

## A Review of Researches on the Impact of Farmers' Land Use Behaviors on Cultivated Land Quality

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### Abstract

The land use behavior of farmers directly affects the quality of cultivated land. In this study, with the help of CNKI, Wanfang and other literature databases, with "farmers", "land use", and "cultivated land quality" as search keywords, this study summarized and analyzed the current research progress of the impact of farmer households' land use behavior on cultivated land quality in China. The research results show that the land use behavior of farmers has a significant impact on the quality of cultivated land. Researchers mainly study the impact of farmers' land use behavior on cultivated land quality from two perspectives: "cultivated land quality" and "farmers' land use behavior—cultivated land quality". However, based on the change of cultivated land quality, the research on the post-evaluation of farmers' land use behavior needs to be in-depth. Studying the land use behavior of grassroots farmers and understanding whether their land use behavior has a positive or negative effect on the quality of cultivated land is of great importance to guaranteeing China's agricultural production and food security.

### Keywords

Farmer land use behavior; cultivated land quality.

### 1. Introduction

Since the reform and opening up, China has made great achievements in economic and social development. However, due to the long-standing urban-rural dual system in China's urban-biased development strategy, the civic-biased distribution system, and the heavy industry-biased industrial structure, the contradiction between the "three divisions" of China's urban-rural division, land division, and separation of man and land has been deepened. Rural areas have caused a series of "rural diseases" such as deep poverty in rural areas, rapid non-agriculturalization of agricultural production factors, rapid aging and weakening of rural social entities, increasingly empty construction land in rural areas, and pollution of rural water and soil environment. Land use is a mirror of society, and problems that arise in social development will be reflected in land use.

My country's agricultural history has a long history of civilization, and the economic production of small farmers is its biggest feature. The "Rural Land Contract Law" clearly stipulates that the land contractor must be a member of the collective economic organization. Therefore, farmers have become the basic organizational unit of agricultural production. In rural areas, the most direct purpose of the land use behavior of farmers is to produce economic benefits and meet their own material needs, which can be called an economic behavior. Farmers have to go through three key steps in the production process: thinking, choosing and deciding. Generally speaking, in order to maximize benefits, farmers usually focus on production activities with higher economic benefits. However, due to the limitation of farmers' own production quality conditions, there is often a certain degree of blindness in the agricultural production process, which will lead to low land use efficiency, agricultural output rate, and low production efficiency of farmers. At the same time, rural areas are the most concentrated areas of arable land, and as direct agricultural producers, farmers' land use behavior has an important impact on agricultural land use, future agricultural development, land ecological environment quality, and rural revitalization.

## **2. The impact of farmers' land use behavior on the quality of cultivated land**

The land use behavior of farmers has a significant impact on the quality of cultivated land. The key to the quality of arable land is whether the soil quality is affected. Farmers disturb the soil most frequently in the process of land cultivation. Usually in order to increase the agricultural output rate, pesticides and fertilizers are the first choice of agricultural producers, but this behavior directly affects soil quality. The extensive use of pesticides and fertilizers has caused serious soil compaction and affected soil microbial activities, which ultimately manifested itself as a decline in soil quality and reduced agricultural production benefits. At the same time, as farmers use land for agricultural production, unreasonable production methods have led to frequent occurrences of land degradation and desertification, and the ecological environment is facing severe challenges.

## **3. Research Status of the Impact of Farmers' Land Use Behaviors on Cultivated Land Quality**

### **3.1. Research on the Characteristics of Farmers' Land Use**

The land use behavior of farmers has obvious regional characteristics. It is mainly due to the effect of uneven economic development between regions. Most scholars at home and abroad have studied the land use behavior of rural households in urban suburbs, rural households in suburban areas, rural households in land use behaviors, and rural households in poor mountainous areas. His research found that the land use behavior of rural households in the suburbs is mainly reflected in the land use method, land use degree and land use input. The utilization degree is low and the input is less, and there are more obvious "non-agricultural" and "non-grain" phenomena. Farmers in the outer suburbs and rural areas pay more attention to food demand and economic benefits, and the degree of land utilization is higher, the investment is more, and more agricultural production is the mainstay. Mountain areas are experiencing rapid labor transfer and farmers' livelihoods are significantly diversified. At the same time, farmers' education in poor mountainous areas is generally low and their willingness to land transfer is not strong. There are still a considerable number of pure farmers relying on agriculture, and farmers' land use methods Less intensive.

### 3.2. Research based on cultivated land quality

Under the current rural land system, farmers are still the basic organizational unit of agricultural production. Cultivated land plays an important role in agricultural production. At the same time, the research on the quality of cultivated land is favored by scholars. Li Ting and others believe that the quality of cultivated land is a comprehensive index with rich connotations<sup>[1]</sup>. Research by Shen Renfang and others believe that the quality of cultivated land has a wide range of connotations and diverse levels, with emphasis on its spatial quality attributes<sup>[2]</sup>. Chen Yinjun and others collectively referred to soil quality, environmental quality, management quality and economic quality as cultivated land quality<sup>[3]</sup>. Wu Kening and others not only consider the properties of the soil itself, but also consider the quality of cultivated land in combination with the external environmental impact<sup>[4]</sup>. Zhao Denghui and others believe that the quality of cultivated land mainly considers soil fertility and the geographical location of cultivated land<sup>[5]</sup>. Research by Liu Youzhao and others believe that the quality of cultivated land needs to consider both natural factors and environmental factors<sup>[6]</sup>. Kong Xiangbin and others believe that the quality of cultivated land is the result of the comprehensive impact of nature, society, economy and technological progress<sup>[7]</sup>. The quality of arable land is the key to ensuring agricultural production, and protecting and improving the quality of arable land is an important part of the research. This requires us to pay attention to the protection of cultivated land in the macroeconomic development. At the micro level, that is, in the process of land use and production of farmers, rational use of cultivated land, standardize land use behavior, improve farmers' awareness of land use protection, strengthen practical technical guidance, and effectively protect cultivated land. , To ensure the healthy and sustainable development of cultivated land quality.

Combining the research views of most scholars, this study believes that the quality of cultivated land not only considers its own natural attributes, but also external attributes such as social economy, agricultural producer behavior, and ecological environment. It is comprehensive and multifaceted.

### 3.3. Research Based on Farmers' Land Use Behavior and Cultivated Land Quality

The research on the impact of cultivated land quality at the macro level is generally considered to be the combined effect of natural factors and socio-economic factors. However, from a micro perspective, the change of cultivated land quality is closely related to agricultural production activities. In this process, the land use behavior of agricultural producers, that is, farmers, directly or indirectly affects the quality of cultivated land. Liu Hongbin and others started from the farmers' cognition and behavioral decision-making response to study and analyze the influence mechanism between farmers' behavior and cultivated land quality protection<sup>[8]</sup>. Li Tao et al. studied farmland quality evaluation theories and methods on the basis of farmer behavior decision-making, and revealed the rules between farmer's decision-making behavior and farmland quality evaluation and protection<sup>[9]</sup>. Based on the perspective of farmers, Xu Zijin and others constructed a farmland quality evaluation system to study and analyze the impact of farmers' land use behavior on farmland quality<sup>[10]</sup>. From the perspective of farmer households, Liu Hongbin et al. studied and analyzed the influence mechanism of farmer households' behavior on the soil quality of cultivated land in urban suburbs based on soil data and farmer survey data of 238 plots<sup>[11]</sup>. Yin Xiaofei and others studied farmers' participation in cultivated land quality protection and its influencing factors, and found that farmers are not very enthusiastic about cultivated land quality protection, and the age of farmers and the use of pesticides and fertilizers have a significant impact on cultivated land quality<sup>[12]</sup>. Kong Zhe and others studied the relationship between the differentiation of farmers' land awareness and farmland protection behaviors, and found that farmers with land dependence awareness and

awareness of getting rich have more obvious farmland protection behaviors [13]. Liu Hongbin et al. studied the impact of farmers' land use behavior on the quality of cultivated land on a plot scale, and believed that the process of industrialization and urbanization caused farmers to respond continuously in agricultural production, and their land use methods and input intensity changed, which affected the organic matter, Available potassium and pH, etc., in turn affect the quality of cultivated land [14]. Huang Siqin and others studied the relationship between the differentiation of farmers' land values and the protection of cultivated land, and found that farmers with different forms of existence have differences in their understanding of cultivated land protection [15]. Li Zhipeng et al. studied the influencing factors of the use of pesticides and fertilizers by farmers and found that farmers had vague understanding of the use of pesticides and fertilizers and methods of use, and did not pay enough attention to the protection of cultivated land quality [16]. From the perspective of farmers, Shi Hongyan and others analyzed the relationship between intensive use of cultivated land and environmental benefits, and then discussed the impact of intensive use of land by farmers on the quality of cultivated land [17].

In summary, most researches on farmland quality changes based on the perspective of farmers indicate that in the process of agricultural production, farmers' cognition, behavioral decision-making, consciousness differentiation, and land values and other land use behaviors have a significant impact on farmland quality. Scholars study the impact mechanism of farmers' land use behavior and cultivated land quality changes, hoping to clarify the impact of farmers on the quality of cultivated land in the process of agricultural production, and provide scientific suggestions for the protection and sustainable use of cultivated land resources.

#### 4. Summary and comment

Throughout the existing research, we have a certain foundation in the land use behavior of farmers. However, there is still room for improvement. Most of the researches based on the quality of cultivated land are based on the macro level. Usually consider natural factors and socio-economic factors. Starting from the micro level, that is, the farmer level, relatively little research has been done. At present, although some scholars have begun to study and analyze the impact of farmers' land use behavior on the quality of cultivated land from the level of farmers, and have achieved certain research results. However, based on the change of cultivated land quality, the research on the post-evaluation of farmers' land use behavior needs to be in-depth. Taking this as the starting point, the use of methods such as farm household survey, statistical analysis and econometric model analysis will help to study and analyze the impact of farm households' land use behavior on the quality of cultivated land. Research on the land use behavior of grassroots farmers to understand whether their land use behavior has a positive or negative effect on the quality of cultivated land, in order to provide a scientific reference for the formulation of rural land policies and the development of agricultural modernization.

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