

Developments in ornamentals for gardens and urban green

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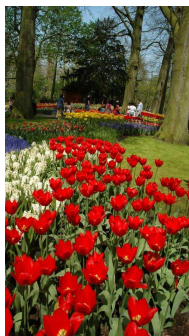
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Ornamental industry in the Netherlands



Bulbs



Greenhouse
(cut flowers, & pot plants)



Nursery Stock
(trees, shrubs & perennials)

Ornamental plants for cities and gardens



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%



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More than 30.000 different species and cultivars in The Netherlands (& Europe)



New species and cultivars

- Yearly hundreds of new species and cultivars introduced
- Sometimes old plants become popular again
- Important developments:
 - New functions of ornamentals
 - Developments in production
 - Developments in marketing (incl. protection)
 - Developments in plant breeding



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New functions of ornamentals



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Traditional functions



Green architecture



Fragrance



Food



Beauty

Plants for culture and religion



Plants for social harmony




Plants for aircleaning

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



Green to fix CO₂
(especially in woody parts of trees and shrubs)



Green
=
Recreation
(&tourism)



Green
=
Health



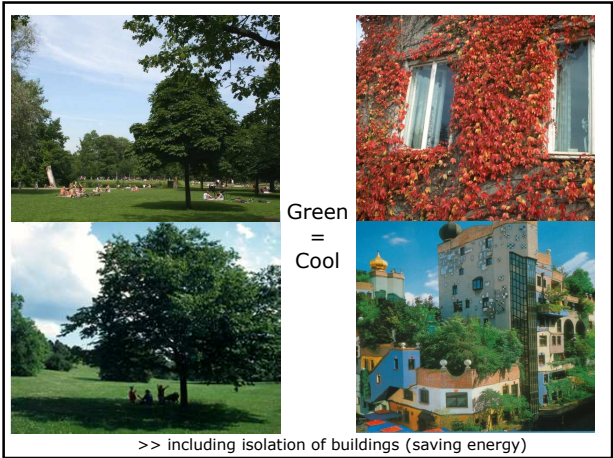
Green
=
Money

>>improves value of houses



Green
=
Cool

>> including isolation of buildings (saving energy)



Green
=
Innovative
architecture





Production in pots and containers

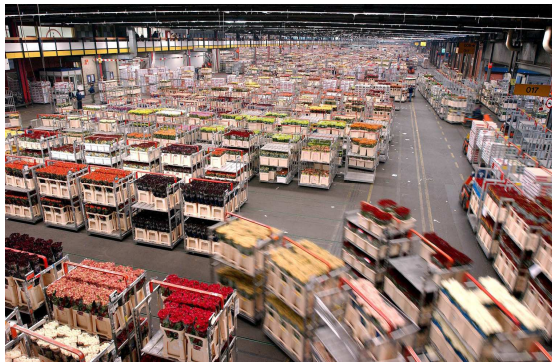
- Easier for mechanisation
- Easier for trade and transport
- Also selling in growing season
- Big auctions based on pot plants



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)

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Production in gutters



Biodegradable pots



Biodegradable binding tube/tape (in research)



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



Production and use of big trees



Uniformity and quality

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

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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)



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

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Injection techniques (Reduction of chemical release)



Use of Tagetus (Non-chemical control of nematodes)



Use of ground cover crops Non chemical control of weeds



Natural enemies for non chemical control



Developments in marketing



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Marketing of green professionalized

- Many new products are developed including a marketing concept (incl. customised labels, pots, trade names, informative websites, QR-codes, etc.)
- Also selling of old products can be stimulated with innovative marketing concepts



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Shape trees

e.g. *Tilia*, *Platanus* and *Carpinus*



Shrubs for cutting industry

e.g. *Hypericum*, *Symphoricarpos* and *Ilex*



Instant hedges

e.g. *Hedera*, *Taxus*, etc.



Green walls



Plant mats for green roofs



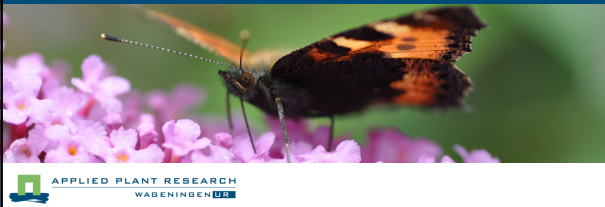
Desk plant of the year

(improves air quality, better concentration, etc.)



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.

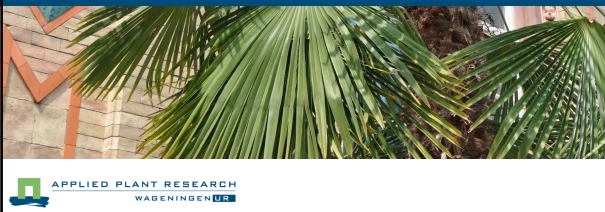


Developments in environmental conditions and maintenance



Our climate is changing

- Average temperature increases
- Growing season extends slightly every year
- Distribution of species in nature moves north
- South European species become popular in NL



City conditions difficult for plants

- Temperatures higher (Urban Heat Island Effect)
- Surrounded by pavement (> dry!)
- Often poor soil conditions
- Pollution by traffic and industry
- Damage and vandalism
- Competition with cables, piping, foundations, etc.



Green in our cities

- Financial cuts of local governments
- Choice for easy maintained green (lawn, blocks of mono-plantings) or pavement
- Citizens ask for color and (bio)diversity
- This asks more skills and knowledge
- Nurseries provide in choice of species, design and care-guides



Developments in plant breeding



Important facts 1

- 500 new cultivars of nursery stock per year in NL
- 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



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Important facts 2

- More and more cultivars are protected by Plant Breeders Rights (PBR)
- Many cultivars get extra trade names for commercial reasons (e.g. *Hydrangea macrophylla* 'Rambo' = MAGICAL TOPAZ = RAMBO BLUE = RAMBO PINK)
- High internationalization > e.g. European and North American assortment becomes more similar



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New tendencies, new cultivars



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New colors and forms



Hydrangea paniculata 'DVPPinky' (PINKY WINKY)

Echinacea & Clematis > 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



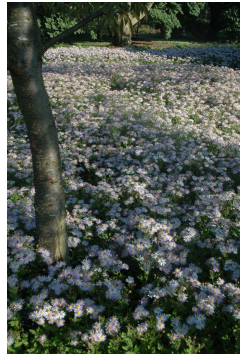
Albizia julibrissin
'Summer Chocolate'



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)
- *Clematis* (>1000 cultivars)
- *Hibiscus syriacus* (ca. 100 cultivars)
- *Hydrangea macrophylla* (ca. 700 cultivars)
- *Hydrangea paniculata* (ca. 60 cultivars)
- *Symphoricarpos* (ca. 40 cultivars)
- *Weigela* (ca. 100 cultivars)

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Buddleja (ca. 100 cultivars)



'Pink Delight'



'Notbud' MASQUERADE



'White Ball'



'Camkeep' CAMBERWELL BEAUTY



'Clive Farrell' ('Beijing')

Caryopteris (ca. 25 cultivars)



'Heavenly Blue'



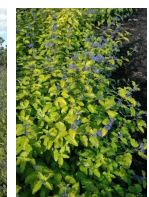
'First Choice'



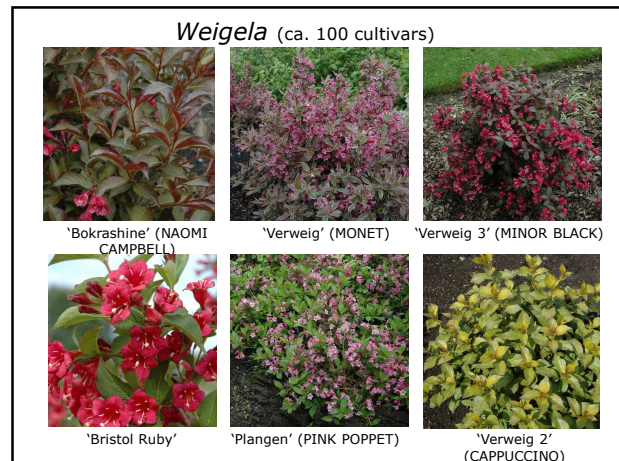
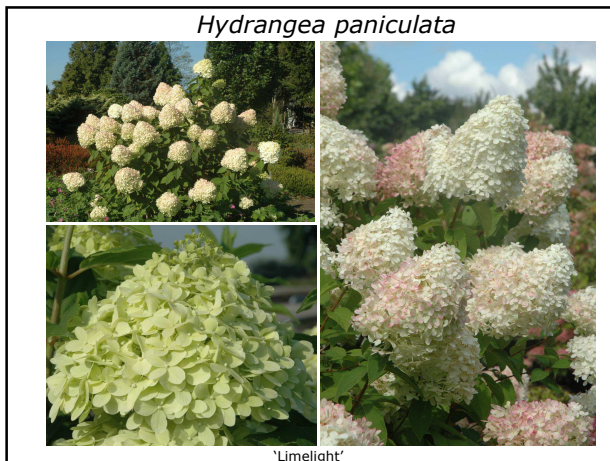
'Inovens' (GRAND BLEU)



'Summer Sorbet'

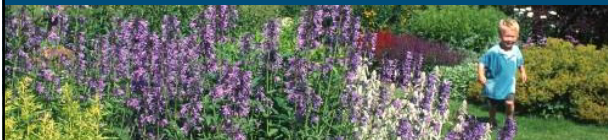


'Jason' (SUNSHINE BLUE)



Future plants

- Further development of modern criteria
- Upcoming criteria:
 - E.g. Plants with non-allergenic pollen
 - New unexpected ones....
- Because of long term breeding period of nursery stock: keep broad assortment



Thank you for your attention!

