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To Achieve High-Quality Agricultural Development is the General Trend of the Times

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Abstract

Farming development has gone through a long process. After a review of literatures, the results showed that according to the efficiency of resource utilization by plants, the whole process of farming development can be divided into three stages, the whole process of farming development can be divided into three stages: Low level development stage or primitive farming, Level improvement stage and high-quality development new stage. The direction of Farming development is High-quality development. Farming High-quality development is to take some effective measures or methods to make land produce maximum yield and benefit to meet the people's needs for a better life and safe food, which is the general trend of the times.

Introduction

Farming development has gone through a long process. Because primitive agriculture cannot produce more better and health food and service to meet the people's needs for a better life and crop types, yields and quality. There are different kinds of concepts, such as ecological agriculture [1], organic agriculture (Scrinis, 2007) [2], smart agriculture and data agriculture and so on. Organic agricultural practices respond to and offer alternatives to the health and environmental problems related to conventional technologies and practices of production and embrace many alternative ideals such as alternative distribution and retailing networks and the counter-cultural wholefoods movement (Scrinis, 2007).

Method

In order to solve the problems, such as soil and vegetation degradation or crop failure and resources waste, low quality of fruit, produce and economic income in the modern agriculture, the relative lituretures was selected and comperative analysed. According to the efficiency of resource utilization by plants, the whole process of farming development can be divided into three stages: Low level development stage or primitive farming, Level improvement stage and high-quality development new stage. The results are as followed:

Results

According to the efficiency of resource utilization by plants, the whole process of farming development can be divided into three stages: Low level development stage or primitive farming, Level improvement stage and high-quality development new stage:

Low level development stage or primitive farming

At Low level development stage or primitive farming, people pick up wild fruits and rely on nature for a living because science and technology are underdevelopment and people labour productivity are low. Now, there are some areas to continue to carry out this kind Agriculture. For example, in China or over the world, there are still some primitive tribes.

Level improvement stage

At the Level improvement stage, people start to acclimation wild plant and select eatable wild plant or cultivate better plant species, weeding, producing and applicating fertilizer and irrigating, if there are water resources, to increase food kinds, improving quality and amount of food. The turning point from the low level of development to the level of improvement is plant domestication and animal introduction domestication, the development of gathering economy to planting economy, and high-quality development new stage. At the high-quality development new stage, people take effective measures or method to make plant grow well and get the maximum yield and benefit. The turning point from the level of improvement to high-quality development new stage is the overapplication of chemical fertilizer and the overuse of pesticides in the production process, which is not ensure Farming high yield and benefit but also easily cause environment and healthy problem.

High-quality agricultural development

Because the indicator plant in original vegetation is dominate species, especially constructive species, the uppermost dominant species, which is native to the local region because for a long time they have developed a good relationship with the local condition, plant resources relationship is very harmony and plant grow well and bear fruit but the goods and service cannot meet people's need, for example in semiarid loess hilly region (Guyuan, China), a lot of original vegetation has been changed into non-native plantation such as Saskatoon berries in the semiarid loess hilly region, China, they grow and develop well, suitable for local climate, easy to develop. But another plant, such as corn and red plum apricot, they are not suited to the local climate and need to regulate plant resource relationships.

The theoretical foundation of High-quality agricultural development

According to the long-term research of agricultural development [3, 4, 5 , 6, 7, 8, 9, 10, 11, 12, 13], The theoretical foundations of High-quality agricultural development as following:

Resources use limit by plants

Resources use limit by plants is the limit plant use resources, which is the foundation of vegetation type and location. For example, resources use limit by plants in semiarid loess hilly region is soil water resources use limit by plants, which is the soil water resources in the maximum infiltration depth when soil water content in all soil layers is equal to wilting coefficient. The wilting coefficient change with soil depth and can be expressed by indicator plant in a plant communication. Indicator plant is dominant pant species, especially the top dominant pant species in the top canopy, constructive plant species, constructive species [8, 10, 11, 13].

vegetation carrying capacity

The vegetation carrying capacity is the ability of nature resources or land resources to carry vegetation, expressed by number of population or plant density in plant communication. The vegetation carrying capacity in water limited regions is soil water vegetation carrying capacity, which is the ability of soil water resources to carry vegetation, expressed by indicator plant in a plant community, which changes with plant species, times and location [8, 10, 11, 13]. For example, soil water vegetation carrying capacity for caragana shrub land is 72 shrubs per 100 meters square of semiarid loess hilly region, China in 2002.

Critical period of plant resources relation regulation

Plant resources relation is the relationship between plant growth and resources supply and consumption in space in crown layer and soil in root system. As plant grow, Plant resources relation change with time. When available nature resources in crown layer and soil in root system are equal to the resources use limit by plants, the Plant resources relation enter the critical period of plant resources relation regulation. The ending time of the critical period of plant resources relation regulation is the ineffective time of plant resources relation regulation, such as fruit stopping expanding of red plum apricot fruit on 15 July and stopping serving of soil and water conservation caragana shrub in the end of September in the semiarid loess hilly region, China. [8, 10, 11, 13].

Methods of High-quality agricultural development

To realize sustainable use of natural resources and farming high quality production, we must take the theories of resources use limit by plants, vegetation carrying capacity and the critical period of plant resources relation regulation as a guild, select excellent tree species or varieties, take appropriate initial plant density and take effective measures to ensure plant grow well and get the cultivated goal, maximum yield and beneficial [3, 4, 14, 15, 16, 8, 10, 11, 13]. If plants overuse natural resources because the plant density exceeds the vegetation capacity or underuse natural resources, the plant resources relation should be regulated by the vegetation carrying capacity, especially the vegetation carrying capacity in the critical period of plant resources relation regulation. If available natural resources in crown or root are more than the natural resources use limit by plants, the plant resources relationship enters the critical period of plant resources relation regulation, and the ending time of the critical period of plant resources relation regulation is the ineffective time of plant resources relation regulation, such as fruit stopping expanding of red plum apricot fruit on 15 July and stopping serving of soil and water conservation caragana shrub in the end of September in the semiarid loess hilly region, China. If the plant density is more than vegetation carrying capacity in the critical period of plant resources relation regulation, the plant resources relation should be regulated to carry out. AS for some fruit tree, we should regulate the relationship between reproductive growth and vegetative growth according to the suitable leaf amounts and quality fruit. The suitable leaf amounts are the leaf amount when plant density is equal to vegetation carrying capacity, and the quality fruit is the fruit for market need.

Conclusion

To achieve high-quality agricultural development is the general trend of the times. Because of the large Farming area and the increasing population, now population whole world has exceeded 8 billion, there are different climate at different regions and crops suitable for growth, climate at different regions change with time, so it is necessary to strengthen the research on the selection of excellent plant species or varieties, determination appropriate initial plant density, resources use limit by plants, vegetation carrying capacity, the critical period of plant resources relation regulation to regulate the plant

resources relation and get maximum yield and service and realize sustainable use of soil water resources and farming high-quality development to meet people's needs for a better life and safe food.

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Additional Information

Competing Financial Interests statement:

There are no competing financial interests

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