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The Research on Impact Factors and Characteristic of Cultivated Land Resources Use Efficiency---take Henan Province, China as a Case Study

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Abstract

Based on the background of construct the national grain strategy project of Henan province core and construct Zhongyuan Economic Zone, considering the Henan province's cultivated land resources use efficiency and food security, using multiple linear regression model and the principal component analysis to analyze the cultivated land resources' use efficiency between 1999-2008 of Henan province, drew this decade, cultivated area remain basically stable, Cultivated land utilization overall efficiency is high, and established the food production, even in successive years grain output reached a high yield, population density, urbanization rate, per capita GDP, multiple crop index, per hectare fertilizer rate is the greatly influenced factors of influence cultivated land resource utilization efficiency. The main factor that influences grain output has converted from per hectare fertilizer to the quantity and quality of labors in per hectare; the increase of multiple crop index and level of agricultural mechanization are the important factors that influence the grain output. Finally, proposed to improve the cultivated land resource utilization efficiency of Henan province and rational utilization of cultivated land resources countermeasures. Based on the analysis above, this paper indicate that: 1) Promote urbanization, strengthen land management to protect cultivated land resources; 2) Control copulation and improve land use efficiency; 3) Improve water resources in a rational allocation between sectors; 4) Increase input in agriculture, science and technology, to improve land productivity.

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1. Main text

Cultivated land is the scarcest and most valuable resources in the development of China's agriculture and rural economy, which plays an indispensable and foundational role in the sustainable development of the agriculture and domestic economy. As China is a country with the biggest population, its sufficiency rate of grain has important effect on its domestic food production and the development tendency of its consumption and agriculture. Since 1980s, the cultivated land supply of our country has shown a continuous decrease, getting the food demand and cultivated land supply into a tight balance. The contradiction between the balanced quantity and the decreasing quality has become a prominent problem in our country's use of cultivated land resources. The improving of the land resources use benefit, apart from being limited by the natural condition of the region, is also closely related to the regional social economic development, planting patterns, farming habits, investment capability and cultivated land infrastructure construction, etc. The scarcity and shortage of the cultivated land resources in our country have become factors to limit the survival and development in our country. In provinces such as Shandong, Guangdong, Hubei, Guangdong and Guizhou, the use benefit of cultivated land has shown a decreasing tendency. The newly published The Plan of Increasing One Hundred Billion Jin More Grain Production Capability (2009-2020) by the State Council has also stressed the importance of protecting the cultivated land and food security, and set more accurate goals and more detailed measures for the land protection and grain production.

The Henan Province has been one of the major grain producing regions in our country for many years, and makes great contribution to our country's food security. With the quick development of social economy, Henan as an agriculture giant will play an increasingly important role in ensuring the country's food supply and security. As the major grain producing region, the total grain output of which accounts for 10% of the total output in China, Henan not only is very important to ensure the whole country's food security, the problems occurred in the land use are also typical and have representativeness. With the development of social economy in Henan, many relevant factors related to cultivated land resources use change day by day. The grain production is not so steady and varies greatly, which have significant effect on regional food security.

The research and discuss on the factors that will influence the use of cultivated land resources are helpful to recognize and reveal the main problems in regional food production, and have important reference value for making and adjusting policies about the use of cultivated land and improving the ways of land resources use. This paper analyzes the cultivated land use benefit in Henan Province in 1999 and 2008 by means of principal component analysis (PCA), and discusses the main factors that influence the use benefit of cultivated land resources in Henan, as well as the influencing mechanism and relevant measures and suggestions to solve the problems.

2. The general situation of the region under the research

Henan Province is one of the regions which is the earliest to develop and exploit agriculture, so its degree of land exploitation is high, and the use patterns are complex and diversified, the distribution differences of land quality can obviously be seen. According to the land investigation in 2008, Henan Province has a total area of 165,500 square kilometers, including cultivated land 118,895,600 Mu, garden land 4,708,700 Mu, woodland 28,241,500 Mu, grassland 215,700 Mu, other agriculture land 15,122,400 Mu, residential area and independent industrial area 28,241,500 Mu, transportation land 1,825,500 Mu, water conservancy projects land 2,732,400 Mu, other land 8,510,100 Mu, with 1.20 Mu cultivated land per capita. There are 153,800 Mu

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