

AGBAG FEATURES

HOW IT WORKS TO PROVIDE AN INTENSIFIED AND BIODIVERSIFIED GROWING ENVIRONMENT

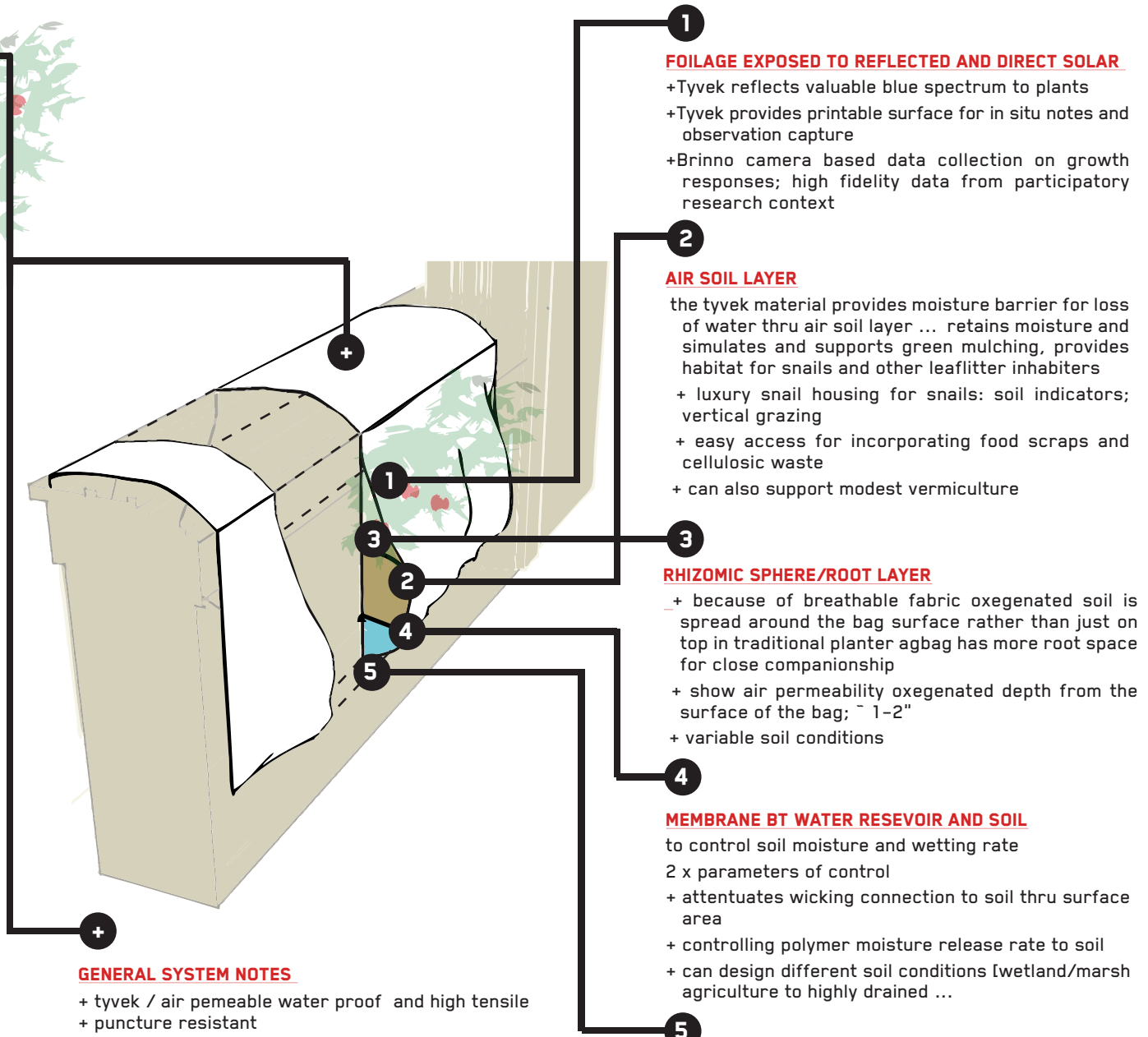
SYSTEM CHARACTERISTICS:

system minimized root space and maximizes leaf area index via

- + root to shoot ratio characterization of plants (e.g. vines)
- + perennial (storing nutrients over winter) --> imp to building interacting pollinators/birds and biodiversification
- + scaled to be manageable by one or two people; strategy of scaling thru aggregation of small action vs scaling thru tractor/heavy equipment scaling; because urban systems have large number of i-people, whereas rural context defined by low human to plant ratio
- + scaled to work within safety margins of legacy buildings and building codes
- + modular / inexpensive / aggregatable / networked agriculture system
- + using urban structures to access solar resources; (that would not be accessible in 2-d agriculture / community garden); exploits 3-d space filling algorithms; and existing structural investment; coupling
- + changes the scale (by approx 3 orders of magnitude) of what is possible in urban agricultural context

GENERAL SYSTEM NOTES

- + tyvek / air permeable water proof and high tensile
- + puncture resistant
- + upcycled material (theoretically)
- + single HDPE material, no leaching, no binders
- + using counter balancing for safe non destructive fastening that can be added to any railing, double hung window, parapet or existing structure
- + load bearing on railings (mass is less than a person)
- + white titanium dioxide acts photocatalyzes the breakdown of common urban air pollutants NOx SOx



1 FOILAGE EXPOSED TO REFLECTED AND DIRECT SOLAR

- + Tyvek reflects valuable blue spectrum to plants
- + Tyvek provides printable surface for in situ notes and observation capture
- + Brinno camera based data collection on growth responses; high fidelity data from participatory research context

2 AIR SOIL LAYER

- the tyvek material provides moisture barrier for loss of water thru air soil layer ... retains moisture and simulates and supports green mulching, provides habitat for snails and other leaf litter inhabitants
- + luxury snail housing for snails: soil indicators; vertical grazing
- + easy access for incorporating food scraps and cellulosic waste
- + can also support modest vermiculture

3 RHIZOMIC SPHERE/ROOT LAYER

- + because of breathable fabric oxygenated soil is spread around the bag surface rather than just on top in traditional planter agbag has more root space for close companionship
- + show air permeability oxygenated depth from the surface of the bag; ~ 1-2"
- + variable soil conditions

4 MEMBRANE BT WATER RESEVOIR AND SOIL

- to control soil moisture and wetting rate
- 2 x parameters of control
- + attenuates wicking connection to soil thru surface area
- + controlling polymer moisture release rate to soil
- + can design different soil conditions [wetland/marsh agriculture to highly drained ...

5 SUB IRRIGATION SYSTEM

- (simulates moisture seepage from large soil banks; damps wet/dry cycle and associated plant stress)
- soft and expandable water reservoir
- maximizes space use
- releases dissolved nutrients to plants; 777 NPK (current) i.e. plants are not nutrient limited despite constrained root space