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Agricultural landscapes, an interdisciplinary approach

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Editorial

Contemporary landscapes are rapidly evolving and require special attention. The natural and agricultural landscapes can be viewed—and analyzed—from multiple perspectives. Increased understanding is achievable with an interdisciplinary approach that contextualizes reality according to diverse points of view. This is the defining characteristic of the issue; the articles presented here offer different critical interpretations with notable results.

First, there is the ongoing challenge of identifying green networks able to act as ecological corridors for landscape planning. These essential infrastructure support the maintenance of biodiversity and public health.

In Construction and optimization of ecological networks in the metropolitan area of the west bank of the Pearl River Estuary, China based on MSPA linkage mapper by Liang Xueqian and Zeng Junfeng, green corridors are highlighted as potentially useful for landscape management. The study focuses on the disparity between ecological networks and socioeconomic development in the Pearl River West Metropolitan Area.[1]

Using Linkage Mapper and Morphological Spatial Pattern Analysis, the authors identify the region's essential ecological elements—key nodes, possible corridors, and significant sources. The results provide a technical framework and scientific foundation for promoting sustainable development and environmental conservation in urban areas.

It is crucial to identify ecosystem services; assess ecological risks in specific areas; and determine how these dangers can affect collective well-being. Understanding these elements is essential for managing the environmental and climate crises that define our times.

The work Ecological zoning identification and optimization strategies of Wuhan based on ecosystem service value and landscape ecological risk by Zhou Yu Hui, Yang Wen Rui, and Zeng Jun Feng, uses remote sensing technology, geographic information models, landscape ecology, and GIS grid analysis techniques to examine the spatiotemporal evolution of land use change, ecosystem service value, and landscape ecological risk index from 2002–2022. The area of study is divided into four ecological zones: restoration, reconstruction, development, and environmental protection. They then suggest different management strategies.[2]

An even more philosophical approach for understanding agricultural systems reflects on the relationship between humans and various cultivation aspects, drawing meaningful conclusions about future trends.

The paper Approaching the study and understanding of urban agriculture from a systemic perspective by Juan Camilo Fontalvo-Buelvas and Oswaldo Rahmses Castro-Martínez explores how systems thinking has improved our knowledge of and ability to manage urban agriculture. They examine three analytical domains: physical, which includes infrastructure and inert material elements; biophysical, which provides for living elements and ecological processes; and human/biophysical—the intersection of institutional arrangements, sociocultural practices, overall values, and forms of collective organization.[3]

The essay concludes that a comprehensive systems approach enables a deeper understanding of urban agriculture, specifically its structure, emergent characteristics, and functional dynamics. Similarly, in the pursuit of sustainable urban agriculture, conceptual frameworks can guide more effective interventions incorporating ecological and sociological aspects.

The historiographical approach also provides important information, for instance, in its understanding of the origins of specific cultivation systems. Even with an abundance of existing information, historical analysis continues to raise questions and formulate fascinating hypotheses.

About the origin of the grapevine cultivar Blaufränkisch by Regner and Mann proves that the use and evolution of grapevine cultivars throughout the ages is a fascinating area of viticultural history. There are several kinds which make the origins of the paternal vines difficult to determine. In the case of Blaufækisch, it has long been evident that this variety descends from the Heunisch grapevine and is closely related to Wildbacher Blau. Blaufækisch is unique in its distinct regional identity and has several synonyms, some of which were also used for other variants.[4]

For the authors, the small number of synonyms persisting to this day can serve as direct proof—the literature already strongly suggests where the variety first gained significance and most likely originated. They conclude that the most plausible variation in Blaufækisch's case is that it originated in Austria, specifically in the wine-growing region south of Vienna.

Alternatively, there is the biological scientific approach used to identify and manage important pathogens affecting agricultural systems. Given the possibility of rapid change, these aspects require constant research and updating.

In the article Detection and molecular characterization of *Candidatus liberibacter* spp. in sour orange of the municipality of Río Bravo, Tamaulipas by María Genoveva Álvarez-Ojeda, Efraín Acosta-Díaz, Cynthia Guadalupe Rodríguez-Quibrera, Santiago Saavedra-Alonso, Karla Ivonne Pérez-Aviña, and Isidro Humberto Almeyda-León, the focus is on the identification of bacteria that target citrus species. Huanglongbing, often called the yellow dragon of citrus, is considered the most damaging citrus tree disease.[5]

After being detected in three of the total tree samples, *Candidatus Liberibacter asiaticus* was identified as the bacterium linked to Huanglongbing in the city of Río Bravo, Tamaulipas. These findings allowed them to conclude that the bacterium *Candidatus Liberibacter asiaticus* is the pathogen linked to HLB in that municipality's citrus, and that no discernible genetic differentiation exists to identify pathogen variants in the study area.

The agricultural landscape consists of several aspects which determine the specificity and originality of a site. It is therefore essential to identify its characterising elements so that they can be understood and effectively managed. The quality is therefore related to the degree of integrity, significance, and relevance of the existing identifying and ordinary structural characteristics and their systems of relationships.

As Douglas A. Landis states, "the loss of ecosystem services due to landscape simplification can only be addressed by a concerted effort to fundamentally redesign agricultural landscapes."[6] Complexity requires depth to understand its various aspects in the contemporary world. The phenomena we deal with are equally varied and changeable; research, therefore, must always be prepared to ask precise questions and provide answers. What matters—and characterizes this issue—is precisely its multidisciplinarity, which is understood as a quality of research.

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