ISSN: 2181-3337 SCIENCE AND INNOVATION
INTERNATIONAL SCIENTIFIC JOURNAL
2022
№ 3

UDC: 633.51: 631.51.017 / 559

INFLUENCE OF CHANGES IN SOIL MOISTURE ON PLANTING SYSTEMS AND CULTIVATOR

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https://doi.org/10.5281/zenodo.6669422

Abstract. *In this article, the Andijan-36 variety of medium-fiber cotton in the conditions of light gray soils of Andijan region valuable scientific information has been provided on the effects of changes in soil moisture on planting systems and cultivars.*

Keywords: *cotton, seeds, soil, moisture, soil moisture, soil temperature, planting systems, row spacing, double sowing, temperature change, air exchange.*

ВЛИЯНИЕ ИЗМЕНЕНИЯ ВЛАЖНОСТИ ПОЧВЫ НА СИСТЕМЫ ПОСАДКИ И КУЛЬТИВАТОР

Аннотация. *В статье представлена ценная научная информация о системах посадки сорта Андижан-36 средневолокнистого хлопчатника в условиях светло-серых почв Андижанской области и влиянии изменения влажности почвы на посев в сочетании.*

Ключевые слова: *хлопок, семена, почва, влажность, влажность почвы, температура почвы, системы посева, междурядье, посев в ряд, изменение температуры, воздухообмен.*

INTRODUCTION

At present, the world cotton industry is focusing on scientific research to determine the effectiveness of inter-row intervals of 60 (70, 76, 80 and 90 cm) along with 90 (60x30) 70x56, 80x40 cm and several other intervals. It is important to develop optimal row spacing in the care of cotton, to conduct research on the norms of feeding cotton in different row spacing and to determine the thickness of seedlings and the optimal number and depth of tillage between rows.

In our country, one of the important factors in the efficient use of land is the correct delineation of cotton rows. Paragraph 3.3 of the decree of the President of the Republic of Uzbekistan "On the Action strategy for the development of the Republic of Uzbekistan for 2017-2021" 2 states that "... significant tasks have been identified to significantly increase the export potential of the sector. It was also noted that in order to increase the productivity of cotton fields and efficient use of land, it is necessary to introduce the sowing of seeds on the basis of "double raw and "sixties schemes and gradually abandon the ineffective "nineties" scheme. In this regard, it is advisable to develop optimal schemes of cotton row spacing and expand research on the number, depth and feeding measures of its processing.

REFERENCES

It is known from the scientific literature that the lower limit of soil moisture at sowing should not be less than 17% in loamy soils, 15.0% in heavy sands, 13.0% in medium sands, 11.0% in light sands and 9.0% in sandy soils. However, excess soil moisture during sowing can cause seeds to rot.

In the studies of typical gray soils of Tashkent region carried out by Sh.Salomov [9; 8-pp], it was found that the effect of cotton row spacing is significant, mainly due to changes in soil physical properties. When the row spacing was 80x40 cm, the physical properties of the soil were better preserved than the other row spacing (60: 80x60 and 80 cm) as a result of the row spacing of irrigation works. No adverse effects of applied fertilizer standards on changes in soil physical properties were observed.

The results of the study conducted by Sh.Salomov [10; 7-8-pp], Sh.Salomov [11; 8-pp] show that in the conditions of typical gray soils of Tashkent region, the row spacing of cotton in the system 80x40 cm, soil moisture from the options treated once and twice for 40 cm row spacing creates favorable moisture for seed germination. received optimal performance compared to other (60: 80x60 and 80 cm) options.

RESEARCH METHODOLOGY

In our experiments, the effect of seed sowing systems, seedling thickness, sowing in rows and intercropping on changes in soil moisture in light gray soils of Andijan region was carried out on the first 10 days of observation before sowing and germination.

ANALYSIS AND RESULTS.

It is known that the amount of soil moisture depends on its mechanical composition, structure, bulk density and other factors. Depending on the amount of water-resistant aggregates (0.25–7 mm) in the soil, the structure is determined. In irrigated agriculture, the presence of water in the soil that is acceptable to the plant plays an important role in its growth and development.

When the seeds of cultivated plants begin to germinate in the soil, they cannot provide shade to all parts of the soil, resulting in increased evaporation of moisture into the air, which negatively affects the germination of seedlings. The cotton plant is water demanding and needs 65-80% moisture from LFMC in the soil for it to grow. In addition, not only the temperature but also the humidity of the soil is required for the full development of cotton seedlings.

Therefore, the applied agro-technical measures should also be aimed at maintaining soil moisture in a sense. Our studies also found the effect of planting systems, seedling thicknesses, and compound planting on the change in soil moisture during seed sowing (Table 1, Figure 1).

It should be noted that the light gray soils we conducted experiments are moderately sandy in terms of mechanical composition. It has been proven that the soil moisture (relative to dry soil) at the time of sowing seeds in these species should be 15.0%. In addition, our research has shown that the same amount of moisture was present during planting.

In the control variant planted in 60 cm system (seedling thickness of 90-100 thousand / ha) in 2020, the soil moisture in layers 0-5 and 5-10 cm (day of sowing) was 16.0 and 16.8%, respectively. During this (first) period of soil moisture determination, it was observed that the soil moisture was almost the same, regardless of the agro-technical measures used in all options.

Another noteworthy fact is that if the soil temperature increased relatively from 10 days from the date of sowing the seeds, regardless of the layers, the moisture content, on the contrary, decreased. This shows that soil temperature and humidity are inversely proportional. In the experiment, depending on the seed sowing systems and seedling thickness and sowing in the compartment, 2 days after planting, ie in the second period of observation, the soil moisture in the control variant was 0-5 and 5-10 cm. in the stratum were 15.1 and 16.2%, respectively.

In the variant in which the seeds were sown in the 90 (60x30) system, these values were 16.2-16.3%, which is 1.1-0.1% higher than the control. This means that if the seed is planted in a row rather than planted in a row, the soil moisture is relatively higher, which depends on the level of sunlight falling between the rows. From this it cannot be concluded that the higher the soil moisture is maintained, the more favorable conditions are created for germination. Therefore, the impact of optimal planting methods, systems seedling thicknesses and other agronomic measures will be studied and optimal ones will be selected.

On the second day of observation, the seeds were sown in rows of 80x40 cm, leaving 120-140 thousand seedlings per hectare. the seeds were found to be 0.2% lower or 0.8% higher than the options planted in the 90 (60x30) system. In addition, soil moisture was relatively high in these latter options. In the system of sowing cotton seeds in the system 80x60 cm, with a seedling leave of 140-160 thousand / ha, the above figures are 15.9-17.2%, respectively, 0.8-1.0% higher than the control, but compared to those planted 80x40 cm while it was found to be 0.1% higher and 0.1% lower (0-5 and 5-10 cm). This means that on the second of the observations, the soil moisture was only slightly lower in the control option,

10 days after sowing, in the control variant, the soil moisture decreased from the initial state (from the date of sowing) to 2.6-3.0% in proportion to the layers and amounted to 13.6-13.8%, while the seed 90 (60x30) decreased by 3.6–3.8% when sown in the system in the system, and amounted to 13.2–13.7%. This means that the decrease in soil moisture over time is also related to the planting systems, with a greater decrease relative to the number of seedlings when planted in the harrow. In addition, this process depends not only on the planting system, but also on the thickness of the seedlings. On the last day of observation, the above figures were in the range of 14.0-15.9%, 0.4-2.1% higher than the control, 0.8-2.2% higher than in the 90 (60x30) system.

So, in order to get the best cotton seedlings in the conditions of light gray soils of Andijan region, it was determined that the seeds should be planted in a system of 80x40 cm, in pairs, so that the soil temperature and humidity are acceptable.

CONCLUSIONS AND RECOMMENDATIONS

1. The fact that the decrease in soil moisture over time is also related to the planting systems, there is a greater decrease in the number of seedlings when planted in the compound. In addition, this process depends not only on the planting system of seedling thickness, but also on the fact that the soil moisture is maintained relatively well at the end of the observation in the variants planted in seedlings in the row spacing 80x40 cm again at a seedling thickness of 120-140 thousand / ha.

2. On the last day of observation, the above values were in the range of 14.0-15.9%, 0.4-2.1% higher than the control, 0.8-2.2% higher than in the 90 (60x30) system. proves that it also depends on planting systems.

3. Therefore, in the conditions of light gray soils of Andijan region, it is recommended to sow the seeds in the system 80x40 cm, at intervals, in order to obtain optimal soil temperature and humidity for optimal germination of cotton seedlings.

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