Ministerie van Landbouw,
Natuur en Voedselkwaliteit

# Plant Breeding, key technology for innovation in Greenhouses

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# Japan and the Netherlands

- Trade relations since 17th century
- Both open economies, trade and IP important
- Both have strong seed industries (Sakata, Takii have office in Netherlands)
- Both strong defenders of UPOV Convention (Plant Variety Protection)

# Why we need Innovation in Agriculture

- Growing world population –more yield
- Changing consumption patterns - more proteins
- Bio-based, circular economy
- Better adaptation to:
    - Salination – dry conditions
    - Climate change
    - Less inputs (pesticides, nitrogen, phosphates)
    - Less energy costs

# Plant Breeding and glass house technology; topsector approach

Horticulture and Plant propagating materials is a topsector

‘’Golden’’ triangle private sector, Knowledge institutes, public sector

Programming together pre-competitive technology R&D through public-private partnerships.
Long term goal: solving societal challenges

3 main topics:
- Knowledge and innovation
- Human Capital Agenda
- International trade and collaboration



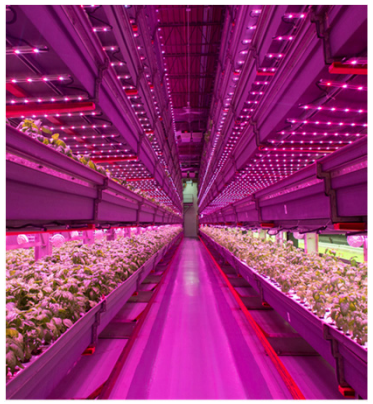



# Examples

Main challenges
- Reduce inputs and reduce waste
  - (energy, labour, water, pesticides)
- Maximize output
- More circulair agriculture

- Indoor growing with LED – in the city?
- Change plant architecture so robots can operate
- Combination of solar panels and glass house covering – ‘’double harvest’’

In all examples: develop new hardware but also new genetics; plant adapted to new demands



# Key Messages

- Innovation is needed for many reasons
- Horticulture + green genetics are key technology platforms
- Combination of both technologies can open new directions
- Japan and Netherlands can be strong combination in this field