USING FUEL LYSIMETERS

Yuldoshev Komil Qurbonovich

Teacher Of Termiz Institute Of Agricultural Technologies And Innovative Development, Uzbekistan

ABSTRACT: - This paper presents data on the effects of cotton maintenance on cotton yield under lysimeter conditions in reducing the adverse effects of water deficit. New, promising and zoned cotton varieties were analyzed by taking soil samples at the end of the vegetation period after applying mineral fertilizers, irrigation, and inter-row tillage. That is, the amount of humus in the soil compared to the beginning of the period of operation, at the end of the period of operation in the lysimeter with new varieties in the lysimeter with the regionalized Bukhara-8 and Sultan varieties, is explained.

KEYWORDS: Cotton, irrigation rate, seasonal irrigation, lysimeter, cotton growth, development, productivity.

INTRODUCTION

In recent years , the area degraded in agriculture has been increasing worldwide: 56% due to water erosion, 28% due to wind erosion, 12% due to soil nutrient depletion, salinization, pollution processes, and 4% due to densification, waterlogging, and sedimentation processes. the condition of the land is deteriorating. Due to such negative processes and the problem of water shortage in 80 countries of the world, 7 mln. As a result of the withdrawal of hectares of cultivated land from agricultural use, the problem of food security is emerging in the world.

In our republic today, extensive measures are being taken to improve the melioration condition of irrigated lands, increase soil fertility, effective use of existing water resources in the conditions of water scarcity, and formation of additional water sources. As a result of these activities, today: 38863 km. long collector-drainage networks, 52

reclamation pumping stations, 1344 reclamation vertical wells were repaired and restored . 13.2 thousand ha. drop by drop , 18,000 ha. 16.8 thousand ha . irrigation methods using portable flexible pipes were introduced in the area instead of wells, as a result of which 1 mln. 200 thousand ha. improvement of land reclamation condition was achieved . In the Action Strategy of the Republic of Uzbekistan for 2017-2021, special attention is paid to the further improvement of the reclamation condition of irrigated lands, the development of the network of reclamation and irrigation facilities, the wide introduction of intensive methods, first of all, modern agro-technologies that save water and resources in the field of agricultural production. In this regard, it is important to expand the scientific research work on mitigating the water shortage, studying the effect of the soil melioration through the effective use of the collector water, and introducing it into production [1, 2] .

Level of study of the problem. K.M.Mirzajonov, N.F.Bespalov, G.A.Ibragimov, M.K.Khamidov, K.M.Beysenboev in our republic on the study of the use of collector-zovur water for irrigation of agricultural crops and the effect of their mineralization on land reclamation. . _ _ _ _ _ Extensive scientific studies were conducted by scientists such as Wedding B, Tonderski K, Keinzler K.M, Qureshi A.S, Qadir M [3, 4, 5] .

In the development of Ghoza consists of developing scientific and practical recommendations for the cultivation of cotton varieties using lysimetric experiments.

Field, laboratory research and phenological observations "Methods of conducting field experiments" of the Scientific-Research Institute of Cotton Breeding, Seed Cultivation Agrotechnologies (UzPITI 2007). The accuracy and reliability of the obtained data were mathematically and statistically analyzed using the multifactor method of B.A. Dospehov and SPSS (Statistical Package for Social Science) computer program.

In the lysimetric experiment, 20% of annual nitrogen, 70% of phosphorus, and 60% of potassium fertilizer were applied to a depth of 30 cm before planting. Lysimeter soil was loosened and prepared for planting in early spring, and the seed of new, promising and zoned cotton varieties was planted on May 1 and watered on the same day.

New, promising and zoned cotton varieties need sufficient supply of nitrogen, phosphorus and potassium for optimal growth, development and high yield. Gross and mobile types of nutrients in the soil, as well as amounts of humus, were determined before the experiment.

Soil samples were taken and analyzed in the 0-30 cm and 30-50 cm layers in order to determine the amount of mobile nutrients in the soil. In the 0-30 cm layer, it was determined that nitrate nitrogen is 11.0 mg/kg, mobile phosphorus is 16.8 mg/kg, and exchangeable potassium is 180 mg/kg. It was 13.8 mg/kg, 22.8 mg/kg and 120 mg/kg in the 30-50 cm layer. These data indicate that high levels of nitrogen and phosphorus and moderate levels of potassium are required to grow high quality cotton. The amount of humus in the soil is also very low.

New, promising and zoned varieties of cotton, after application of mineral fertilizers, irrigation, inter-row tillage, and analysis of soil samples at the end of vegetation revealed the following, that is, the amount of humus in the soil compared to the beginning of the period of operation, at the end of the period of operation, the new UzPITI It was 0.005 percent in the lysimeter where the -2601 variety was located, and 0.293 percent in the lysimeter where the regionalized Bukhara-8 and Sultan

varieties were located. It was observed that the total amount of nitrogen in the soil decreased in the main varieties, but in the lysimeter where Barhayot, Sultan, Bukhara-8 varieties were located, it increased from 0.001 to 0.006% compared to the period of operation, and the amount of total phosphorus also decreased from 0.041 to 0.071% by the end of the period of operation in all varieties compared to the period of operation. .

The growth and development of cotton depends not only on their biological characteristics, but also directly on the soil-climatic conditions of the place, cultivation agrotechnics, soil fertility, feeding and irrigation regime.

Therefore, observations on the growth and development of new, promising and regionalized cotton varieties confirmed that their growth and development were also different.

As of June 1 of the current year, the height of the plant is 12.1-15.9 cm, the number of leaves is 3.7-5.1, in accordance with the above, the plant height is 12.8-16.3 cm, the number of leaves was around 3.8-4.8 pieces.

The results of the observations on July 1 of this year were as follows, the highest indicator of the varieties created in UzPITI was in the Khorazm-105 variety, the height of the cotton was 56.0 cm, the yield was 7.1 grains, and the comb was equal to 5.3 grains, and in the Andijan-37 variety, the region 53.1 in accordance with the above; 6.8; 4.2 pieces, the lowest indicator is 33.8 in the new UzPITI-202 variety; 5.3; It was 3.5 pieces or 19.3-22.2 compared to Khorezm-150 and Andijan-37 varieties; 1.5-1.8; 0.7-1.8 pieces, The highest index of the varieties created in UzG'SUITI was the length of the cotton of 57.9 cm, the yield of 6.7 grains, and the comb of 4.1 grains in the Sultan variety, while in the new S-9085 variety

it was 54.3 in accordance with the above; 6.1; 4.0 units, the lowest indicator is 44.8 in the promising S-2610 variety; 6.0; It was 4.1 units or 9.5-13.1 compared to Sultan and S-9085 varieties; 0.1-1.7; It was found that it was less than 0-0.1 units.

As of August 1 of this year, the Andijan-37 variety, which has been regionalized according to the varieties created in UzPITI, has a cotton length of 74.7 cm, a harvest head of 11.0 pieces, a flower of 2.5 pieces, a knot of 1.5 pieces and a boll of 8.2 71.4 in the new UzPITI-102 variety in accordance with the above; 10.3; 2.4; 1.9 and 7.3 pieces, the lowest figure is 56.8 in the regionalized Ibrat variety; 8.2; 1.9; 2.3 and 3.6 grains or 14.6-17.9 cm compared to Andijan-37 and UzPITI-102 varieties; 2.1-2.8; It was observed that 0.3-0.6 and 3.7-4.6 units are less. Similar data were obtained in varieties created in UzGSUITI, the height of cotton was 78.8 cm, the height of the crop was 12.0 cm, the flower was 4.2 cm, the knot was 1.2 cm and the boll was 11.4 cm. - 72.9 in accordance with the above in 13 varieties; 10.1; 2.7; 1.8 and 5.9 units, the lowest indicator is 65.6 in the new Jarkurgan variety; 9.4; 2.8; 2.9 and 3.6 grains or 7.3-13.2 cm compared to Sultan and Istiklal-13 varieties; 0.7-2.6; It was observed that 0-1.5 and 2.3-7.8 units are less.

As of September 1 of this year, among the varieties created in UzPITI, the number of pods in the Andijan-37 variety, which has the highest index, was 11.0 pieces, of which 8.5 were opened, in the new UzPITI-102 variety, 9.4 and 5.8 pieces, respectively. , the lowest indicator is 4.7 pods in the new UzPITI-2202 variety, of which 3.4 pods are opened, or 4.7-6.3 pods and 2.4-5.1 pods are less opened compared to Andijon-37 and UzPITI-102 varieties it was observed that Similar data for the varieties created in UzG'SUITI, the highest number of pods in the Sultan variety was 16.8 pieces, of which 12.8 were opened, in the new

S-8292 variety, 8.8 and 6.8 pieces, in accordance with the above, the lowest figure was in the new It was observed that there were 5.0 pieces, 2.8 pieces of which opened, or 3.8-11.8 pieces of pods and 4.0-10.0 pieces of buds were opened in comparison to Sultan and S-8292 varieties, (Fig. 1).
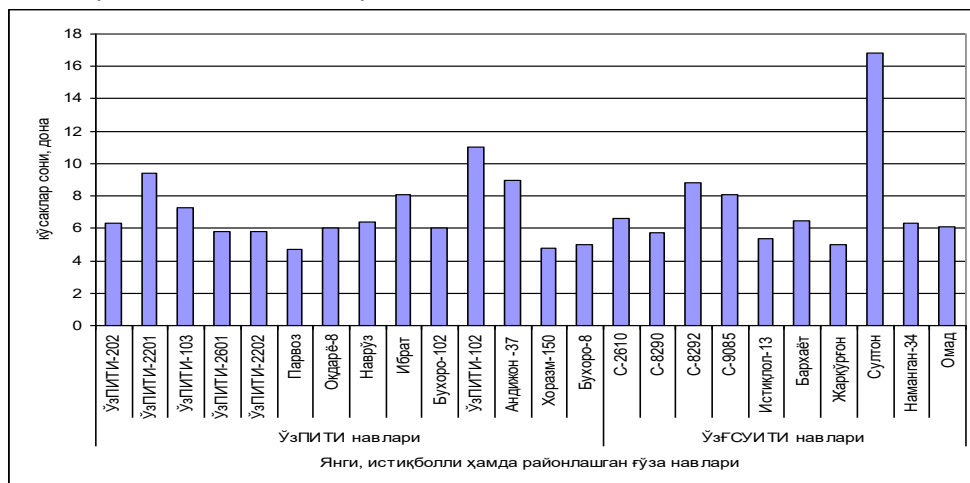

Figure 1. The number of bolls of new, promising and regionalized cotton varieties in lysimetric conditions, pcs.

In general, in the UzPITI lysimeter experiment, the Andijan-37 and the new UzPITI-102 variety, the Sultan variety, which was zoned according to the varieties created in UzGSUITI, had a good indicator on the growth, development and yield of cotton in the conditions of weak saline soils brought from the Syrdarya region.

Among new, promising and regionalized cotton varieties created in UzGSUITI, the most in terms of average cotton weight per boll the highest indicator was 6.7 grams in the new S-8292 variety, 6.5 grams in the regionalized Sultan and Omad varieties, the lowest indicator was 5.0 grams in the new Jarkurgan variety or 1.5-1 compared to the S-8292, Sultan and Omad varieties, A decrease of 7 grams was observed. So, in the low salinity lysimeter experiment, the highest cotton weight per boll was observed in Andijon-37, produced in UzPITI, and S-8292, produced in UzGSUITI.
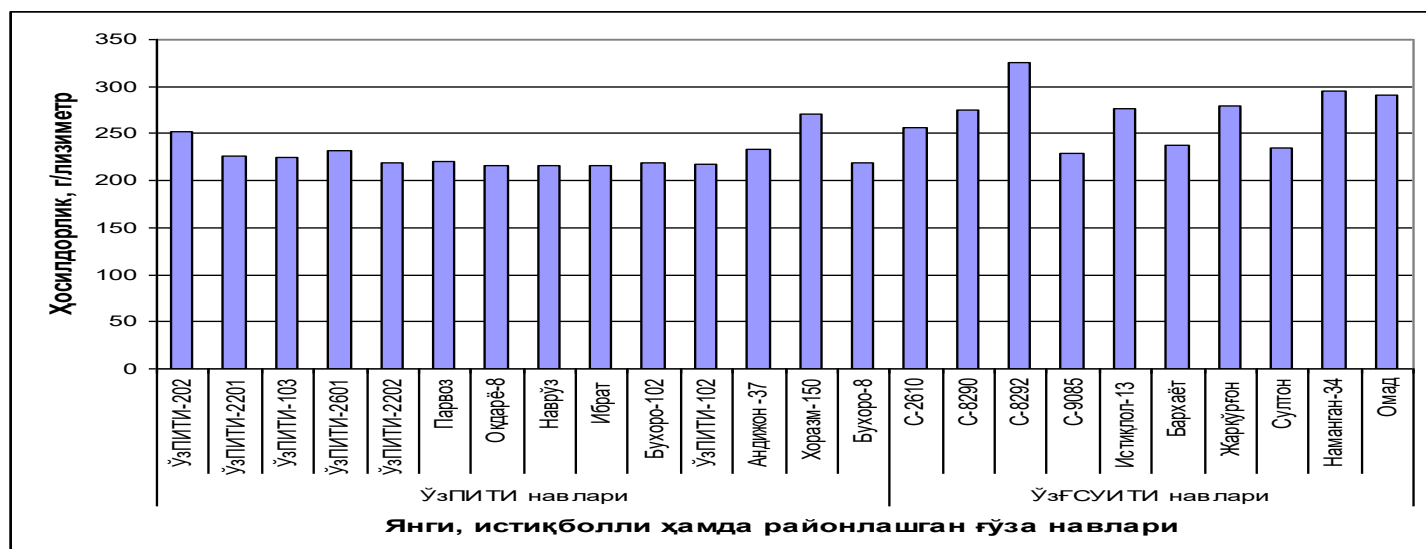
Figure 2. Productivity of new, promising and regional cotton varieties under lysimeter conditions, g/lysimeter.

Among UzG'SUITI varieties, the highest yield is 325.8 g/lysimeter in the new S-8292 variety, 295.8 g/lysimeter in the regionalized Namangan-34 variety, 291.3 g/lysimeter in the regionalized Omad variety, and the lowest yield is in the new S-9085 variety. 229.6 g/lysimeter or 61.7-96.2 g/lysimeter less cotton than S-8292, Namangan-34 and Omad varieties was observed (Fig. 2).

CONCLUSION

According to the results of the research conducted by growing new, promising and regionalized cotton varieties created in UzPITI and UzGSUITI under weak salinity, the highest productivity among UzPITI varieties is 252.1 g/lysimeter in the new UzPITI-202 variety, and 232.9 g in the regionalized Andijan-37 variety. /lysimeter, 231.9 g/lysimeter in the new UzPITI-2601 variety, 215.6 g/lysimeter in Navroz variety with the lowest yield, or 16.3-36.5 compared to UzPITI-202, Andijon-37 and UzPITI-2601 varieties g/lysimeter yield of less cotton was achieved.

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