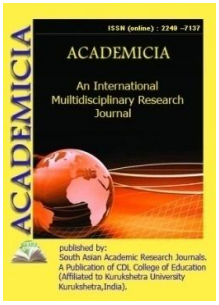
ACADEMICIA

ISSN: 2249-7137 Vol. 11, Issue 4, April 2021 Impact Factor: SJIF 2021 = 7.492

ACADEMICIA
An International Multidisciplinary Research Journal
(Double Blind Refereed & Peer Reviewed Journal)



DOI: 10.5958/2249-7137.2021.01119.8

IMPROVEMENT OF COTTON NUTRITION PROCEDURE AND IRRIGATION TECHNOLOGIES

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ABSTRACT

This article presents the results of research- fertilization by laying a black polyethylene film between the rows of cottonand field experiments on irrigation technologies conducted in the conditions of typical gray soils of Tashkent region. In order to save water in the irrigation of cotton and other crops, mulching between rows with black polyethylene film and straw and the introduction of irrigation technology using flexible artificial pipes is highly effective. The plant thrives only when the soil moisture is moderate. This can be achieved by improving irrigation techniques and technologies. In field experiments, the timing and rate of cotton irrigation were determined by soil moisture. It was found that the seasonal water norm saved an average of 1,095 m3 or 27.3% of irrigation water per hectare in the variants irrigated between rows with black polyethylene film compared to the options irrigated by conventional irrigation.

KEYWORDS: *Typical Gray Soils, Cotton, Navruz Variety, Feeding, Irrigation Regimes.*

INTRODUCTION

Relevance of the topic. Creation and maintenance of fast-ripening, high-yielding and high-fiber cotton varieties, resistant to various stressorsin the development and widespread introduction of optimal agrotechnologies forthe further development of cotton growing.

One of the important measures in the system of agro-technologies of cotton cultivation is irrigation and feeding with mineral fertilizers and tillage. Saving available resources through minimal tillage of the soil, the source of mineral fertilizers and irrigation water resources is scarce today and their rational use is becoming a requirement of the times.

When cotton is fed with mineral fertilizers from the growing season, part of the fertilizer is blown into the air, part is washed away by sewage, and the efficiency of assimilation by the plant is very low. In world agricultural practice, the use of mineral fertilizers in water methodis widely used in crop nutrition, which is considered effective. In recent years in our country there is a problem of water shortage in the irrigation of agricultural crops, in particular, cotton and cottonseed.

At present, when there is a shortage of available water resources, it is advisable to reduce the wasteful use of irrigation water as much as possible when calculating the seasonal water norm in cotton. This can be achieved through the direct application of water and resource-saving technologies and their further improvement.

In order to save water in the irrigation of cotton and other crops, mulching between rows with black polyethylene film and straw and the introduction of irrigation technology using flexible artificial pipes is highly effective. When cotton is mulched between rows, the physical evaporation of soil moisture is reduced, soil washing is prevented, and when water is distributed to the field through flexible artificial pipes, water wastage is eliminated through ditches.

Mulching between rows can achieve two most important efficiencies: it saves irrigation water and increases the yield of crops grown between rows. Improving the elements of irrigation technology through cotton sowing, mulching between rows using local mulch materials is one of the ways to save water and protect the soil.

The main purpose of the study. To study the effect of application of mineral fertilizers in different norms and proportions, ie on plant growth and development and cotton yield, along with irrigation of cotton under typical gray soils through a simple furrow and between rows with black polyethylene film.

Research results. Field experiments were conducted in 2015-2017 on the area of 1.1 ha on the №86 contour at the Akkavak experimental site of Institute of Cotton Breeding, Seed Production and Cultivation Agrotechnology. The mechanical composition of the soil of the experimental field is heavy sand, typical gray, the groundwater is located 15 m below, and it has been irrigated for a long time. The experiment was conducted in the following system. In the experiment, a promising medium-fiber cotton variety "Navruz" was planted. Irrigation was carried out in the order of 70-70-60% relative to the soil moisture limited field moisture capacity. The experiment consisted of 9 options, each delyanka area was 240 m2, placed in three tiers, one tier. All observational measurements and analyzes in the research were carried out on the basis of the methodical manual "Methods of field experiments with cottonseeds in the conditions of

cultivation" adopted by Institute of Cotton Breeding, Seed Production and Cultivation Agrotechnology (Former UzPITI), agro-technical measures were carried out in the order adopted by the farm.

On April 25, 2017, cotton was sown in the experimental field at the rate of 60 kg per hectare of hairy seeds of medium-fiber Navruz variety. Germination of seedlings averaged 8–12 days after sowing. During the season with mineral fertilizers were fed in accordance with the experimental system at a rate of 240 kg of nitrogen, 175 kg of phosphorus and 100 kg / ha of potassium. Depending on the weed experimental options, 3 manual mowings and 2 weeding were performed. In 2017, 20% of ENTO Suchio chemical treatment against aphids and thrips was used at 300 g / ha, Omayd against spider mite at 100 g / ha and sulfur powder during weeding and flowering.

Irrigation in the experimental field was carried out in accordance with the experimental system on the basis of the work program, pre-irrigation soil moisture in the order of 70-70-60% relative to the limited field moisture capacity. At the same time during the season in all variants of the experiment watered 6 times.

Intercropping of cotton was carried out only in the variants irrigated by simple sowing, and this was 4 times during the growing season. Mulching of black polyethylene film between the rows was carried out during the cotton weeding (26.06). The cotton was spun twice by hand and defoliated once in September. The cotton crop was harvested by hand in two harvests.

Today, when there is a shortage of water, the role of irrigation in the production of high and high quality crops from cotton and other agricultural crops is invaluable. Delayed and poor quality irrigation in the care of agricultural crops not only reduces yields, but also has a negative impact on crop quality.

The plant thrives only when the soil moisture is moderate. This can be achieved by improving irrigation techniques and technologies. In field experiments, the timing and rate of cotton irrigation were determined by soil moisture. Prior to each irrigation, soil samples were taken from every 0–10 cm layer to a depth of 0–100 cm and determined using the thermostat weighing method. Water consumption for each irrigation was measured using a 900-degree Thomson water meter. During the application period, pre-irrigation soil moisture in all irrigation methods of cotton was carried out in the order of 70-70-60% relative to limited field moisture capacity.

According to the results, the typical gray soils of Tashkent region were irrigated 6 times at the rate of 602-980 m3 per hectare during the period of validity in 1,2,4,5 and 7,8 variants irrigated by ordinary furrow, the average seasonal water norm was 4075 m3 per hectare. In variants 3,6 and 9, irrigated with black polyethylene film between rows, it was observed that cotton was irrigated 6 times at an average rate of 500-590 m3 per hectare during growth and the seasonal water norm was 2980 m3 per hectare on average.

The calculated layer of soil moisture before irrigation was calculated as 70-100-70 cm in accordance with the phases of growth and development of cotton in options 1,2,4,5, and 7,8, while in options 3,6 and 9 the calculated layer was calculated as 50-50- Formed a layer of 50 cm. In the variants mulched with black polyethylene film between the rows, irrigation was carried out less frequently. It was found that the seasonal water norm saved an average of 1,095 m3 or

27.3% of irrigation water per hectare in the variants irrigated between rows with black polyethylene film compared to the options irrigated by conventional irrigation.

CONCLUSIONS

At the beginning of the cotton growing season, the average content of humus in the 0-30 cm driving layer of the soil is 0.146%, total nitrogen and phosphorus content is 0.047-0.128% and nitrate content is 0.84 mg / kg, mobile forms of phosphorus and potassium average 20.3-312 mg / kg. In the 30-50 cm layer, these values are proportional to the average humus content of 0.108.3%, total nitrogen and phosphorus content of 0.031-0.087% and nitrate content of 0.51 mg / kg, mobile forms of phosphorus and potassium averaged 17.4-288. mg / kg. It can be concluded that humus and nitrate are low in mobile phosphorus and medium in mobile potassium.

In the 1,2,4,5 and 7,8 variants irrigated by the normal field, the norm was 595-1010 m3 per hectare 6 times during the period of operation, the average seasonal water norm was 4200 m3 per hectare. In variants 3,6 and 9, irrigated with black polyethylene film between rows, it was observed that cotton was irrigated 6 times at an average rate of 450-750 m3 per hectare during growth and the seasonal water norm was 3300 m3 per hectare on average.

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