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THE INFLUENCE OF COOPERATIVE CROPS ON COTTON CULTIVATION IN THE CONDITIONS OF LIGHT-BROWN SOILS

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Abstract: *This article describes how to cultivate two crops of one field at the rate of N-200, R-140, K-100 kg of fertilizer per hectare in the conditions of grassland gray soils of the Sirdarya region, with the collaboration with the varieties of cotton of An-Boyovut-2 and Andijan-37 (shahs, and crop production, crop yields and crop yields were 26.4 cc / ha, from 16.4 cc / h to 11.8 c / ha and 6.7 cc / ha of beans.*

Key Words: *joint culture, light sierozems, impact, cotton yield.*

1. INTRODUCTION:

Currently, the world is focused on the widespread introduction of new environmentally friendly technologies in agriculture, reducing production costs by saving fuel and lubricants and other costs of growing high-quality crops of agricultural crops to meet the food needs of the population. In order to ensure public access to food, innovative technologies that increase the productivity and soil fertility in the United States are about 19.3 million, in Brazil - 17.4 million, in India - 14.8 million, in China - 12, 3 million, in Mexico - 10 million, 3.5 million in Australia, 3.7 million in Pakistan. In total in the world they occupy about 80 million hectares.

In the world in countries that grow cotton, particularly in India, cotton is grown with corn, white corn, sesame, pepper, coriander, as well as legumes and cereals; in China, cotton is grown together with wheat, rice or rape and other crops in Brazil and Peru's cotton is grown with corn, beans and rice, in Egypt it has been found that co-cultivating cotton with corn is efficient. From this point of view, today one of the priority tasks is to conduct research on the joint cultivation of an additional crop between furrows, without reducing the area under cotton, i.e. cotton and an additional crop of vegetables, legumes and other crops can be obtained simultaneously from one irrigated area

Of the 6.5 billion people living on our land, 1.1 billion suffer from water shortages. According to the director of the Research Institute for Water Problems, V. Danilov-Danilyan at the Academy of Sciences of the Russian Federation, by 2025 the number of people suffering from water shortages will increase to 3 billion people, which will be 40 percent.

In connection with the intensive growth of the population and the increasing demand for food, the scientists of the agrarian sciences face an important task in the development of agro technology for the cultivation of super-yielding, early ripening varieties of plants that can be given to ecologically clean products.

In our Republic, when creating a crop rotation system for crops, special attention is paid to the problems of using organic and mineral fertilizers, NPK ratio, terms of their use, crop irrigation, leaching, use of saline groundwater during irrigation of plants, inter-seed pre-sowing and vegetative tillage. As a result, the creation of a farming system with a short rotation was achieved.

Today, one of the main tasks is to conduct scientific research on obtaining additional crop through the more efficient use of supplied fertilizers, water and other resources, the cultivation of root crops, vegetables and legumes together with cotton, while not reducing the cotton sown area.

To this day, cotton is consumed less than the amount of NPK supplied to the field, as much as possible the plant assimilates feed nitrogen 35-40 percent, phosphorus 18-20 percent, and if one part of the remaining amount of nitrogen goes into the molecular state and disappears, the other part is washed out of the soil along with irrigation water.

Experiments have shown that for more efficient use of expensive mineral fertilizers in irrigated agriculture, it is possible to use co-crops in the same field along with cotton, and it becomes possible to generate additional income from crops per hectare, and this also prevents the environment from polluting by agrochemicals [1 2,3,4].

2. MATERIAL AND METHODS:

The task of the research work was to familiarize farms with the technology of joint farming and introducing it into production based on the application of the obtained optimal experience options. A number of domestic and foreign scientists, such as M.Muhammadzhanov, K.Mirzajonov, Z.Tursunhuzhayev, M.Jusufjonov, B.Holikov, O.Rustamov, S.Sulaikonov, I.Hoshimov, F.Ismailov, P.Husainov, P. Bodrov, M.Sorokin, H.Romanov, A.Rakhimov, P.Makarov, J.Ikromov, N.Andreev, and also abroad AAHoshy, HMMahammad, SBPatil, MNSheelaavanter, Siegel, Gupta Sudhir,

Ter-Avanesyan, M.H. Johnson, VN Aiyer, Balasubrahmanyam, Kristidis, Harrison, L. Dolozal, F.N. Lyisyatsky, I. Belyuchenko, A.A. Stashov and others, conducted numerous research works on combining several crops and creating a crop rotation system with short rotation

3. RESULTS AND DISCUSSION:

In recent years in the field of agriculture of the Republic produced a large number of positive work. For example, an increase in the number of crops in the structure, an intensive increase in the production of grain crops, the effective use of irrigated land during the year and the achievement of obtaining an additional second crop in one year is part of the achievements in agriculture.

Based on this, in the conditions of the meadow gray sierozem of the Sirdarya region, an area of 3000 m² was designated for field experiments. The experiment was conducted in four replications, the area of each plot was 120 m². During the experiment, 8 variants were studied, the object of the study was winter wheat and mung bean as a second crop. At the beginning of the experiments, 70% of phosphate fertilizers, 100% of potash fertilizers and 100% of organic fertilizers were applied during autumn plowing. In order to determine the number of mobile nutrient elements of the soil of the experimental plot, soil samples were taken and analyzed in a layer of 0-30 cm and 30-50 cm. In a layer of 0-30 cm, the amount of nitrate nitrogen was 1.212 mg / kg, mobile phosphorus 17.2 mg / kg and potassium 230mg / kg. In a layer of 30-50 cm, the amount was 0.506 mg / kg, 14.8 mg / kg and 190 mg / kg, respectively. The data obtained indicate that high-quality raw cotton requires a large amount of nitrogen and phosphorus and an average amount of potassium. It was also determined a small amount of humus in the soil. At the same time, according to the results of the analysis of the bulk mass of the soil on April 20, at the beginning of the growing season, in the loi 0-30 cm it was 1.27 g / cm³, in the layer 0-50 cm-1.34 g / cm³ and in the layer 0-100 cm -1.38 g / cm³. By the end of the calculated period in the cotton field, these figures were 1.31; 1.33 and 1.39 g / cm³, respectively, which shows compaction relative to the beginning of 0.01-0.04 g / cm³. On the field with common cultures, these indicators amounted to 1.32; 1.35; 1.40 g / cm³, respectively, which also shows compaction relative to the beginning of the growing season by 0.01-0.02 g / cm³ (1-table).

1-table.

Bulk soil mass in the cultivation of cotton, g / cm³

Soil layer, cm	At the beginning of the billing period, in the spring, 04/20/2013	At the end of the billing period, in the autumn, 09/23/2013	
		Cotton	Combined cultures (mung bean, soy and groundnut)
0-30	1,27	1,31	1,32
0-50	1,34	1,33	1,35
0-100	1,38	1,39	1,40

At the beginning of the calculation period, the water permeability of the soil for the first hour was 424 m³ / ha, in the following hours 268; 205; 115; 81 and 42 m³ / ha and within 6 hours this figure was 1135 m³ / ha, and by the end of the billing period, this figure significantly decreased and amounted to 1038 m³ / ha. On the field with joint crops, the water permeability of the soil for the first hour was 360 m³ / ha, in the subsequent hours 202; 175; 96; 67 and 35 m³ / ha and within 6 hours this figure was 935 m³ / ha, and by the end of the calculation period 780 m³ / ha. Thus, during the observations by the end of the calculation period, the water permeability of the soils of the cotton field was 1038 m³ / ha, and the fields with joint crops were 780 m³ / ha. According to the observations, it turned out that the soils of the experimental plot according to the classification of S.V. Nesterova belong to the class of soils with weak permeability.

The results of the experiment showed that mineral fertilizers N-200, R-140, K-100 kg / ha did not have any negative influence on the dynamics of flowering and the opening of cotton bolls. Especially, on the cotton field of the Andijan-37 variety cultivated with joint crops on June 26, the beginning of the flowering phase was observed at 54.8%. And on the field with the cotton variety An-Boevut-2 cultivated without common crops, this figure was 52.3%. Thus, at the time of the last observation on August 24, on the field with common cultures, the opening of the boxes was 82.6%, while in the variety An-Boyut-2, only 80.2%.

On the field with common crops, mung bean, soybeans and groundnuts sprouted on May 20th, on May 24th the first leaves appeared on Masha, soybeans and groundnuts, on June 27th the first flowers appeared on Masha, soybeans and groundnuts; by 50%. On June 1, phenological observations were made at the very peak of Tsaryniya Masha, soybean and peanut.

When mineral fertilizers were applied by the standard N-200, R-140, K-100 kg / ha for cotton and common crops of mung bean, soybean and peanut, there was no particular difference in growth and development. Including, when mineral fertilizers N-200, R-140, K-100 kg were applied, the height of the mung bean was 40.6 cm, the number of pods

was 12.7, the height of soybeans was 42.1 cm, the number of pods was 14.4, height peanuts accounted for 41.1 cm, the number of pods 13.6 pieces.

As the data show, the effect of co-crops, such as mung bean, soybean and peanut, on productivity indicators was studied. Also, the number of pods per bush was 24.8 pieces, the number of grains was 34.3 pieces, the grain weight was 7.5 grams and the weight of 1000 grains was 52.5 grams, for soybeans these figures were 21.1; 36.2; 8.9; 145.2 and peanuts 22.1; 28.4; 6.4; 167.7 respectively. In the field of cotton cultivated with common crops, harvesting of 16.4 centners per hectare was obtained, soybeans 11.8 centners per hectare and peanuts 6.7 centners per hectare.

4. CONCLUSION:

In the process of cultivation of cotton varieties An-Boevut-2 and Andijan-37 in the conditions of meadow light sierozerem of the Sirdarya region, together with common cultures (mung, soybean and peanut), with the application of mineral fertilizers by the standard N-200, P-140, K- 100 kg, harvesting of 16.4 centners per hectare per hectare, 11.8 centners per hectare of soybeans and 6.7 centners of peanuts per hectare was achieved, as well as an increase in soil fertility was observed due to the remnants of plowing ashes and soybeans.

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