

Application Analysis of Efficient Water-saving Irrigation Technology in High Standard Farmland Construction

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Abstract

In recent years, with the increasing emphasis on agricultural development in China, China has gradually strengthened the construction of high standard farmland. This work is of great significance in promoting high-quality and stable development of agricultural production and improving the resilience of farmland to disasters. By applying modern equipment and technology, water-saving irrigation technology can effectively avoid the problem of water resource waste in farmland irrigation, ensure effective improvement of water resource utilization rate, and thus improve the construction effect of high standard farmland. This article briefly analyzes the application of efficient water-saving irrigation technology in the construction of high standard farmland, hoping to provide some reference for improving the level of high standard farmland construction in China.

Keywords

High Standard Farmland Construction; Water Saving Irrigation Technology; Application Analysis; Water Resources.

1. Introduction

The construction of high standard farmland mainly involves the rectification and centralized treatment of farmland, as well as the establishment of complete supporting facilities for farmland, in order to achieve the construction of a good ecological environment. In the process of constructing high standard farmland, by strengthening the effective application of efficient water-saving irrigation technology, the irrigation efficiency of farmland can be greatly improved, thereby effectively reducing water resource consumption. This plays an important role in alleviating the problem of water resource scarcity in China and greatly improving the agricultural production efficiency of China, which is of great help in promoting the sustainable and healthy development of agriculture in China.

2. Analysis of the Influencing Factors of the Application of High-efficiency Water-saving Irrigation Technology in the Construction of High Standard Farmland

In the process of constructing high standard farmland, many factors will affect the application of efficient water-saving irrigation technology, which can be mainly divided into the following four points. Firstly, natural factors. Influenced by the climate, water resources, topography and other natural factors in the high standard farmland construction area, seasonal and engineering water shortage problems are likely to occur in the planting area, which will seriously affect the

normal operation of farmland irrigation. Secondly, economic factors. This includes the purchase, installation, and maintenance of efficient water-saving irrigation equipment. This makes it difficult to effectively apply efficient water-saving irrigation technology in the process of standardizing farmland construction without financial support. Thirdly, human factors. During the construction of high standard farmland, some farmers lack understanding of efficient water-saving irrigation technology, which makes it difficult to proficiently master and operate equipment in practical applications, leading to equipment damage. The lack of funds will also lead to the shortage of corresponding Computerized maintenance management system personnel, the lack of equipment maintenance ability of maintenance personnel, and it is difficult for equipment to be effectively repaired at the first time after being damaged, thus leading to the difficulty of efficient water-saving irrigation technology to give full play to its water-saving function. At the same time, the formulation of corresponding water-saving irrigation systems in China will also have a certain impact on the application effect of efficient water-saving irrigation technology in the construction of high standard farmland. Fourthly, technical factors. When carrying out high standard farmland construction work, relevant personnel need to comprehensively consider the adaptability and quality of efficient water-saving irrigation technology, in order to select appropriate water-saving irrigation technology and fully play the important role of efficient water-saving irrigation technology. During the use of equipment, it is necessary to continuously improve the supporting facilities of water-saving irrigation technology in order to ensure that the effectiveness of water-saving irrigation technology can be strengthened, thereby achieving the goal of reducing water resources and improving agricultural economic benefits.

3. Analysis on the Specific Application of Efficient and Water-saving Irrigation Technology in High Standard Farmland Construction

Efficient water-saving irrigation technology is a new engineering technology that combines advanced agricultural technology with modern facilities and equipment to achieve efficient management and effective application of farmland irrigation water resources, effectively solving the problem of water evaporation and leakage in traditional irrigation, and ensuring effective improvement of water resource utilization and irrigation efficiency in farmland irrigation. This is of great significance for promoting the high-level development of agriculture in China. Efficient water-saving irrigation technology can mainly be divided into sprinkler irrigation technology, drip irrigation technology, and pipe irrigation technology. So in order to achieve effective application of efficient water-saving irrigation technology, relevant personnel need to choose different water-saving irrigation technologies based on the actual situation, and it is also necessary to strengthen farmers' understanding of different water-saving irrigation technologies. Therefore, the government needs to continuously increase financial support in order to achieve effective application of efficient water-saving irrigation technology.

3.1. Application Analysis of Sprinkler Irrigation Technology

In the practical application process of sprinkler irrigation water-saving technology, the main working principle is to use the driving force of water pressure combined with pipeline nozzles and other facilities to achieve average spraying of water resources, ensuring that water resources can be evenly sprayed to complete the irrigation operation. This technology can ensure that all areas of farmland can receive equal spoon irrigation in practical application, effectively ensuring the irrigation effect. At the same time, this technology can greatly save manpower and achieve high water resource utilization efficiency in practical applications, requiring only a small amount of water to irrigate various terrains. However, in practical operation, relevant personnel need to closely monitor the wind direction and wind force. If the wind force is too strong, irrigation needs to be stopped in a timely manner to avoid adverse

effects on the range and uniformity of sprinkler irrigation due to excessive wind force. Sprinkler irrigation can be carried out during periods with low wind force or at night, which can effectively avoid excessive water evaporation and achieve maximum utilization of water resources. Sprinkler irrigation technology requires a large amount of investment in the early stages, which requires relevant personnel to choose this technology based on the actual situation.

3.2. Application Analysis of Drip Irrigation Technology

Drip irrigation technology mainly uses PVC pipes to transport water resources to farmland for irrigation. In practical applications, water resources are converted into continuous and slowly seeping water droplets through low-pressure pipelines, and the long-term drip irrigation process can ensure that the soil composition around the plant roots is in the optimal state, effectively promoting the development of crop roots and providing strong guarantees for the healthy and vigorous growth of crops. In the actual application process, drip irrigation technology only irrigates the roots of crops, and water resources gradually infiltrate into the Soil structure, so it will not cause damage to the Soil structure. At the same time, it also effectively avoids the evaporation consumption of water resources in transportation, effectively solves the waste of water resources, and it is difficult for drip irrigation to produce surface runoff in the use process, thus providing a strong guarantee for the efficient use of water resources. Relevant personnel can also control the water output and speed of drip irrigation through automated devices, thereby effectively improving the application performance of this technology and allowing drip irrigation technology to be applied in various terrains. However, this technology is prone to sediment blockage due to its influence on the aperture of the emitter, which requires special attention in practical applications.

3.3. Application Analysis of Pipe Irrigation Technology

Pipe irrigation technology mainly refers to the use of low-pressure plastic pipes instead of open channels for land irrigation. During the application process, water resources are transported to the pipes through pressure and gradually transported to farmland to complete irrigation. Irrigation of different areas of farmland using pipeline outlets can be effective through this irrigation method. To avoid water leakage during the water transportation process and ensure a significant improvement in the utilization rate of water resources. In the practical application process, this technology has been favored by a large number of farmers in recent years due to its low overall equipment price, simple installation, and easy operation. The application of this technology has played an important role in solving the problem of farmland irrigation in arid areas of China. Moreover, due to the large water flow rate and fast water flow rate, this technology will not cause sediment blockage in pipelines, and has strong adaptability and can be used in various terrains. However, the actual application effect of this technology in water-saving is still insufficient compared to sprinkler and drip irrigation, so relevant personnel need to make reasonable choices based on the actual situation.

4. Conclusion

In summary, in the process of constructing high standard farmland, relevant personnel must actively apply efficient water-saving irrigation technology. Only in this way can the problem of water resource waste in farmland irrigation be effectively solved, ensuring that the effectiveness of farmland irrigation can be gradually improved. This plays an important role in improving the quality and level of high standard farmland construction. Building high standard farmland can provide a good guarantee for the modernization of agriculture in China.

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