

Research on the Path and Strategy of Improving the Quality of Cultivated Land in Shaanxi Province

Yanan Li^{1,2}, Panpan Zhang^{1,2}, Yan Xu³

¹ Shaanxi Provincial Land Engineering Construction Group Co., Ltd., Xi'an 710075, China

² Shaanxi agricultural development group Group Co., Ltd., Xi'an 710075, China

³ Shannxi sports training center, Xi'an 710065, China

Abstract

Taking the improvement of cultivated land quality in Shaanxi Province as the research object, the main paths and safeguard measures to improve the quality of cultivated land were discussed by analyzing the current situation and existing problems of cultivated land quality. The study found that the cultivated land in Shaanxi Province is facing problems such as soil degradation, fertility decline, and increased pollution, which seriously restricts the sustainable development of agriculture. In view of these problems, this paper puts forward some paths, such as improving soil structure, improving soil fertility, preventing soil pollution and optimizing farming system, and puts forward some safeguard measures from the aspects of policy support, scientific and technological innovation, capital investment, monitoring and evaluation. It is expected to have important reference value for improving the quality of cultivated land in Shaanxi Province, ensuring food security and promoting sustainable agricultural development.

Keywords

Shaanxi Province; Cultivated Land Quality; Soil Improvement; Fertility Improvement; Pollution Control; Farming System.

1. Introduction

Cultivated land is the basis of agricultural production, and the quality of cultivated land is directly related to food security, ecological security and sustainable development of agriculture. As an important agricultural production base in China, the quality of cultivated land in Shaanxi Province is of great significance to ensure national food security. However, with the rapid development of economy and society and the intensification of human activities, the cultivated land in Shaanxi Province is facing many challenges, such as soil degradation, fertility decline and pollution aggravation, which seriously restricts the sustainable development of agriculture. The purpose of this study is to deeply analyze the current situation and existing problems of cultivated land quality in Shaanxi Province, to explore effective ways and safeguard measures to improve the quality of cultivated land, and to provide scientific basis and policy suggestions for improving the quality of cultivated land and improving agricultural production capacity in Shaanxi Province. Through literature research, field research and data analysis, this paper systematically combs the current situation of cultivated land quality in Shaanxi Province, identifies the main problems, and puts forward targeted solutions and safeguard measures on this basis.

2. The Present Situation and Existing Problems of Cultivated Land Quality in Shaanxi Province

Shaanxi Province is located in the northwest of China. The terrain is complex and diverse, and the climatic conditions are significantly different. These natural factors have an important impact on the quality of cultivated land. The total area of cultivated land in the province is about 45,000 square kilometers, mainly distributed in the Guanzhong Plain, the Hanjiang Valley in southern Shaanxi and the Loess Plateau in northern Shaanxi. In recent years, with the advancement of agricultural modernization, the quality of cultivated land in Shaanxi Province has generally shown a steady trend, but there are still many problems.

First of all, the problem of soil degradation is prominent. The serious soil erosion in northern Shaanxi leads to the destruction of soil structure and nutrient loss. Long-term high-intensity farming in the Guanzhong Plain has caused soil compaction and a decrease in organic matter content ; there is acidification in some cultivated land in southern Shaanxi. Secondly, soil fertility generally decreased. Excessive use of chemical fertilizers leads to soil nutrient imbalance, and insufficient organic fertilizer input leads to low soil organic matter content, which affects soil water and fertilizer retention capacity. Thirdly, the problem of soil pollution is becoming more and more serious. The discharge of industrial ' three wastes ', excessive use of pesticides and fertilizers, and livestock and poultry breeding wastes have led to increased pollution of heavy metals and organic matter in soil in some areas.

In addition, the unreasonable farming system is also an important factor affecting the quality of cultivated land. There are continuous cropping and continuous cropping in some areas, resulting in soil nutrient imbalance and aggravation of pests and diseases. The implementation of the rotation fallow system is not in place, which affects the soil self-healing ability. These problems have seriously restricted the sustainable development of agriculture in Shaanxi Province, and it is urgent to take effective measures to solve them.

3. The Main Path to Improve the Quality of Cultivated Land in Shaanxi Province

In view of the problems existing in the quality of cultivated land in Shaanxi Province, the quality of cultivated land should be improved from the following aspects :

First, improve the soil structure. For the northern Shaanxi area with serious soil erosion, the construction of soil and water conservation projects should be strengthened, and the techniques of contour tillage and terrace planting should be promoted. For the Guanzhong Plain area with soil compaction, deep loosening and deep tillage technology should be promoted to increase soil permeability ; for the severely acidified southern Shaanxi area, lime and other amendments should be applied to adjust the soil pH value. At the same time, measures such as straw returning and planting green manure should be vigorously promoted to increase soil organic matter content and improve soil structure.

Secondly, improve soil fertility. The technology of soil testing and formula fertilization should be promoted, and nitrogen, phosphorus, potassium and trace element fertilizers should be scientifically formulated according to soil nutrient status and crop demand. Encourage farmers to increase organic fertilizer, promote livestock and poultry manure composting technology, and increase the proportion of organic fertilizer use. At the same time, it should be reasonable rotation, planting leguminous crops and other land crops to improve soil nutrient content.

Again, prevent soil pollution. We should strictly control the discharge of industrial ' three wastes ', strengthen the treatment of agricultural non-point source pollution, and promote high-efficiency and low-toxic pesticides and biological control technologies. For contaminated farmland, physical, chemical or bioremediation techniques should be adopted for treatment. At

the same time, it is necessary to establish and improve the monitoring network of cultivated land soil environmental quality, so as to detect and deal with pollution problems in time.

Finally, optimize the farming system. Crop layout should be scientifically planned according to the natural conditions and crop characteristics of different regions, and reasonable rotation, intercropping and intercropping systems should be promoted. Promote conservation tillage techniques in suitable areas, such as no-tillage, less tillage, etc., to reduce soil disturbance and maintain soil structure. At the same time, fallow rotation should be reasonably arranged, and sufficient rest time should be given to the cultivated land to promote soil self-healing.

4. Guarantee Measures to Improve the Quality of Cultivated Land in Shaanxi Province

In order to ensure the effective implementation of the measures to improve the quality of cultivated land, it is necessary to provide strong guarantee from the aspects of policy, science and technology, capital and monitoring :

In terms of policy support, relevant laws and regulations on the protection and improvement of cultivated land quality should be formulated and improved, and the responsibilities and obligations of governments, enterprises and farmers at all levels should be clarified. Establish and improve the compensation mechanism for cultivated land quality protection, and give appropriate subsidies to farmers who take measures to improve the quality of cultivated land. At the same time, we should strengthen the law enforcement of cultivated land quality protection and crack down on the behavior of destroying the quality of cultivated land.

In terms of scientific and technological innovation, we should increase investment in research and development of technologies related to the improvement of cultivated land quality, and support universities, research institutes and enterprises to carry out joint research. Key technologies such as soil improvement, fertility improvement, and pollution control should be developed to accelerate the transformation and application of achievements. At the same time, the construction of agricultural technology extension system should be strengthened to improve farmers' scientific fertilization, reasonable farming and other technical levels.

In terms of capital investment, a diversified capital investment mechanism should be established. The government should increase financial support for the improvement of cultivated land quality and set up special funds for soil improvement, pollution control and other projects. At the same time, we should encourage social capital to participate in the improvement of cultivated land quality, explore the establishment of cultivated land quality protection fund, and attract the input of social forces such as enterprises and financial institutions.

In terms of monitoring and evaluation, the monitoring network of cultivated land quality should be established and improved, and the investigation and evaluation of cultivated land quality should be carried out regularly. The dynamic monitoring and early warning of cultivated land quality are realized by using modern technical means such as remote sensing and GIS. Establish a database of cultivated land quality to provide data support for scientific decision-making. At the same time, the evaluation system of cultivated land quality should be improved, the quality of cultivated land should be included in the evaluation index of local government, and the incentive and restraint mechanism of cultivated land quality protection should be strengthened.

5. Conclusion

Improving the quality of cultivated land is an important measure to ensure food security and promote sustainable agricultural development. In view of the problems existing in the quality of cultivated land in Shaanxi Province, this study puts forward the paths of improving soil

structure, improving soil fertility, preventing soil pollution and optimizing farming system, and puts forward safeguard measures from the aspects of policy support, scientific and technological innovation, capital investment, monitoring and evaluation. The implementation of these measures will help to improve the quality of cultivated land in Shaanxi Province, improve agricultural production capacity, and promote sustainable agricultural development. In the future, we should further strengthen the scientific and technological innovation of cultivated land quality protection and improvement, improve relevant policies and regulations, increase capital investment, establish and improve the monitoring and evaluation system, and provide continuous guarantee for the improvement of cultivated land quality.

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