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EFFECT OF SOWING DATES AND FERTILIZING NORMS ON BIOLOGICAL DRY MASS YIELD OF REPEATED SUNFLOWER VARIETIES

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Annotation. This article describes the accumulation of biological dry matter in sunflower varieties intended for secondary crop. Based on the results, the “Diyor” and “Jahongir” sunflower varieties have average dry matter of 81.0 and 155.3 q/ha, respectively.

Keywords: repeated sunflower, seeds, biological dry mass, varieties “Diyor” and “Jahongir”.

Introduction. Sunflower (Helianthus annuus L.) is one of the most widely used crops in agriculture due to its high yield and valuable oil, which is used in many industrial sectors. Sunflower is also an important crop for the food industry, pharmaceuticals, and animal feed production. It also grows well in modified soil conditions, and it is possible to increase its yield by applying various agrotechnical measures. Seed germination, i.e. the ability of seeds to germinate, is of great importance in obtaining seed crops, creating new varieties, and improving their quality. It is one of the most important indicators for determining the biological dry mass potential of seeds and the ability to form a new generation.

It is known that the use of mineral fertilizers in the cultivation of any crop accelerates the growth and development of plants and activates the formation of vegetative (root, stem, and leaf) organs. However, under the influence of mineral fertilizers applied in large quantities, the vegetative organs of plants can develop excessively, even resulting in the leaves shading each other, reducing the intensity of photosynthesis or causing plants to become dormant, which can lead to a decrease in seed yield.

Materials and Methods. The study was conducted at the central experimental plot of the Southern Agricultural Research Institute. In the studies, the "Diyor" and

"Jahongir" varieties of sunflower, planted as a repeated crop, were sown on June 15-20, June 25-30, and July 05-10, using germinating seeds.

Results. According to the results obtained during the research (2024), it was determined that in the early sowing period (June 15-20) of the field experiment, in the control variant 1 ($N_0P_0K_0$) where mineral fertilizers were not applied, the dry mass of the plant at the time of seed filling was on average 94.9; 97.2 g/ha, and in the variant 2 ($N_{80}P_{60}K_{60}$) where mineral fertilizers were applied, the dry mass of the plant was on average 112.0; 114.9 g/ha. In the variant 3 ($N_{100}P_{80}K_{60}$) and variant 4 ($N_{120}P_{100}K_{60}$), where the rate of mineral fertilizers was increased, the dry mass of the plant was on average 129.7; 135.7 and 155.3; 155.3 q/ha; In variant 5 ($N_{140}P_{120}K_{60}$), the average dry mass of the plant was 126.7; 129.1 q/ha, respectively.

During our research, it was found that in the field experiment, in the control ($N_0P_0K_0$) 1st variant, where mineral fertilizers were not applied, the average dry mass of the plant at the time of seed filling was 87.8; 84.7 q/ha, and in variant 2 ($N_{80}P_{60}K_{60}$) where mineral fertilizers were applied, the average dry mass of the plant was 111.9; 106.4 q/ha. In variant 3 ($N_{100}P_{80}K_{60}$) and variant 4 ($N_{120}P_{100}K_{60}$), where the rate of mineral fertilizers was increased, the average dry mass of the plant was 140.0; 125.5 and 151.8; 142.7 q/ha; in variant 5 ($N_{140}P_{120}K_{60}$), the average dry mass of the plant was 127.1; 122.4 q/ha, respectively.

Table 1

The effect of sowing dates and fertilizing rates on the biological dry mass yield of repeated sunflower varieties in 2024

№	Name of variety	Ma'dan o'g'itlar, kg/ga	7-8 leaves formation	starring period (bud formation)	budding	flowering	Seed filling
Early date (June 15-20)							
1	Diyor	$N_0P_0K_0$	8.8	16.8	66.7	90.2	94.9
2		$N_{80}P_{60}K_{60}$	9.8	17.8	71.5	97.3	112.0
3		$N_{100}P_{80}K_{60}$	11.5	19.5	74.7	104.5	129.7
4		$N_{120}P_{100}K_{60}$	13.8	23.8	81.0	123.4	155.3
5		$N_{140}P_{120}K_{60}$	12.6	21.4	75.7	109.4	126.7
6	Jahongir	$N_0P_0K_0$	9.5	17.1	69.1	96.3	97.2
7		$N_{80}P_{60}K_{60}$	10.5	19.1	73.2	102.3	114.9
8		$N_{100}P_{80}K_{60}$	11.2	19.4	75.4	107.1	135.7

9		$N_{120}P_{100}K_{60}$	12.9	22.1	79.3	117.8	155.3
10		$N_{140}P_{120}K_{60}$	12.3	21.2	75.1	108.1	129.1
Middle date (June 25-30)							
11	**Diyor**	$N_0P_0K_0$	7.2	16.0	61.7	86.1	87.8
12		$N_{80}P_{60}K_{60}$	8.4	16.9	66.4	94.6	111.9
13		$N_{100}P_{80}K_{60}$	10.6	18.1	69.4	102.0	140.0
14		$N_{120}P_{100}K_{60}$	13.8	21.8	77.5	114.4	151.8
15		$N_{140}P_{120}K_{60}$	12.2	21.0	73.0	105.7	127.1
16	**Jahongir**	$N_0P_0K_0$	8.2	16.3	62.8	81.7	84.7
17		$N_{80}P_{60}K_{60}$	8.8	17.7	68.3	98.6	106.4
18		$N_{100}P_{80}K_{60}$	10.5	18.1	71.3	102.3	125.0
19		$N_{120}P_{100}K_{60}$	11.6	19.9	75.1	110.0	142.7
20		$N_{140}P_{120}K_{60}$	10.7	19.0	70.3	102.7	122.4
Late date (June 05-10)							
21	**Diyor**	$N_0P_0K_0$	6.3	14.9	61.1	78.4	81.0
22		$N_{80}P_{60}K_{60}$	7.9	16.0	66.0	90.4	99.7
23		$N_{100}P_{80}K_{60}$	9.7	16.5	71.0	98.0	123.6
24		$N_{120}P_{100}K_{60}$	11.6	18.8	75.7	109.3	145.0
25		$N_{140}P_{120}K_{60}$	10.3	17.8	70.9	100.1	123.0
26	**Jahongir**	$N_0P_0K_0$	7.5	15.1	62.7	70.4	82.1
27		$N_{80}P_{60}K_{60}$	8.2	16.0	67.1	93.4	98.2
28		$N_{100}P_{80}K_{60}$	9.0	16.3	69.3	97.7	113.7
29		$N_{120}P_{100}K_{60}$	11.0	17.3	72.8	104.3	127.9
30		$N_{140}P_{120}K_{60}$	9.3	16.5	69.3	96.9	115.0

In particular, during our research, it was found that in the field experiment of the late sowing period (July 5-10), in the control variant 1 ($N_0P_0K_0$) where mineral fertilizers were not applied, the dry mass of the plant at the time of seed filling was on average 81.0; 82.1 g/ha, and in the variant 2 ($N_{80}P_{60}K_{60}$) where mineral fertilizers were applied, the dry mass of the plant was on average 99.7; 98.2 g/ha. In the variant 3 ($N_{100}P_{80}K_{60}$) and variant 4 ($N_{120}P_{100}K_{60}$), where the rate of mineral fertilizers was increased, the dry mass of the plant was on average 123.6; 113.7 and 145.0; 127.9 s/ha; in variant 5 ($N_{140}P_{120}K_{60}$), the average dry mass of the plant was 123.0; 115.0 s/ha, respectively.

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