A GIS-Based Model Proposal for Productive Rural Landscapes: The Agricultural Crop Pattern of Bursa Province

Merve Ersoy
Bursa Technical University, Yıldırım, Türkiye

Yalcin Yildirim
Bursa Technical University, Yıldırım, Türkiye

Abstract:

The Bursa Plain is a large east–west oriented basin in the southeastern part of the Marmara Region, situated between the Uludağ Massif and the coastal ranges to the south and southeast of Gemlik Bay. Comprising two sub-units—a piedmont plain and a floodplain—the piedmont sectors of the Bursa Plain experienced intense urbanisation between 1960 and 1990. Urbanisation, informal/illegal construction, migration, and industry-led growth across Bursa Province have progressively eroded agricultural lands, triggering significant urban agglomeration. To contribute positively to urban dynamics, there is a pressing need to reconfigure rural-area dynamics. It has been identified that there is currently no province-wide agricultural crop pattern map for Bursa, despite its potential to inform Spatial Strategy Plans and Environmental Order Plans and to support spatial decision-makers.

Within the framework of rural landscapes, the contribution of agricultural lands to food provision and ecosystem services is indisputable. Rural landscapes—multifunctional spaces shaped by the interaction of natural processes and human activities—are characterised primarily by agricultural land use, forestry, and natural habitats. In a metropolitan setting such as Bursa, where agricultural lands are subject to multilayered pressures from urbanisation, industrial expansion, and climate change, monitoring crop patterns via remote sensing would offer a strategically novel, data-driven basis for policy design. Such monitoring would underpin policy formulation, management, and planning for rural landscapes within the remit of the European Landscape Convention (ELC).

This study aims to develop a model proposal that, by aligning the European Landscape Convention's provisions on rural landscapes with national development priorities, documents Bursa's productive landscapes and provides the scientific basis for spatial models.

Keywords:

Rural landscape, GIS, crop pattern.