

## Developments in ornamentals

with focus on nursery stock in The Netherlands

Marco Hoffman



APPLIED PLANT RESEARCH  
WAGENINGEN UR

## Topics

- Introduction
- Developments in production
- Developments in marketing
- Developments in plant breeding
- Functions of ornamentals (Green city)
- Environmental conditions and maintenance

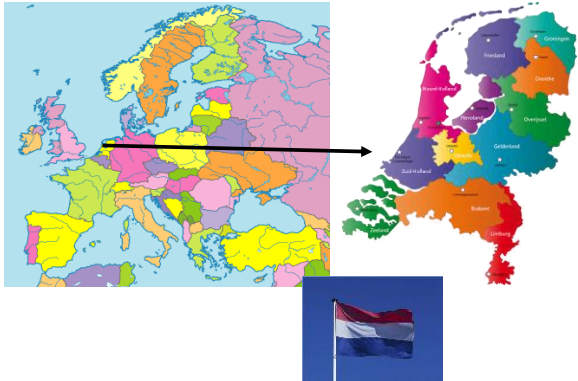
APPLIED PLANT RESEARCH  
WAGENINGEN UR

## Introduction



APPLIED PLANT RESEARCH  
WAGENINGEN UR

## The Netherlands in Europe



APPLIED PLANT RESEARCH  
WAGENINGEN UR

## Well known for horticultural knowledge



APPLIED PLANT RESEARCH  
WAGENINGEN UR

## Ornamental industry in the Netherlands



Bulbs  
Greenhouse  
(cut flowers, & pot plants)  
Nursery Stock  
(trees, shrubs & perennials)

## Nursery stock in the Netherlands

- Extent 17.000 ha
- Number of companies 3.000
- Number of workers 15.000
- Average farm size 5 ha
- Range 1 – 300 ha
- Production value 592 m€
- Production value/ha 34.500 € (= 300.000 yuan)
- Export >70%



## Ornamental plants for cities and gardens



## More than 30.000 different species and cultivars in The Netherlands



## Developments in production



## Production in pots and containers

- Easier for mechanisation
- Easier for trade and transport
- Also selling in growing season
- Big auctions based on pot plants



## Production and selling in pots



### Auction Aalsmeer



### Scaling up and mechanisation

- Strong push towards mechanisation
  - Labour expensive
  - Work heavy and dirty
  - Seasonal peaks
  - Alternative for chemical weed control
- Disadvantage
  - High investments
  - Only for large scale production

### Plant collector & robot transporter



### Tree production



### Mechanisation of weed management



### New production systems and techniques

- For quality improvement
- Easier for mechanisation
- For environmental care
  - Biodegradables instead of plastic
  - Closed production systems (no waste of minerals)
  - Legislation on fertilisation (e.g. Nitrogen and Phosphate)

### Production in gutters



### Biodegradable pots



### Biodegradable binding tube/tape (in research)



### Closed production systems (no waste of minerals, etc.)



### Uniformity and quality

- Starting material
  - Seed upgrading
  - Timing of uprooting
  - Dormancy measuring
  - Precision sowing
- Product standards & Certification
- Standardisation of plant names

### Improving seed quality and seeding



### Quality standards & certification



### Uniformity of nomenclature

65.000 names of trees, shrubs and perennials in Europe (see [www.internationalplantnames.com](http://www.internationalplantnames.com))



### Reduction of chemical crop protection

- Legislation
  - Many agents banned
  - Number of available chemical agents strongly decreased
- Management strategies based on
  - Prevention
  - Non-chemical control
  - Computer based warning and advise systems
  - Reduction of release to environment
    - Spraying equipment
    - Timing: warning systems
    - Injection experiments

APPLIED PLANT RESEARCH  
WAGENINGEN UR

### Injection techniques

(Reduction of chemical release)



### Use of Tagetes (Non-chemical control of nematodes)



### Use of ground cover crops Non chemical control of weeds



### Natural enemies for non chemical control



### Developments in marketing



### New markets and concepts

- New use of old products
- Use extra value of products
  - Improving air quality



### Shape trees e.g. *Tilia*, *Platanus* and *Carpinus*



### Production and use of big trees



### Shrubs for cutting industry e.g. *Hypericum*, *Symphoricarpos* and *Ilex*



### Instant hedges e.g. *Hedera*, *Taxus*, etc.



### Green walls



### Plant mats for green roofs



### New strategies and ideas

- Promotion activities
- Use of new communication facilities

APPLIED PLANT RESEARCH  
WAGENINGEN UR

### Desk plant of the year

(improves air quality, better concentration, etc.)



### QR-code on plant labels (Download app for info)



### Promotion concepts (examples)

- Plants that attract butterflies
- Trees that remove Particulate matter
- Buxus in letter shapes to make you own name
- Fruit plants on your desk
- Etc.



### Breeding of ornamentals



APPLIED PLANT RESEARCH  
WAGeningenUR

### Important facts

- 500 new cultivars of nursery stock per year in The Netherlands
- Compared to food crops little area and market per cultivar
- Long term breeding
  - Trees, Rhododendrons ca. 25 years
  - Shrubs 9-12 jaar
  - Perennials 5-8 jaar
- More and more Plant Breeders Rights (PBR)



APPLIED PLANT RESEARCH  
WAGeningenUR

### Trends in breeding

- New colours and forms
- Healthy plants
- Compact plants

APPLIED PLANT RESEARCH  
WAGeningenUR

### New colors and forms



*Hydrangea paniculata* 'DVPpinky'  
(PINKY WINKY)

*Echinacea* > many new cultivars

### Healthy plants



*Crataegus succulenta*  
'Jubilee'

*Ulmus* 'Dodoens

*Hypericum* x *inodorum*  
'Arcadia'

### Sterile plants

No seedlings and not invasive in nature



*Agastache* 'Blue Fortune'



*Buddleja* 'White Ball'

### Exotic plants

New possibilities because of climate change



*Albizia julibrissin*  
'Summer Chocolate'



*Trachycarpus fortunei*

### Low maintenance plants

save labor costs in urban green



*Aster ageratoides* 'Asran'



*Nepeta grandiflora* 'Wild Cat'

### Compact plants



*Weigela* 'Verweig 3'  
(MINOR BLACK)



*Skimmia japonica* 'Temptation'

### Examples of popular crops

- *Buddleja* (ca. 100 cultivars)
- *Caryopteris* (ca. 25 cultivars)
- *Hibiscus syriacus* (ca. 100 cultivars)
- *Hydrangea macrophylla* (ca. 700 cultivars)
- *Hydrangea paniculata* (ca. 60 cultivars)
- *Weigela* (ca. 100 cultivars)

### *Buddleja* (ca. 100 cultivars)



'Pink Delight'



'Notbud' MASQUERADE



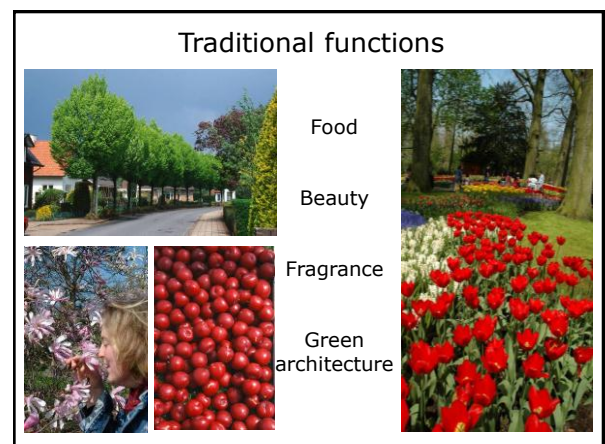
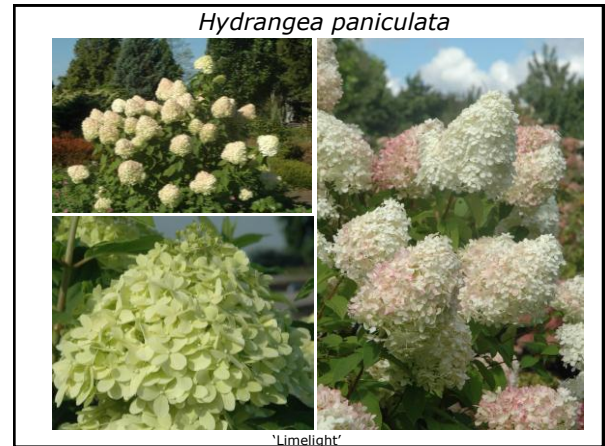
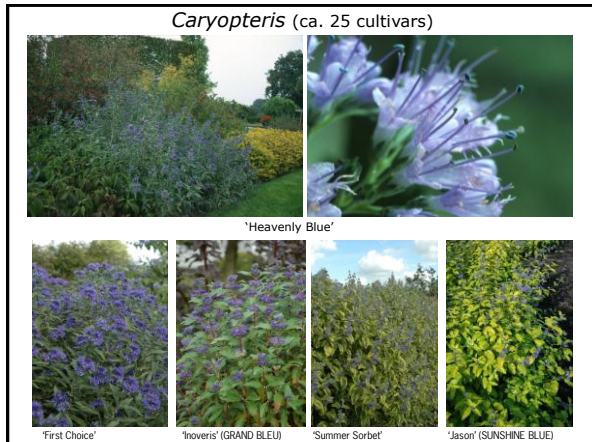
'Camkeep' CAMBERWELL BEAUTY



'Clive Farrell' ('Beijing')



'White Ball'



### Plants for culture and religion



### Plants for social harmony



### Plants for aircleaning

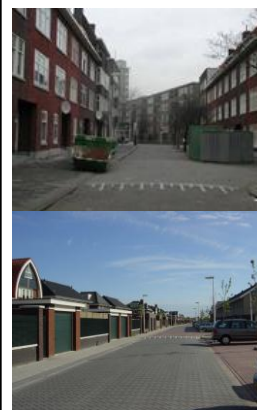
(e.g. Particulate Matter, Nitrogen oxide, ozon)



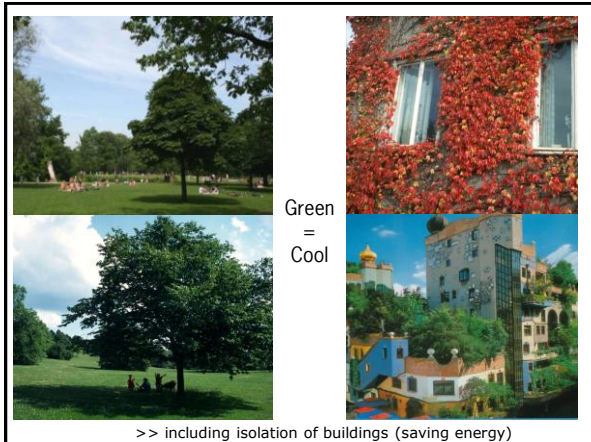
Green  
=  
Health



Green  
=  
Money



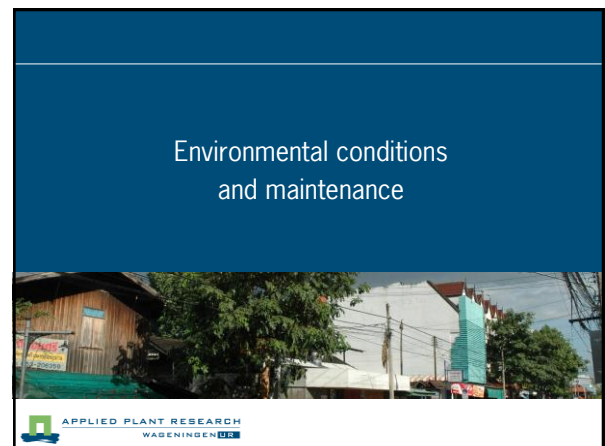
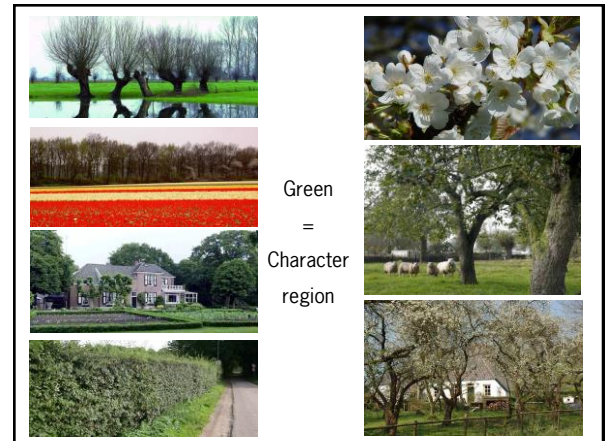
>>improves value of houses



>> including isolation of buildings (saving energy)



>> also opportunities for nature education!



## City conditions difficult for plants

- Often poor soil conditions
- Surrounded by pavement
- Pollution by traffic and industry
- Damage and vandalism
- Competition with cables, piping, foundations, etc.



## City environment



## Many trees show poor growth



## What can be done to improve condition

- Improve soil
- Enough space underground (tree container)
- Protection against vandalism, storm, etc.
- Good maintenance



## Concluding remarks

- Good design
- Right plant for the right place
- Care for your plants



Thank you for your attention!

