

GROWTH, DEVELOPMENT AND PRODUCTIVITY OF OIL CROP IN IRRIGATED TYPICAL GRAY SOILS

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Introduction

Nowadays, the increase in the world's population means that the demand for food, including vegetable oil and protein products, is increasing day by day. Soybeans and sunflowers are the main source of raw materials in the vegetable oil production industry. "Today soybeans are grown on 122.1 million hectare and sunflower is grown 25.6 mln. Hectare on earth in the main and repeated periods. In terms of cultivated area, soy occupies the fourth place after wheat, rice and corn, and the annual gross grain yield is 220.6 million tons. Brazil, the USA and Argentina are the leading countries in the export of soybeans. China, Korea and other Asian countries are the main importing countries. Russia, China, Argentina, Romania and Ukraine are the leading countries in the cultivation of sunflowers, with an annual average of 40.5-42.0 million. tons of crops are grown. According to the international FAO, in 2020, 162 million tons of soybeans will be grown by 2030 in the world, and it is expected to increase by 371 mln. tons» For this, it is important to develop agrotechnology of soybean and sunflower cultivation as a repeated crop, including irrigation procedures.

Main part

When observing the germination dynamics of soybean seeds planted after winter wheat in the conditions of irrigated typical gray soils of the Tashkent region, the complete germination of the seeds after 12 days after planting "Dream" variety was 99 percent. It was found that the variety "Arleta" germinated 100% during the period indicated above. The beginning of the flowering period was on August 6, and accordingly it was 95.6 and 98.9 percent. The average duration of development of repeatedly planted soybean varieties for 2018-2020 is given. The period of application is 99 days in the variety "Orzu" and this indicator is much earlier in the variety "Arleta" and made 85.6 days on average in three years. In soybean variety of "Arleta" compared to ChDNS when irrigated by 0-50 cm soil layer at 65-65-60% humidity, when control used in production is at 70-70-60% humidity it was observed that it ripened 13.5 days before. The height of the soybean plant stem varied during the season and at the time of 4 true leaves, flowering- pod ripening and pre-harvest in experiment 1-control variety "Dream" were 10.1, 11.9, 78.4, and 81, respectively. It was equal to 1 centimeter, the harvest branches were 2.88-3.84 pieces. The lowest plant height and the number of harvest branches were observed when the "Arleta" cultivar of the experiment was irrigated in the order of 65-65-60% in relation to ChDNS and were 10.2 and 64.4 cm, respectively, and the harvest branches were around 2.0 pcs. Soybean variety of "Arleta" has a high performance, compared to ChDNS of

the experiment, 65-65-60% pre-irrigation soil moisture was observed when irrigation was carried out in an economical manner on the 0-50 cm layer of the soil. In other 3rd and 5th variants of the experiment, the conditions of growth and development of soybeans took an intermediate place.

Based on observations in the field experiment conducted in the conditions of irrigated typical gray soils and phenological observations on the phases of plant development, calculations show that the duration of the growth cycle of sunflower varieties, that is, from planting to harvesting the length of time until maturity was 85–100 days. According to the results of the experimental research, the “Navruz” variety of sunflower showed itself to be very early. In this case, the earliest ripening of this variety in 65-65-60% moisture content of the soil in 0-50 cm soil layer, 85 days, according to the irrigation method, but in 0-70 cm soil layer. It was observed in the experiment that it was 87 days. The vegetation period of the plant consisted of 89 days in the variant where the irrigation procedure was carried out at 75-75-65% humidity and the soil moisture before irrigation was carried out accordingly. In the experiment, the “Jakhongir” variety of sunflower, planted as a control, was late ripening compared to the “Navroz” variety, and the vegetation period lasted up to 92 days on average in 3 years, or 7 days late ripening was observed.

The growth and development of sunflower varieties grown on irrigated typical gray soils varied throughout the season. By the end of the growing season, the average plant height is the highest in the Jakhongir variety, 176.6-184.4 cm in three years, and the lowest in the Navruz variety, It was observed in 65-65-60 % humidity and averaged 159.6-174 cm. Compared to ChDNS of this variety, it was 172.7-181.6 centimeters in the 0-70 cm calculation layer of the soil when watering at 75-75-65% humidity. According to the measurement results of the phenological observation, the highest indicator of the diameter of the basket was determined in the “Navroz” variety in the order of 65-65-60% irrigation and soil moisture calculation layer of 0-50 cm compared to ChDNS and 21.6-24.5 cm, and the number of leaves was 21.4 pieces. 0-70 cm layer of the soil of the experiment before irrigation soil moisture according to 65-65-60% moisture calculation, soil layer 0-70 cm when irrigation is carried out height of sunflower in the first ten days of October “Navroz” variety was 166.7 cm and the number of leaves was 19.6 pieces.

In the conditions of irrigated typical gray soils of the Tashkent region, irrigation methods had different effects on the productivity of the control (Orzu) and experimental (Arleta) soybean varieties. For example, the average grain yield in 2018-2020 in the conditions of irrigated typical gray soils of the Tashkent region in the control option was 22.8 s/ha. When watering the experimental option, the calculation layer of the soil is 0-50 cm, and the average yield of the soil moisture before irrigation is 26.2 s/ha, compared to the limited field moisture capacity of 65-65-60%, and the experiment in the 3rd option, i.e. at 75–75–65% moisture relative to

ChDNS, this indicator was 23.9 s/ha. It was proved in the study that the productivity index was higher by 3.4 s/ha in the 2nd variant of the experiment compared to the control.

The average seed yield of the “Jahongir” variety planted in the control option of 70-70-60% pre-irrigation soil moisture in the control option planted with sunflower varieties was 25.0 s/ha in 2018, the seeds obtained in three years the yield was 24.1 s/ha. In the option 2, when the calculated soil layer is 0-50 cm, when irrigated according to the pre-irrigation soil moisture of 65-65-60% compared to the planted limited moisture capacity of the cultivar “Navroz” planted in the experiment 27.7 s/ha seed yield was obtained. The average seed yield obtained during 2018-2020 is equal to 29.0 s/ha, and it was observed that the average yield was 4.9 s/ha higher than the control, i.e. “Jahongir” variety. In 2018, the sunflower seed yield was 23.7 s/ha in the version of the experiment with the calculation layer of the soil is 0-50 cm in irrigation according to the order of 75-75-65% compared to ChDNS, on average in three years, this indicator was equal to 26.4 s/ha.

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