

URBANIA  
HOEVE

Social Design Lab  
for Urban Agriculture

Debra Solomon | Urbaniahoeve | Urban Agriculture Forum | SUSTAIN

ESSENTIAL READING:

====>> VILJOEN, A., (editor) 2005. CPULs – Continuous Productive Urban Landscapes. Architectural Press.

====>> VILJOEN, A. & BOHN, K. (editors) 2014. SECOND NATURE URBAN AGRICULTURE; Designing Productive Cities.

Ten years on from the CPUL City concept. Routledge Press.

ESSENTIAL PROJECT:

====>> DOTT07 URBAN FARMING PROJECT MIDDLESBROUGH David Barrie, Nina Belk, Debra Solomon, B&V Architects

MORE SPACE WITH LESS SPACE: AN URBAN DESIGN STRATEGY



Figure 2.1



Figure 2.2

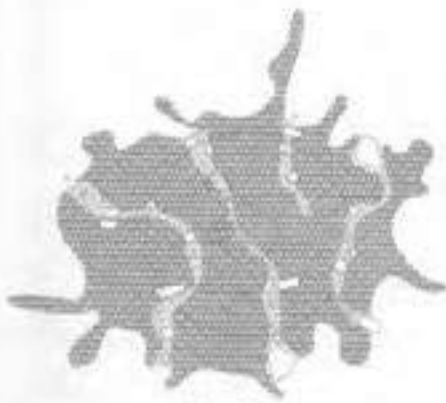


Figure 2.3

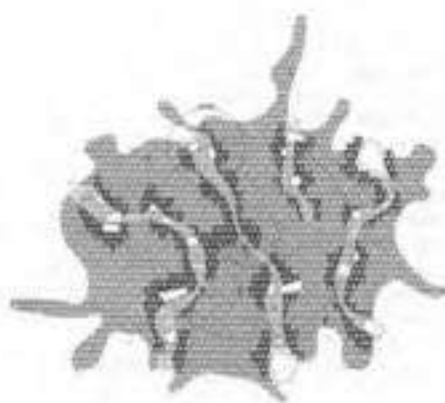
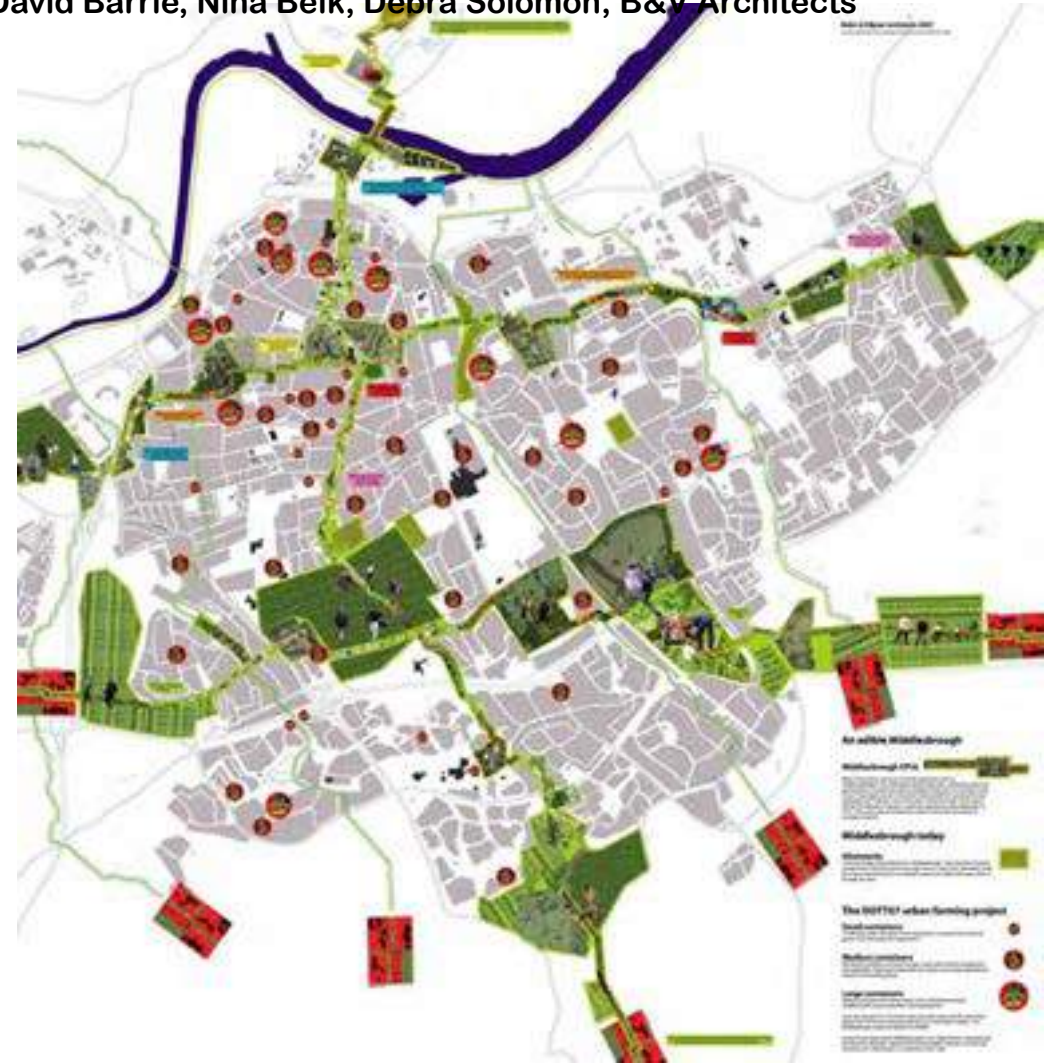


Figure 2.4



Forest gardening is a low-maintenance sustainable plant-based food production system based on woodland ecosystems, incorporating fruit and nut trees, shrubs, herbs, vines and perennial vegetables which have yields directly useful to humans. Making use of companion planting, these can be intermixed to grow in a succession of layers, to build a woodland habitat.

A forest garden is by definition integrated into the landscape.

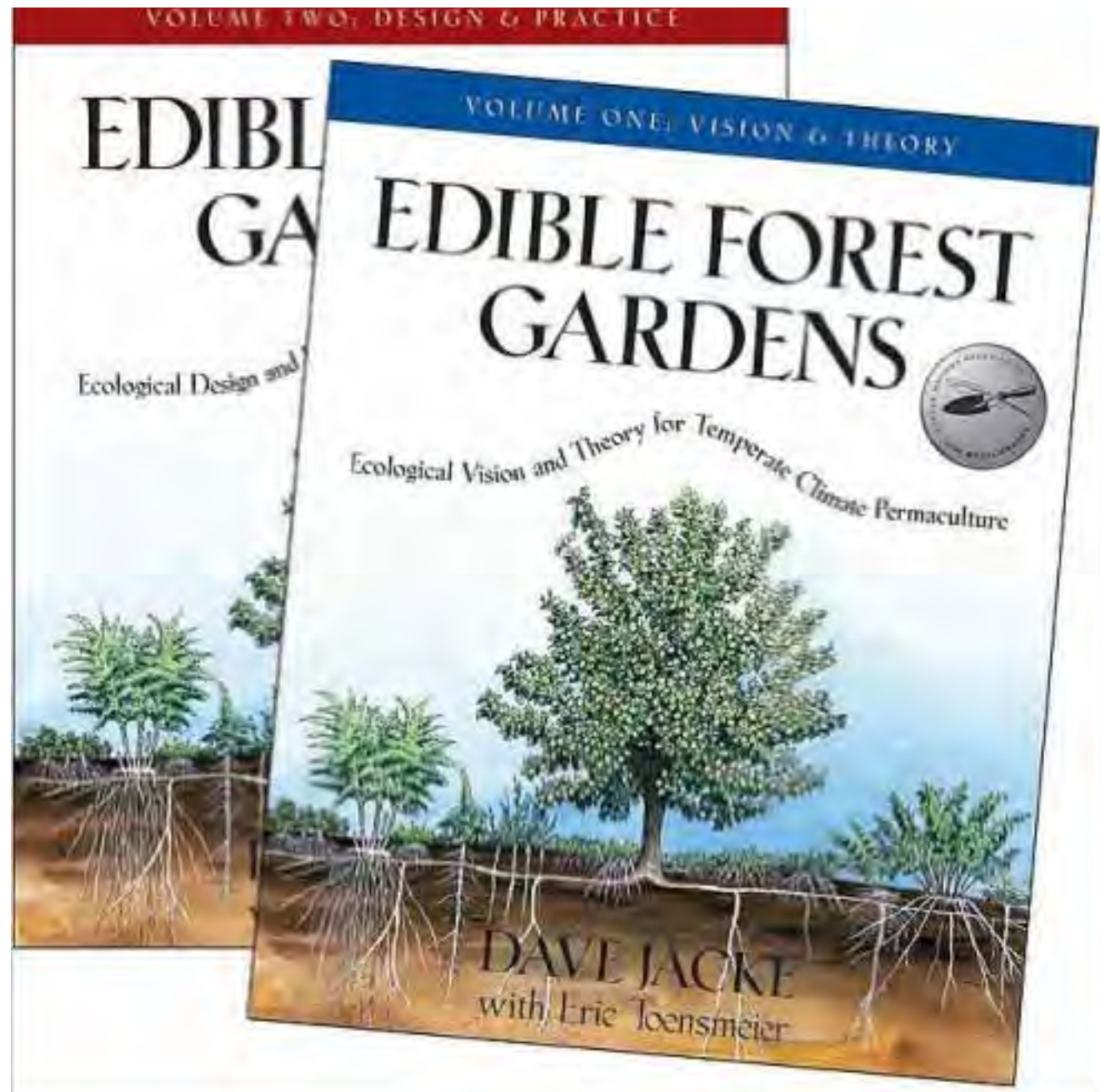
This ancient technique utilises layered woodland to create a robust eco-system.

Forest gardening is widely practiced all over the world.

European examples include nut production.

ESSENTIAL READING:

==>>> JACKE, D, and TOENSMEIER, E., (editor) 2005. Edible Forest Gardens, 2 volumes, Chelsea Green Publishers.

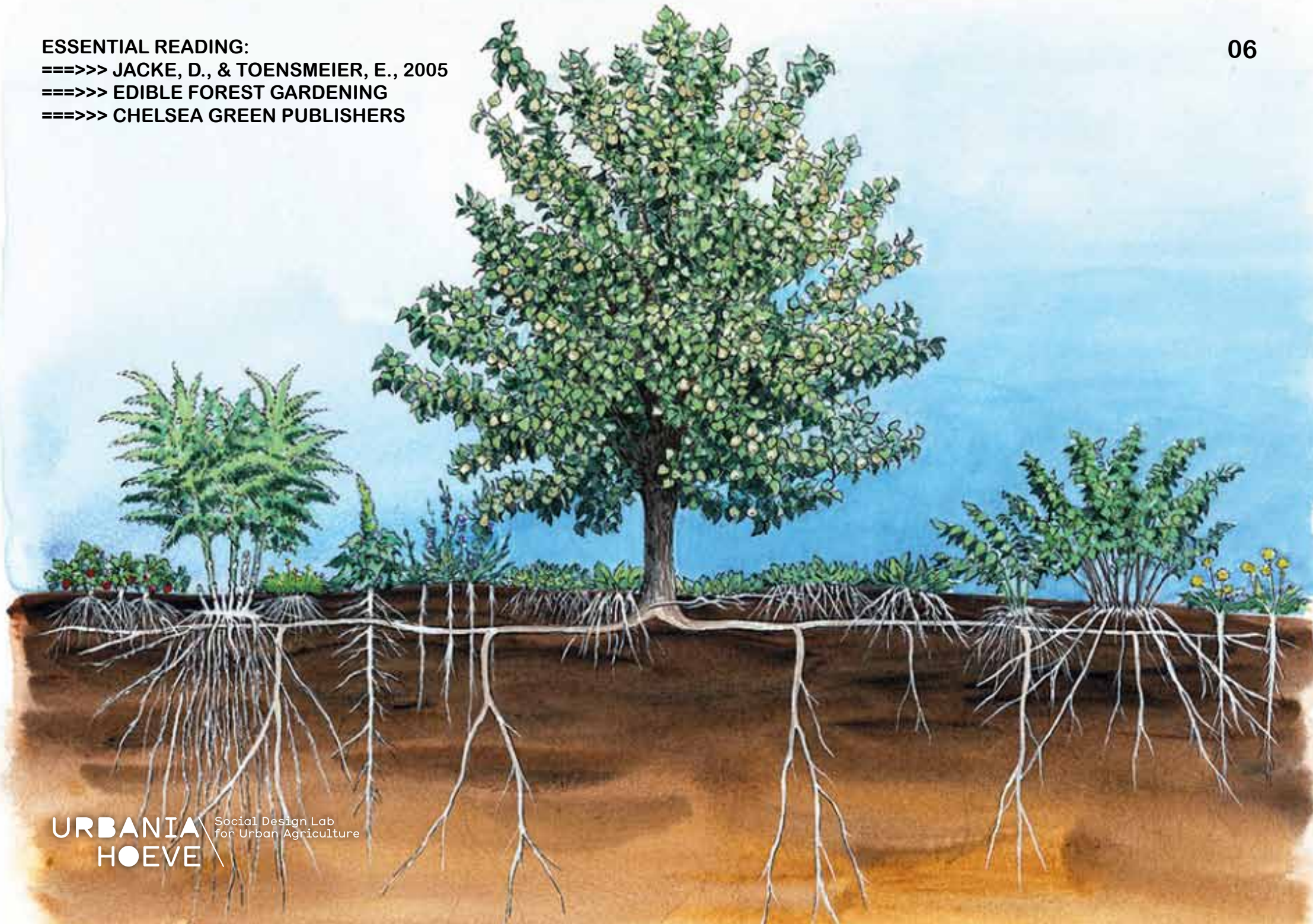


**ESSENTIAL READING:**

**==>>> JACKE, D., & TOENSMEIER, E., 2005**

**==>>> EDIBLE FOREST GARDENING**

**==>>> CHELSEA GREEN PUBLISHERS**



## The Seven layers of the Forest Garden / Food Forest System

1. Canopy – tall trees
2. (Semi-) dwarf (Fruit) trees
3. Shrubs (soft fruit)
4. Herbacious layer (nectary, herbs, veg)
5. Ground cover (nectary, herbs, veg, fruit)
6. Rhizosphere (root veg, tubers, fungi)
7. Climbers (fruit, nectary)

# Climate Crisis to agriculture



# agriculture to perennial agriculture

# perennial agriculture to carbon farming

# carbon farming to the urban soil organism

# urban soil organism to urban agriculture

Agriiculture is the  
leading cause of  
Climate Crisis.

### Agricultural Emissions:

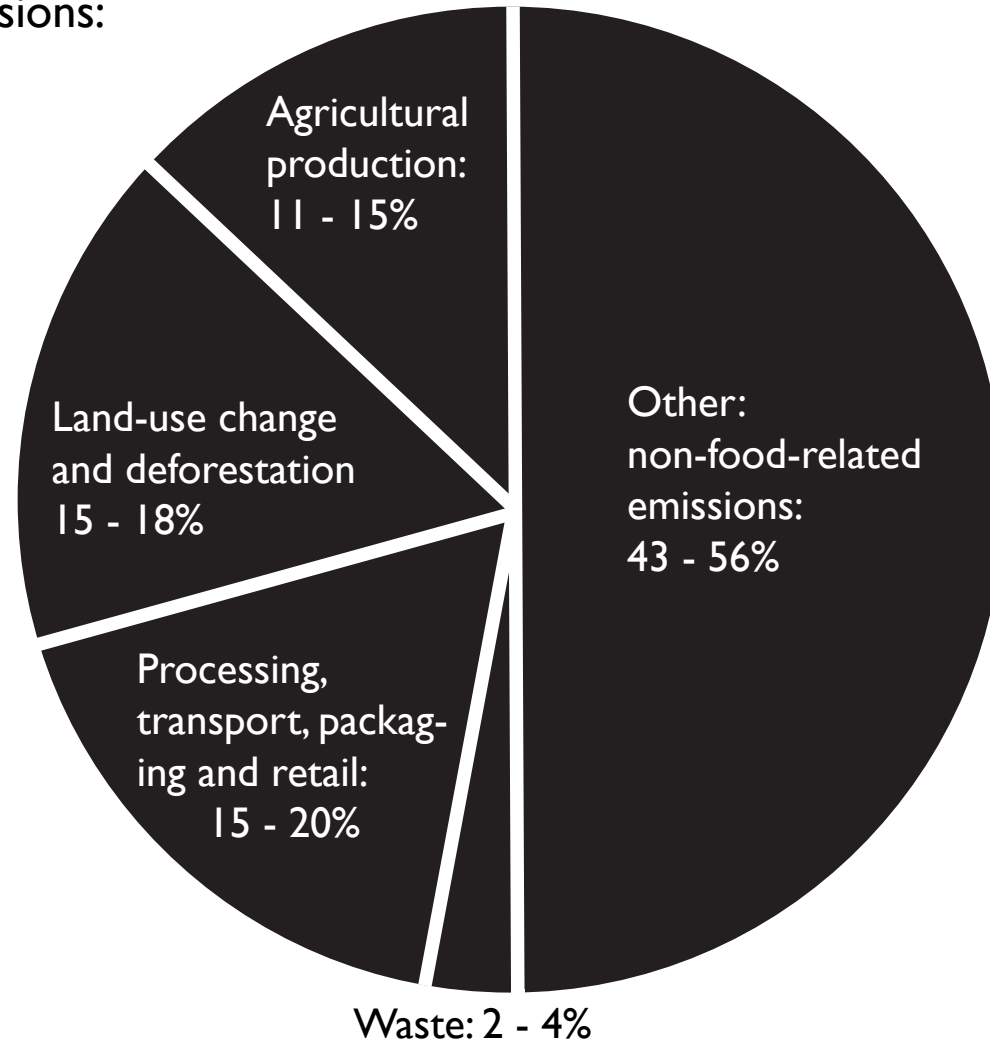


Chart adapted from: GRAIN, "Food, climate change, and healthy soils: The forgotten link" in *WAKE UP BEFORE IT IS TOO LATE: Make Agriculture Truly Sustainable Now for Food Security in a Changing Climate*, UNCTAD, 20.

# perennial agriculture

**5 billion HA farmland worldwide:  
perennial agriculture practiced  
on hundreds of millions of HA.**



**ESSENTIAL READING:**

**====>>> ERIC TOENSMEIER, 2016**

**====>>> THE CARBON FARMING SOLUTION**

**====>>> CHELSEA GREEN PUBLISHERS**

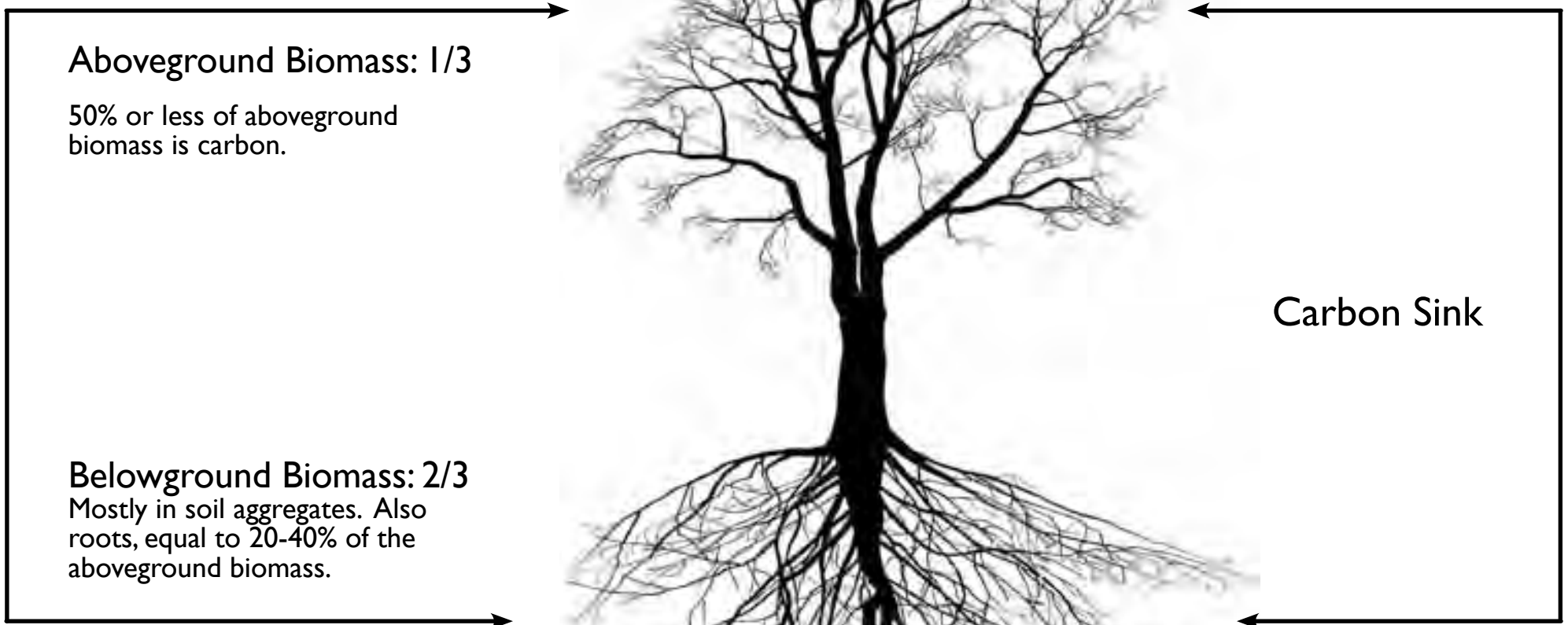


## One really good definition of Carbon Farming:

- production systems that increase sequestration of carbon in terrestrial ecosystems for adaptation / mitigation of Climate Crisis and that
- enhance ecosystems goods and services and (evt.) trade carbon credits for economic gains.

Carbon farming applied to both peri-urban and urban agriculture is one way to repay Climate Crisis debt that industrialised countries have to developing countries.

- # CO2 reduction not yet considered:
- perennial agriculture
  - agroecology / forest gardening
  
  - but especially these formats applied to urban public space.



# Climate mitigation in agriculture:

1. reduction of ag emissions
2. agricultural intensification
3. carbon sequestration in soils

# What does 'reduction of agricultural emissions' imply?

**In agriculture:** no de-forestation, no-tilling, no flooding (rice paddy), less/no fertiliser, N-fixing plants, shorter supply lines.

**In urban agriculture:** de-paving, no-till(!), organic or P'c and forest garden formats, N-fixing plants, bike-walk proximity to plots, filtered air, draught mitigation, water banking / less heat-island, in situ topsoil / BCCS.

## What does 'agricultural intensification' imply?

**In agriculture:** multi-layer polyculture, approach including agroecology / agroforestry systems, perennial and conservation agriculture, no-till (!) nutrient rich and carbon sequestering soils.

**In urban agriculture:** multi-layer polyculture, approach including agroecology/forest gardening systems, perennial agriculture, no-till, nutrient-rich and carbon sequestering URBAN soils, mixed-use.

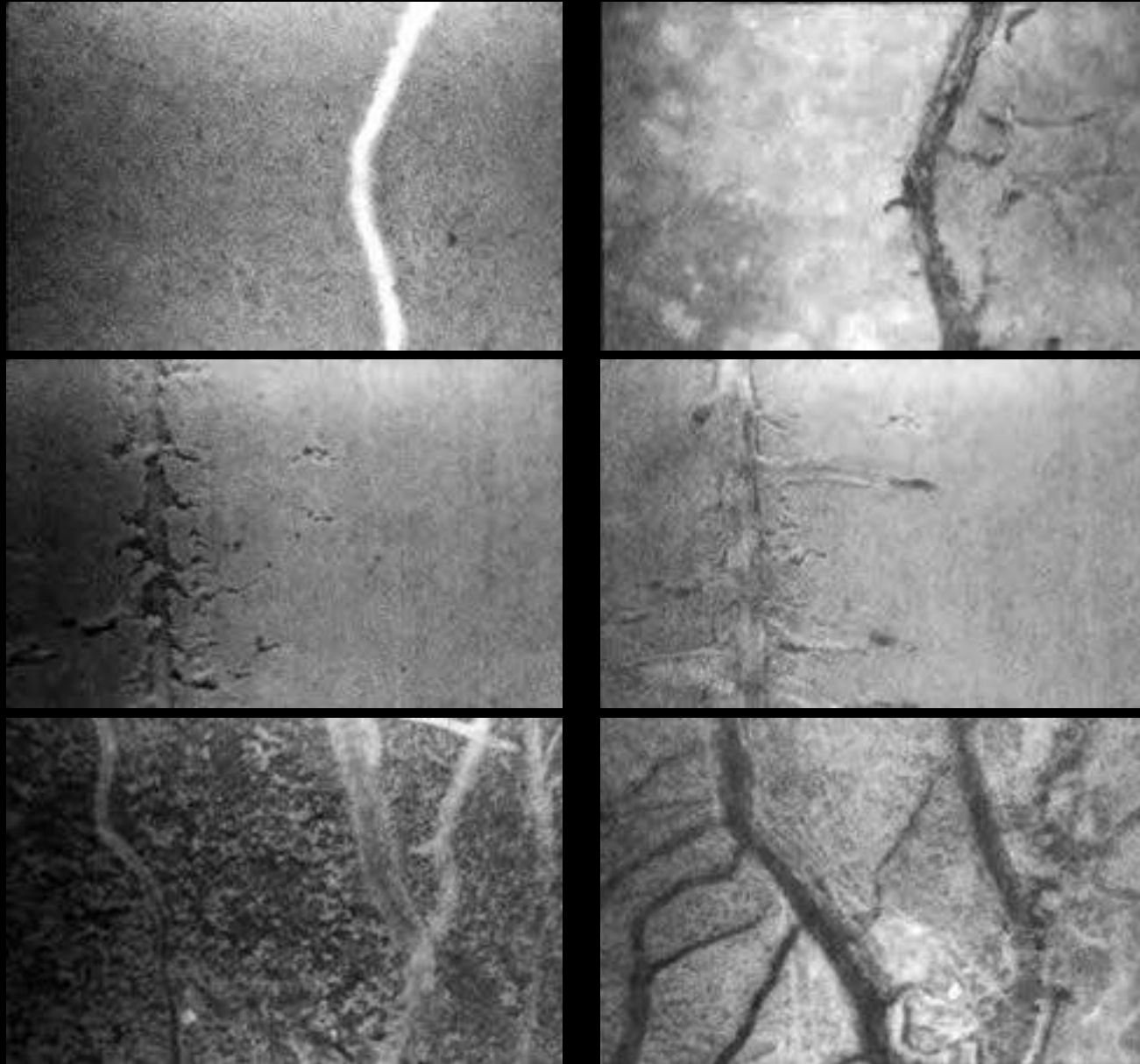


## What does 'carbon sequestration in soils' imply?

**In agriculture:** using crop residues, N-fixing crops, no-till (!), no soil degradation or erosion, green manures, humus, increased Mean Residence Time of soil carbon, +moisture capacity.

**In urban agriculture:** MULCHING urban waste!, N-fixing crops, no-till (!), no soil degradation or erosion, green manures, humus, increased Mean Residence Time of soil carbon, +moisture capacity.

## The Rhizosphere, An Ecological Perspective / Zoe G. Cardon and Julie L. Whitbeck, fig 6.2



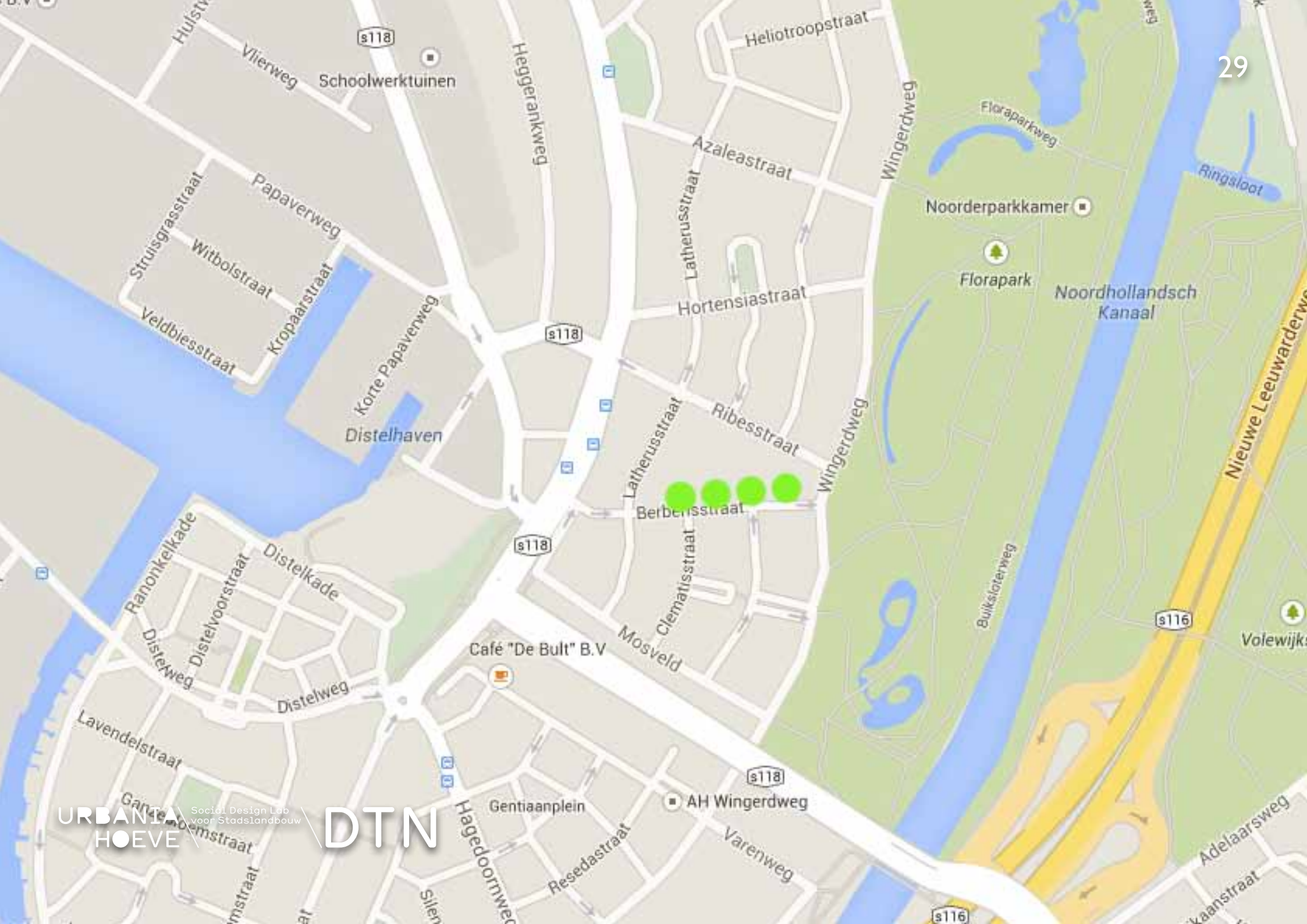
Paired minirhizotron images showing roots of a canola cover crop (left) grown in compacted plowpan soil (spring), and soybean roots (right) observed at the same locations in the soil a few months later. The roots of the soybeans can be seen to follow the channels made by the canola a few months earlier (after Williams, S.M. and Weil, R.R. (2004) 'Cover crop root channels may alleviate soil compactions effects on soybean crop.' Soil Science Society of America Journal (used entirely without permission)).



- Continous Productive Urban Footscape = CPUF**  
 CPUF elements / CPUF programma
- Green CPUF elements / Green CPUF programma**
- keukenbos, tuinuin / kitchen garden
  - dachtuin, kleine productieve / kitchen garden, SHU farm
  - terras tuin
  - balkon tuin
  - balkon bak of facade / balkon fruit facade / facade
  - ynterpoort tuin, collectie arcade / courtis tuin, ynterpoort tuin arcade
- Sociale CPUF elementen / Social CPUF programma**
- babydagk (2,5 - 3 jaar) / baby kindery (2,5 - 3 jrs)
  - Day care 0-12 jaar / 0-12 jaar / 0-12 jaar / 0-12 jaar
  - Speelruimte (13 - 17 jaar) / Play area (13 - 17 jrs)
  - Speelruimte (18+ jaar) / Play area (18+ jrs)

- Green infrastructure / Green infrastructure**
- moeras, schooltuin, productieve / allmend, school garden, SHU farm
  - groenstrook / urban green
  - binnenhof / courtyard
  - sportveld / sports field
  - park / park
  - stadstuin / see
- Sociale infrastructuur / Social infrastructure**
- woonwiel / street
  - openbare kindertuin / open / public day care center
  - school / elementary school
  - atelier, workshop / atelier / workshop
  - woonwiel / woonwiel / adult education
  - marktplaats / point of sale
  - publiek gebouw / place of meeting
  - buurtcentrum / community center
  - schooltuin / school garden







Foodscape Schilderswijk

Groene infrastructuur

Fase 1 Locaties

Fase 2 Locaties

groenvoorziening

Sociale infrastructuur

bibliotheek

onderwijs

godsdienst-gebouw

buurtcentra

kinderboerderij

























Rabarber is ongekeerd lekker!

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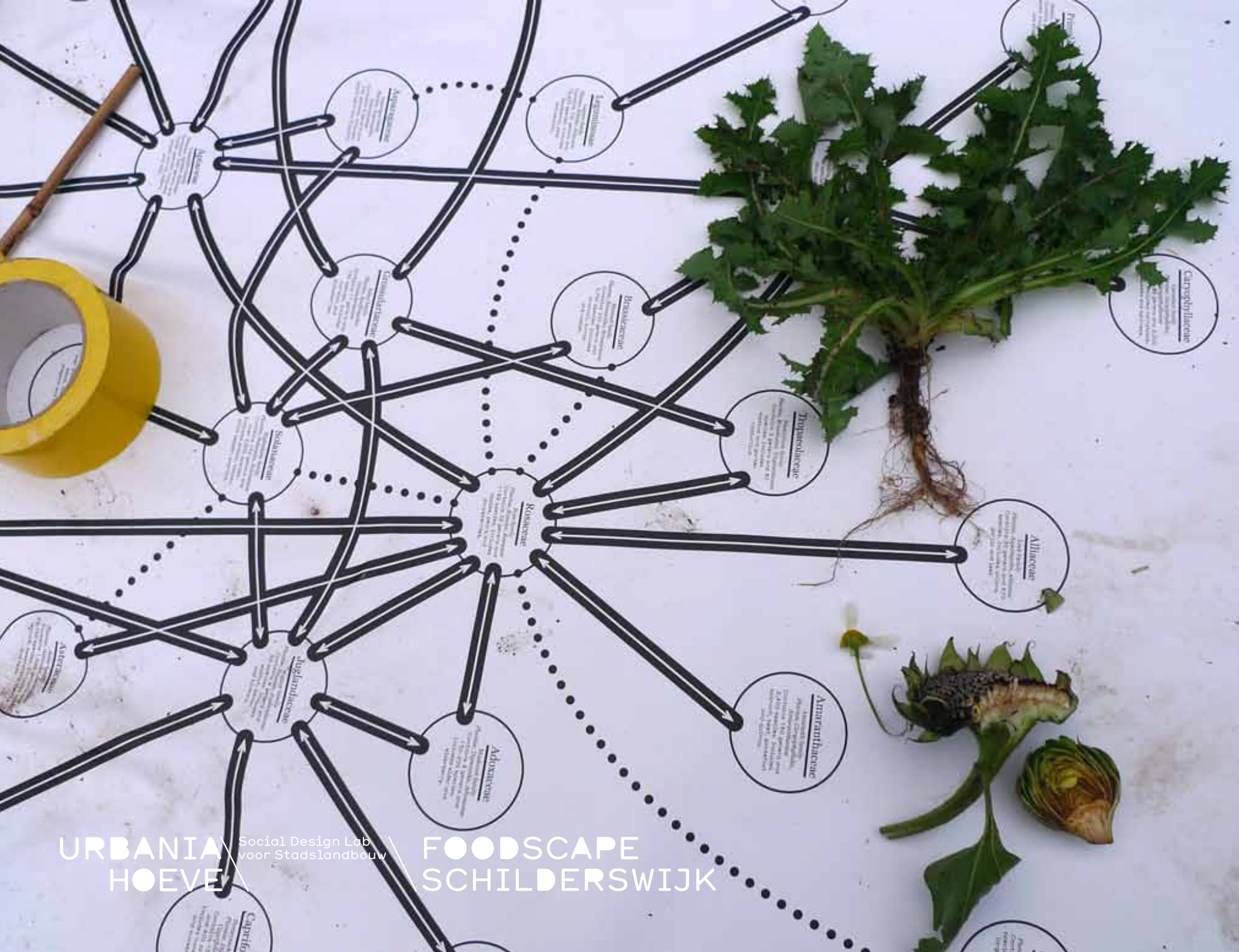
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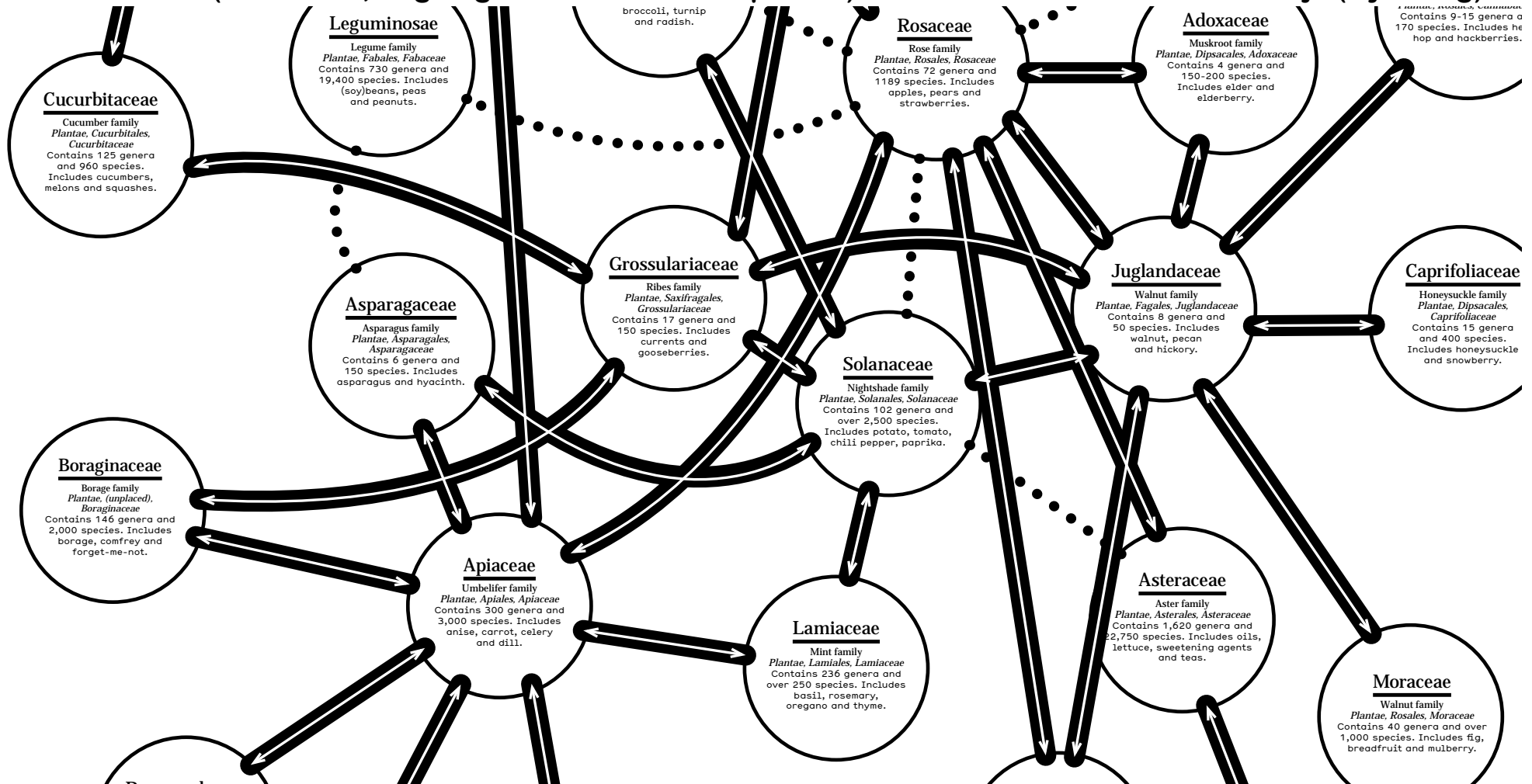
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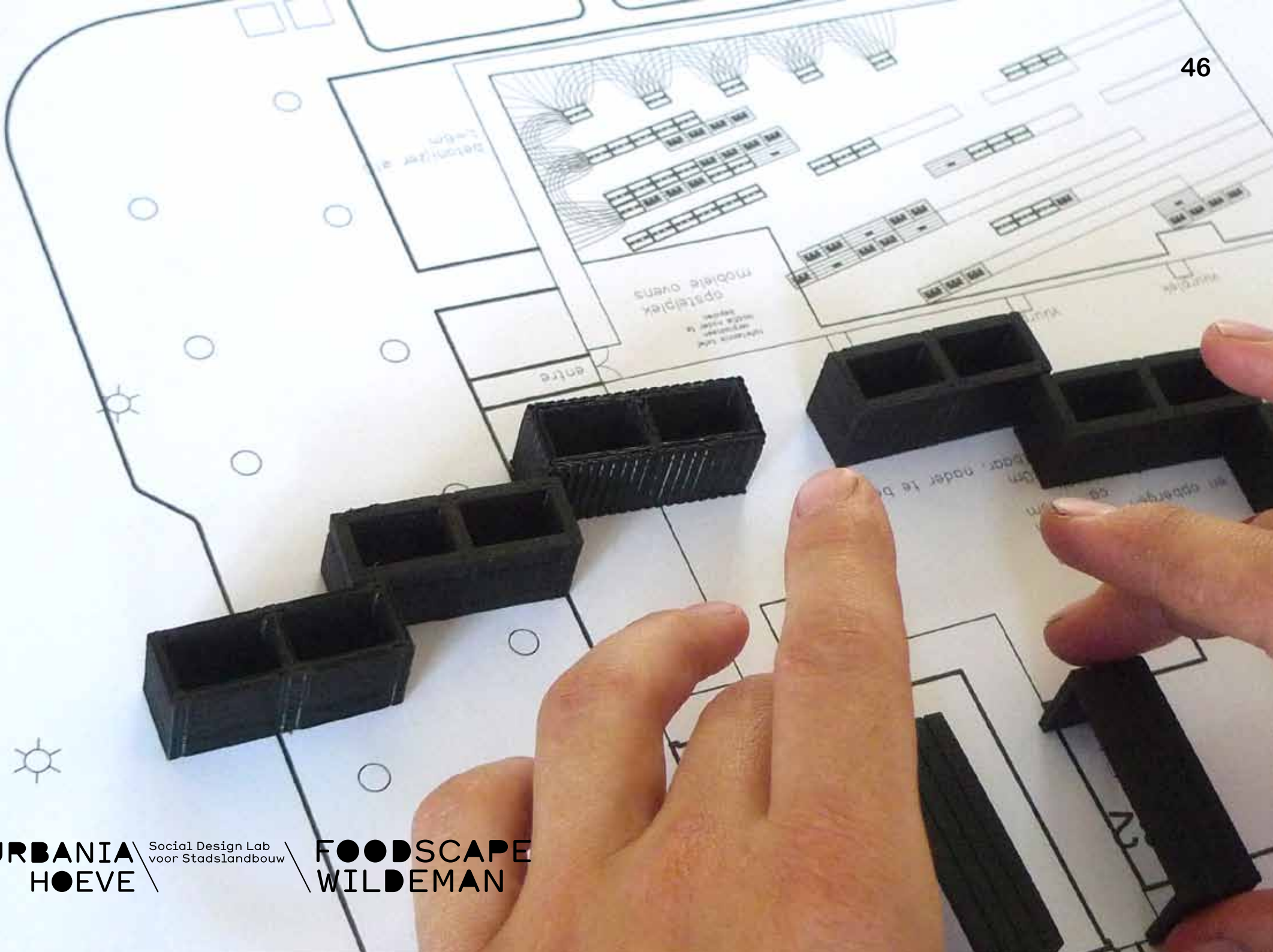


**Plant Guilds Poster: (from 2011, ongoing translations and updates) in collaboration with Jaromil Rojo (Dyne.org)**



The Plant Guilds poster, available in English, Dutch, Bulgarian, Turkish, Greek, Portugese, and Italian (the image shows a small selection of the total poster), and is exhibited and distributed widely. Last exhibited at ONE ARCHITECTURE WEEK 2015 (Plovdiv, BG - and generously supported by the Dutch Foundation for the Creative Industries.)













URBANIA  
HOEVE

Social Design Lab  
voor Stadslandbouw

FOODSCAPE  
WILDEMAN











# Noord

Wij zijn nu open!  
Wees welkom op  
de wekelijkse  
tuindagen op  
dinsdag.

info@urbaniahoeve.nl  
www.urbaniahoeve.nl

DemoTuinNoord wordt ondersteund door:  
MeeDoen in Noord, Ymere,  
en Stichting DOEN.

STICHTING  
DOEN

**Ymere**  
EIGEN HAARD

