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The representation of the orchard
Graphical analysis of the evolution of the horticultural landscape

The agrarian landscape and particularly the orchard (huerto) is an inseparable part of the built environment, both historically and in the contemporary context.

This research examines how the orchard has been represented over time, highlighting its physical and graphical loss, especially in the current context of urban pressure that threatens to erase its agrarian logic.

Inspired by the idea that telling a story, or drawing it, gives it existence. This study seeks to recover the "plot" of the huerto through its representation. A theoretical-practical methodology is employed, combining the analysis of written and graphic documents with the study of specific cases, spanning from Antiquity to the most abstract forms of contemporary expression, and incorporating the technological development of aerial photography and GIS.

A dual shift is observed, addressed through the concept *dalla mappa vuota alla mappa piena, and vice versa*; an evolution toward geometric precision accompanied by a loss of figurative richness capable of conveying intrinsic values.

This approach allows us to understand the orchard and its landscape built environment as a living palimpsest with social, cultural, and productive functions, whose effective representation must balance artistic vision with technical accuracy.

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INTRODUCTION

Drawing among other forms of graphic representation serves not only to metrically reflect the physical qualities of an specific landscape, accompanied by the structures and patterns of physical elements such as road networks, field organization, land ownership, or built features. It also provides a symbolic image, offering a renewed vision of the processes that shape the landscape and ultimately grant it its identity.

In contrast to the mere graphic imitation of reality —which in many cases results in representations that obscure other significant features— cartography becomes an experimental act that intervenes in the real, capable of reconstructing a complete evolutionary process tied to a broader genealogy (Deleuze and Guattari, 1976). The graphic representation of landscape must approach the territory not simply as an outcome, but by engaging with its inherent diachronic component, in which actions and interactions reflect a state of constant change driven by both natural and human factors.

At best, most graphic representations of the landscape tend to focus solely on objectified aspects, often detached from tangible and intangible values. In this regard, Joan Nogué (2007), drawing on the ontological framework of the visible as articulated by Maurice Merleau-Ponty (1975), emphasizes this issue, asserting: "The conviction that the invisible is completely intertwined with the visible; not as a simple gap in the mesh of the visible, but as the foundation that sustains it". Similarly, in *Le metafora della Terra* (1985), Giuseppe Dematteis affirms that the study of historical cartography— along with other types of documents—reveals how civilizations deliberately relate to and modify the landscape.

The agrarian landscape is part of the broader category of productive landscapes capable of transforming territory through the presence and evolution of anthropic processes. Within this category, one finds the garden or orchard (huerto) a small-scale, concentric structure with a multiscalar and dynamic dimension, producing a highly distinctive and complex historical and graphical evolution. The orchard is itself a characteristic agrarian system, recognized as one of the main Mediterranean landscapes still in operation today (Meeus et al., 1990).

Representing this layout and agrarian activity as a land-use system (Llorente Prada, 2005) is especially significant in the case of the orchard, given its morphology and typology span across architectural, urban, and territorial scales. For this reason, the holistic graphic representation of this model of land use and spatial organization is essential, as it constitutes an inseparable part of the built environment, a hybrid agrarian-urban model. In recent decades, this model has faced accelerated urban transformation, abandoning historical and morphological growth patterns, resulting in a rupture that undermines the agrarian logic of the landscape.

MAIN OBJECTIVE AND METHOD

Alessandro Baricco (2022) reflects on stories and plots, stating: "What brings a story out of itself, thus bringing it into the world, is the act of telling it. [...] A reduction must therefore be carried out. The technical device by which a story is reduced to the format of a narrative is called plot". In other words, a story must be told in order to exist, and similarly, a reality must be drawn in order to be acknowledged. This article explores the history of the representation of the orchard and its momentary loss, both physically and graphically, and therefore the loss of the agrarian plot due to its absence in drawing, that is, in narrative.

Accordingly, the aim of this research is to examine the graphic representation of the orchard throughout its historical evolution in order to demonstrate its presence and significance as a fundamental component of the built landscape in our immediate environments. At the same time, the research seeks to engage with approaches that move beyond the exclusionary nature of much historical cartography, focusing instead on under represented realities, ones that have often been considered marginal or subordinate to more permanent elements, and thus afforded a more immediate graphical status.

To this end, a combined theoretical-practical methodology is employed. A theoretical framework is constructed through a chronological review of the history of the orchards' representation, involving the analysis of a wide range of both written and graphic documentation. In conjunction with this theoretical foundation, the practical component involves categorizing the graphic documentation in order to develop a discourse on the evolution of the orchards' representation (Fig. 1), which is followed by a detailed study of selected individual case studies.

As previously noted, an effort has been made to ensure that the resources consulted are diverse in terms of methods of representation, incorporating not only historical cartography but also other visual materials such as engravings, prints, illustrations, paintings, collages, architectural and urban planning drawings, as well as contemporary resources such as GIS databases. Furthermore, particular attention has been given to the inclusion of graphic representations of the orchard that reflect its multiscalar and dynamic nature.

As a result of the application of this methodology, the following categorization of the graphic documentation studied is proposed. The first level of classification divides the documents into physical and non-physical representations of the orchard —that is, whether the orchard is represented according to a metric (measurable) reality or a symbolic one—. Within this framework, a second level of subdivision enables a more in-depth analysis. The documents are examined from three main perspectives: the method of representation —including models, formats, scales, and techniques—; the agrarian activity and the manner in which it is expressed or present in the drawing; and the object of representation ergo the rationale behind the drawing and/or the reason for the orchard's presence within it.

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Fig. 1 - Comparative analysis of the selection of the main graphic documents consulted

Authorship. Own creation based on the cited images

THE HISTORICAL REPRESENTATION OF THE ORCHARD

What follows is the theoretical framework underpinning this research, focused on the historical graphic development of the orchard. This is accompanied by selected concrete case studies of graphic representation, analyzed within the practical framework, which serve to exemplify the orchards' evolution over time.

The orchard as a 1:1 cartography

The first agrarian drawing operates at a 1:1 scale. It is not a graphic representation but rather reality itself being described simultaneously as it is thought, drawn, and inscribed. In 1983, Vittorio Gregotti —quoted by Kenneth Frampton in his lecture on the interaction between architecture and landscape in the search for new models— asserted: "The origin of architecture is not the primitive hut, but the marking of the land, in order to establish a cosmic order amidst the surrounding chaos of nature". The most accurate reading of the physiognomy of certain territories can be achieved by examining the practice of land surveyors who worked directly on-site, marking and dividing land through agrarian parceling. These early in situ markings, devoid of artistic pretension, have provided valuable historical insights into patterns of settlement and stand as evidence of the inertia of agriculture in territorial organization. As Carlo Tosco (2017) argues, until the advent of the contemporary era, our figurative understanding of the landscape was largely entrusted to the skill of those surveyors in topographically representing rural environments, most of which have since vanished.

Although there is limited graphic documentation from this early stage, Roman authors such as Varro, along with Columella, Virgil, and Cato, described and praised this work in written form,

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emphasizing its expansive and descriptive nature: the cultivated fields, pastures, vineyards, orchard, and dwelling. From the outset, its multi-scalar character and spatial ordering capacity were clearly prominent.

The orchard as a spatial planning framework

This layout, which from its origins is conceived as both an agricultural and architectural drawing, inherently encompasses both practices. The *heredia* was a unit of land measurement commonly used in Ancient Rome, corresponding approximately to half a hectare today, that is, a square of roughly 70 by 70 meters. This unit was further subdivided: first into halves known as *yugadas*, and then again into *actus quadratus*. Thus, 100 *herediae* formed a *centuria*, the basic unit used in the centuriation of the *ager publicus*, the Roman public land (Carandini, 1985).

This system of measurement allowed not only for military occupation but also for expansive spatial organization, since each individual unit was allocated to a family and typically included a house, an enclosure for livestock, ancestral tombs, and a cultivated area in the form of an orchard. As evidenced in later surveys that superimpose ancient Roman settlements onto present-day cities, agriculture —and specifically the orchard— formed the foundational structure of many early settlements. The grid layout became successively occupied, and the drawing itself conveyed information about the plowing system, crop orientation, and rotation practices within the boundaries of individual properties (Rodríguez López, 2008).

Another significant trace of the orchard appears contemporaneously with this initial moment of urban formation. In many domus and villas of the time —where the development of the settlement allowed residential units to forego the need for a productive orchard thanks to the availability of cultivated fields and supply markets— the memory of the orchard was preserved, transformed into a garden and, later, into an interior courtyard. This transformation is evident in the frescoes that ultimately decorated the walls of these spaces, such as those in the Villa Livia (Fig. 1, III). Where once there was an orchard, now there remains a life-size (1:1) painted representation, a kind of *trompe-l'œil* serving as a graphic act of remembrance. In Ancient Egypt, the orchard was also an essential part of both domestic and funerary environments. It appeared in tomb frescoes and reliefs, depicting rectangular gardens with central

Fig. 2 - Saint Gall Monastery Plan [Codex Sangallensis]. Anonymous 820. Stiftsbibliothek St. Gallen.
Five sheets of stitched parchment and coloured red ink (112 x 77,50 cm).
Authorship. Own creation based on the cited images

1. Spatial configuration limit element of the geometry and measurement of the orchards . Bed vegetables crops ordered in the interior.
2. Cemetery combined with fruit tree crops.
3. Medicinal gardens and flower gardens.
4. Main cloister with the presence of certain fruit trees and other plant forms as aesthetic ornamentation.

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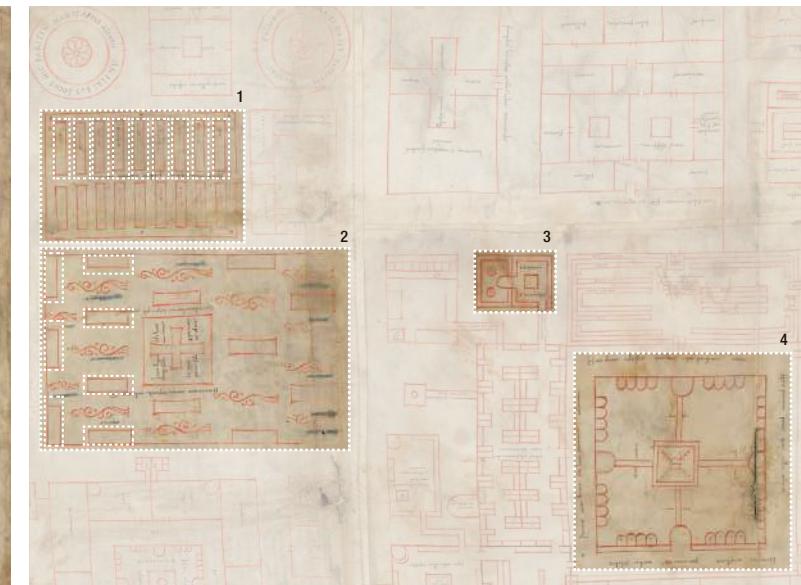
ponds, date palms, rows of fruit trees, vines, and aromatic plants. These spaces were not only agricultural in function but also symbolized order and fertility (Fig. 1, I). Similarly, in the Arab-Islamic tradition, the orchard acquired an aesthetic, spiritual, and scientific dimension. It was geometrically organized, often featuring water channels symbolizing the rivers of paradise described in the Qur'an. Beyond being productive—cultivating fruits, spices, and medicinal plants—these orchards served as spaces for contemplation, reflection, and knowledge, integrated into public areas, palaces, and homes. They embodied the ideal of harmony between humans, nature, and the divine (Fig. 1, VIII). Both cultures, although distant in time, understood the orchard not only as a source of sustenance, but also as a reflection of cosmic, spiritual, and social order.

As settlements expanded, the agrarian-urban spatial organization of many evolved into new typologies that continued to include the orchard. Since the Middle Ages, the orchard became a key element in monastic settings, combining practical, spiritual, and symbolic functions. Inspired by Roman agricultural-spatial traditions and biblical models such as Eden, Christian monasteries developed orchards organized for both utility and contemplation. These spaces provided fresh food, liturgical plants, and flowers, ensuring the self-sufficiency of the community (Landsberg, 1995). The monastic orchard was carefully enclosed and associated with other symbolic areas such as the cloister or medicinal garden—centers for the transmission of agricultural and botanical knowledge that preserved species, cultivation techniques, and know-how that would shape European agriculture well into the Early Modern period.

Amid the graphic silence of the Middle Ages —marked by a scarcity of cartographic or planimetric records— one exception stands out: the unbuilt plan of the Benedictine Monastery of Saint Gall (Fig. 1, IX) , one of the very few architectural drawings preserved from this era. The plan was composed of five sewn-together parchments, depicting a layout which, though monastic in intention, has been widely interpreted as a proto-urban plan. Many theorists have considered it utopian, given that it was never realized. Yet it integrates and graphically represents, on equal footing, religious, educational, residential, agricultural, and productive functions (Kostof, 1991). The agrarian spaces —orchards— are drawn with the same graphic conventions as the other programmatic elements, resulting in a model that naturally fuses agrarian and urban landscapes within a unified spatial plan (Fig. 2).

The orchard as an idyllic space

Parallel to this process, the dependence on the orchard continued to decline as settlements evolved. The increasing sophistication and early zoning of cities made the need for a personal cultivation space less essential, with agricultural fields being relocated progressively farther from built environments and urban centers. This shift led many orchards to be transformed into gardens, moving from food production to aesthetics.

In the midst of this emerging graphic silence, we witness a figurative evolution that also warrants consideration. Although these representations do not depict the reality of the orchard—or even a specific orchard—the allegories they present enrich and complicate the concept, oscillating between the earthly and the transcendent. The orchard becomes a primarily figurative image, distanced from any intention of metrically defining its location, boundaries, or agricultural layout. It is portrayed as an allegory of paradise, a *locus amoenus*, a visual setting where scenes are now cultivated: most notably religious motifs, such as Genesis with Adam and Eve in a horti-fruitful Eden, and Marian scenes where the Virgin appears as a metaphor for purity and fertility (Leach, 1982). In these representations, the boundaries between agricultural utility and aesthetic enjoyment begin to blur, foreshadowing a transformation in how the landscape is conceived (Fig. 3).

1. Spatial configuration limit element of the geometry.
2. Figurative representation of the Virgin Mary in relation to fertility.
3. Figurative representation of characters participating in harvesting tasks.
4. Vegetables, trees and flowers combined.

Fig. 3 - Little Garden of Paradise [Paradiesgärtlein]. Upper Rhenish Master 1410. Städelsches Kunstinstitut di Francoforte.
Mixed media painting on wood panel (33,40 x 26,30 cm).
Authorship. Own creation based on the cited images

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From a contemporary perspective, Xavier Monteys (2021), referring specifically to the garden —understood as a continuation and domestication of the orchard— highlights both the difficulty and the conceptual richness of its cartography: "Its nature sets aside issues such as function and resists conventional representation, beyond the standard graphic codes of architecture [...] It is difficult to represent it through an architectural drawing, but easy to express it through something more akin to a recipe". By emphasizing both the potential and the new graphic challenge, Monteys argues that, in contrast to the rigor of certain representational tools (which will be analyzed below), there is a loss of vitality and expressiveness qualities that were already present from the earliest stages of the orchard's graphic representation.

The orchard as a system of power and control

The representation of the countryside has also served as a political strategy, a means of publicly displaying good governance and asserting power through seduction and control. In *The Language of Cities* (2017), Deyan Sudjic notes that agriculture has been a fundamental tool for spatial order, and, by extension, social order. To illustrate this, he refers to the mural *The Allegory of Good and Bad Government* by the Lorenzetti brothers (1338), in which the Italian artists use a bipartite structure to emphasize the importance of the common good, one that must never be subordinated to private interests.

This work is considered one of the most ambitious secular iconographic programs of the medieval period, and unquestionably among the most significant. Notably, the agrarian landscape is rendered with far greater detail than the urban one, revealing a deliberate emphasis on the structure and value of the countryside, making visible the city's dependence on productive agrarian territory. These frescoes offer some of the earliest panoramic depictions of town and countryside since classical antiquity. They dramatically express the mastery of spatial structure and control over distance achieved by Italian painters, presenting an exceptionally detailed and large-scale visual narrative that results in a spatially coherent and richly articulated composition (Fig. 4).

This paradigm shift becomes even more evident with the emergence of the Italian villa during the 15th and 16th centuries, when the medieval *hortus conclusus* opens up to its surroundings, resulting in a radical integration of architecture, nature, and landscape. This new vision transforms the agricultural landscape into a scenographic, aesthetically designed setting, foreshadowing the landscaping traditions that would later flourish in France and England in the following centuries (Steenbergen & Reh, 1996). Thus, the Italian villa not only marks a turning point in the perception of the landscape, but also introduces a scenographic logic that continues to influence the structure of the contemporary metropolis.

A comparable example of great value can be found in the seventeen large-format lunettes commissioned by Duke Ferdinando I de' Medici from Giusto Utens to decorate the banquet hall of the Villa di Artimino. These lunettes depict the most representative Medici villas, forming one of the most distinctive landscape programs in history, where architecture, agriculture, gardening, and rural territory unfold according to intermediating logics (Álvarez Álvarez, 2024). In Utens's lunette, one can clearly observe how elements of the Re-

Fig. 4 - The Allegory of Good and Bad Government [Allegoria ed effetti del Buono e del Cattivo Governo]. Pietro and Ambrogio Lorenzetti 1338. City Council of Siena, Italia.
Mural painting "fresco" technique (7,70 x 3,60 m).
Authorship. Own creation based on the cited images

1. Territorial occupation of the orchard and other agrarian activities in relation to the country and the city.
2. Orchard crops near the city walls.
3. Explicit representation of farmers' work.
4. Explicit representation of the relationship between the agricultural production in the countryside and its manufacture and consumption within the city.

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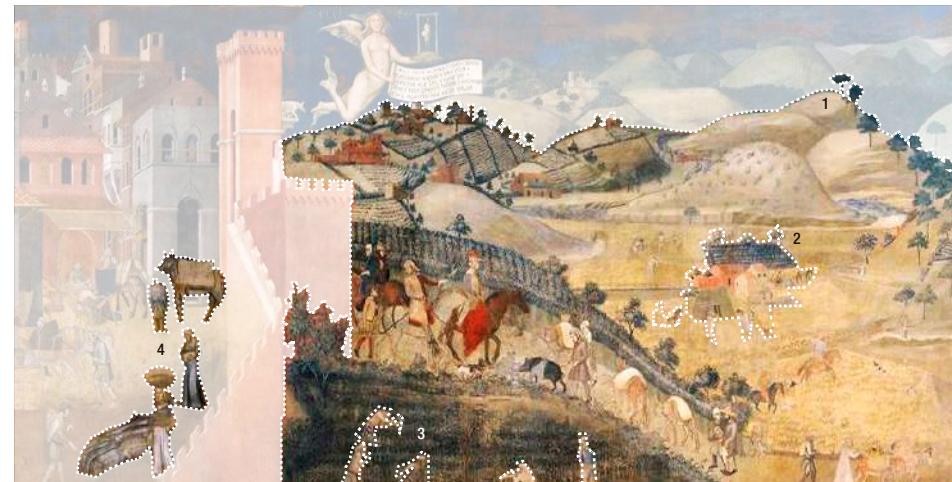
naissance garden were gradually integrated into the productive medieval orchard structure: axes, where once there were livestock paths; gardens and pavilions, where diverse fruit and vegetable orchards once stood—now interwoven with fruit trees and ornamental plants; and irrigation and boundary systems, now transformed into canals, fountains, and bastions that open toward the surrounding landscape. Here, there is a striking interweaving of orthogonal planimetry with figurative elevations, encompassing not only the built structures, but also the orchard, garden, and rural landscape (Fig. 5).

DELLA MAPPA VUOTA ALLA MAPPA PIENA, AND VICE VERSA

Within this historical trajectory, a fundamental shift occurs. Around the 19th century, two simultaneous developments converge, marking a new graphic turn in the representation of the orchard. On the one hand, cartography becomes increasingly complex and topographically precise, enabling more faithful—and thus, arguably, more accurate—representations. On the other hand, the consumption of agricultural land accelerates, leading to a widening gap between society and the agrarian world.

The orchard as spare land

Until this point, the representation of the orchard was largely geometrically imprecise, due to the limitations of early measurement and drawing systems. It was also, for the most part, subjective in character, driven by aesthetic or figurative motives rather than by technical documentation. The subjective notion of landscape emerged in the late medieval period, closely tied to painting and literature. The objective form, by contrast, is a later scientific construct, aligned with the development of geographical disciplines in the 19th century and influenced by Romanticism, in which the landscape becomes the primary subject of the artwork. This scientific evolution —aiming to render territory with maximum precision— can be understo-

od through the process described as *della mappa vuota alla mappa piena* (from the empty map to the full map) (Carroll, 1876). However, as Massimo Quaini (1992) warns, this process entails a modern risk: "the increasingly blurred distinction between the map and the territory, between the representation and the represented." That is, what is mapped comes to be assumed as real, validated by the epistemological rigor of its time, even if certain realities are pushed to the margins or entirely omitted. Such is the case with agricultural land, often treated as reserve spare space, subordinated to the primacy of the built environment.

This cartographic paradigm coincides with the dissolution of the city as a defined and stable domain, a process that began in the mid-19th century (Frampton, 1999). Combined with the progressive detachment from agrarian dynamics, this led to the submergence of much of the pre-industrial city beneath the excesses of 20th-century developmentalism. In *The Country and the City* (Williams, 2001), a text that places rurality at the core of its argument, the tensions and contradictions between these dualities are laid bare.

This oppositional stance has led to an understan-

ding of the orchard by reduction and omission —to remove from the chart, to remove from the map—. To draw is to graphically describe a reality, and it is precisely in the act of description that decisions are made about what remains on the page and what disappears. At the same time, the 20th century is characterized by a gradual loss of figuration in favor of abstraction, a shift that has deeply affected how landscape is understood in artistic representation.

D'Angelo (2019) argues that in the 20th century, landscape loses its status as an aesthetic and cultural experience. The onset of mass urbanization, industrialization, and the technologization of perception transform landscape into a fragmented, utilitarian background, distancing the subject from a direct, contemplative relationship with the environment. Moreover, modernity breaks with the cultural construction of landscape inherited from Romanticism, questioning traditional values of beauty and harmony.

The emergence of aerial photography and orthophotography completed the transformation of how landscape is perceived. While these tools provide enormous technical advantages, they also risk

Fig. 5 - Villa Belvedere con Pitti. Giusto Utens 1599.
Villa medicea Petraia, Firenze, Italia.
Mural painting "fresco" technique (75 x 50 cm).
Authorship. Own creation based on the cited images

1. Spatial configuration limit element of the geometry of the villa complex.
2. Exterior agricultural space in direct relationship with the villa and the landscape
3. Orchards crops combined with fruit tree crops and flower gardens.

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alienating us from more human, cultural under-standings of territory (Saldías et al., 2021). Orthophotography allows farmers to analyze their land in great detail, identifying productivity issues with unprecedented precision. It has revolutioni-zed the perception of landscape, offering an upda-ted and detailed view of the territory useful for sustainable planning and heritage conservation. However, its intensive use can also promote a reductive perspective, focused solely on data, po-tentially neglecting cultural and emotional values, and raising concerns about technological depen-dency and digital exclusion. Thus, the landscape is no longer perceived as a coherent and meaningful whole, but as a dispersed and degraded surface, a reflection of a crisis in the ways we inhabit and represent the world. This legacy is most clearly embodied in urban and territorial planning docu-ments, which overwhelmingly focus on the built environment, often excluding or marginalizing agrarian space. This tendency is starting to be reversed through tools such as landscape plans, which represent the territorial values, many clo-sely related to agriculture, through complex car-tographies that combine topographical accuracy with an attractive graphic code that draws atten-tion to these areas (Fig. 6).

Fig. 6 - Analysis of various cartographies of Florence, Italia.
Representation of the orchards located within and beyond the city wall.
Authorship. Own creation based on the cited images
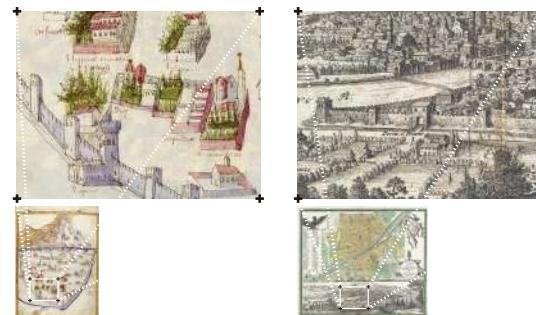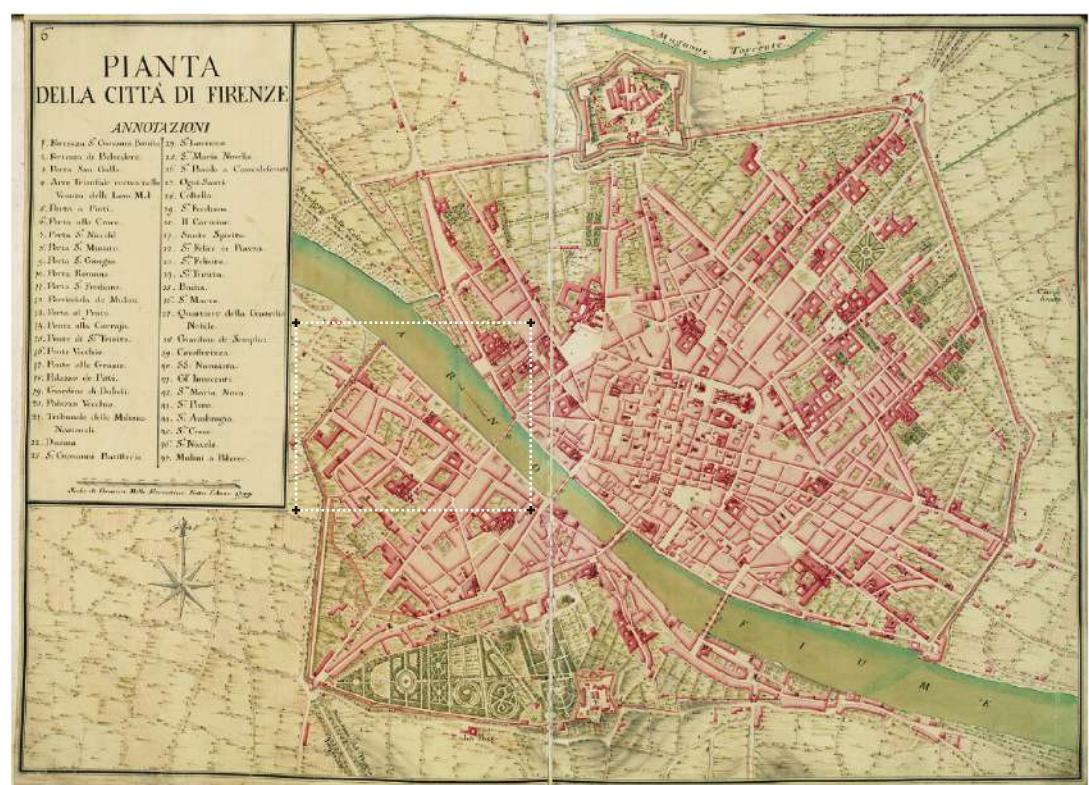
Florentia Miniatura Tratta dalla Geografia di Tolomeo
Anonymous 1470
Bibliothèque nationale de France, Paris
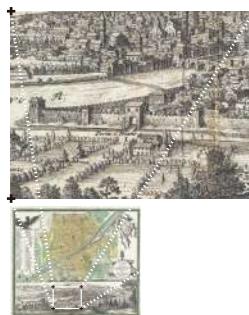
Ichonographia Urbis Florentiae
Homanniainis Heredibus 1731
Geographicus
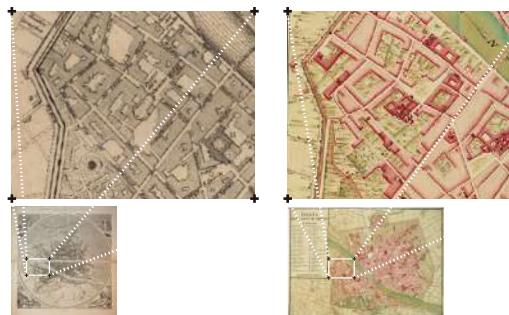
Pianta Geometrica di Firenze
Federigo Fantozzi 1841
Geographicus
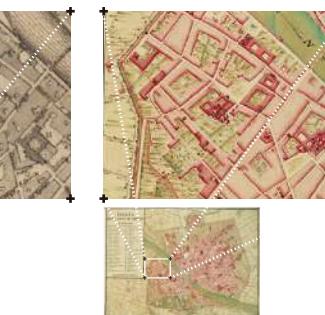
Pianta di Firenze
Genio Militare Lorenese & Odoardo Warren, 1749
ASF, Segreteria di Gabinetto, 695
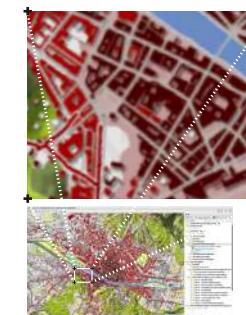
Piano Paesaggistico
Regione Toscana Cartografia PIT 2015
Geoscopio Regione Toscana [consulted in 2025]
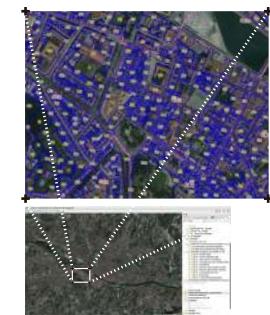
Ortofoto + GIS uso suolo catasto
Regione Toscana Cartografia PIT 2025
Geoscopio Regione Toscana [consulted in 2025]

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The orchard as a technological field

A final stage in this evolution is what is known as the technological turn. In the context of landscape and planning, the most prominent tool is drawing through Geographic Information Systems (GIS), which represents an evolution of orthophotography. This tool, combined with the implementation of machinery, has revolutionized modern agriculture by enabling more efficient, precise, and productive management in quantitative terms. Thanks to its capacity to integrate spatial and temporal data, GIS facilitates the monitoring of key variables such as soil moisture, crop health, and water availability, optimizing input use and reducing costs. Additionally, its combination with technologies such as sensors, drones, satellite imagery, and artificial intelligence allows for disease detection, yield prediction, and the adaptation of production to specific conditions (Pierce & Clay, 2007).

An example of this are eco-mosaics, a type of analytical cartography that describes a set of different ecological units or ecosystems coexisting within a given territory, forming a mosaic of landscapes or crops that interact with each other. These units may include forests, orchards, pastures, wetlands, urban areas, bodies of water, among others, and their distribution depends on factors such as climate, topography, soil, and human activity (Egerer et al., 2020). In summary, this tool provides a holistic view that aids in controlling agricultural production through precise and continuous soil assessment via various parameters. However, if its graphic output is analyzed as cartography, although it is "full" —piena— of data, it proves illegible and aseptic with respect to the recognizable values associated with agriculture and landscape —vuota— (Fig. 7).

Seeking other examples to transcend conventional graphic norms toward a more integrative representation, one of the most interesting architectural experiences related to cartography is found in the work of architect James Corner and photographer Alexander McNeal. Taking Measures across the American Landscape (1996) presents

a series of maps that, without abandoning certain aspects of traditional graphic representation, address the coexistence of historical territory with contemporary technological elements. These cartographies mainly consist of topographic surveys and orthophotos of agricultural fields that recall the layout of classical cities, whose morphological and semantic relationships are graphically emphasized through collage techniques incorporating elements such as solar panels, wind turbines, irrigation structures, and more (Fig. 1, XXII). For Corner, a full understanding of the territory includes both present and past traces, and therefore all must be represented. Moreover, the analysis should consider non-explicit and non-constant relationships, as well as the dynamism and potentiality of the territory.

The orchard as a contemporary project

Built space —from buildings to paved areas such as airport runways— accounts for only 3% of land occupation. In contrast, it is well known that 75% of land area is required and utilized to maintain the functioning of this other space, according to the latest report by the European Environment Agency (2023).

This transformation poses another challenge by attempting to integrate traditional agricultural practices with new urban demands. In this context, memory plays a crucial role, as the traces of the past must be considered in projects to preserve the identity and history of places, allowing agricultural practices to play an active role (Donadieu, 2015). To this end, figures such as Magnaghi (2005) develop techniques of identity representation: the use of atlases, codes, figures, and paradigms to

Fig. 7 - Pixel crop diagram of Droevendaal experimental farm. Rem Koolhaas & AMO 2020. Countryside, The Future. Exhibition 2020 Guggenheim Museum, New York, United States.

Digital parametric diagram with GIS agricultural data interpoleted.

Authorship. Own creation based on the cited images
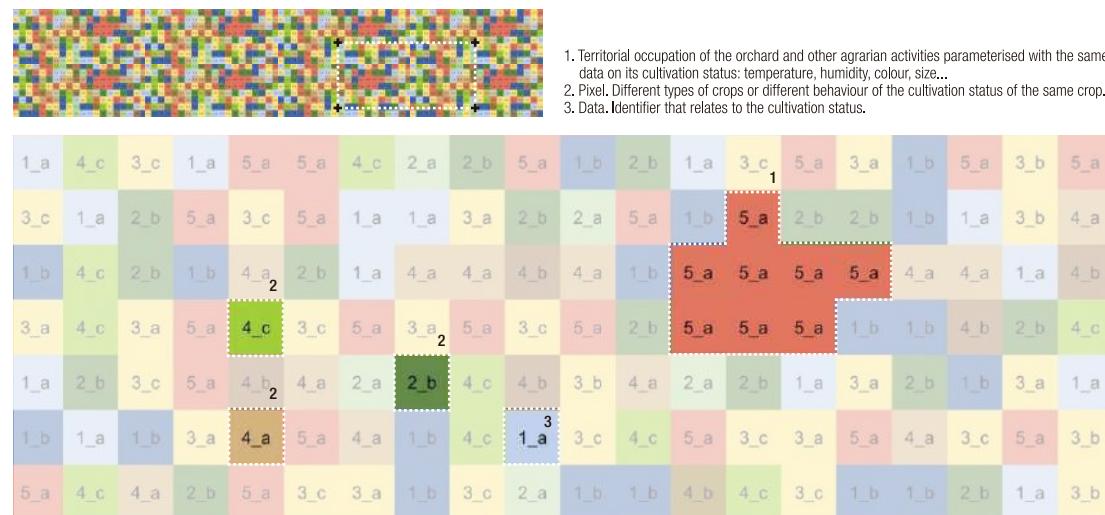
1. Territorial occupation of the orchard and other agrarian activities parameterised with the same data on its cultivation status: temperature, humidity, colour, size...
2. Pixel. Different types of crops or different behaviour of the cultivation status of the same crop.
3. Data. Identifier that relates to the cultivation status.

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make visible the invisible — the awareness of place, and the historical and social structures that define the territory — arguing that the concept of territorial heritage is not a mere collection of physical objects (hills, rivers, buildings...), but a living historical-cultural product that integrates nature, practices, knowledge, and social regulations.

Architectural and urban project cartographies also play a fundamental role in revealing the values of the agrarian orchard space under the argument of multifunctionality (Silva Pérez, 2010). Contemporary architects and landscape designers emphasize the need to include these agricultural spaces in their architecture and urbanism projects through a productive program graphically detailed, as exemplified by the territory surrounding the city of Issoudun (France). Michel Desvigne and his team propose the coexistence of the agricultural function of the orchard and public space on lands where the built environment and the agrarian landscape are drawn with equal detail, making the latter the guiding thread of the project (Fig. 1, XXIV). Interventions in productive spaces serve as a much more integrative and transformative urban project driver than the continuation of purely architectural construction (Koolhaas, R. & AMO, 2020).

CONCLUSIONS

The evolution of the representation of huertos began with a focus on geometric layouts and spatial systems, later transitioning into a figurative phase rich in religious allegories that depicted the garden as paradise. This eventually led to a loss of graphic expressiveness, exacerbated by the saturation of images governed solely by technical precision. Today, it is argued that representation must go beyond literal mimesis, prioritizing perception as a more enriching lens than reality itself. It is crucial to move beyond the rural-urban binary, which reduces agrarian lands to vacant reserves awaiting occupation. A holistic drawing approach—combining new technologies with traditional graphic methods—offers a deeper understanding of the huerto's complexity, restoring its rightful place within the built landscape, shaped by both history and contemporary needs. This dynamic, ever-evolving cartography must treat the landscape as a stratified palimpsest, molded by both natural and human interventions, expressed through diverse descriptive formats and techniques where precision and expressiveness coexist. This ensures these spaces take on a necessary protagonism in a present where land transformation occurs at a rapid pace.

This study has indeed identified certain approaches capable of capturing the huerto's complex identity. Moreover, this type of graphic representation underscores the garden's multifaceted role, which goes far beyond food production to encompass cultural and social dimensions. There is no single method for representing agrarian landscapes; however, integrating quantitative precision with intangible qualitative values reveals the huerto's unique identity within the built environment. As Carlo Tosco (2017) states, effective representation merges the painter's gaze with the cartographer's precision.

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REFERENCES

Álvarez Álvarez, D. (2024). Representation and Design in Historic Gardens. *Disegno*, 15(1), 31–43.

Baricco, A. (2022). *La via della narrazione*. Milano, Italia: Feltrinelli.

Berque, A. (1990). *Médiance, de milieux en paysages*. Montpellier, France: Géographiques.

Carandini, A. (1985). Orti e frutteti intorno a Roma. En: *Misurare la terra. Centuriazione e coloni nel mondo romano*. Modena, Italia: Panini.

Carroll, L. (1876). *The Hunting of the Snark*. London, United Kingdom: Macmillan and Co.

Corner, J. & McLean, A. (1996). *Taking Measures across the American Landscape*. New Haven, United States: Yale University Press.

Corrain, L. (2006). La rappresentazione del paradiso terrestre. Dal giardino al paesaggio. *Visible*, 2(1), 207–230.

D'Angelo, P. (2021). *Il paesaggio. Teorie, storie, luoghi*. Bari, Italia: Laterza.

Dematteis, G. (1996). *Le metafore della terra*. La geografia umana tra mito e scienza. Milano, Italia: Feltrinelli.

Deleuze, G. & Guattari, F. (1976). *Rizoma*. (2010). Madrid, España: Pre-Textos.

Donadieu, P. 2015. Les campagnes urbaines: quels scénarios pour demain? *Ri-Vista. Research for Landscape Architecture*, 10(2), 50–57.

European Environment Agency (2023). *Net land take in cities and commuting zones in Europe*. Published 23 Mar 2023. https://www.eea.europa.eu/en/analysis/indicators/net-land-take-in-cities/

Egerer, M. H., Wagner, B., Lin, B. B. et al. (2020). New methods of spatial analysis in urban gardens inform future vegetation surveying. *Landscape Ecology*, 35 (1), 761–778.

Frampton, K. (1999). *Megaform as Urban Landscape*. Conferencia de cierre presentada en el acto Raoul Wallenberg Lecture, College of Architecture and Urban Planning, University of Michigan, United States, 12 February 1999.

Koolhaas, R. & AMO. (2020). *Countryside. A Report*. Köln, Deutschland: Guggenheim-Taschen.

Kostof, S. (1991). *The City Shaped: Urban Patterns and Meanings Through History*. London, United Kingdom: Thames & Hudson.

Landsberg, S. (1995). *The Medieval Garden*. Toronto, Canada: University of Toronto Press.

Leach, H. M. (1982). On the Origins of Kitchen Gardening in the Ancient Near East. *Garden History Society*, 10(1), 1-16.

Magnaghi, A. (2005). *La rappresentazione identitaria del territorio*. Florencia, Italia: Alinea.

Meeus, J. H. A., Wijermans, M. P., & Vroom, M. J. (1990). Agricultural landscapes in Europe and their transformation. *Landscape Urban Plan*, 18(1), 289–352.

Monteys, X. (2021). *La casa como jardín*. Barcelona, España: Gustavo Gili.

Nogué, J. (2007). Territorios sin discurso, paisajes sin imaginario: retos y dilemas. *ERIA*, 1(73-74), 373–382.

Quaini, M. (1992). *Il mondo come rappresentazione*. Milano, Italia: Galleria Paolo Vitolo.

Pierce, F. J. & Clay, D. (2007). *GIS Applications in Agriculture*. Florida, United States: CRC Press.

Prada Llorente, E. (2005). Paisaje agrario: antropología de un territorio. *Ciudad y Territorio, Estudios Territoriales*, 37(144), 343–374.

Rodríguez López, R. (2008). *El huerto en la Roma Antigua*. Madrid, España: Dykinson.

Silva Pérez, R. (2010). Multifuncionalidad agraria y territorio. Algunas reflexiones y propuestas de análisis. *EURE*, 36(109), 5–33.

Steenbergen, C. & Reh, W. (1996). *Architecture and Landscape: The Design Experiment of the Great European Gardens and Landscapes*. München, Deutschland: Prestel.

Tosco, C. (2007). *Il paesaggio come storia*. Bologna, Italia: Il Mulino.

Sudjic, D. (2017). *El lenguaje de las ciudades*. Barcelona, España: Ariel.

Williams, R. (2001). *El campo y la ciudad*. Buenos Aires, Argentina: Paidós.