

Green Agricultural Products and Soybeans on the Development of Agricultural Economic Modernization

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Abstract: With the gradual advancement of science and technology in China, many industries have embarked on the path of modernization development, as has the development of agricultural economy. The Chinese government proposes to transform traditional agriculture into advanced modern agriculture, use modern technology and industry to promote agricultural development, and promote agricultural modernization. At the same time, agricultural modernization will not only change with technological progress, economic progress, and social progress, but will also further enhance the rural economy. Soybean occupies an important position in the development of China's agricultural industry. The output of soybean can not only adjust the structure of agricultural products, but also benefit the development of agricultural economic modernization. However, due to weak rural infrastructure, insufficient resources, and low soybean output, there are still many problems on the road to promote rural modernization. In order to improve the level of agricultural modernization and promote rural economic development, this paper analyzes the output of agricultural products and soybeans under different interplanting modes, and finds that the economic income of corn-soybean interplanting is 1.296 million yuan / km², and the economic income of soybean alone is only 396,000 Yuan / km², it can be seen that the corn-soybean intercropping model has effectively improved the economic benefits of soybean cultivation. Planting soybeans in this model can greatly increase farmers' economic income and accelerate the development of agricultural economic modernization.

1. Introduction

Nowadays, China's modern industry is developing rapidly, and people have unknowingly entered the information age. In today's environment, to make steady progress in the fierce market, we need

to make full use of various modern technologies. Using computers and the Internet to save or exchange data is not only very efficient, but also fast and convenient. Therefore, to realize the modernization of agriculture, we must rely on information technology, and we need to break the traditional methods of agriculture and expand new channels. Using these new channels, we can obtain more information on the cultivation methods of agricultural crops and the supply and demand of agricultural products markets. Many problems caused by unreliable information, in order to improve the level of rural agricultural economy. Construction of agricultural product information platform and agricultural industry information exchange platform can also accurately disclose social agricultural product information, increase agricultural income, effectively reduce agricultural labor costs, reduce financial burden, further improve the understanding of agricultural production and management methods, and optimize the development of agricultural economic modernization.

To achieve great development in our country's agriculture, we cannot do without effective innovation in modern agricultural management. Only conceptual innovation can ensure the effective combination of agricultural economic management and agricultural modernization development to promote further innovation of other institutional mechanisms and provide strong support for agricultural development. At present, China has formulated a series of innovative rural economic management systems, but these guidelines have not been specifically implemented and implemented. Urban management will continue to use rural economic management and other types of commodity market management models. For the management of the agricultural product market, this situation has little effect on the development of agricultural product modernization, and may even play the opposite role. Therefore, the management of the agricultural product market economy must combine the characteristics of the agricultural product market, and explore and innovate in management according to various important factors affecting the agricultural product market, so as to promote the coordinated development of agricultural modernization and rural economy [1].

Qi believed that rural infrastructure is the material basis for ensuring the development of China's rural modernization. Therefore, in the process of agricultural modernization, the importance of infrastructure construction cannot be ignored [2]. Kuchukova feels that to strengthen the transformation and development of rural infrastructure, a large amount of capital needs to be invested in construction, and at the same time, the need to spread modernization ideas, the awareness of rural modernization is enhanced, and the level of modernization can be effectively improve. According to the concept of coordinated development of rural modernization and economic management, relevant departments should also support innovation in infrastructure construction [3]. Cyrek found that in addition to the necessary rural infrastructure construction, high-tech replication technology, modern agricultural irrigation technology and modern planting should also be introduced. Technology has improved the level of agricultural science and technology. At the same time, we must support the construction of rural water-saving projects, maximize the use of resources, ensure the healthy and stable development of agriculture, and reduce the natural conditions due to agriculture [4].

In this paper, the method of experimental analysis is used to analyze the relationship between soybean yields when intercropping different crops and soybeans, and analyze the impact on agricultural economic modernization. Interplanting will cause specific spatial and temporal differences between symbiotic cultures. The resources in this system, such as light and heat, will make full use of water and nutrients to create benefit advantages and increase crop yields. In this paper, the characteristics of soybeans grown in different interplants, soybean leaf area index and relative content of leaf chlorophyll, the accumulation of soybean dry matter and the composition of yield were determined by studying three interplanting models, and the economic benefits of soybean interplanting system were objectively analyzed. It was found that the interplanting mode can significantly improve the economic benefits of soybeans, which is not only beneficial to the

interests of farmers, but also conducive to the development of rural economic modernization.

2. Green Agricultural Products and Agricultural Economic Modernization

2.1. Green Agricultural Product Soybean

Soybean, as a crop with rich nutritional value, is also called soybean. It has been cultivated in China for at least 4,000 years and is an important agricultural economic crop in China. The nutritional value of soybeans is very high. Each soybean contains about 40% high-quality protein, so it is called "vegetable meat", and it is far ahead of the nutritional value of all beans. There are as many as 18 kinds of amino acids contained in soybean protein, such as isoleucine, lysine and methionine, and the ratio of the protein composed of these amino acids to the protein required by the human body is very close, making the human body very easy to absorb and digest. The fat content in soybeans is about 20%, most of which are unsaturated fatty acids, accounting for about 60% of all. It also contains lecithin. These amino acids have an important role in the metabolism of cholesterol on the blood vessel wall in the human body and can prevent the blood vessels in the body. Hardening contributes to physical and mental health. There are many vitamins and trace elements in soybeans, which can supplement the elements needed by the body [5]. In addition, soybeans also have some special nutrients, which have health effects on the human body, such as soybean saponins can prevent high blood pressure, anti-tumor activity; soybean isoflavones can prevent and treat menopausal syndrome, osteoporosis, heart Vascular diseases, etc. At the same time, isoflavones are also considered as potential anticancer substances. It can be seen that soybean is a crop that is very beneficial to human health. Soybean is an important crop in people's diet. The output of soybean directly plays a great role in the development of agricultural economic modernization [6].

2.2. Soybean Industry Development

(1) The soybean planting area is small.

Although our country is large and rich in resources, the area of cultivated land is relatively small, and a lot of cultivated land is used for the cultivation of basic crops, such as wheat, corn, etc., which will reduce the land planting area required for soybeans. The pressure on the soybean industry brought about by the trade friction between China and the United States has introduced a series of policies to encourage the development of the soybean industry. Although the planting area has increased to a certain extent, the overall soybean planting area in China is relatively small.

(2) Soybean varieties are few and poor in quality.

There are four main soybean production areas in China, namely the northern area, the Huanghuaihai watershed, the southeast area, the southern China area, and the Yangtze river area. Although there are so many areas where soybeans are grown, there are fewer soybean varieties and lower yields. , Russia and other countries have high soybean cultivation subsidies, so we are also at a disadvantage in terms of price. Compared with other countries, our soybean quality is relatively poor, so consumers prefer imported soybeans, resulting in low domestic soybean output value.

(3) Lack of soybean cultivation technology.

China's soybean cultivation is relatively mechanized, lacking advanced soybean efficient production technology and corresponding supporting facilities, and the cultivation technology is relatively backward. Compared with Brazil and other countries, production efficiency is relatively low, although at this stage, China has studied and borrowed advanced foreign production Technology, but due to the lack of mechanical equipment and non-standard use of technology, the advanced technology of soybean cultivation cannot be applied on a large scale.

(4) A single source of soybean imports.

Due to insufficient soybean production in China, many soybeans need to be imported. At present, Brazil, the United States, and Argentina are the main sources of imports in China. The soybean imports of the three countries account for 95% of the total soybean imports. China's single soybean import channel The supply-demand balance of China has a great impact. Although China pays more and more attention to the development of the soybean industry, in the short term, the trade pattern of China's imports of soybeans will not change, so the single source of soybean imports is the main problem of China's soybean industry One [7].

2.3. Agricultural Modernization

With the deepening of reform and opening up, China's agricultural economic modernization has achieved many achievements. The development of agricultural economic modernization has an important role in the construction of new rural areas. However, with the modernization of the agricultural economy, new problems are also emerging, and the establishment of a sound agricultural economic development system and policies is of great significance for maintaining the long-term development of the agricultural economy. At this stage, it is not yet sound [8]. Labor resources are a key factor influencing the agricultural economy. China has a large agricultural population and a large number of people. There are still many disadvantages in the social security system of the agricultural population. Even in some economically backward rural areas, the problem of pension is still in a blank, which increases Due to the pressure of agricultural workers, it is impossible to feel at ease to engage in agricultural work, and some young rural people are more reluctant to engage in agricultural activities, and choose to enter the city to engage in labor services, which also affects the development speed of the agricultural economy to a certain extent. With the economic development in recent years, the production speed of industrialization in our country has obviously accelerated, and the lack of attention to the development of agricultural economy. The insufficient application of industrialization in the development of agricultural economy has made the development of agricultural economy slow. A single agricultural economic structure limits the speed of agricultural economic development. In addition, agricultural-related infrastructure has always been relatively unsatisfactory in quality and quantity, the quality of rural road facilities is weak, and farmland irrigation and power supply have impeded the development of the agricultural economy [9].

2.4. Current Problems in the Development of Agricultural Modernization

(1) The concept of modern agricultural management is backward

As a large agricultural country, China has long been constrained by traditional agricultural management models, and its awareness of modern agricultural management concepts is relatively poor. Modern agricultural industrial economic ideas are difficult to penetrate into agricultural management, leading to farmers' lack of modern management concepts. The reason is the lack of economic concepts. Most agricultural workers have not received higher education. They do not have a deep understanding of some modern agricultural equipment and management methods. Rural economic development lags far behind urban economic development. Therefore, when participating in the market economy, the agricultural industry economy naturally lacks advantages, which is also the primary factor for economic management problems in agricultural modernization [10].

(2) The level of agricultural industry is low

The more obvious phenomenon in the development of the country's agricultural industry is that the overall scale of agricultural production is relatively small, and the technological level is backward. This is also the main reason for the country's agricultural industry's weak

competitiveness and low market share. The country's rural areas are vast in area, with scattered households and small scale of operations. Therefore, the awareness of the application of science and technology is relatively weak, and the awareness of high-tech agricultural industrial equipment and scientific and efficient agricultural management models is very weak. The development of science and technology and scientific management cannot be effectively implemented in the rural industry, so it leads to a low level of agricultural industry [11].

(3) The backward economic development of the agricultural industry

Although the state has issued a series of support policies for the development of rural industries, for the agricultural industry, due to the different influences of regional and informatization development, it has a certain impact on the economic development of the agricultural industry. The agricultural products produced in rural areas cannot be sold through effective channels, which has hindered the development of the agricultural economy to a certain extent, especially the continuous progress and exchanges of the world economy in recent years. In view of the opportunities for global trade development, the export of agricultural products is only for various regions, and most agricultural industry development is still restricted by channels, which leads to the overall stagnation of agricultural economic development [12].

3. Research Data and Methods

3.1. Data Sources

The experiment selected in this paper is carried out on a soybean farm, the farm has a suitable climate, and the temperature and humidity are suitable for the growth of crops. Select corn, wheat, and flax for interplanting of soybeans respectively. The selected corn, wheat, flax, and soybeans are all high-quality varieties. Record the change data of soybeans planted in different interplants, collate and analyze the impact of soybean on agricultural economic modernization.

3.2. Experiment Method

In this experiment, a single-factor random block experiment was adopted. First, soybean single planting (SS) was set as a reference object, and three soybean planting modes were set as comparative objects, namely corn-soybean intercropping (IMS) and wheat- Soybean intercropping (IWS) and flax-soybean intercropping (IFS) use wide and narrow rows for each treatment. IMS treatment planting method, corn is 0.4 meters narrow, 2 rows of corn are planted, 3 rows of soybeans are planted in a wide row, soybean row spacing is 0.3 meters, intercropping corn and soybean spacing is 0.6 meters; IWS treatment is the same as IFS treatment, wheat and flax are wide rows 1.2 meters, plant 7 rows of wheat and flax, plant 3 rows of soybeans in narrow rows, wheat and flax row spacing is 0.2 meters, soybean row spacing is 0.3 meters, wheat, flax and soybean spacing is 0.2 meters; SS narrow row 0.4 meters, grow 2 rows of soybeans, 3 rows of soybeans are planted in a wide row, the soybean row spacing is 0.3 meters, and the spacing between wide rows and narrow rows is 0.6 meters. According to the local climatic characteristics, choose the right time to sow and record the changes of soybean growth process.

3.3. Test Method

(1) Determination of soybean properties

When soybeans are harvested, 6 soybean plants are randomly selected in each planting mode in the field, and then the plant height, first node length, stem thickness, and number of main stem nodes of soybean plants are measured using tape measure, vernier caliper, etc. In the table.

(2) Determination of soybean leaf area index and relative content of leaf chlorophyll

The soybean plant leaf area index $I = SL / SA$, where I represents the leaf area index, SL is the measured leaf area, and SA is the land area represented by the measured leaf area. In order to calculate the leaf area index I of soybean plants, during the R2 (flowering period) and R4 (podging period) periods of soybean growth process, 6 soybean plants were randomly selected in each intercropping plant, and the soybean was measured using the punching weighing method. The leaf area is calculated according to the method of calculating the leaf area index of soybean plants, and the average value of 6 plants is taken as the final result and the data is recorded.

The measurement method of relative leaf chlorophyll content (SPAD) uses a hand-held chlorophyll analyzer. During the R2 (flowering period) and R4 (podging period) period of soybean growth, 6 soybean plants are randomly selected in each intercropping. The SPAD of the bottom, middle and upper parts of the leaves were measured respectively, and the average value of each part of the 6 plants was taken as the final result and the data was recorded.

(3) Measurement of accumulation of dry matter above ground

In order to determine the accumulation of dry matter above the ground, six soybean aerial plants were selected in four periods, R2, R4, R6 (drum stage) and R8 (mature stage), and used at 105 degrees Celsius in the drying cabinet. Dry for two hours at high temperature, then for twenty-four hours at 85 degrees Celsius. After drying to constant weight, call the dry matter accumulation above ground.

(4) Determination of soybean yield

To determine soybean yield, first count the number of effective plants in each row of the plot before the soybean harvest. At maturity, select a zone for each plot and take 20 plants for testing to determine the number of seeds per plant and 100-grain weight. Real estates are collected in real estate, and the output is counted.

4. Discussion of Research Results and Suggestions for Rural Economic Development

4.1. Effects of Different Intercropping Patterns on Soybean Plant Traits

According to the record observation, the statistics of the soybean plant characteristics of different intercropping patterns on soybean plants are shown in Table 1 and Figure 1.

Table 1. Effects of different intercropping patterns on the soybean agronomic traits of soybean plants

Treatment	Plant height/cm	Stem diameter/cm	First section length/cm	Number of stem nodes
IMS	62.78	0.58	2.53	10.47
IWS	39.86	0.59	1.87	9.28
IFS	43.31	0.55	2.00	9.39
SS	56.50	0.62	1.93	10.33

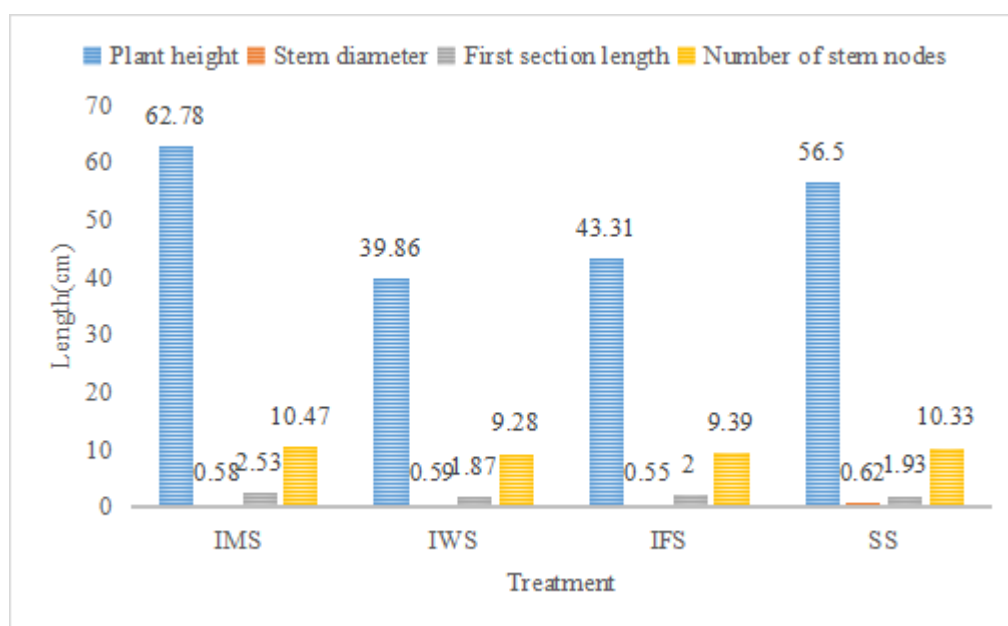


Figure 1. Effects of different intercropping patterns on the soybean agronomic traits of soybean plants

It can be seen from Table 1 and Figure 1 that the agronomic traits of soybean plants under different intercropping patterns are different. In each treatment, the plant height and first node length of soybean treated by IMS were significantly higher than that of SS treatment. The plant height increased by 11.1% compared with SS treatment, and the first node length increased by 31.1% compared with SS treatment; SS treatment was low, and the stem thickness was reduced by 6.5% compared to SS treatment. In IWS and IFS treatments, soybean plant height, stem thickness and main stem nodes were significantly lower than SS treatment. IWS treated soybean plant height, stem thickness and main stem nodes were 29.5% and 4.8% lower than SS treatment % And 10.2%; IFS treatment decreased 23.4%, 11.3% and 9.1% compared with SS treatment, respectively.

4.2. Effects of Different Intercropping Systems on Soybean Leaf Area Index and Leaf Chlorophyll Relative Content

Leaf area index and relative chlorophyll content (SPAD) are important indicators of plant photosynthesis, and their size is closely related to plant dry matter accumulation and yield formation. The data obtained after the test are shown in Table 2 and Figure 2.

Table 2. Effects of different intercropping patterns on soybean leaf area index and the relative content of chlorophyll of soybean

Treatment	Leaf area index		SPAD value	
	R2	R4	R2	R4
IMS	1.85	2.10	36.08	39.74
IWS	0.79	1.24	29.45	32.69
IFS	0.96	1.25	26.93	30.38
SS	3.66	4.62	34.03	36.22

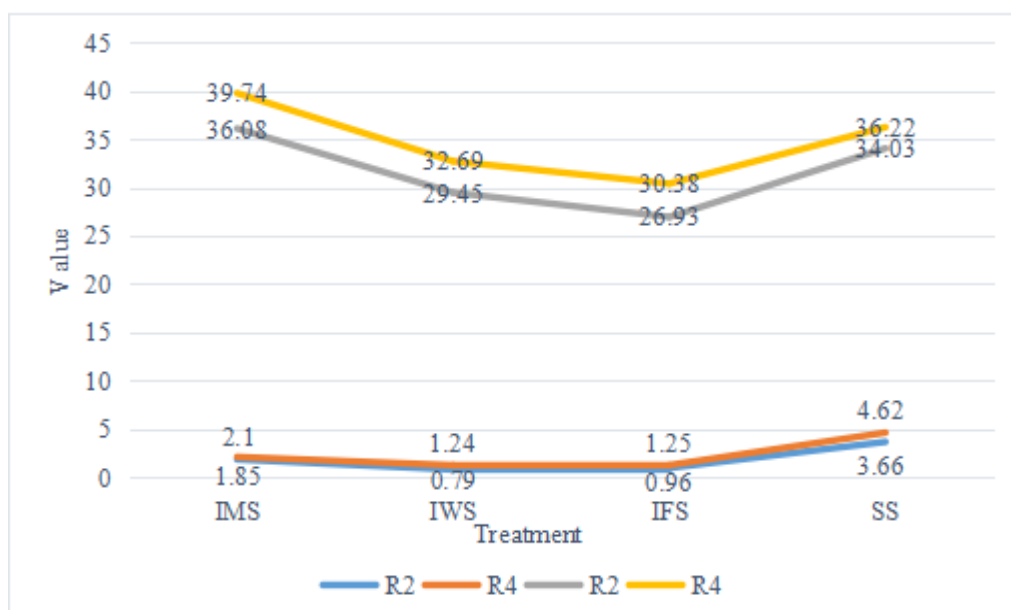


Figure 2. Effects of different intercropping patterns on soybean leaf area index and the relative content of chlorophyll of soybean

It can be seen from Table 2 and Figure 2 that the soybean leaf area index after IMS, IWS and IFS treatments significantly decreased compared with SS treatment. Among them, IMS treatment reduced by 49.5% and 54.6% compared with SS treatment during R2 and R4; IWS treatment decreased by 78.4% and 73.2%; IFS treatment decreased by 73.8% and 72.9%. The SPAD value after each treatment, the SPAD value of IMS-treated soybean leaves was not significantly different from that of SS treatment in R2, but was significantly higher than that of SS treatment in R4, an increase of 9.7% compared with SS treatment; IWS and IFS-treated soybeans The leaf SPAD value was significantly lower than that of SS treatment in both periods. The IWS treated soybean leaf SPAD value decreased by 13.5% and 9.8% compared with the control in two periods; IFS treatment decreased by 20.9% and 16.1%, respectively. It shows that the intercropping of corn and soybean can extend the photosynthesis time of soybean leaves to a certain extent, and make up for the accumulation of dry matter and yield of soybeans; wheat and flax directly limit the photosynthesis of soybean leaves and affect the absorption of soybean nutrients.

4.3. Analysis on Dynamic Accumulation of Soybean Dry Matter in Different Periods

Plant dry matter accumulation is an important indicator reflecting the growth and development of crops. The data of dry matter accumulation in plant shoots are shown in Table 3 and Figure 3.

Table 3. Effects of different intercropping patterns on soybean dry matter accumulation of aboveground soybean

Treatment	R2	R4	R6	R8
IMS	8.12	12.88	18.43	17.48
IWS	3.86	7.96	13.95	13.89
IFS	4.31	7.92	13.22	12.96
SS	9.03	14.12	24.88	23.69

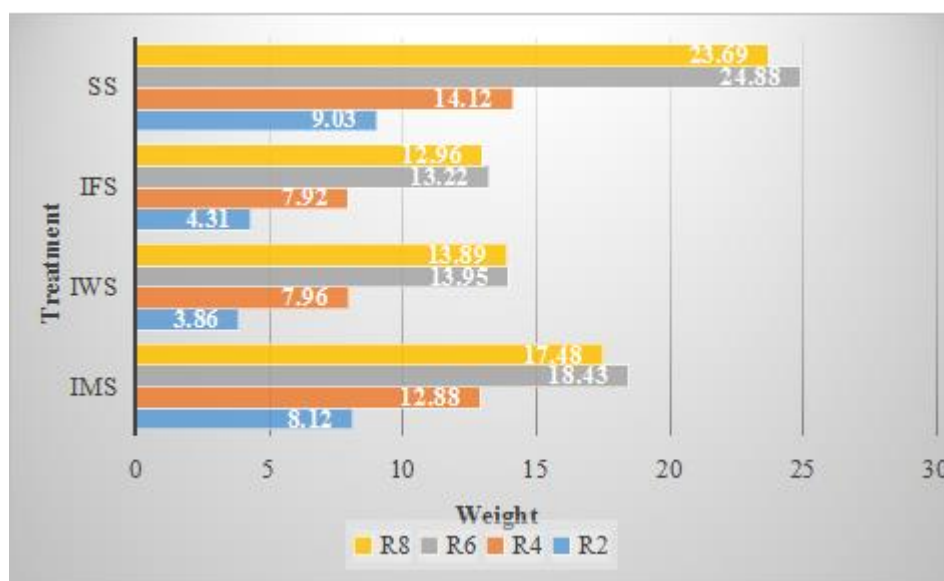


Figure 3. Effects of different intercropping patterns on soybean dry matter accumulation of aboveground soybean

It can be found from Table 3 and Figure 3 that the dry matter accumulation of soybean aerial parts will increase with the growth process of soybean under different planting modes, in which the dry matter growth rate is slower from R2 to R4, and reaches the highest in R6. With the later material consumption, it slightly decreased in the R8 period. Compared with the SS treatment, the results of soybeans in each treatment reduced the accumulation of dry matter above ground. In R8, the accumulation of dry matter above ground showed: SS > IMS > IWS > IFS. , 45.9% and 48.7%, indicating that corn, wheat and flax in the intercropping system all reduced the accumulation of soybean dry matter above ground, and the influence of wheat and flax on soybean was greater.

4.4. Analysis of Soybean Yield and Economic Benefits of Different Intercropping Systems

The soybean yield, crop output effect and economic benefit of different intercropping models are different, and the statistical analysis realizes the data, as shown in Table 4, Table 5, and Figure 4.

Table 4. Output effect of different intercropping patterns

Treatment	Maize yield	Wheat yield	Flax yield	Soybean yield	Toal output value
IMS	1160.52			125.25	282.20
IWS		601.74		110.06	164.37
IFS			213.69	98.24	178.19
SS				256.50	102.60

Table 5. Economic benefit analysis of different intercropping patterns

Treatment	Material cost			Labor cost	Profit
	Seed	Pesticides	Fertilizer		
IMS	13.33	6.50	23.78	108.14	129.60
IWS	8.33	4.50	17.83	66.51	67.20
IFS	9.00	4.50	18.00	60.20	86.49
SS	4.24	3.03	9.35	46.43	39.55

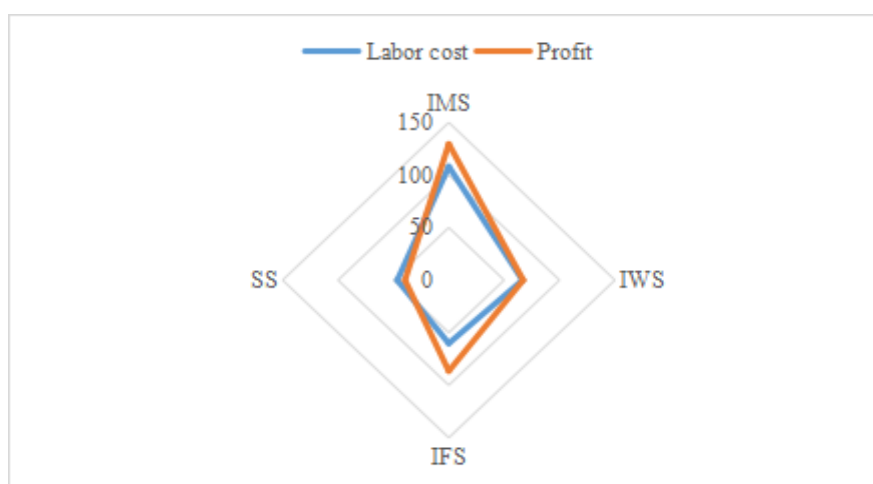


Figure 4. Economic benefit analysis of different intercropping patterns

It can be seen from Table 4, Table 5 and Figure 4 that in different intercropping modes, the output value of each crop is different. According to the harvested crop output, and according to the local market crop price, the total output value of each treatment was calculated to be 2.822 million yuan / km², 1.782 million yuan / km², 1.644 million yuan / km² and 1.026 million yuan / km², according to The order of size is: IMS > IFS > IWS > SS; compared with SS treatment, the total output value is 2.75 times, 1.60 times and 1.74 times of SS treatment respectively. Based on the analysis of the economic benefits of different planting models, in addition to the material costs and labor costs invested in production, the total benefits were 1.296 million yuan / km², 865,000 yuan / km², 672,000 yuan / km² and 396,000 yuan / km², according to The size order is: IMS > IFS > IWS > SS. This shows that the interplanting method can greatly increase the farmers' economic income.

4.5. Suggestions on Agricultural Modernization Promoting Rural Economic Development

(1) Raise the awareness of agricultural modernization and improve the quality of farmers

The economic level of the peasants is related to the level of the industrial economy. Therefore, the peasants are the cornerstone of the development of agricultural modernization. To hear the development of the modernization of the agricultural economy, the farmers must first have a sense of modernization. Many farmers' planting experience is now taught by their elders during planting or breeding, which has led many of them to express skepticism about modern planting patterns. In addition, most farmers have a very low level of cultural education, so their thinking is very traditional. Farmers must break the traditional concept, accept new things, raise the awareness of modernization, and gradually realize the modernization of lifestyles. Production methods and values The country must establish a complete rural education system. Some farmers can develop rural vocational training and adult education and regularly receive rural modernization training In order to: improve the education level and quality of farmers, and gradually move farmers to modernization.

(2) Increase government support and increase capital investment

Agricultural modernization and rural economic development must not only depend on the farmers themselves, but the government should also increase support for the farmers to provide them with the greatest benefits. In recent years, the government has proposed a series of agricultural policies, but they are not perfect. The government may propose an overall support policy. Leaders in different regions can improve policies based on regional characteristics and conditions and

implement them in rural areas. farming modernization. At the same time, the government should increase investment in agriculture to rationalize the ratio of capital and skills and include it in the annual budget items related to the development of the agricultural industry. At the same time as government investment, the countryside should also actively strive for financial support from the state, raise funds through various means to ensure the stable development of the rural economy, and rural modernization promotes the development of the rural economy, thereby affecting the development of the national economy.

(3) Increase agricultural technology promotion and introduce new agricultural seeds

With the development of science and technology in our country, many agricultural science and technology have gradually attracted people's attention. In order to promote agricultural modernization and the development of agricultural science and technology, establish a number of experimental demonstration areas based on science and technology, promote agricultural modernization, strengthen the form and level of agricultural science and technology promotion, and stimulate farmers' enthusiasm for using agricultural technology. Moreover, it is not enough to rely on traditional agricultural varieties in rural areas. With the rapid changes of the times, people's ideology and concepts are becoming more and more complex, and the pursuit of new things is gradually increasing. Therefore, agriculture must introduce new varieties and new technologies in order to improve the economic competitiveness of agricultural products and increase farmers' income.

(4) Strengthen the construction of standardized agriculture and enhance the construction of informatization

After the reform and opening up, many policies were proposed to promote agricultural development, but the policies were not standardized and management was difficult. Rural areas can properly integrate land and other factors without changing the original system, implement leasing, transfer, contracting and other incremental reform measures to sell land management rights and establish a standardized agricultural management system. The agricultural law enforcement system should also be standardized. The original law enforcement system may or may not be more fragmented, resulting in illegal behavior. The government can first integrate law enforcement services and then gradually organize law enforcement functions. Enter relevant information about the status of farmers and agricultural products into the management system for easy query and inspection. At the same time, we must strictly implement the inspection of agricultural product quality and safety standards, strictly prevent the use of counterfeit and shoddy products, and promote the standardization of agricultural modernization.

(5) Improve the level of agricultural industrialization and support leading industries

Modern people have higher and higher demands on agricultural products, leading to dissatisfaction with agricultural products, and attaching great importance to the external appearance of agricultural products, which is also a level to promote rural economic development. Nowadays, people's quality of life has improved and they prefer to travel. Farms can build farms and resorts according to local characteristics to increase farmers' income. At the same time, farmers can sell agricultural products through rural leisure or online to truly realize agricultural modernization. In addition, it is necessary to cultivate and approve large-scale and high-quality agricultural production enterprises, form a group of top competitive enterprises and well-known brands in the market, lead the overall development of the countryside, and promote the sustainable development of the rural economy.

5. Conclusion

The industrial economy of our society is developing rapidly, but the modernization of

agricultural economy is still the focus of people's attention and is the main industry of our people's economy. Today, with the rapid development of information technology, China's agriculture is also modernizing, transforming traditional agriculture into modern agriculture, and transforming it with modern technology and industry. For agricultural production, agricultural modernization is to build a developed agriculture, improve the urbanization process, and finally, promote rural economic development. However, there are still many problems on the road of advancing agricultural modernization, which must be analyzed and solved, so that it can have a favorable impact on rural economic development, use modern science and technology to develop agriculture, improve agricultural modernization, and promote rural modern economic development.

This article found through research that the quality characteristics of soybeans have a specific relationship with their production performance. In soybean-corn intercropping cultivation, shading the corn in soybean can reduce the actual leaf number, effective grain number and yield per plant of soybean. Corn reduced soybean production, but the weight of 100 kernels increased significantly compared to SS treatment. The decrease in soybean pods is the main reason for the decline in production. At the same time, in the planting of wheat or flax and soybean, the number of seeds per plant and the weight of 100 kernels are significantly lower than that of a single plant of soybean, resulting in a reduction in yield. It is also found in the planting of corn and soybean that the interaction between corn and soybean root system is beneficial to increase the chlorophyll content of soybean leaves at different development stages. In this experiment, it was found that corn has a great effect on delaying the senescence of soybean leaves, which is conducive to the growth of soybeans, thereby increasing the weight of 100 seeds. Therefore, in the soybean-corn planting mode, the economic benefits are obviously higher than the soybean planting mode.

The results of this paper found that the economic benefits generated by soybean planting patterns are important indicators that affect the development of agricultural economy. Although the hybridization of three crops and soybeans has reduced the output of soybeans compared to a single crop, it reflects the systematic advantages of economic advantages between crops, and the overall economic benefits will increase. In terms of comparison of different planting models, the economic benefits are as follows: corn-soybean > flax-soybean > wheat-soybean. Through different soybean cultivation methods, not only can the output of the main crops in the region be guaranteed, but also the soybean output can be increased, and it has a certain economic coordination effect. Among them, the soybean-corn cultivation model has the highest economic benefit. It is recommended that the soybean-corn cultivation model not only ease the contradiction between soybean supply and demand in the region, increase farmers' income, but also promote the modernization of agricultural economy.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

References

- [1] Yida Zhai. (2016). "Remarkable Economic Growth, But So What? The Impacts of Modernization on Chinese Citizens' Political Satisfaction", *International Political Science Review*, 37(4), pp.533-549.<https://doi.org/10.1177/0192512115592942>
- [2] Qi, F. , Zhou, X. , Wu, Z. , & Zhang, X. . (2017). "Approaches and Methods of Infrastructure Engineering During Agricultural Modernization", *Nongye Gongcheng Xuebao/transactions of The Chinese Society of Agricultural Engineering*, 33(5), pp.16-25.
- [3] Kuchukova, N. , Turarbekov, M. , & Agumbayeva, A. . (2016). "Influence of Fiscal and Monetary Policy of Kazakhstan on Modernization and Economic Growth in The Conditions of Globalization", *Journal of Advanced Research in Law & Economics*, 7(5), pp.1086-1095.
- [4] Cyrek, M. . (2017). "Modernization of Employment Structures Enhancing Socioeconomic Cohesion in The European Union Countries", *Journal of International Studies*, 10(3), pp.189-205.<https://doi.org/10.14254/2071-8330.2017/10-3/14>
- [5] Pereira, João Márcio Mendes, & Pereira, João Márcio Mendes. (2016). "Modernization, The Fight Against Poverty, and Land Markets: An Analysis of The World Bank's Agriculture and Rural Development Policies (1944-2003)". *Varia História*, 32(58), pp.1189-94.<https://doi.org/10.1590/0104-87752016000100010>
- [6] Veselovsky, M. Y. , Pilipenko, P. P. , Savenko, V. G. , Glebova, A. G. , & Shmeleva, L. A. . (2017). "The Organization of The Innovation Transfer in The Agro-industrial Complex of Russia", *European Research Studies Journal*, 20(3), pp.484-499.<https://doi.org/10.35808/ersj/723>
- [7] Adithya Balasubramanian. (2017). "Perspective", *Journal of Medical Humanities*, 8(4), pp.1-2.<https://doi.org/10.1007/s10912-017-9447-3>
- [8] Prakash Kumar, Timothy Lorek, Tore C. Olsson, Nicole Sackley, Sigrid Schmalzer, & Gabriela Soto Laveaga. (2017). "Roundtable: New Narratives of The Green Revolution", *Agricultural History*, 91(3), pp.397.<https://doi.org/10.3098/ah.2017.091.3.397>
- [9] Kamenova, M. Z. , Nakipova, G. N. , Akhmetova, K. A. , Terzhanova, Z. T. , & Omarova, A. T. . (2016). "The Current State and Forecast of Food Production During The Industrial and Innovative Development of Kazakhstan", *Journal of Advanced Research in Law & Economics*, 7(3), pp.543-553.
- [10] Hu, Y. . (2018). "Current Status and Future Development Proposal for Chinese Agricultural Product Quality and Safety Traceability", *Strategic Study of Chinese Academy of Engineering*, 20(2), pp.57-62.<https://doi.org/10.15302/J-SSCAE-2018.02.009>
- [11] Beb, J. , & Ebo, F. . (2017). "Sustaining Food Security in The Philippines: A Time Series Analysis", *Journal of Microbiology, Biotechnology and Food Sciences*, 5(6), pp.225-233.
- [12] Bogoviz, A. V. , Ragulina, Y. V. , Komarova, A. V. , Bolotin, A. V. , & Lobova, S. V. . (2017). "Modernization of The Approach to Usage of Region's Budget Resources in The Conditions of Information Economy Development", *European Research Studies*, 20(3), pp.570-577.<https://doi.org/10.35808/ersj/812>