion



Production value
Fruits & Vegetables
Eur 2.6 billion



High Tech Cluster



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**Value technical
supply Horticulture
Eur 2 billion**

Crossovers

Horticulture & Propagation Material have many valuable crossovers with other main sectors

Water

- Sustainable and efficient use of water (reduce, re-use and recycle)
- Reduction of leaching to ground and surface water
- Drought and salt tolerance
- Urban indoor farming

Life Sciences

- Health
 - healthy food
 - production of medicines
- Technology
 - supporting technology
 - system biology
 - synthetic biology

- Healthy diet
 - better taste
 - less fat
- Improving health
 - reduction of obesity
 - anti oxidants

Agri-Food

- Healthy food
- Sustainability
- Biodiversity
- Phyto sanitary policy
- Soil management
- Vegetable proteins

Chemistry

Logistics

- Infrastructure
- Chain control and logistics optimization
 - ICT, track & trace, RFID
- Multi-modal networks
- Sustainable of transport and conditioning

High Tech materials & systems

- Steering, precision techniques, assortment and sales
 - robotics, smart systems
- Controlled breeding
 - LED, Bio nanotechnology
- Logistics
 - RFID track & trace

Creative industry

- Sector image
- Architecture (importance of green in the public space)
- Aesthetic greenhouses
- Product design

Energy

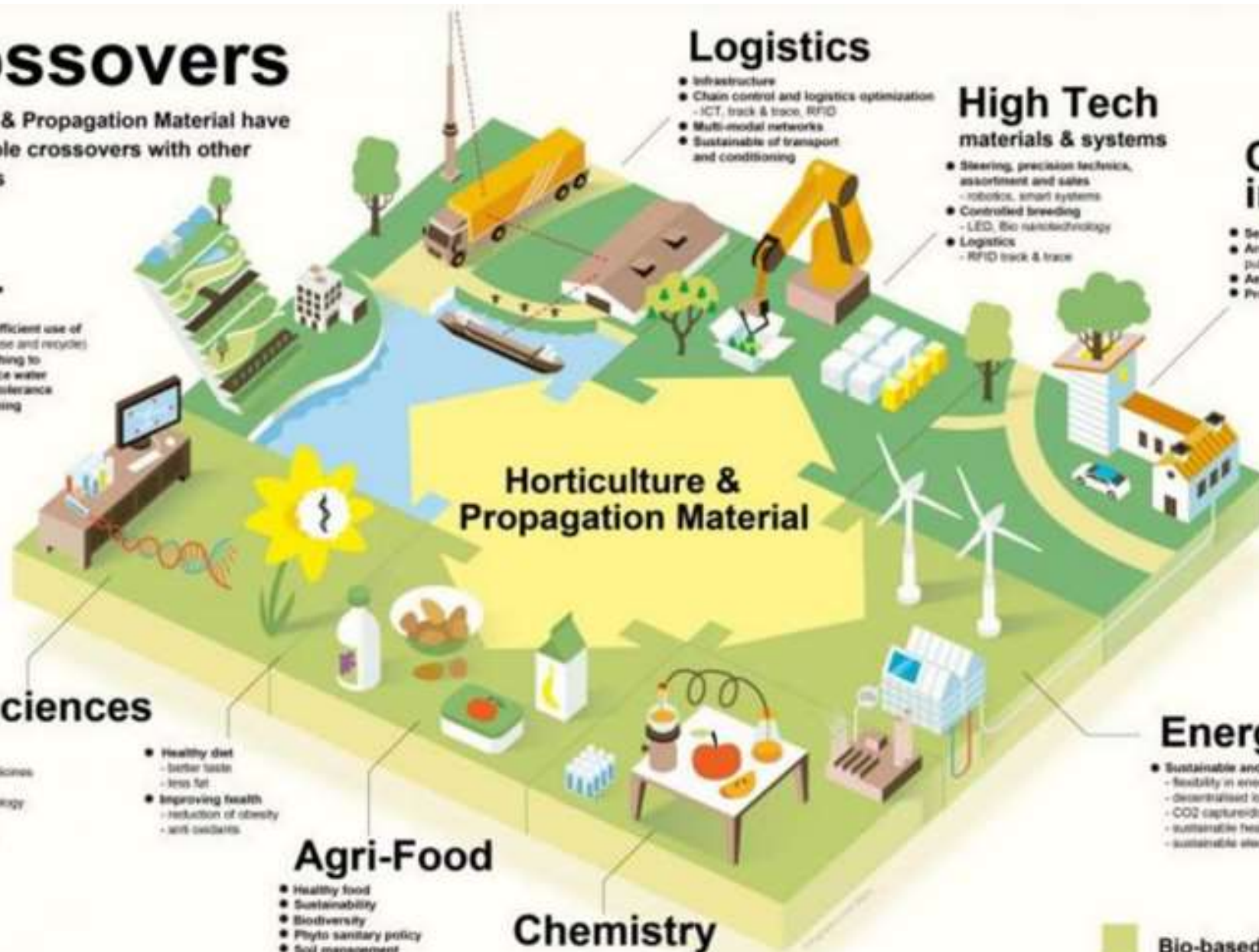
- Sustainable and decentralized energy production
 - flexibility in energy delivery by VUK
 - decentralised local energy systems
 - CO₂ capture/distribution
 - sustainable heat production
 - sustainable electricity production

Bio-based economy

Materials for other sectors by breeding, facilitate optimal fractionation by breeding, use of bio-based materials



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The Dutch horticulture cluster

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Largest Greenhouse area in the world

4800 ha . net cultivated area

30% NL export/production value

25% NL companies

50% of top 100 innovative Dutch horticulture companies

4 companies - top 25 EU- R&D

85% sales is abroad

4 universities: WUR, EUR, TU-Delft, LU & TNO



Greenport 3.0 = Next Economy



Need

- 9 billion people on earth to feed
- 2 billion people will be hungry or suffer for malnutrition
 - 1 billion people will be obese

Ambition

Global horticultural care for **food**,
health and **wellbeing**

Strategy

Triple Helix Cluster → strength

Creating value

Sustainable Greenport

Excellent education and research

→ new (inter)national markets and products

→ Innovation in crossovers other sectors / regions

Greenport meets the societal challenges



- Health, demographic changes and wellbeing
- Food security, sustainable agriculture, water and bio-economy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Climate action, natural resource efficiency and raw materials



Health & Wellbeing



SMART Solution for worldwide Water issues

Water quality issues

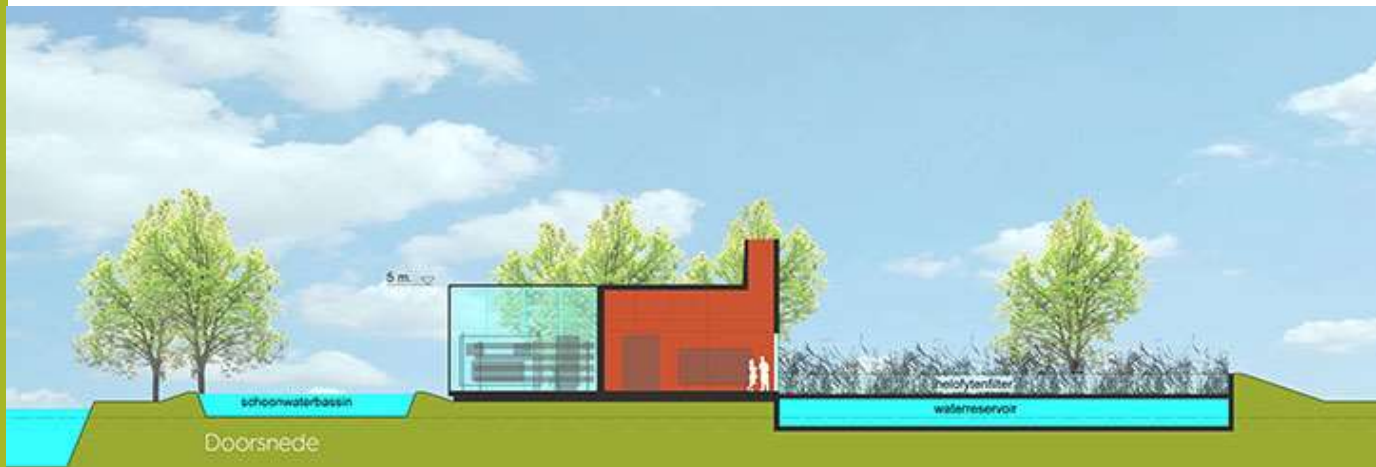
- Caused by horticulture: nutrients
- Surface and groundwater

→ closed water circuits: **AquaReUse**

→ technology

Water quantity issues

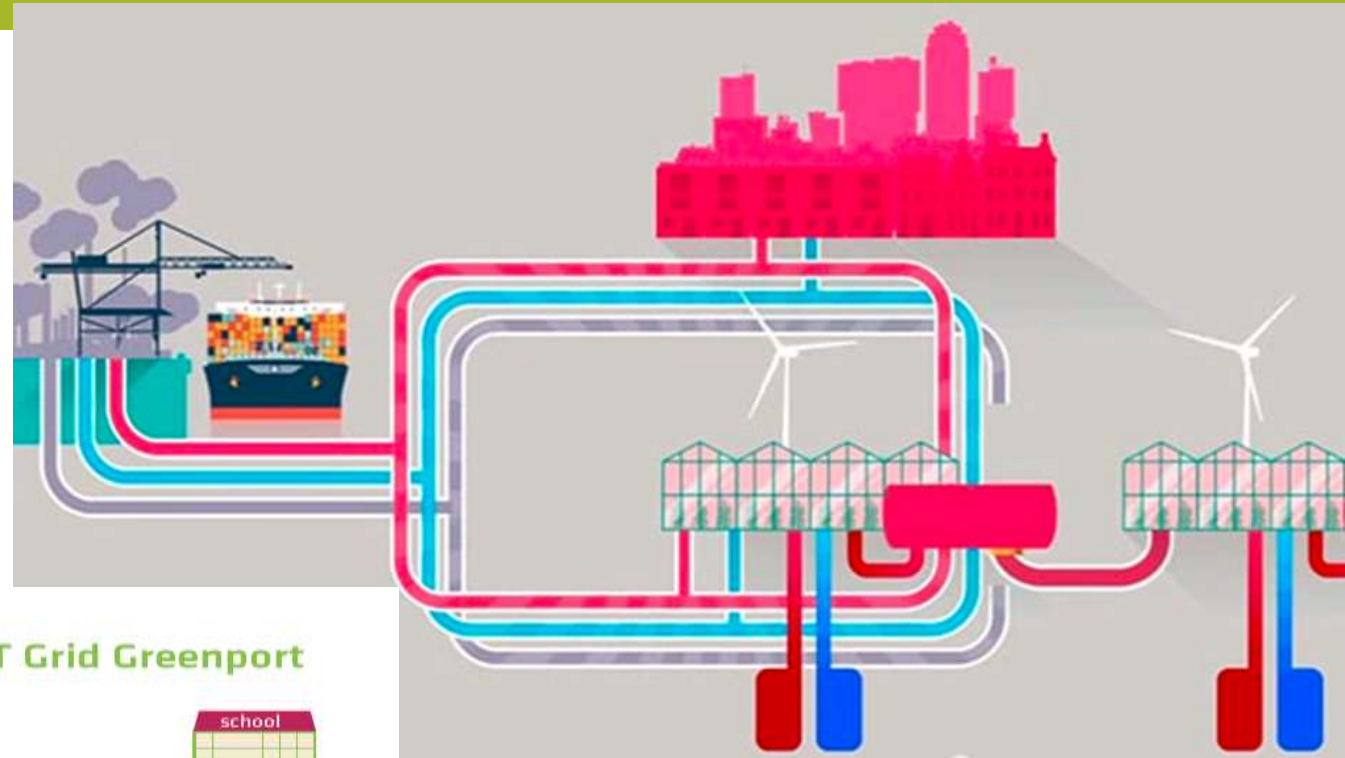
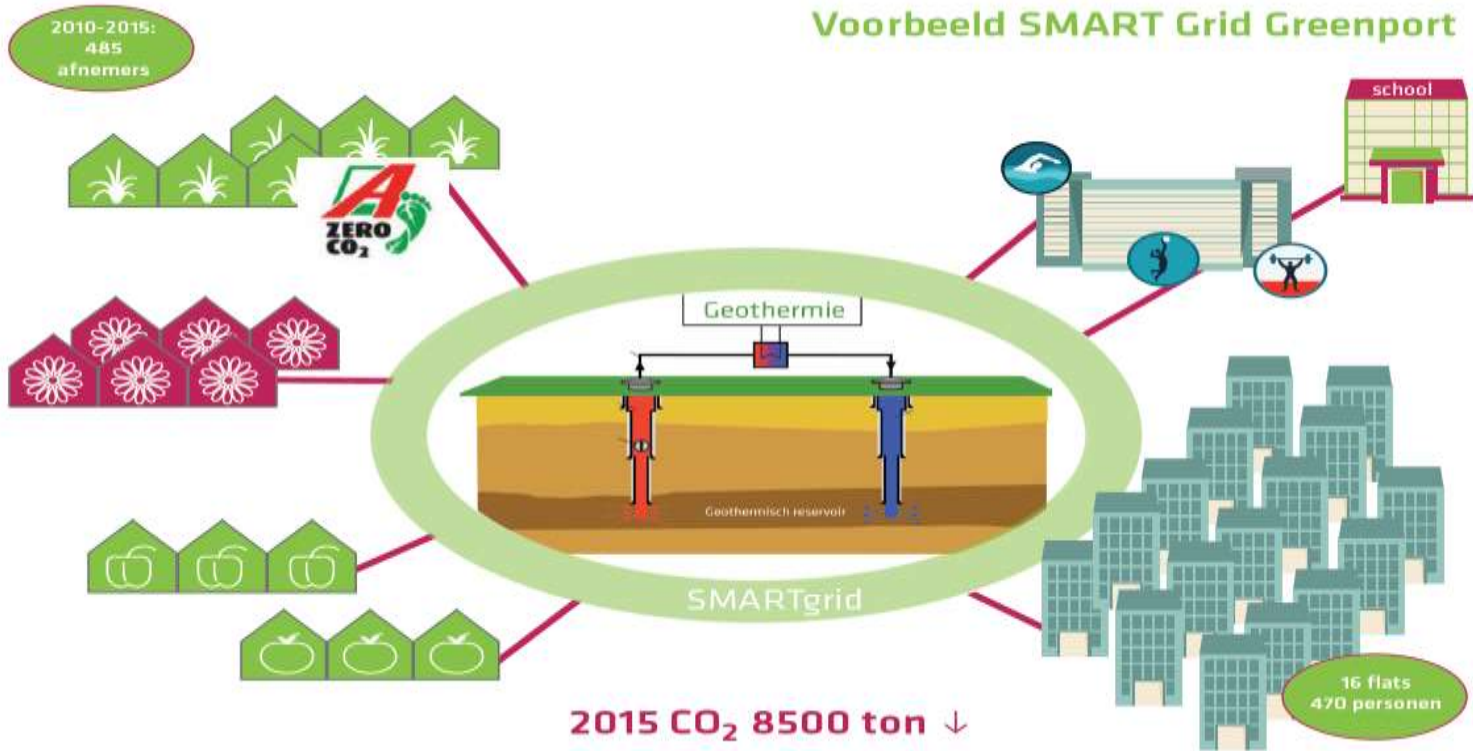
- Due to drought and climate change
- Water demand



BioBoost



Sustainable energy



- SMART Grids
- Geothermal energy
- Industrial heat
- CO₂ Grid

SMART Digitalization – International Crop Management

Growing as a Service



SMART Digitalization - Robotics, Sensor technology



SMART logistics – *synchromodal*



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State of the art Dutch breeding technology

Conventional breeding are labour-intensive, costly and time-consuming

Technics for *breeding acceleration* e.g.;

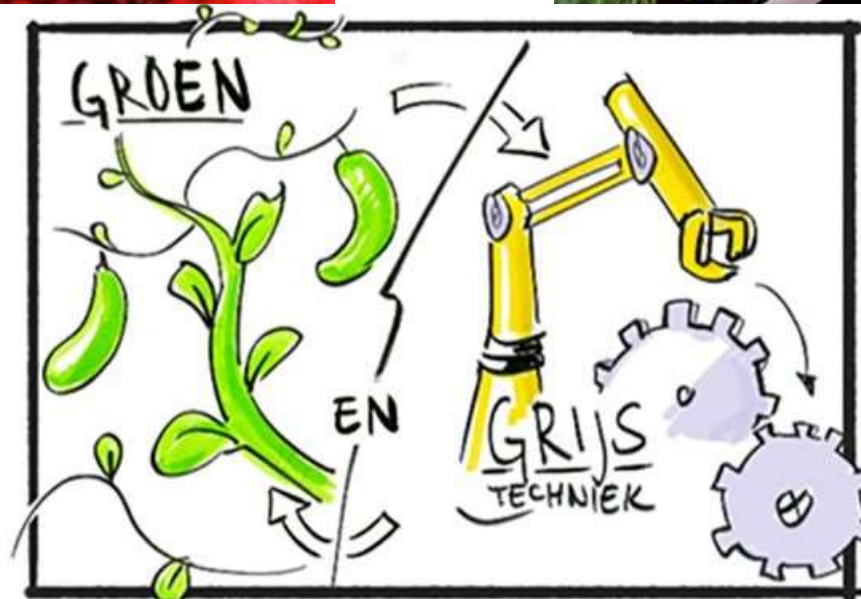
- In vitro propagation
- Marker assisted breeding (Mab)



International knowledge – Fieldlabs



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 Greenport HortiCampus
mensen • kennis • innovatie

Roadmap Feeding & Greening Mega cities



Roadmap Next Economy

Drivers regional economy:

- Mainport Rotterdam
- Greenport Westland-Oostland







Questions to the panel - EU

- Position of Horticulture – **protected crops** – equal to Agriculture – open field
- Position of **Floriculture** equal to food – vegetable crops – solution for climate changes, vital environment, health & wellbeing.
- **Sustainable solutions water, energy, digitalization** – investment in infrastructure
- SMART Logistics asked for efficient **customer services** between EU-borders and optimal **phytosanitary** rules between EU-International borders – import & export.
- New products & markets in Bio-economy asked for efficient regulation – **nutrient & health claims** – EFSA
- Connection to **other transition regions**
- ...