Horticulture: Challenges in China, finding answers together

Beijing Hortipolaris General Manager

Dan Xu
Horticulture in the Netherlands

- Protected horticulture (glass greenhouse) over 10,000 ha
  - Vegetable 4,200 ha
  - Cut flower 5,400 ha
  - Pot plant 1,200 ha

- 120,000 people 5.6 billion € output per year
- 46,700 € per person per year
- 600,000 € per ha
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Horticulture in China

Protected horticulture over 1.9 million ha
  Multi-span greenhouse 54,300 ha
  Traditional solar greenhouse 577,500 ha
  Plastic tunnel 1,262,000 ha

- 70 million people 182.5 billion € output per year
- 2,607 € per person per year (1/20 of NL)
- 96,000 € per ha (1/6 of NL)

Very limited natural resources in agriculture and horticulture
- Less than 0.1 ha land per person (1/2 world average)
- 2,200 m³ fresh water per person (1/4 world average)

How to feed 1.4 billion people?

➢ 150 ha new Dutch Venlo-glass greenhouse in the last 5 years.
➢ Over 500 ha glass greenhouse under construction now.
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Large scale modern greenhouse is tailor made based on:
- Local climate data
- Extreme weather conditions
- Local geology condition
- Crop type etc.

No two greenhouses are exactly the same!
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Adjusting structures to local conditions

Dutch greenhouses are designed based on
- Max. 24h snow 10 cm
- Max. rainfall 30 mm/h
- Max. windspeed 33 m/s

Beijing greenhouse project
- Max. 24h snow 10-15 cm
- Max. rainfall 87.4 mm/h
- Max. windspeed 31.7 m/s
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Adjusting installations to local conditions

- Continuous ventilation system
- Misting system in tomato greenhouse
- Double screen system
- Rain water collecting system
- Artificial lighting
- "Green Finger"
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- **Sustainability**
  - 100% recycle rain, condense and irrigation water
  - Close light emission curtain while lighting in the night
  - Collect CO₂ from gas boiler

- **Water Management**
  - Nutri-Line fertiliser solutions
  - Disinfected water storage

- **Climate Control**
  - Energy radiation
  - Evaporation

- **Climate Computer**
  - Priva process operator
  - Priva process control system

- **Integrated Pest Management**

- **Bumblebee Pollination**
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Labor management

- No professional greenhouse workers.
- Young growers lack of management skills.
- Age structure.
- Skilled greenhouse workers is the bottleneck.
- Counter-Urbanization
- Vocational level students
• Upgrade existing facilities.
• Provide growing support like irrigation, pest management etc.
• High level quality control.
• Education on local farmers.
• Output of 10 euro per m²
Finding answers together!