

Research Article

Agriculture high-quality development and High-quality Agriculture produce

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Abstract

Modern agriculture has made significant progress in increasing output and efficiency, but there are also problems such as improper selection of plant species or varieties, soil degradation and excessive utilization of natural resources and so on. After a couple of years research, the results showed that agriculture development had gone to new stage of Agriculture high-quality development. Agriculture high-quality development is to take effective measures or methods to make land produce maximum yield and benefit. In order to meet the need of people's increasing needs for a better life and high-quality Agriculture produce and meet the people's needs for a better life and high-quality Agriculture produce, we should select the best plant select excellent plant species or varieties, take appropriate initial plant density for different plant in different regions, determination resources use limit by plants, vegetation carrying capacity, the critical period of plant resources relation regulation to regulate plant resources relation to get maximum yield and benefit and realize sustainable use of nature resource and agricultural high-quality development and meet people's needs for a better life and high-quality agriculture products.

Keywords: Agriculture development; High-quality development: natural resources use limit by plants; Vegetation carrying capacity; critical period of plant resources relation regulation

Introduction

Agricultural development has gone through a long process. There are different kind of agriculture concepts such as ecological agriculture [1], organic agriculture [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. In 2017, Chinese government put forward high-quality development, so Agricultural development have to enter the new stage of high-quality development. Agriculture high-quality development is to take effective measures or methods to make land produce more high-quality agricultural products and get the maximum yield and benefit [3].

Study Method

In order to solve the questions such as soil and vegetation degradation, crop failure and low economic benefit in modern

agricultural production and match the need of the people's increasing needs for a better life and crop types, yield and benefit. Author reviews a lot of papers and find that according to the efficiency of resource utilization by plants based on recent years innovation studies [4-15,19]. The whole process of agricultural development can be divided into three stages: Low level development stage or primitive agriculture, Level improvement stage and high-quality development new stage. Agriculture development enters the new stage of high-quality development. We should take effect measures and method to make land produce better and healthy food and service to meet the people's needs for a better life and high-quality Agriculture products.

Results

Agricultural development

Agricultural development has gone through a long process. According to the efficiency of resource utilization by plants, the whole process of agricultural development can be divided into three stages: Low level development stage or primitive agriculture, Level improvement stage and high-quality development new stage. That is the Low-level development stage or primitive agriculture, the Level improvement stage and agriculture high-quality development.

Low-level development stage of agriculture

At Low level development stage or primitive agriculture, people pick up wild fruits and rely on nature for a living because science and technology are underdevelopment and people labour productivity are low. People must live on nature. Today in some African primitive tribe, you can see this kind of Low-level agriculture development. With the economic and society development, this kind of Low-level agriculture development will disappear. The turning point from the Low Level development stage to the Level improvement stage is plant domestication and animal introduction domestication, the development of gathering economy to planting economy.

The stage of level improvement

At the stage of level improvement, people start to select or cultivate better plant species, weeding, producing and applying fertilizer and irrigating, if there are water resources, to increase food kinds, improving quality and amount of food to meet the increasing need of people.

As producing and applying fertilizer and irrigating and pest control and climate change, there are some events such as overuse chemical fertilizer and the over dose application of pesticides, environment pollution and so on appear, which cause crops failure and resources waste happens, which is not good for Agriculture High-quality development but easily cause environment and health problems. In most farmland, you can see this kind of problem in agriculture development. Level improvement stage is a transition stage from Low level agriculture development stage to agriculture high-quality development. With the economic and society development and science and technology increase, this kind of agriculture development will be developing into Agriculture high-quality development.

Agriculture high-quality development

Now, Agriculture development has entered high-quality development. At this stage of high-quality development, people must take effective measures or methods to get the maximum yield and benefit and produce more better and health food and service to meet the people's increasing needs for a better life and crop types, yields and quality. To carry out high-quality development, we must overcome the overuse chemical fertilizer and the over dose application of pesticides and so on in the production process to ensure sustainable use of nature resources and agriculture high yield and benefit.

At the high-quality development new stage, people must carrying out high-quality development, we must overcome the overuse chemical fertilizer and the over dose application of pesticides and so on and take effective measures or methods to ensure plant grow well, get the maximum yield and benefit and produce more better and health food and service to meet the people's increasing needs for a better life and high-quality Agriculture products.

Theoretical foundation of agriculture High-quality development

Resources use limit by plants

Because natural resources is limit, Plants' utilization of natural resources is limited. The limit is the Resources use limit by plants, to carry out sustainable use of natural resources and Agriculture high quality production to we must use the natural resources in sustainable way. Theoretical foundation of agriculture High-quality development is the natural resources use limit by plants, vegetation carrying capacity, and the critical period of plant resources relation regulation [9,14,16-18,20]. Natural resources use limit by plants, vegetation carrying capacity and the critical period of plant resources relation regulation include space natural resources use limit by plants in water and nutrient limited regions, space vegetation carrying capacity, and the critical period of plant space resources relation regulation; soil water resources use limit by plants, soil water vegetation carrying capacity and the critical period of plant water relation regulation in water limited regions and soil nutrient resources use limit by plants, soil nutrient vegetation carrying capacity, and the critical period of plant soil nutrient resources relation regulation [18]. For example, in water-limited regions, natural resources use limit by plants is the soil water resources use limit by plants, which is the soil water resources in the maximum infiltration when soil water content is equal to wilting coefficient. The wilting coefficient expressed by wilting coefficient of indicator plant. The indicator plant for 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. The indicator plant for non-Native vegetation is goal or cultivated plant species [10,11,19] (Figure 1).

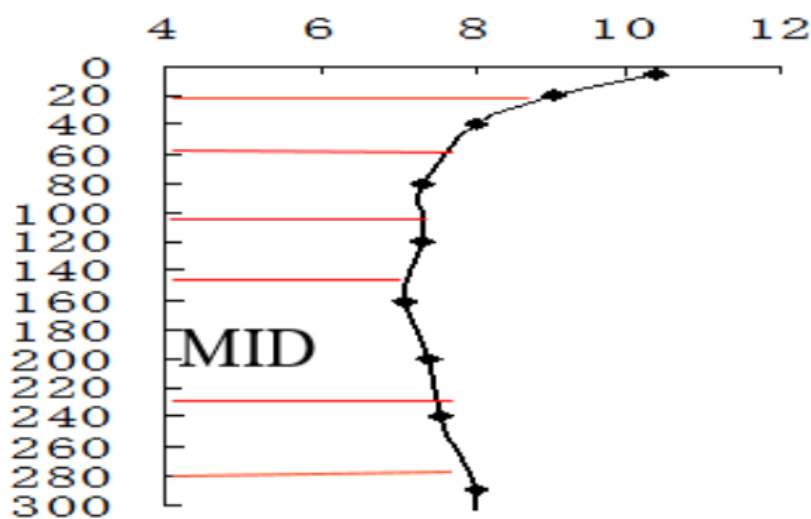


Figure 1: Variation of the withering coefficient with soil depth, the maximum infiltration depth and the limit of soil water resource utilization

Vegetation carrying capacity

The vegetation carrying capacity is the ability of nature resources or land resources to carry vegetation in given time and space, expressed by the number or plant density of indicator plant in a plant population plant community. For example, in water-limited regions, the vegetation carrying capacity is soil water vegetation carrying capacity, which is the ability of soil water resources to carry vegetation in given time and space because soil water is the most important factor to influence plant growth, yield and benefit. Plant resources relationship is very harmony and plant grow well and bear fruit, but the goods and service cannot meet people's need in the stage of primitive agriculture, a lot of original vegetation has been changed into non-native plantation such as Saskatoon berries, red plum apricot and corn in the semiarid region, China. some plant such as Saskatoon berries, grow and develop well, suitable for local climate, easy to develop. But another plant, such as corn and red plum apricots, are not suited to the local climate and need to regulate plant resource relationships (Figure 2).

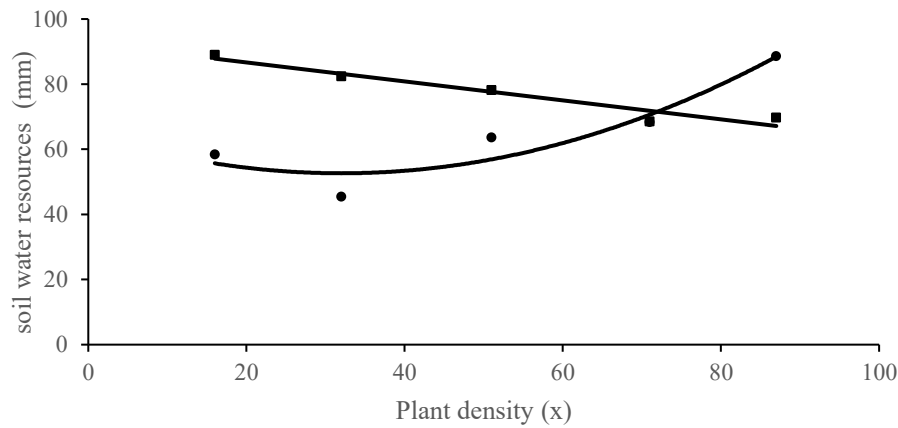


Figure 2: The relationship between soil water supply or soil water consumer with plant density and there Crosspoint, soil water vegetation carrying capacity

Critical period of plant resources relation regulation

Along with plant growth, plant size and canopy and root grow great, plants use more resources. Plant resources relation changes with time. When the resources plant use is equal to natural resources use limit by plants in the crown or root zone, plant resources relation enters 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 the ending time of fruit expanding. The critical period of plant resources relation regulation is the most important time in the whole process of plant growth and yield and benefit cultivation, which can be expressed by the amount of available natural resources in canopy or root zone. The vegetation carrying capacity in the critical period of plant resources relation regulation decides the maximum yield and benefit soil water resources use limit by plants. Symbol KP is the Critical period of plant resources relation regulation (Figure 3).

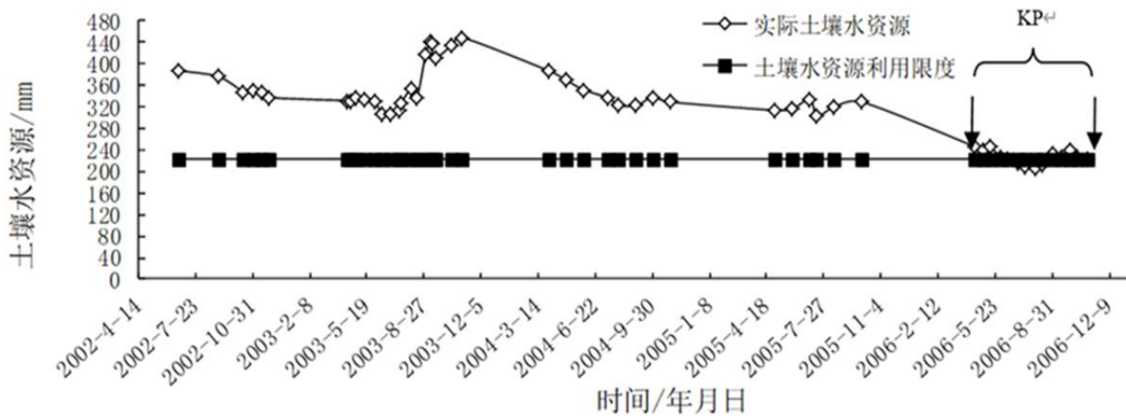


Figure 3: Critical period of plant resources relation regulation in caragana shrub land in semiarid region (Guyuan,China). Vertical axis of the figure is soil water resources in mm. Horizontal axis is time. Symbol --◇-- express the soil water resources, Symbol ■ express

Methods of agricultural high-quality development

Because the carrying capacity the critical period of plant resources relation regulation decides the maximum yield and benefit, 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, and take effective measures, such as weed according to the effect of weed on crop, application of fertilizer according to suitable amount of fertilizer and water according to the plant water requirement to ensure plant grow well and get the cultivated goal. If the plant density exceeds the vegetation capacity, the plant resources relation should be regulated based on vegetation carrying capacity, especially the vegetation carrying capacity in the critical period of plant resources relation regulation, otherwise the further increase plant use natural resources will lead overuse of natural resources because available natural resources is more than

natural resources used by plant, which will lead to the decline of vegetation and the decline of grain yield and quality [4-6,8,10,12,14,17-19].

The vegetation carrying capacity is the function of plant species or varieties, time and location [10,12,15]. For example, in water-limited region, vegetation carrying capacity is soil water vegetation carrying capacity, which is the ability of soil water nature resources to carry vegetation, which changes with plant species, times and location [10,12,14,15].

The direction of Agricultural development in the future

Due to the large area of agriculture and the continuous increase in population, the world's population has now exceeded 8.2 billion, different regions have different climate and crops suitable for growth, Therefore, selecting superior plant species or varieties based on market demand and site conditions, determining superior plant species or varieties in different regions, setting appropriate initial planting densities, and determining the resource utilization limits, vegetation carrying capacity, and key periods for regulating plant resource relationships of superior plant species or varieties, in order to achieve the maximum yield and benefits, is the research direction for high-quality agricultural development in the future. We want to establish more than 100 high-quality agricultural development demonstration bases in different regions to select better plant species and varieties, determine suitable initial planting density and study the theories and methods of high-quality agricultural development in different regions, achieve sustainable utilization of natural resources and high-quality agricultural development to meet people's needs for a better life and their demands for high-quality agricultural products, nutrition and health.

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