UNITED RESEARCH FORUM
(CONNECT WITH RESEARCH WORLD)

4th International Congress on Earth and Geological Sciences

July 21-22, 2025 | Paris, France

Jun LI[1], **Yu YE[1,2*]**, Xiuqi FANG[1,2], Diyang ZHANG[1] & Zhilei WU[3]

[1]Faculty of Geographical Science, Beijing Normal University, Beijing 100875, China;
[2]Key Laboratory of Environmental Change and Natural Disaster, Ministry of Education, Beijing Normal University, Beijing 100875, China;
[3]College of Geographical Science, Qinghai Normal University, Xining 810016, China

Spatially explicit reconstruction of cropland cover in Europe from AD 1800 to 2000

Abstract One of the challenges in global change research is the significant uncertainty in global historical land use and landcover (LUCC) datasets, which are widely used as foundational data. In addition to the regional cropland area reconstructions, improving the grid allocation method is another feasible way to raise the reliability of historical LUCC data. In this study, an integrated reconstruction of the national cropland areas over the past 200 years was developed for 36 European countries. Finally, cropland data in Europe with a spatial resolution of 5′×5′ at five time sections from AD 1800 to 2000 were generated using the optimal allocation algorithm in accordance with the stages of the regional history. The results were as follows: The dominant factors governing the distribution of croplands in Europe vary at different agricultural stages, but the results can be merged together. Land suitability was more optimal for allocation during the modern agricultural stage (AD 1950 and 2000); the priority index combined with land suitability and cultivation preference was more reasonable for allocation during the traditional agricultural stage (AD 1800). The average of the allocations by priority index and the land suitability could be adopted as the allocation results during the transitional stage (AD 1850 and 1900) because the grids for absolute differences within ±10 and ±20 percentage points between the results obtained from the above two allocations were above 80% and 95%, respectively, which means the two allocation results could be merged.

Keywords: Historical cropland, Gridding allocation, Europe, Land use and land cover change, Past 200 years

Biography

Female, born in 1979, an associate professor of School of Geography, Beijing Normal University, China. She majors in historical land use/cover change and carbon cycle, historical climate change and human sustainability adaptation.

ISBN: 978-1-917892-13-1

doi.org/10.51219/URForum.2025.Yu-Ye