



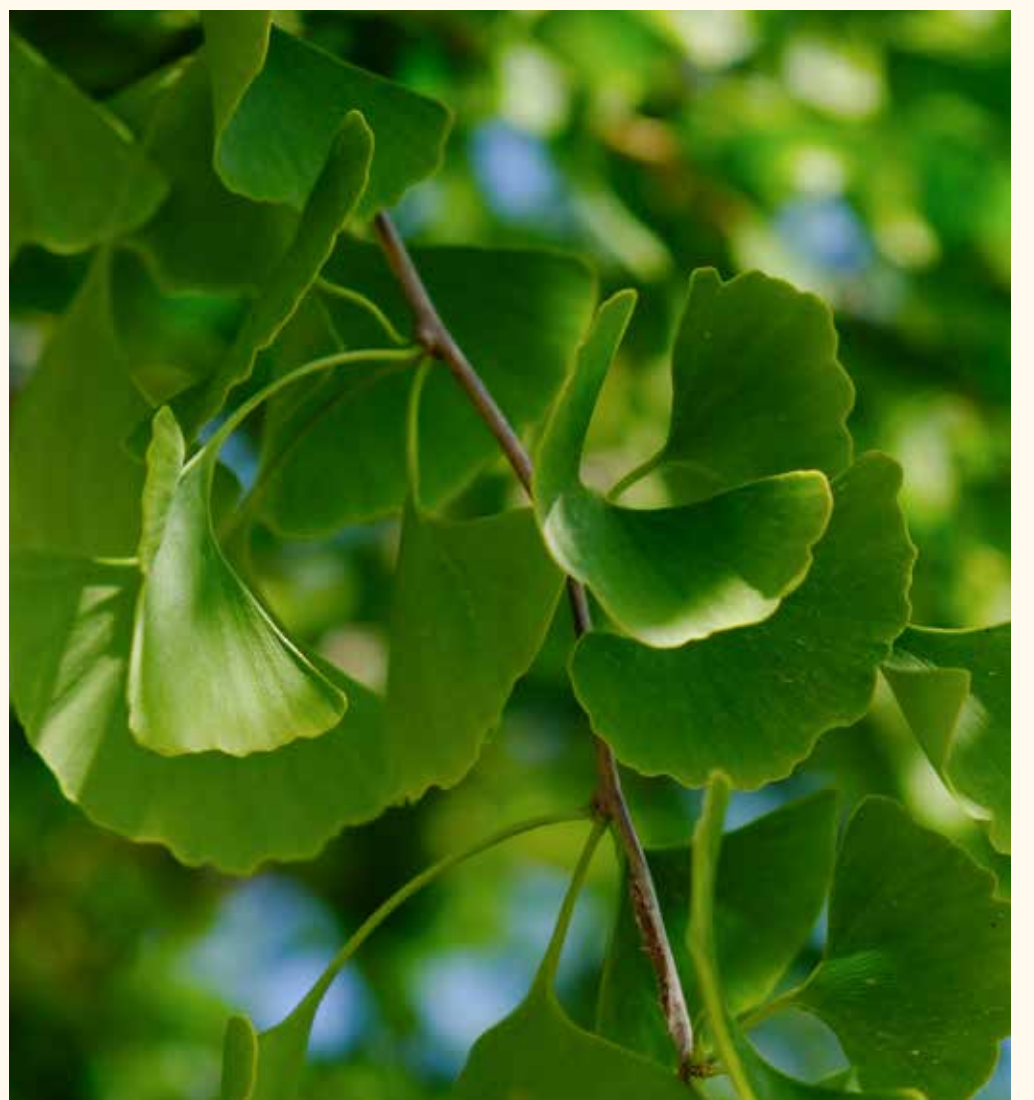
ARE WE REALLY BLIND TO PLANTS?

Plants offer essential benefits such as:

- Restoring environments
and reducing climate impacts
- Supporting biodiversity and strengthening
ecological balance
- Making cities greener and more resilient
- Enhancing well-being and improving
quality of life

Yet, despite all this, we still ignore their true
potential

What if the solutions of tomorrow are already
growing all around us?





CAMPUS AUTHENTICA – Urban Regeneration of the Former Enel Headquarters, Terni, 2024. A project by barberis & partners + david fantini architetture, transforming the former Enel site into a vibrant, multifunctional campus through a careful approach to urban regeneration and sustainable design.



Valerio Barberis
barberis & partners

Nature, architecture, and health

Today, 55% of the world’s population lives in urban areas; according to United Nations estimates, this figure will rise to 68% by 2050. Within this overall framework, Europe stands out as one of the most urbanized regions in the world: already 70% of European citizens live in urban areas, a proportion expected to increase to 80% by 2050.

The future of humanity unfolds within this paradox: cities are the places where people choose to live because of the cultural, social, and economic opportunities they offer, yet at the same time they are the environments in which the challenges humanity must face are generated and concentrated—above all, climate emergency and social segregation.

A new centrality of nature

It is urgent to define new urban models that place nature at the center, as the only true resource for addressing the problems generated by consolidated development models. This perspective is now, at last, reshaping the disciplines of urban, architectural, and landscape design, and must begin with a renewed alignment between urban and environmental planning. Both should be oriented toward climate neutrality and social inclusion, and above all toward the health and well-being of people.

The One Health approach, promoted by the World Health Organization, is a health model based on the recognition that human health, animal health, and ecosystem health are inextricably linked. This holistic perspective provides an overarching framework to guide design at different scales toward people’s mental and physical well-being, and outlines a renewed harmonization between humans and nature to be implemented in urban, architectural, and landscape design through the promotion of a broad biophilic approach to both indoor and outdoor spaces.

“The physician treats, nature heals” – Aristotle

In this broader context, both outdoor and indoor spaces take on significant importance due to their potential to function as genuine tools for health prevention and the promotion of healthy lifestyles.

This is achieved by applying Nature-Based Solutions across a variety of design strategies: healing gardens, nature-based therapy, Sustainable Urban Drainage Systems, pocket gardens, and extending to the landscape urbanism model, which envisions the city as an integrated network of green infrastructure encompassing built “islands.”

The ESG paradigm in the construction sector

Sustainable development strategies and their implementation within the ESG framework must become an integral part of urban transformations and construction processes. They should promote new models based on a holistic approach that can harmonize economic development, environmental concerns, and social inclusion. Placing nature at the center directs real estate investments toward the ESG paradigm, as it guides urban, architectural, and landscape design toward creating spaces that support climate neutrality, foster social inclusion, build communities, and, ultimately, promote the well-being of both people and the planet.

The great cultural and political challenge

The major cultural and political challenge lies in making cities’ attractiveness sustainable and ensuring that their future development is directed toward adapting to the impacts of the climate emergency, safeguarding public health, promoting social inclusion, redistributing generated wealth, supporting manufacturing chains local commerce, and services, and creating high-quality jobs that actively contribute to improving the planet’s environmental conditions.

Urban areas have assumed an increasingly significant role in shaping national political agendas. Globally, the UN 2030 Agenda and its 17 Sustainable Development Goals highlight this importance, while at the continental level, programs such as the Urban Agenda for Europe and initiatives like 100 Climate Neutral & Smart Cities demonstrate the centrality of cities as planning tools for the sustainable development strategies of our planet.

The role of Italian cities in the context of urban centrality

The role of Italian cities in this context of urban centrality is even more significant with regard to shaping national policies, as they form the backbone of the country’s economic, social, and cultural system. Italian cities host a substantial portion of the nation’s invaluable cultural and artistic heritage, as well as its tangible and intangible traditions. However, their true strategic asset lies elsewhere: in the presence of industrial, artisanal, and agri-food districts, which represent a unique feature within the European and international landscape. This creates a perspective in which urban policies play a key role in shaping Italy’s industrial policies.

The Italian system can be understood as a network of cities—comprising the 12 metropolitan cities and the network of secondary cities—that integrates with the contexts of inland areas. From this perspective, the development of an Italian Urban Agenda, harmonized with territorial policies for rural and mountain areas, becomes strategically important for the country’s national sustainable development policies.



Francesco Ferrini
University of Florence, President
of the Plant Nursery District of Pistoia

The green crossroads: Why we must not retreat

In recent times, unsettling signals have begun to emerge—concrete indications that the ambitious vision of the Green Deal is facing a dangerous dilution. Some of its most symbolic components, once heralded as the pillars of our collective future, are being quietly eroded, delayed, or pushed aside in favour of short-term economic conveniences. We are witnessing a concerning drift, where the urgent commitments we made to our planet and our cities risk becoming hollow promises, sacrificed on the altar of political expediency.

This retreat is not merely a policy adjustment; it is a fundamental error in judgment. To step back now is to ignore the undeniable reality of a changing climate that respects no borders and waits for no election cycle. We see the consequences daily: heatwaves that turn our urban centres into ovens, flash floods that expose the fragility of our infrastructure, and a loss of biodiversity that threatens the very fabric of our ecosystems. The Green Deal was not just a document; it was a lifeline. To let it unravel is to cut that lifeline when we need it most.

But this is not the time for surrender. It is precisely in moments of uncertainty like these that our determination must be strongest. We cannot afford to let the momentum fade or to be paralyzed by the hesitation of others. **Instead, we must double down on our efforts to champion the central role of urban green spaces and nurseries. We must shout louder than the voices of apathy to remind the world that green infrastructure is not a luxury item or a decorative element of our landscape. It is the vital organ of our communities.**

We must articulate, with unwavering conviction, that investing in parks, street trees, and green roofs is investing in public health. It is investing in health and social equity, ensuring that every citizen, regardless of their zip code, has access to clean air and shade. It is investing in economic resilience, reducing energy costs and mitigating the catastrophic damages of extreme weather.

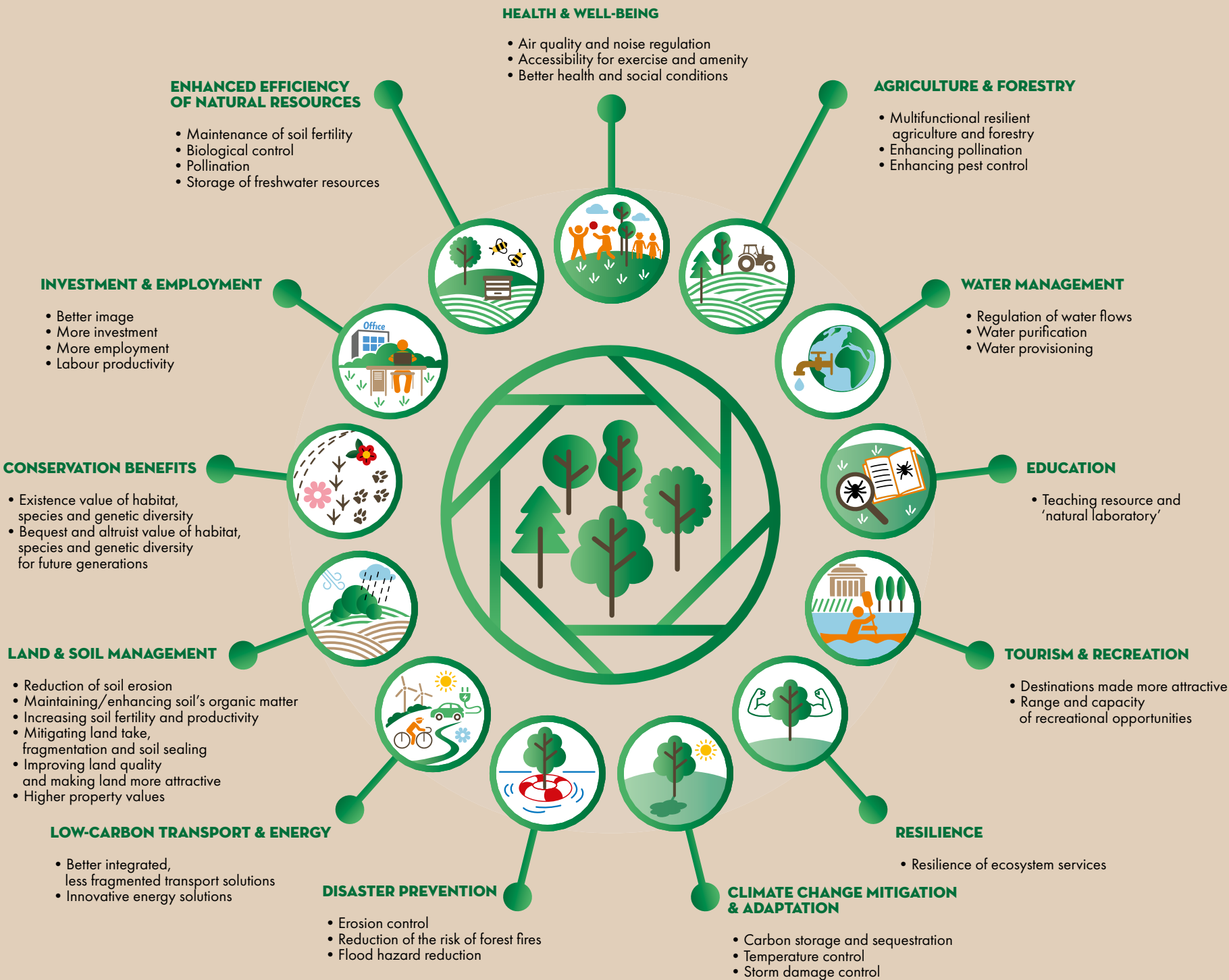
Central to this mission is the nursery industry. We must fight to ensure that this sector is recognized not merely as a branch of agriculture, but as a strategic industry for national security and environmental survival. Nurseries are the factories of our future; without a thriving, innovative, and supported nursery sector, there is no green transition. We need to support our growers, valuing their expertise and ensuring they have the resources to produce the resilient, high-quality plant material that our changing cities so desperately need.

Every investment in a park, every tree planted, and every nursery supported is an act of resistance against short-sightedness. We must embrace the radical mindset that “Every day should be Arbor Day.” Waiting for annual celebrations or sporadic initiatives is no longer enough. The stewardship of our environment requires daily dedication, relentless advocacy, and tangible action. It requires a shift from “planting events” to “growing cultures”—where the care, maintenance, and protection of green spaces become rooted in our daily civic duties.

The path forward is not guaranteed by legislation alone. Politicians may waver, and budgets may fluctuate, but the biological imperative remains. It is also up to us to drive this change. As landscape architects, arborists, nurserymen, urban planners, and conscious citizens, we are the guardians of the green. We possess the knowledge and the passion to demonstrate that a greener world is not only necessary but possible and profitable.

We have the power and the responsibility to ensure that the green revolution does not wither but thrives. We must be the ones to plant the trees that others will sit under, to design the parks that will cool the cities of tomorrow, and to advocate for the policies that protect them. Let us not be the generation that compromised when things got difficult. Let us be the generation that stood firm, dug deep, and grew a legacy of hope for the future.

GREEN INFRASTRUCTURE SUPPORTS



Measuring impact, maximizing benefits

Towards sustainable nursery production: application of the LCA methodology at the ‘Vannucci Piante’ company.
Department of Agriculture, Food, Environment and Forestry (DAGRI), University of Florence.

Environmental analysis is a fundamental step in the sustainable management of a modern ornamental nursery. In a production context that is increasingly sensitive to ecological impacts, accurately monitoring and evaluating the interactions between nursery activities and the environment allows for the optimization of resource use and the reduction of waste, while ensuring a high-quality end product. With this in mind, the nursery company “Vannucci Piante” has launched a project in collaboration with the University of Florence to carry out an LCA (Life Cycle Assessment) analysis on some of the company’s main types of production, identifying the critical points in the production process and outlining a possible scenario for improving environmental performance, with a view to steering the company towards a modern, resilient and sustainable growth model.

The LCA analysis was conducted by defining different types of production representative of the entire business. In particular, four clearly differentiated production units were identified. Each sample area, characterised by a known surface, was inspected in order to collect the data necessary for the inventory.

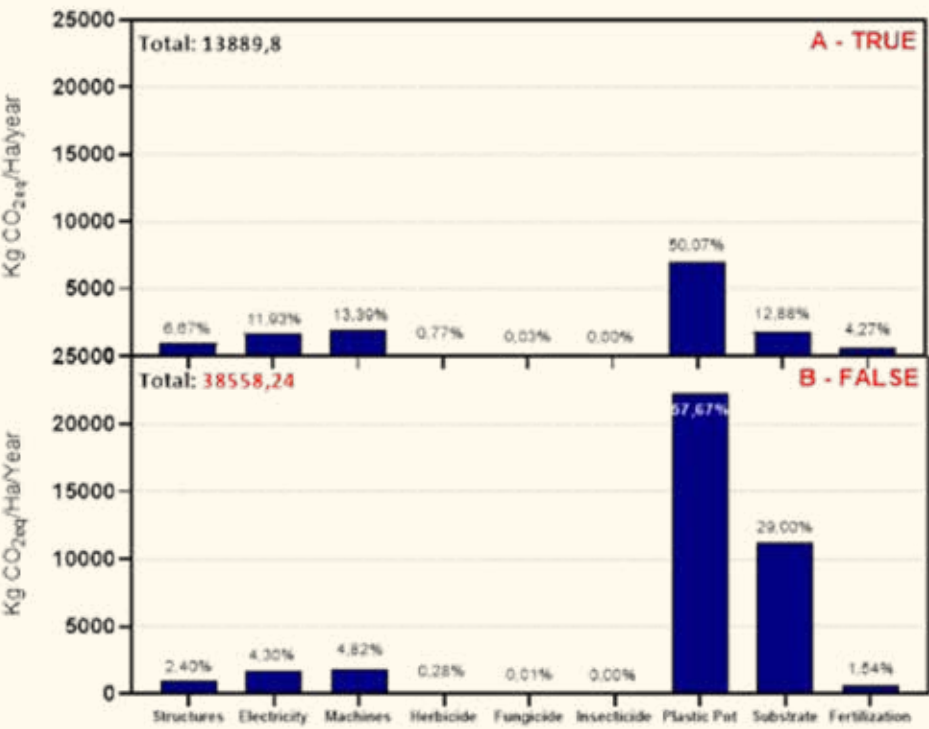
All structures and materials present in each area were recorded, including poles and support structures, irrigation lines and plastic pots. At the same time, crop inputs were quantified: substrates used, phytosanitary treatments, fertilisers and electricity consumption related to the irrigation system. All the data acquired was then related to the total area of the nursery in order to obtain the overall emission results on a company scale.

The entire inventory was entered and modelled in GaBi software, using databases and processes specific to the nursery sector. The analysis was conducted according to the CML 2001 methodology, selected for its widespread use and compatibility with the objectives of the study. Among the indicators provided by the impact calculation methodology, Global Warming Potential (GWP) was selected, from which the CO₂ equivalent emissions associated with each process considered were derived.

The results obtained so far have made it possible to objectively assess the main environmental contributions of the nursery production system, forming the basis for subsequent analyses. To give a concrete example of the type of work in

progress, let us consider a nursery sector called “300”, a particular production unit characterized by the use of production inputs strongly aimed at reducing environmental impact. In this sector (No. 14), emissions relating to the various production factors (structures, energy, mechanical means, chemicals, plastics) were calculated, as shown in Figure 1-A. In order to understand how effective the choice of production inputs was in terms of environmental sustainability, a simulation of the same sector was carried out (Fig. 1-B), using standard production inputs (e.g. normal plastic instead of recycled plastic).

The difference in annual CO₂ emissions between the company’s sector and the same sector in the worst-case scenario was very significant (13.88 versus 38.56 T/Ha/Year); this example illustrates the importance of having quantitative measures of environmental impact in order to properly monitor the company’s progress towards more environmentally friendly nursery production.



Comparison between CO₂ emissions calculated in sector 14 (A-True) and CO₂ emissions calculated in the same sector in the worst-case scenario.





What's next? Exploring co2 sequestration in ornamental trees

ALBERICO2 - Calculation of Carbon Balance by ornamental tree species cultivated in "Ferruccia 300" Nursery.
Department of Agriculture, Food, Environment and Forestry (DAGRI), University of Florence.

Worldwide, carbon dioxide (CO₂) emissions are steadily increasing, leading to an intensification of the greenhouse effect and global warming. Therefore, efforts to reduce emissions as well as promote CO₂ storage strategies are needed to mitigate the climate crisis. In this framework, woody species represent an efficient solution to sequester CO₂ through photosynthesis. Thus, ornamental tree nurseries, where plants are intensively cultivated, can represent an interesting CO₂ sink.

Vannucci Piante is involved in the ALBERICO2 project proposed by the Department of Agriculture, Food, Environment and Forestry (DAGRI) of the University of Florence. ALBERICO2 aims to perform direct photosynthesis measurements to assess CO₂ assimilation and calculate the Carbon Balance by ornamental tree species cultivated in nursery.

The experimental area will be located within the Vannucci "Ferruccia 300" ornamental potted tree nursery. Within the nursery, three sectors of comparable size will be selected. In each sector, trees of different species are grown under standard cultivation protocols.

The research will be divided into four different phases (figure 1). The first step will be focused on Life Cycle Assessment (LCA) to calculate the total annual CO₂ emissions linked to the cultivation. Initially, through collaboration with nursery technicians, an inclusive data collection regarding annual cultivation inputs (e.g., potting mix, fertilizers, irrigation, diseases management) will be accomplished to perform LCA analysis. Then a numerical analysis will be carried out to translate data in kg of CO₂ released in the atmosphere. Secondly, to assess CO₂ uptake, three species will be initially selected. The focus will be placed on species with different leaf life form characteristics (i.e., evergreen or deciduous). During the growing season, photosynthesis (i.e., net CO₂ assimilation) of 6 trees for each selected species will be measured in different environmental conditions.

Net CO₂ assimilation measurements will be carried out at leaf-level by infra-red gas analyzer. Once all photosynthesis data are collected, it will be possible to develop a species-specific leaf level net photosynthetic CO₂ uptake model that considers the maximum photosynthesis rate limited by light, temperature, and vapor pressure deficit conditions. Finally, scaling-up at canopy level can be carried out by estimating the leaf quantity for each tree, directly harvested through nets during the fall season (figure 2).

The final step will be the nursery CO₂ balance calculation. CO₂ uptake results for individual trees and species will be averaged for the sub-areas, where they are cultivated, and then related to the number of plants present in the nursery. At the same time, CO₂ emissions by cultivation area will be assessed so as to allow the calculation of the annual balance of CO₂ sinks and sources.

Therefore, ALBERICO2 will be able to accurately estimate and verify whether an ornamental plant nursery is an effective infrastructure to mitigate climate change thereby meeting the European carbon neutrality target set for 2050.

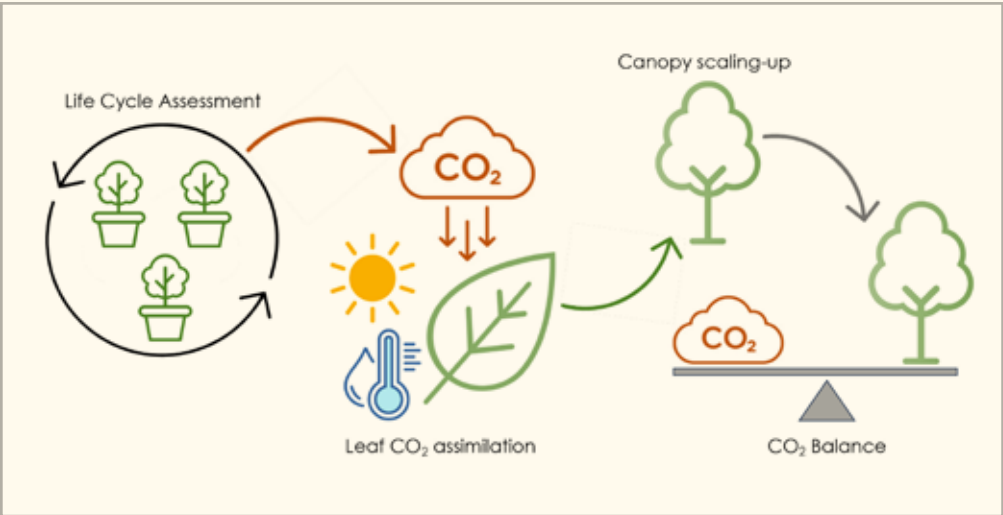
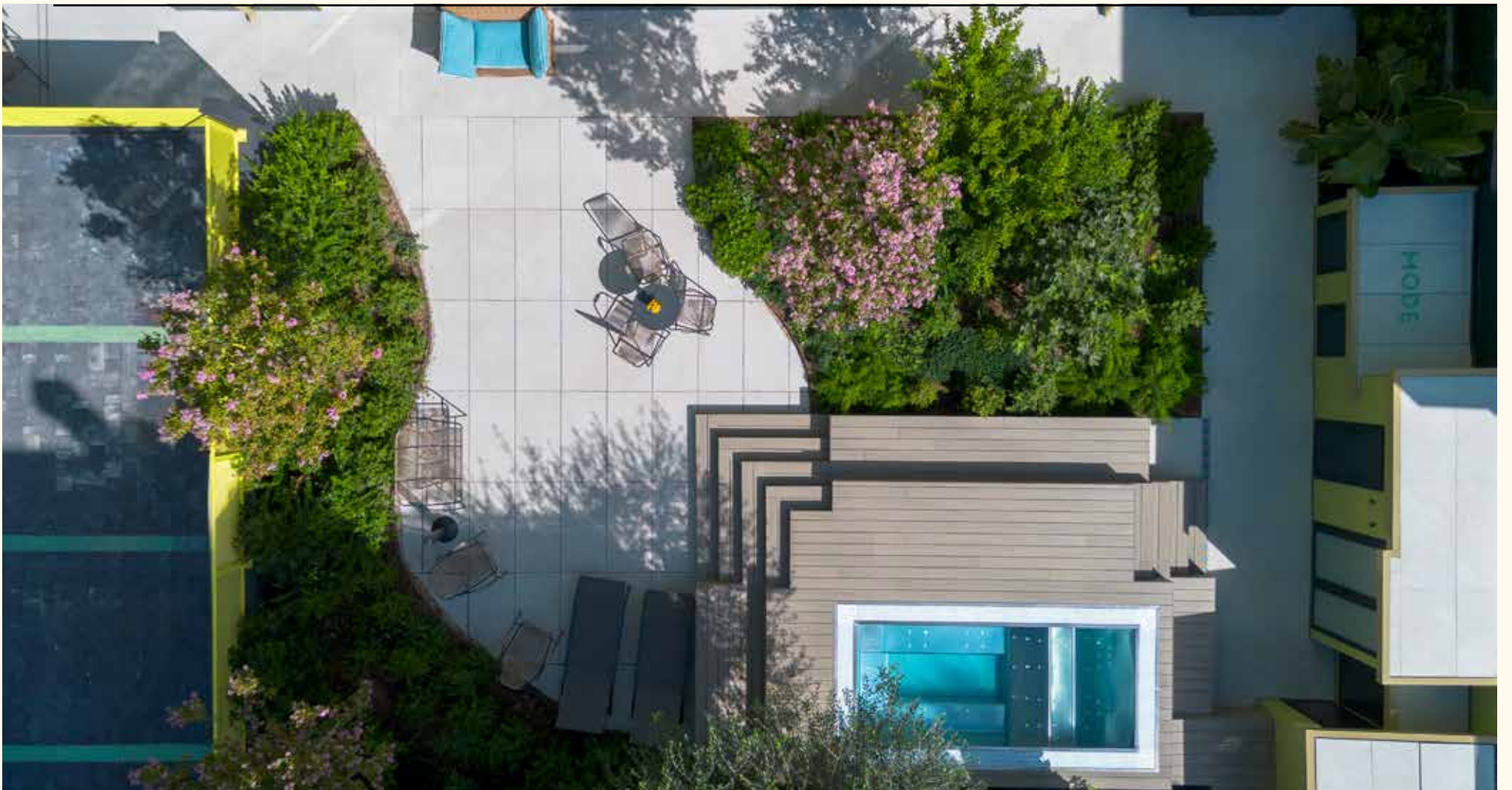


Figure 1



Figure 2



Green is the new black _ Mode Hotel _ Ecomode Mood Hotel _ Ph: Flavio Ricci



Roberta Filippini Architect
ROBERTA STUDIO

Small spaces, big benefits: The role of plants in everyday life

In recent years, growing interest in Biophilic Design has shown how deeply human well-being is linked to the presence of Nature. As formulated by Edward O. Wilson in 1984, Biophilia describes our innate tendency to pay attention to life and vital processes, a hypothesis now confirmed by numerous scientific findings.

Based on this principle, a biophilic design approach integrates natural elements into built spaces, helping to support physical health, promote cognitive recovery and balanced emotions. Through organic forms, natural palettes and perennial plants, the aim is to reconnect people with the rhythms and atmospheres of the natural world, operating at all project scales.

Balconies, terraces and courtyards can become real 'extra rooms in the open air'. Designed with architectural consistency, these spaces extend the rooms of private homes, hotels, offices or boutiques, becoming functional, welcoming and endowed with ecological significance.

The design considers each element as part of an interconnected ecosystem, in which materials, vegetation and microfauna coexist in balance. Thinking about spaces for people, plants and animals means recognising that these environments

are shared habitats. Each choice stems from the specific character of the place, through a site-specific strategy based on the assessment of exposure, maximum and minimum temperatures, wind, rainfall and dialogue with the surrounding elements. Plant communities are composed of harmonious, resilient and living species in all seasons: species with different blooms and volumes and varied palettes create dynamic scenes that change throughout the year. In addition, the use of low-maintenance perennial species makes the project sustainable over time. Increasing biodiversity is an equally fundamental objective. Outdoor spaces, even small ones, designed to attract pollinators and birds, thanks to flowers distributed throughout the different seasons, nectar-producing species and protected microhabitats, can play a major role in terms of their environmental and ecological value, especially in urban centers.

Well-layered vegetation (enhancing the herbaceous, shrubby and arboreal components) amplifies the provision of ecosystem services: it improves air quality, contributes to reducing summer temperatures and absorbs CO₂.

The custom design of furniture, pots, seating and specific elements for interior spaces, such as hydroponic systems and plant growth lights, becomes part of a coherent biophilic narrative, in which greenery is not a decorative addition but a generative component of the project.

This dialogue between nature and architecture focuses on people and the reappropriation of outdoor spaces, where proper green space management is increasingly becoming good practice, both in natural and man-made areas. Greenery adapts to the thresholds between indoors and outdoors, to transitional spaces and to the domestic scale, even to the bedroom, where plants can coexist without problems with everyday life, improving the physical and mental well-being of those who live the space.

Integrating vegetation into domestic spaces or hospitality venues goes beyond mere aesthetics, becoming a fundamental part of the design of built spaces, capable of strengthening the connection with the place thanks to its strong multifunctional value: stress reduction and psycho-physical well-being, improved air quality and thermal comfort, and promotion of biodiversity. In these micro-landscapes, people rediscover the regenerative power of nature, an essential element for contemporary wellbeing.



Ph: Roberta Filippini



Garden Suite - Mode Hotel _ Ecomode Mood Hotel _ Ph: Flavio Ricci



Damiano Molena
Camilla Pandolfi
PNAT Project Nature

Data-driven decisions for greener cities

The monitoring of stem diameter growth in eight tree species grown at the “Ferruccia 300” Nursery in Pistoia has made it possible to quantify, in real time, the amount of CO₂ stored by each species and to precisely analyze the seasonal patterns of growth rates. During the autumn–winter period (September–December 2024), a marked reduction in growth was observed across most species, consistent with tree physiology, which during this phase involves a significant decline in cambial activity and the onset of dormancy. This phenomenon was particularly evident in deciduous species, which had almost completely ceased stem diameter growth as early as August. Evergreen species, on the other hand, exhibited a more gradual decline, maintaining a moderate level of activity until October–November before slowing down as well.

The measurement of these parameters provides a valuable operational tool for selecting species for urban planting. Microclimatic conditions and abiotic stresses, exacerbated by climate change, make successful establishment increasingly challenging, thus favoring species characterized by high resilience and by a nursery production pathway optimized for their intended planting context.

At the same time, assessing the ecosystem services provided by each species — such as CO₂ sequestration, removal of atmospheric pollutants, and mitigation of surface runoff during extreme rainfall events — is becoming a strategic component of green infrastructure planning. Since these functions are performed optimally only by plants in good physiological condition, ensuring proper species selection and an appropriate match between species and planting site is essential.





MANIFESTO FOR THE EUROPEAN NURSERYSTOCK ASSOCIATION

ENA PUBLIC AFFAIR TASK FORCE



We warmly thank all the contributors who shared their knowledge in this issue and take the opportunity to reaffirm what we have been advocating for over eighty-five years:

Nature is not merely a guest in our homes or cities.

Nurseries play a vital and strategic role in making urban spaces greener, restoring biodiversity, and creating landscapes that are resilient to climate change.

We proudly support the Manifesto for the European Nurserystock Association and stand behind the ENA Public Affairs Task Force.

READ THE MANIFESTO



FOR MORE INFO: ena@enaplants.eu



Via Moreno Vannucci (già Via della Dogaia), 110 _ 51039 Quarrata (loc. Piuveca) - Pistoia - Italia _ Tel. + 39 0573 79701 +39 0573 1936700 Fax + 39 0573 735975 info@vannucciante.it



ONLINE CATALOG



DESIGN PARK



CURRENT SPECIAL OFFER



INSTAGRAM

