Greenhouses: High technology
→ high yield, low water use

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100 years ago: wall glasshouses and frames
Halfway 20th century

cucumbers

grapes
Modern greenhouses
Many new greenhouses are located in arid and semi-arid regions
Greenhouse is key factor to minimize water use

Water use (litre per kg tomato)

- Israel & Spain, field
- Spain, unheated plastic "parral"
- Israel, unheated glass
- Spain, unheated "parral", regulated ventilation
- Holland, climate-controlled glass, CO2 enrichment
- Holland, as at left, with re-use of drain water
- Holland, "closed" greenhouse

From Stanghellini
Modern irrigation systems

- Soilles
- Irrigation per plant
- Re-use of all surplus water
computers and sensors for control of water, nutrients and climate
Vertical farm: full control of production:
A few liters water per kg vegetable
What makes horticulture so efficient?

- Continuous innovation
- Economic feasible
- Market driven
- Regulations
Thank you for your attention