

## EFFECT OF FERTILIZER RATE ON YIELD ELEMENTS OF SUNFLOWER VARIETIES "DILBAR" AND "OSIYO"

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### **Abstract:**

In this scientific article, the influence of different rates of fertilization on the yield elements of sunflower varieties "Dilbar" and "Asiyo" in Khorezm region, which is the northern regions of Uzbekistan, was studied. Information on choosing the most optimal options for using mineral fertilizers in "Dilbar" and "Asiyo" sunflower varieties is given.

**Key words:** Khorezm, sunflower, dilbar, Asia, fertilizer, fertilizer standard, harvest.

### **Relevance of the Topic**

In the years of independence, in order to increase the welfare of the people in our country, special attention is paid to the creation of new varieties and the expansion of cultivated areas in order to increase the number of food crops, including the vegetable oil obtained from them. The possibility of producing 25-50 quintals of harvest from each hectare of sunflower fields and 500-550 kilograms of oil from one ton of sunflower seeds helps to increase the economic efficiency of farms. The most important thing is that the expansion of sunflower fields and the increase of products made from it in our country will save a large amount of foreign currency, satisfy the population's need for oil products more fully, as well as the consistent development of animal husbandry. The main way to get a high profit from sunflower is to grow quick ripening varieties of this crop as a repeat crop in the summer. The development of a new modern cultivation technology that ensures a higher and higher quality sunflower crop is one of the urgent issues of today. [3].

### **Scientific Research Method**

Field experiments were carried out on the basis of UzPITI "Methods of conducting field experiments" method (2007) and the recommendations of the experimental station of oil and fiber crops of Uzbekistan were used. The accuracy and reliability of the obtained data were analyzed mathematically and statistically using the multidisciplinary "dispersion analysis" method of B.A. Dospehov. [1].

### **Research Results**

The middle part of the sunflower basket is not well supplied with nutrients, therefore, regardless of the feeding conditions, more or less of the tubular flowers do not fertilize, pollinate and remain sterile. Flowering starts from the edge of the basket and goes to the middle. Reproductive organs of sunflower

begin to form very early. From 18-20 days after germination, it begins to grow rapidly upwards. In the phase of the formation of the seventh-eighth pair of leaves, flower buds are formed. At this time, flower baskets can be kept full. In this phase, the demand of sunflower for mineral substances, moisture and light is very high. If there are shortages and inconveniences during basket making, the baskets will certainly be small. The budding phase begins 35-40 days after germination. At this time, the size of the stem and the size of the leaf are equal. During flowering, the growth of the stem slows down and the baskets begin to fill. When the harvest begins to ripen, the weight of the basket is equal to half of the total size of the sunflower. [4]. Indicators of yield elements in Dilbar and Asian varieties are presented in Table 1. After the harvest basket ripens, a sample is cut from the plants and brought to the laboratory, and its weight, diameter, number and weight of seeds in it, and the weight of the empty basket are determined.

In the "Dilbar" variety of sunflower, the circle diameter of the harvest basket was 52.3 cm wide in the non-fertilizer variant, while it was 52.0 cm in the  $N_{150}P_{150}K_{200}$  variant, which is 0.3 cm smaller than the non-fertilizer variant. It happened. It was found that the third option used in the  $N_{200}P_{150}K_{200}$  standard has a width of 58.5 cm and a basket with a larger diameter by 6.2 cm compared to the first option. In the fourth option,  $N_{250}P_{150}K_{200}$  is used, it is 63.3 cm wide, creating a basket with a larger diameter by 11.0 cm compared to the first option, by 10.6 cm compared to the second option, and by 4.8 cm compared to the third option was determined. The width of the basket was 18.0 cm when  $N_{200}P_{150}K_{200}$  kg of nitrogen, phosphorus and potassium was applied per hectare, and 19.8 cm when  $N_{250}P_{150}K_{200}$  kg was used. The largest baskets were observed in these variants. The total weight of the harvested basket with seeds is 120.8 grams in the non-fertilizer option, 122.0 grams in the  $N_{150}P_{150}K_{200}$  option, in the third option using the  $N_{200}P_{150}K_{200}$  standard, the weight of the basket is 129.5 grams in the fourth option using the  $N_{250}P_{150}K_{200}$  standard. weight was observed to be 139.3 heavy.

In the "Asia" variety of sunflower, the circle diameter of the harvest basket was 41.3 cm wide in the non-fertilizer variant, while it was 42.1 cm in the  $N_{150}P_{150}K_{200}$  variant, which is 0.8 cm smaller than the non-fertilizer variant. It happened. It was found that the third option used in the  $N_{200}P_{150}K_{200}$  standard is 42.7 cm wide, and a basket with a larger diameter is formed by 1.4 cm compared to the first option. In the fourth option,  $N_{250}P_{150}K_{200}$  is used, it is 48.5 cm wide, and it is 7.2 cm larger than the first option, 6.4 cm larger than the second option, and 5.8 cm larger than the third option. was determined.

When the width of the harvest baskets was measured from the front side, it was found that it was 13.6 cm in the variant without fertilizer, which was narrower than all the variants with fertilizer in the experiment. The width of the basket was 14.4 cm when  $N_{200}P_{150}K_{200}$  kg of nitrogen, phosphorus and potassium was applied per hectare, and 15.0 cm when  $N_{250}P_{150}K_{200}$  kg was used, and the largest baskets were observed in these options.

The total weight of the harvested basket with seeds is 110.8 grams in the non-fertilizer option, 112.0 grams in the  $N_{150}P_{150}K_{200}$  option, in the third option using the  $N_{200}P_{150}K_{200}$  standard, the weight of the basket is 119.5 grams in the fourth option using the  $N_{250}P_{150}K_{200}$  standard. weight was observed to be 129.3 heavy.

After determining the total weight of the harvest basket, the seeds in the baskets were squeezed and their number was determined. In this case, it was found that the number of harvested seeds in the basket was 1141.5 in the "Dilbar" variety in the control option without fertilizer, and of course, the seedless, non-pollinated pistachios in the middle of the basket were not taken into account, only pistachios with whole kernels were taken into account. In the third variant used in the  $N_{200}P_{150}K_{200}$  standard, the seeds

in the basket were 44.3 more than the non-fertilized version, and it was found that this indicator increases as the fertilization standard increases. In the fourth option used in the N<sub>250</sub>P<sub>150</sub>K<sub>200</sub> standard, it was found that the seeds in the basket produce 136.3 more seeds.

In the "Asia" variety, the number of harvested seeds in the basket in the control option without fertilizer was 1041.5, in the second option using the N<sub>150</sub>P<sub>150</sub>K<sub>200</sub> ratio, the number of seeds in the basket was 1052.4, in the third option using the N<sub>200</sub>P<sub>150</sub>K<sub>200</sub> ratio, the number of seeds in the basket was It was found that 1085.6 seeds, in the fourth option used in the N<sub>250</sub>P<sub>150</sub>K<sub>200</sub> standard, the number of seeds in the basket is 1177.9 seeds.

**Table 1 Effect of fertilization rate on yield elements of sunflower varieties "Dilbar" and "Asiyo".**

options	Fertilization rate, kg/ha	Character of the basket			the number of seeds in the harvest basket, pcs	weight of seeds in the harvest basket, grams	whole grains in the basket %
		diameter, cm	width, cm	total weight, grams			
<b>Dilbar variety</b>							
1	Without fertilizer	52.3	15.6	120,8	1141,5	78,5	13,0
2	N <sub>150</sub> P <sub>150</sub> K <sub>200</sub>	52,0	16,0	122,0	1152,4	80,0	12,6
3	N <sub>200</sub> P <sub>150</sub> K <sub>200</sub>	58.5	18.0	129,5	1185,8	82,8	12,5
4	N <sub>250</sub> P <sub>150</sub> K <sub>200</sub>	63.3	19,8	139,3	1277,8	101,8	12,3
<b>Osiyo variety</b>							
1	Without fertilizer	41.3	13.6	110,8	1041,4	68,5	13,5
2	N <sub>150</sub> P <sub>150</sub> K <sub>200</sub>	42,1	14,0	112,0	1052,4	70,0	12,8
3	N <sub>200</sub> P <sub>150</sub> K <sub>200</sub>	42.7	14.4	119,5	1085,6	72,8	12,4
4	N <sub>250</sub> P <sub>150</sub> K <sub>200</sub>	48.5	15,0	129,3	1177,9	81,8	12,0

After determining the number of seeds in the harvest basket, their weight was determined. It was determined that the weight of 1141.5 seeds in a basket in the "Dilbar" variety without fertilizer was 78.5 grams, and in the N<sub>150</sub>P<sub>150</sub>K<sub>200</sub> variant, the weight of 1152.4 seeds in a basket was 80.0 grams. , it was found that the seeds in the basket of the N<sub>200</sub>P<sub>150</sub>K<sub>200</sub> fertilizer variant were 1185.8 pieces and weighed 82.8 grams, and the seeds in the basket of the N<sub>250</sub>P<sub>150</sub>K<sub>200</sub> variant were 1277.8 pieces and the weight was 101.8 grams.

In the "Asia" variety, the weight of 1041.4 seeds in a basket without fertilizer was determined to be 68.5 grams, and in the N<sub>150</sub>P<sub>150</sub>K<sub>200</sub> variant, the weight of 1052.4 seeds in a basket was determined to

be 70.0 grams. , it was determined that the seeds in the basket of the  $N_{200}P_{150}K_{200}$  fertilizer variant were 1085.6 pieces and weighed 72.8 grams, and the seeds in the basket of the  $N_{250}P_{150}K_{200}$  variant were 1177.9 pieces and the weight was 81.8 grams.

The weight of empty baskets was determined by weighing the "Dilbar" variety. The weight of an empty basket is 30.6 grams without fertilizer, 48.5 grams when using  $N_{150}P_{150}K_{200}$  kg, 38.2 grams when using  $N_{200}P_{150}K_{200}$  kg, 45.6 when the amount of nitrogen is increased to  $N_{250}P_{150}K_{200}$  kg observed.

The weight of the "Asia" variety was determined by weighing the empty baskets. The weight of an empty basket is 28.6 grams without fertilizer, 35.4 grams when using  $N_{150}P_{150}K_{200}$  kg, 36.3 grams when using  $N_{200}P_{150}K_{200}$  kg, and 39.3 when the amount of nitrogen is increased to  $N_{250}P_{150}K_{200}$  kg observed.

It was observed that the number of empty grains in the basket was 13.0% in the "Dilbar" variant without fertilizer, 12.6% in the  $N_{150}P_{150}K_{200}$  variant, 12.5% when  $N_{200}P_{150}K_{200}$  kg was used, and 12.3% when the amount of nitrogen was increased to  $N_{250}P_{150}K_{200}$  kg. It was found that in the case where no fertilizer was used at all, there was a large number of empty seeds in the middle of the basket.

It was observed that it was 13.5% in the "Osiyo" variety without fertilizer, 12.8% in the  $N_{150}P_{150}K_{200}$  version, 12.4% when  $N_{200}P_{150}K_{200}$  kg was used, and 12.0% when the amount of nitrogen was increased to  $N_{250}P_{150}K_{200}$  kg. Even in this variety, in the case where no fertilizer was used, it was observed that there was a large number of empty seeds in the middle part of the basket.

### Summary

We applied the norm of mineral fertilizers to promising sunflower varieties "Dilbar" and "Asiyo" in 4 options. When the most optimal option was used in the amount of  $N_{250}P_{150}K_{200}$ , the baskets were large, the number of seeds in it was large, and the weight of the seeds was heavy. It was observed that empty grains in the basket were the least 12.3% in the "Dilbar" variety, and 12.0% in the "Asia" variety. In the non-fertilizer version, the crop had the opposite effect on the elements, resulting in small baskets and a small number of seeds. Compared to the promising "Dilbar" variety of sunflower, the baskets are larger, the number of seeds in it is larger, the weight of the seeds is heavier and the yield is higher.

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