

# Spatial and temporal variation of green development level of cultivated land in China based on adaptability-vitality-resistance

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## Abstract

Evaluating the level of green development of cultivated land (GDCL) and its influence mechanism can provide important support for better promoting agricultural green development and rural revitalization. According to the concept of green development, we construct the evaluation system of “adaptability-vitality-resistance (A-V-R)” and explore the spatial and temporal differentiation characteristics and influence mechanism of China’s GDCL in 2000, 2005, 2010, 2015, and 2020 by using the methods of the Comprehensive Evaluation Model, Standard Deviation Ellipse, Theil Index, and Geographic Detector. The results show that: (1) From 2000 to 2020, the level of GDCL in China was low and improved slowly, increasing from 0.264 to 0.293, showing the characteristics of “W” fluctuation, and the focus shifted from Southwest to Northeast. (2) The GDCL in China has obvious spatial dependence, and the evolution of different types of regions has significant path dependence and spatial and temporal inertia. (3) The regional difference in the level of GDCL in China is greater than that among regions. The hierarchical structure characteristics of Northeast Region > Western Region > Central Region > Eastern Region is prominent, and show an overall increasing trend. (4) Human factors greatly impact the level of GDCL. The interaction of driving factors forms a complex multi-resultant force to jointly build a comprehensive action mechanism of GDCL level driven by demand, economy, science and technology, and ecological block.

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