



NNGYK
NATIONAL CENTER FOR PUBLIC
HEALTH AND PHARMACY



ELTE
EÖTVÖS LORÁND
UNIVERSITY



MITIGATION OF THE NEGATIVE IMPACT OF ALLERGENIC TREES IN URBAN GREEN AREAS IN HUNGARY.

DONÁT MAGYAR & LÁSZLÓ ORLÓCI

The city of the future



The city of the future?!



This is not a fiction...



Green sky above Moscow



on the 26th anniversary of the Chernobyl
nuclear explosion...



People panicked, schools were closed...children were sent home ...fear of a industrial disaster was suspected...

It was a very high *Betula* pollen concentration!



To date, sufficient scientific evidence has been collected to state that the
pollen emission
of inadequately developed urban green areas
can significantly contribute to the allergen exposure of the population.



Alnus x spaethii=*A. subcordata* x *A. japonica*

IgE against the *Alnus* allergen (rAln g1) was detected in the school children's blood samples in Swiss cities (Grabs and Buchs)

1986: 0% rAln g1

2006: 10,9% rAln g1

the annual pollen yield of a 10-15-meter tall row of trees with a hundred trees can reach **10,000 kilograms**.

Gassner et al 2014 ClinTransl Allergy. 4(Suppl 2): P36.



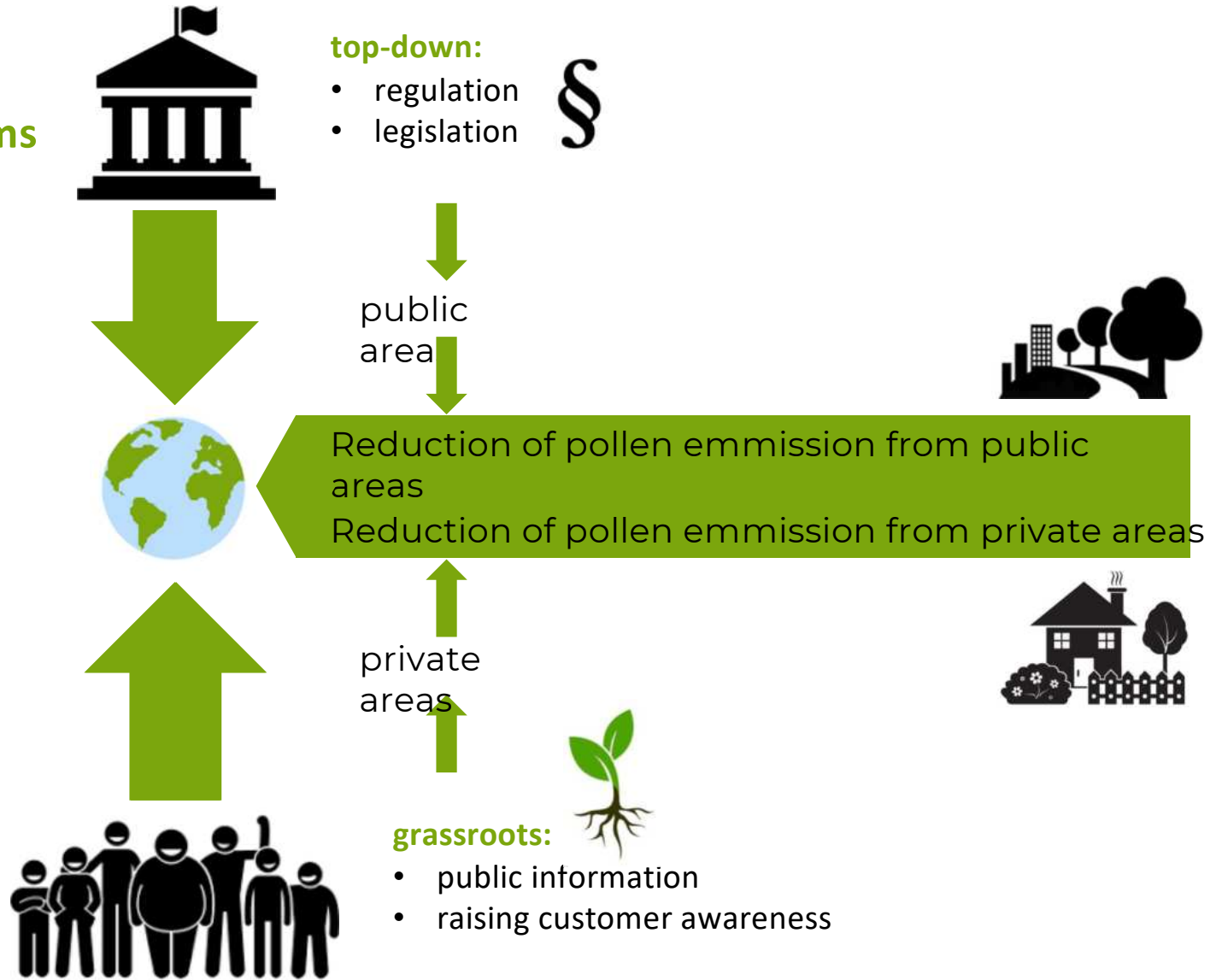


**Pollen allergy for
Christmas!!!**



Even with a low average daily temperature of 5°C, a high pollen concentration (70 pollen/m³) can be measured
the snow-covered tree is also able to emit pollen pollen even at temperatures below freezing.

strategies to mitigate environmental problems



strategies to mitigate environmental problems



top-down:

- regulation
- legislation

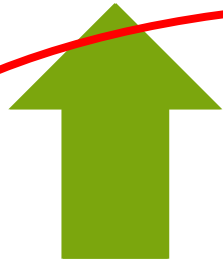


public area

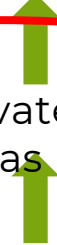


Reduction of pollen emission from public areas

Reduction of pollen emission from private areas

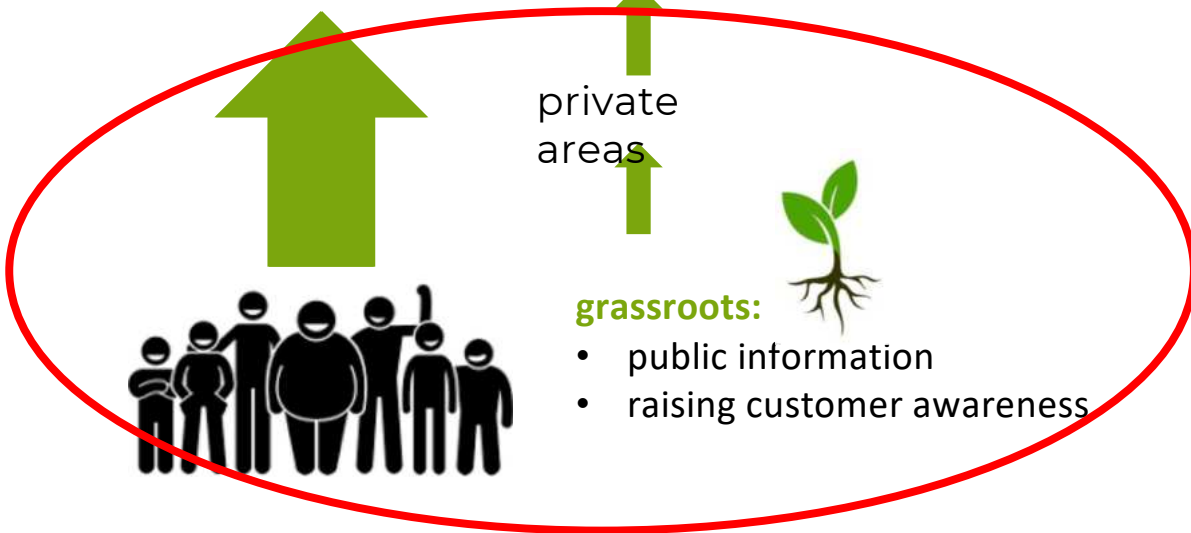


private areas



grassroots:

- public information
- raising customer awareness



Public information about allergenic plants

 Target groups:



allergic patients



plant customers




private
gardeners



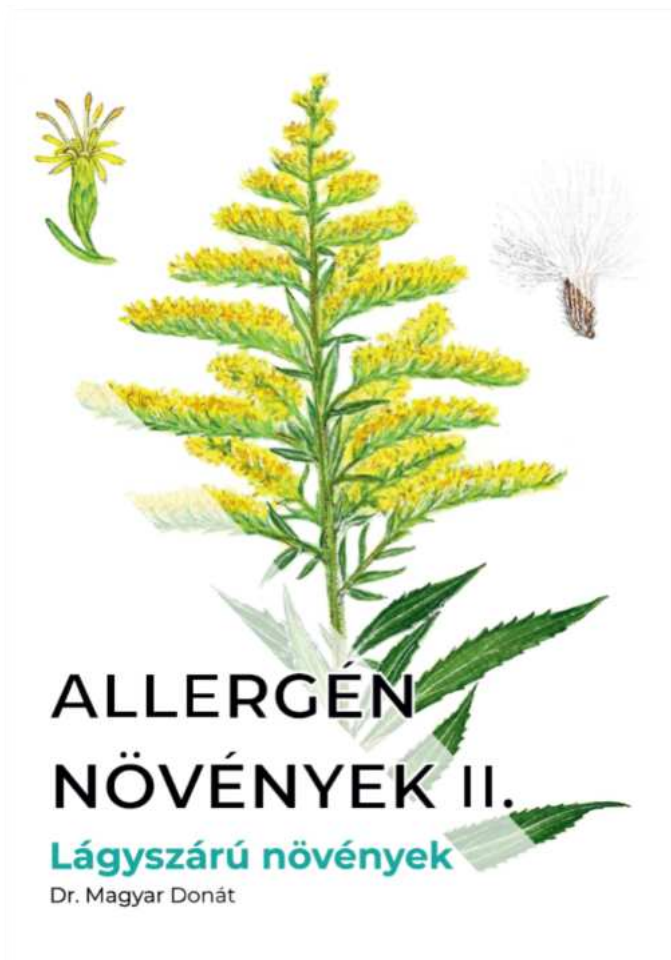
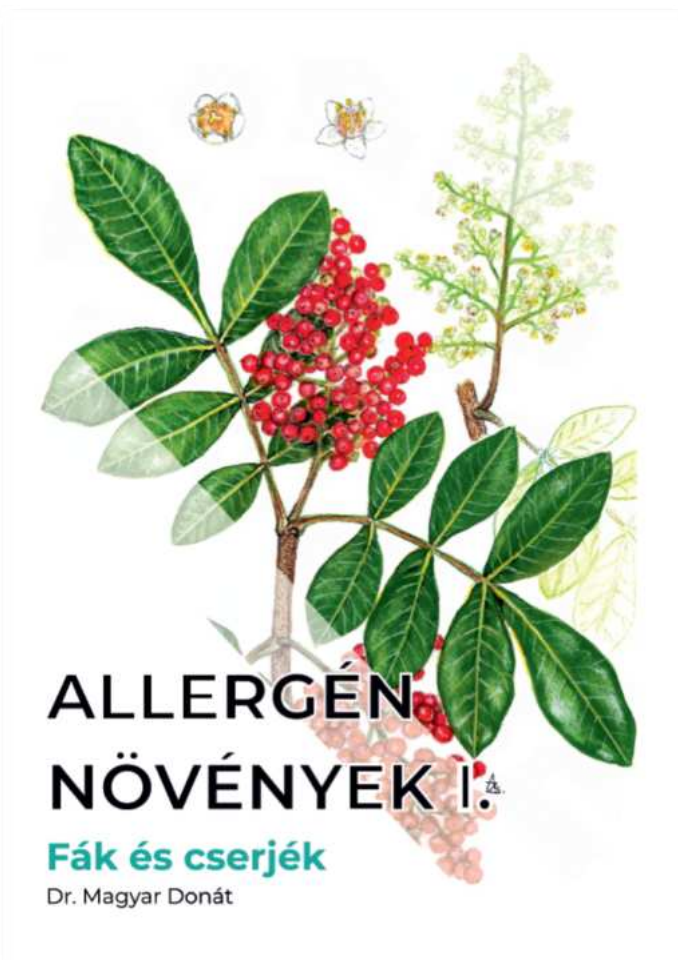
professionals

Public information about allergenic plants I.

 Target group: private gardeners, plant growers



Our booklets



Public information about allergenic plants II.



Target group:
customers

Information for allergic customers
in flower shops and gardening stores.

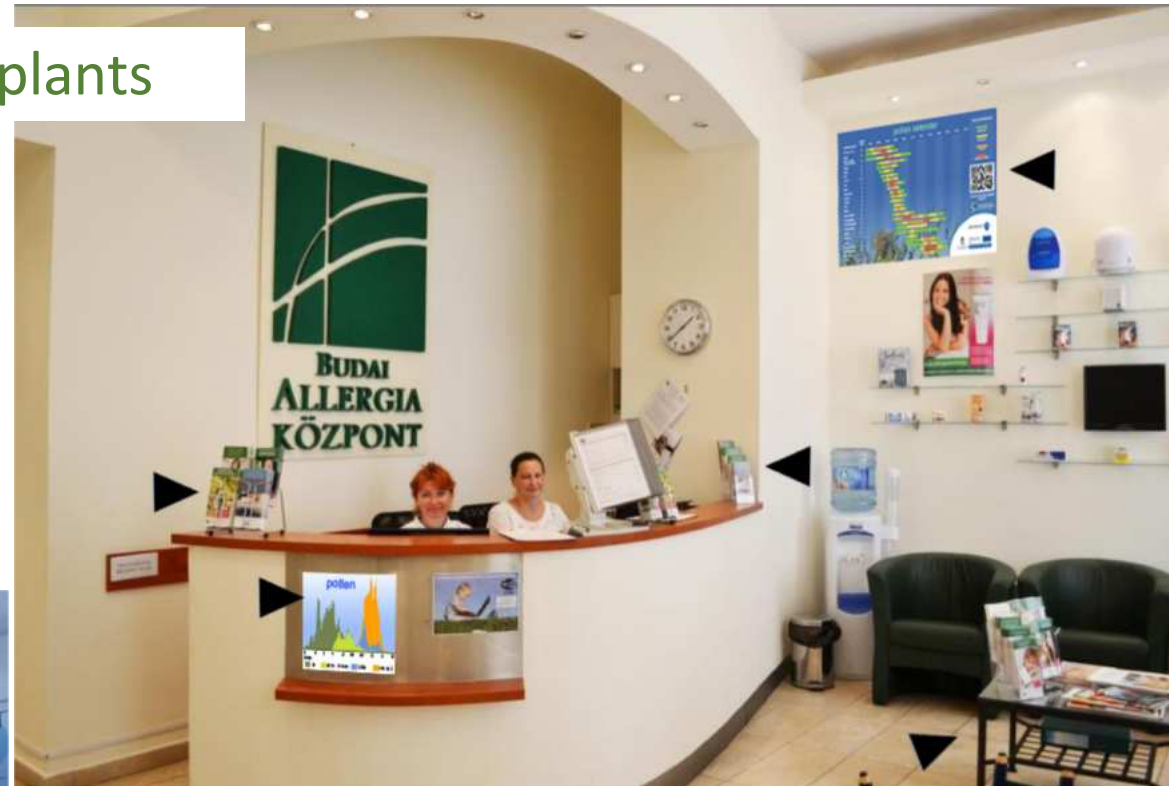
Effective marketing strategy based on
positive messages: „low allergen
plant“



Public information about allergenic plants



Target group: allergic patients



Recognition of allergenic plants is important for patients



they can avoid pollen exposure



allergic symptoms can be reduced or prevented.

Public information about allergenic plants IV.



Target group: professionals

- landscape architects
- urban gardening management



The List of Row Trees in Public Areas

The List of Row Trees in Public Areas - How the **List** is prepared?

Roundtable consensus among experts & stakeholders of different fields:

- Botanists
- Plant breeders
- Plant pathologist
- Urban architects
- Nursery gardeners and traders
- Public health experts



Availability on the market is also an important aspect that is checked yearly.

The List of Row Trees in Public Areas -

Content:

- height, width, etc. of tree varieties
- their tolerance for urban environment,
- pests.
- environmental protection,
- the domestic selections, and
- public health aspects.



The List of Row Trees in Public Areas - How the **List** is published?

The offer list of woody plants is published **every year**.



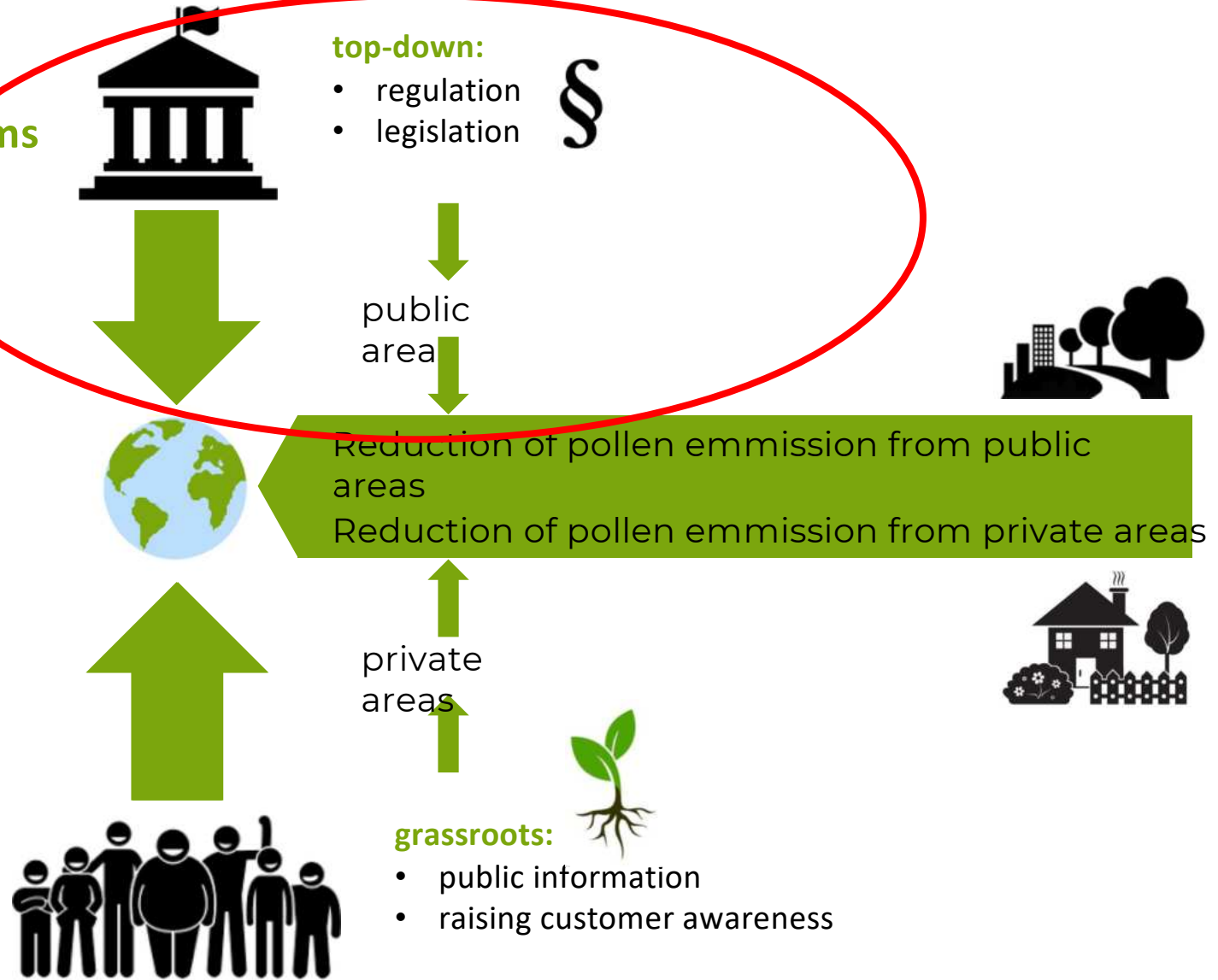
The List is available at the website of the Interprofessional Association of Hungarian Ornamental Gardeners:



The selection and continuous testing of suitable woody plant material is important for effective application.

https://www.diszkereszek.hu/files/2022_KOZTERULETI_SORFAK_JEGYZEKE.pdf

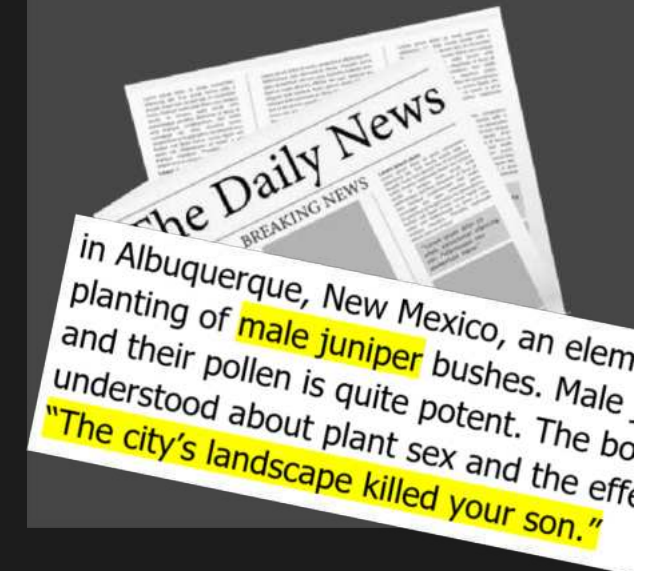
strategies
to mitigate
environmental problems



Juniperus virginiana L.

Its pollen is very allergenic (Jun v1-4),
anaphylactic shock is a rare but severe allergic reaction that can be deadly
contact dermatitis by leaves, bark, resin, sawdust.

Dioecious: females can be planted



USA, New Mexico: 500 \$ fine for planting allergenic plants





Legal regulation is an effective tool for dealing with public health problems



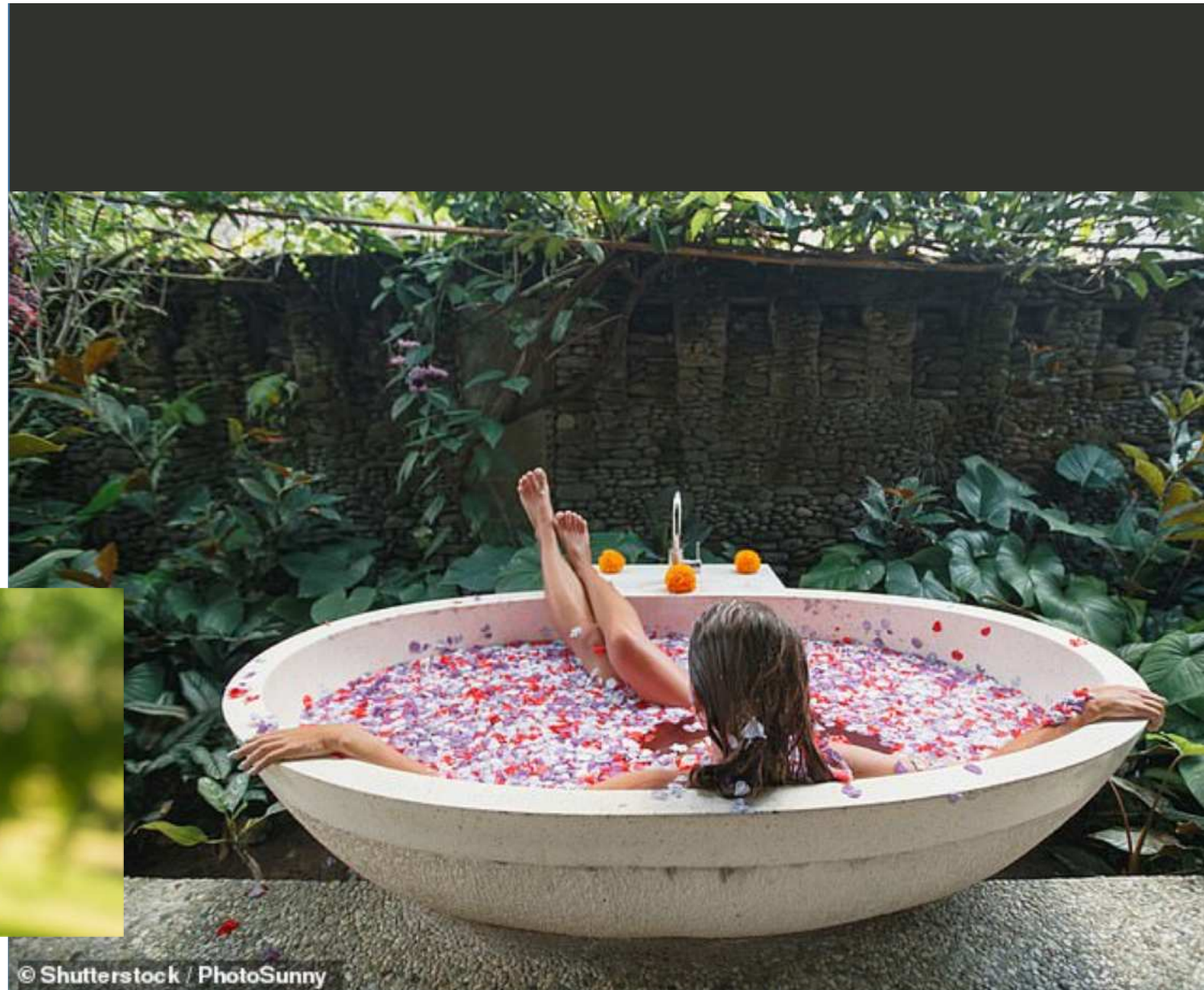


509/2023 (XI. 20.) government decree in Hungary, which requires the assessment and regulation of allergenic vegetation in the public areas of health resorts.



Why health resorts?
Sensitive people visit spas
to get healthier...

Visitors should be
prevented from getting
sick in allergenic urban
areas!



According to the government decree Section 2.3



-A tree inventory has to be prepared of the trees and shrubs located in the health resort or in the protected area



-Prohibiting the further planting of **very highly allergenic** species and varieties in the health resort and the protected area.



-Avoiding the planting of **highly allergenic** trees in clusters or rows. In the case of dioecious taxa, only the female can be selected.



-Their long-term replacement with **non-allergenic taxa**



-Weed control and mowing, including public information

Categorization of plants by their allergenicity

~800 plant taxa



Stop planting!

non-allergenic, low, medium, high, very high allergeni



Good practices





Do not recommend cutting existing trees!!!!



To protect green areas



To avoid conflicts with green organizations



To avoid uncontrolled, illegal tree cuttings

Allow time for nurseries and commercial sector to adapt!





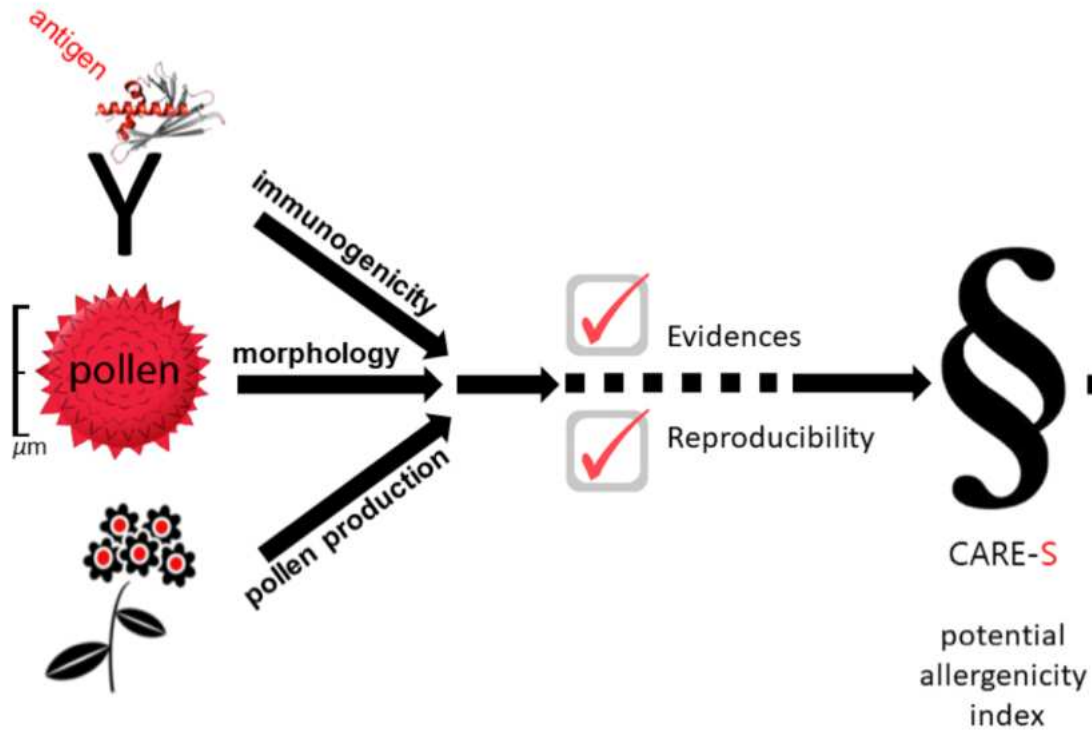
Magyar D, Páldy A, Szigeti T, Orlóci L (2022)

A regulation-oriented approach for allergenicity categorization of plants.

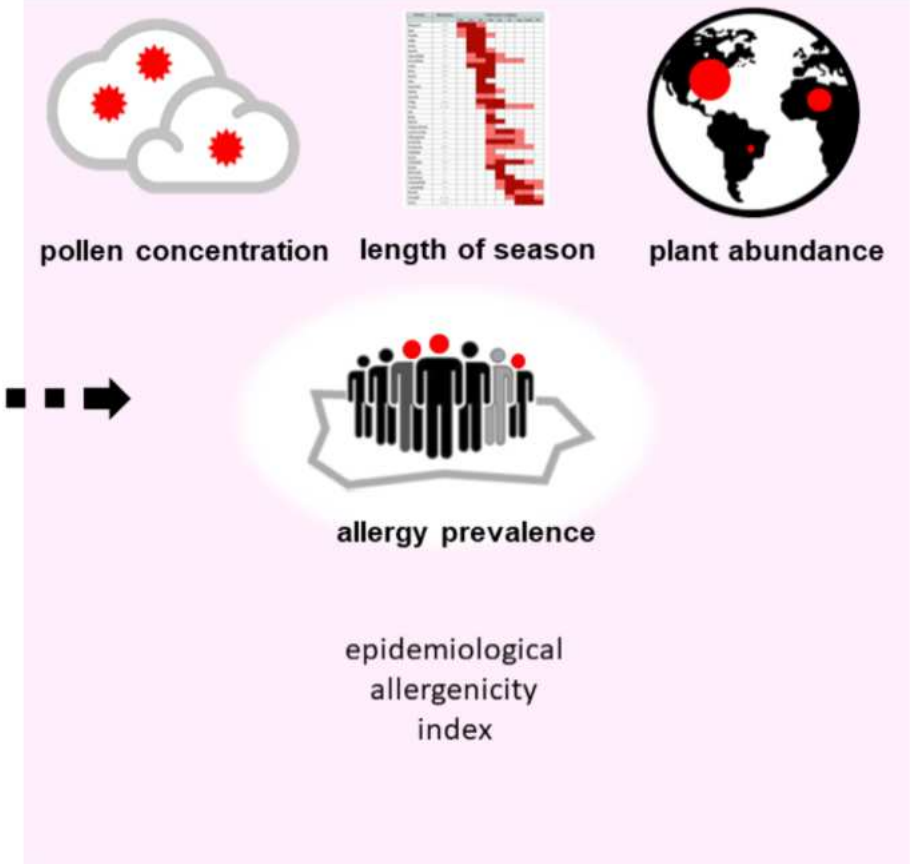
Urban Forestry and Urban Greening. 70: 127530



Genetically determined factors in plants



Geographically determined factors (as a future development)



Where can I find the database of the potential allergenicity of plants?



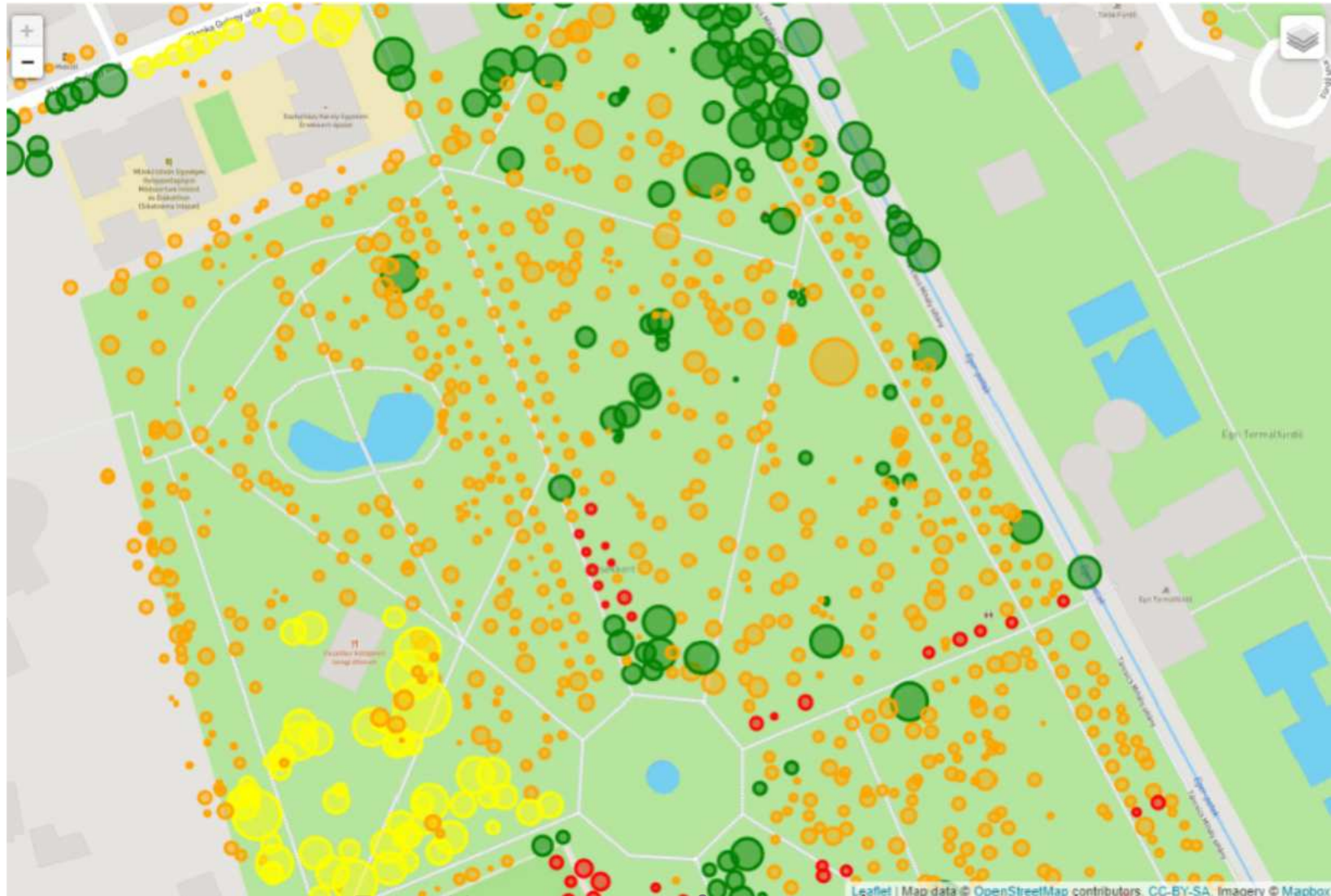
Where can
the potential allergenicity
index be used?





Uses I.

Evaluation and regulation of allergenicity of urban green areas



Eger, Hungary, map from tree inventory, color coded by allergenicity, by: Szilágyi A.



Uses II. Smart adaptation to changing climate and vegetation



**by stopping invasive
allergenic plants**



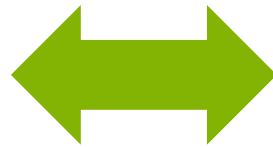
**allowing non-
allergenic, useful new
plants**



Uses III.

Shaping the market of the ornamental plants

Propagation and trade of ornamental plants can be pushed in a favorable direction, towards allergen-free varieties.



Uses IV.



Preserve biodiversity by offering a high number of non-allergenic alternatives

**Thank you for your
attention!**

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