

## **THE EFFECT OF PLANTING SCHEMES ON SEED YIELD OF SUNFLOWER VARIETIES**

**QODIROV DAVLATBEK AKRAMJON OGLI**

Graduate student of Andijan Institute of Agriculture and Agrotechnologies  
Andijan, Uzbekistan

### **ABSTRACT**

In this article, the results of the study on the effect of sowing seeds of "Jahongir" and "Dilbar" varieties, suitable for repeated sowing of sunflower in the meadow soils of Andijan region, on the growth, development and productivity of sunflower plants are described.

**KEYWORDS:** Sunflower, Seed, Plant, Soil, Volume, Weight, Scheme, Option, Seed, Yield, Level

### **INTRODUCTION**

Sunflower (*Helianthus annuus* L.) is currently one of the most important oil crops in the world. Sunflower edible oil ranks first among selected vegetable oils in terms of quality. Therefore, in many countries of the world, it is observed that the level of economic efficiency increases depending on the cultivated area and the amount of harvest.

In the last five years, sunflowers have grown in 72 countries on average 25-26 million. grown on an area of more than 1 hectare, on average 40.5-42.0 mln. tons of crops were grown. Worldwide, 47,347,175 tons of sunflower are grown per year. Ukraine is the largest sunflower producer in the world with annual production of 13,626,890 tons. The Russian Federation ranks second with 11,010,197 tons per year. Together, Ukraine and the Russian Federation produce more than 50% of the world's oil. In recent years, the sunflower cultivation area has increased to 17.5 thousand hectares and the average yield is 12-15 t/ha in Uzbekistan.

This, in turn, requires conducting a lot of research on this crop, studying each variety in regions and districts according to different seeding periods and seedling thicknesses, as well as studying its requirements for food and irrigation.

Based on these circumstances, during 2021-2022, we conducted our research on the development of optimal seed planting schemes for growing high and quality crops from sunflower varieties planted as repeated crops in the conditions of irrigated meadow soils of Andijan region.

The research work was carried out in a 1:1 (cotton-cereal) short rotation cropping system. When studying the three-year history of the area selected for the experiment, it was found that every year crops were planted in the 1:1 (cotton-grain) system, and carrot, potato and cabbage crops were grown from leguminous crops and vegetable crops as repeated crops.

In order to determine the level of nutrient supply of the field soil before conducting the experiment, 0-30 and 30-50 cm of the soil were measured using the five-point envelope method. soil samples were taken from the layers and the initial state of the field soil was analyzed.

When analyzing the agrochemical properties of soil samples taken from the experimental field at the beginning of the 2021 growing season, humus was 0.940 percent, nitrogen 0.082 percent, phosphorus 0.142 percent, nitrate 14.22 mg/kg from mobile forms of nutrients in the plow layer (0-30 cm.) , phosphorus 27.38 mg/kg, potassium 322 mg/kg, 30–50 cm of soil. and in the layer, it was found that humus was 0.712 percent, nitrogen 0.070 percent, phosphorus 0.118 percent, nitrate 12.75 mg/kg, phosphorus 22.62 mg/kg, and potassium 287 mg/kg from mobile forms.

**Table 1: Preliminary Agrochemical Characteristics of the Experimental Field**

Years	Soil Layer, cm	General Forms, %			Active Forms, mg/kg		
		Rotted	N		N-NO <sub>3</sub>	<sub>2</sub> <sub>5</sub>	<sub>2</sub>
2021	0–30	0,940	0,082	0,142	14,22	27,38	322
	30–50	0,712	0,070	0,118	12,75	22,62	287

It can be seen from the analysis data that the researched field soils are low in nitrate and phosphorus and medium in potassium.

At the same time, every year before conducting the experiment, together with determination of agrochemical properties of the soil, the agrophysical properties of the soil were also determined by envelope method from five points of the field.

**Table 2: Preliminary Agrophysical Properties of the Experimental Field**

Years	Volumetric Weight of Soil, g/cm <sup>3</sup>		Volumetric Weight of Soil, %		Soil Permeability, m <sup>3</sup> /ha
	Soil Layers, cm				
	0–30	30–50	0–30	30–50	
2021	1,35	1,42	50,15	47,48	749,1

The obtained results show that when the agrophysical properties of the soil were analyzed in the cross-section of years (2021), the volume weight in the 0-30 cm layer of the soil was 1.35 g/cm<sup>3</sup>, and the porosity was 50.15%, while in the 30-50 cm layer of the soil, the it was observed that the water permeability of the soil was 749.1 m<sup>3</sup>/ha in accordance with the volume weight, while the volume weight was 1.42 g/cm<sup>3</sup>, and the porosity was 47.48%.

Seeds of sunflower varieties were sown in the experimental options on June 20. When the thickness of sunflower seedlings was studied in the section of the options, the seeds of the "Jahongir" variety of sunflower in the 1st option planted in the 70x20-1 scheme amounted to 70.7 thousand bush/ha at the beginning of the operation period, while the seeds of this variety were planted in the 70x30-1 scheme in the first planting of the 2nd option When the thickness was studied, it was found that it was 46,700 bushels/ha.

In the experiment, when studying the 3rd option, in which the seeds of the "Dilbar" variety were planted in the 70x20-1 scheme, the seedling thickness at the beginning of the period was 70.9 thousand bush/ha, while the initial seedling thickness of the 4th option, in which the seeds of this variety were planted in the 70x30-1 scheme, was determined to be 47, It was noted that it was 0 thousand bushels/ha.

At the end of the application period, when the actual seedling thicknesses of sunflower varieties cared for in the options were analyzed, the seeds of the "Jahongir" sunflower variety were planted in the 70x20-1 scheme in the 1st option, on average 67,000 plants/ha, and the seedlings that died during the application period were 5 ,2%, in the 2nd option, where

the seeds of this variety were planted in the 70x30-1 scheme, the actual seedling thickness was on average 44,900 bushels/ha, and it was observed that the number of dead seedlings was equal to 3.8% during the period of operation.

**Table 3: Seedling Thickness of Sunflower Varieties in the Experiment**

	Varieties	Seed Planting Scheme	Seedling Density at the Beginning of the Operation Period, Thousand Pieces/Ha	Seedlings that Died during the Period of Operation, %	Seedling Thickness at the end of the Period of Operation, Thousand Pieces/Ha
1	Jahangir	70 20-1	70,7	5,2	67,0
2		70 30-1	46,7	3,8	44,9
3	Dilbar	70 20-1	70,9	4,9	67,4
4		70 30-1	47,0	3,5	45,4

The seeds of the "Dilbar" variety of sunflower studied in the experiment were planted in the scheme 70x20-1, the 3rd option, taking into account the actual seedling thickness, averaged 67.4 thousand bush/ha, and the number of seedlings that died during the period of operation was 4.9%, and the seeds of this variety In the 4th option planted in the 70x30-1 scheme, the thickness of seedlings was 45.4 thousand bush/ha, and it was found that the number of seedlings that died during the period of operation was 3.5%.

In the experiment, it can be seen from the data on the seedling thickness that compared to the "Jahongir" variety of sunflower, the seedling thickness of the "Dilbar" variety was higher from 0.4 thousand to 0.5 thousand pieces per hectare both at the beginning and at the end of the operation period.

In the experiment, the following data were obtained when the growth and productivity of sunflower varieties were studied in the section of variants.

In the experiment, when the 3rd option was analyzed, in which Dilbar sunflower seeds were planted in the 70x20-1 scheme, by the end of the period of operation, the average height of the plant was 173.5 cm, the diameter of the basket was 29.1 cm, the total weight of one basket was 98.2 g, the empty basket weight is 47.4 g, the number of seeds in one basket is 614.6, the weight of seeds in one basket is 50.8 g, undeveloped seeds are 6.0%, the weight of 1000 seeds is 82.9 g, the seed yield is 32.1 ts / ha, the seeds of the Jahangir variety of sunflower are planted in the scheme 70x20-1, compared to the 1st option, the height of the plant is 11.8 cm, the diameter of the basket is 10.7 cm, the total weight of one basket is 21.1 g, the weight of an empty basket is 10, 0 g, the number of seeds in one basket is 66.9, the weight of seeds in one basket is 11.1 g, the weight of 1000 seeds is 10.6 g, the seed yield is 7.2 t/ha, the undeveloped seeds are 5.6% was observed to be less than

In the experiment, when Dilbar sunflower seeds were sown in the scheme 70x30-1, the productivity of sunflowers cared for in the 4th option was studied. At the end of the operation period, the average height of the plant was 195.7 cm, the diameter of the basket was 31.1 cm, and the total weight of one basket was 136.0 g. , the weight of an empty basket is 59.2 g, the number of seeds in one basket is 999.8, the weight of seeds in one basket is 76.8 g, the undeveloped seeds are 4.6%, the weight of 1000 seeds is 76.9 g, the seeds of sunflower Jahangir variety seeds are planted in the 70x30-1 scheme, compared to option 2, the height of the plant is 11.1 cm, the diameter of the basket is 10.4 cm, the total weight of one basket is 40.9 g, the weight of an empty basket is 21.2 g, seeds in one basket It was noted that the number of seeds

increased by 152.4, the weight of seeds in one basket increased by 19.6 grams, the weight of 1000 seeds increased by 9.6 grams, the seed yield increased by 8.6 t/ha, and the number of undeveloped seeds decreased by 5.7%.

As can be seen from the obtained results, in the experiment, it was found that the Dilbar variety of sunflower was superior to the Jahangir variety of sunflower in terms of productivity.

In conclusion, we can note that in the cultivation of sunflower as a repeated crop in the areas freed from winter wheat, planting the Dilbar variety in the 70x30-1 scheme and maintaining the seedling thickness at the rate of 45,400 units, the plant height is up to 195.7 cm, the diameter of the basket is up to 31.1 cm, one the total weight of the basket is up to 136.0 g, the number of seeds in one basket in an empty basket is up to 999.8, the weight of seeds in one basket is up to 76.8 g, the weight of 1000 seeds is up to 76.9 g, and the seed yield is up to 33.7 t/ha provides.

## REFERENCES

### List of used Literature

1. Atabaeva H.N., Khudaykulov J.B. "Plant Science" "Science and Technology" publishing house. Tashkent-2018. B.321.
2. Atabaeva H.N., Yuldasheva Z.K. "Scientific bases of the biology of oilseeds and innovative technologies in cultivation" "Science and technology" publishing house. Tashkent-2019 B. 21-42.
3. Abdukarimov D.T., Khalilov N.Kh., Lukov M.Q., Yuldasheva Z.K. and others. "Recommendation for farmers on sunflower cultivation technology", Tashkent-2019. B.11-14.
4. Methods of conducting field experiments. UzPITI, T. 2007.