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**INFLUENCE OF SOWING DATES AND MINERAL FERTILIZER RATE ON  
THE VEGETATION PERIOD OF SUNFLOWER PLANTED AS A  
REPEATED CROP**

**Ruzmanov Abdullo Norboy ugli** – Researcher of Southern Agricultural  
Research Institute

**Abstract.** In this paper, we study the growing season of sunflower planted as a secondary crop on irrigated light-sierozem soils in the Karshi district of the Kashkadarya province. When planting the sunflower varieties "Diyor" and "Jahongir" on light-sierozem soils of the Kashkadarya region, the seed growing season was 83-100 days, and it was found that the characteristics of the main stem with this technology are similar to those of other crops. The duration of moisture was the same, but a sharp difference was observed between the periods of seed maturation and vegetative growth.

**Keywords:** Sunflower, soil, seeds, period, variety, Diyor, Jahongir, days of the growing season.

**Introduction.** In the world, scientific work is being carried out in a number of priority areas on the use of modern agrotechnologies in sunflower cultivation for the production of vegetable oil. In this regard, special attention is paid to research aimed at developing economically effective agronomic measures for sunflower cultivation by determining optimal planting dates and feeding standards for sunflower cultivation, based on the soil and climatic conditions of each region. In recent years, as a result of the increase in the population, the demand for vegetable oil has also been increasing. Therefore, one of the urgent issues is the development of economically effective agronomic measures to determine the impact of planting dates and fertilizer standards on the yield and quality of sunflower for oil as a repeated crop.

The priority direction for solving the problem of stabilizing and increasing sunflower cultivation and obtaining high, stable yields from high-quality seeds is to further improve the elements of the cultivation technologies of this crop, depending on the specific soil and climatic conditions [2, 3]. The main elements of sunflower cultivation technology are, in particular, primary tillage and the use of fertilizers [1].

Practical significance of the research. In our republic, agro-measures are being carried out on the impact of fertilizer application rates on the yield of oilseed crops in various soil-climatic conditions, and certain results are being achieved. The Resolution of the President of the Republic of Uzbekistan on additional measures for the further development of seed production of agricultural crops sets out tasks for “the placement of oilseed, leguminous and fodder crops by types and varieties, based on soil-climatic conditions”. Therefore, the development of economically effective agro-measures that increase the yield of sunflower as a repeated crop in irrigated areas in agriculture is of great importance for our republic.

**Materials and Methods.** Research on increasing sunflower yield through the use of mineral fertilizers was conducted at the central experimental field of the Southern Research Institute of Agriculture. Planting, cultivation, and determination of the yield of sunflower varieties “Diyor” and “Jahongir” were carried out based on generally accepted methods [4; 5].

**Results.** It was found that the vegetation period of sunflower seeds planted as a repeated crop was 90-100 days in the early term for the "Diyor" variety, and 91-99 days on average for the "Jahongir" variety (Table 1).

Table 1

**Vegetation period of sunflower planted as a repeated crop (Southern Agricultural Research Institute Experimental Field, 2024)**

No	Sowing dates	Navlar nomi	Mineral fertilizer rates	Date of germination	True leaf production	Formation of 3-4 leaves	Formation of 7-8 leaves	Formation of 12-14 leaves	Basket (Inflorescence) formation	Flowering period	Seed filling period	Ripening period	Vegetation period, days
1	15.00.06	Diyor	N <sub>0</sub> P <sub>0</sub> K <sub>0</sub>	6	4	5	7	5	13	12	21	17	90
2			N <sub>80</sub> P <sub>60</sub> K <sub>60</sub>	6	4	6	7	6	13	14	21	17	94
3			N <sub>100</sub> P <sub>80</sub> K <sub>60</sub>	6	5	6	7	6	15	14	21	17	97

4	25.20.06	Jahongir	$N_{120}P_{10}$ $_0K_{60}$	6	5	6	7	7	16	13	21	17	98
5			$N_{140}P_{12}$ $_0K_{60}$	6	5	7	7	7	15	14	21	18	100
6		Jahongir	$N_0P_0K_0$	6	5	5	5	7	12	12	19	20	91
7			$N_{80}P_{60}$ $K_{60}$	6	5	6	5	7	13	12	20	21	95
8			$N_{100}P_{80}$ $K_{60}$	6	5	7	5	7	12	13	22	21	98
9			$N_{120}P_{10}$ $_0K_{60}$	6	6	7	5	7	12	13	22	21	99
10			$N_{140}P_{12}$ $_0K_{60}$	5	7	8	4	8	12	13	21	21	99
11			Diyor	$N_0P_0K_0$	6	5	6	5	6	12	12	19	16
12		$N_{80}P_{60}$ $K_{60}$		5	5	6	5	7	13	12	20	16	89
13		$N_{100}P_{80}$ $K_{60}$		5	5	6	6	7	13	13	22	15	92
14	$N_{120}P_{10}$ $_0K_{60}$	5		5	7	6	6	13	13	22	16	93	
15	$N_{140}P_{12}$ $_0K_{60}$	5		5	7	6	7	13	13	22	16	94	
16	Jahongir	$N_0P_0K_0$		6	4	6	5	5	12	12	20	15	85
17		$N_{80}P_{60}$ $K_{60}$	6	4	6	5	6	12	12	21	17	89	
18		$N_{100}P_{80}$ $K_{60}$	5	4	7	6	6	13	13	21	16	91	
19		$N_{120}P_{10}$ $_0K_{60}$	5	4	7	6	6	13	14	22	15	92	
20		$N_{140}P_{12}$ $_0K_{60}$	5	4	7	6	7	13	15	21	17	95	
21		05.10	Diyor	$N_0P_0K_0$	5	4	5	5	6	12	12	18	16

2	Jahongir	N <sub>80</sub> P <sub>60</sub>	5	4	5	6	6	12	12	19	17	86
2		K <sub>60</sub>										
2		N <sub>100</sub> P <sub>80</sub>	5	4	6	6	7	12	12	20	17	89
3		K <sub>60</sub>										
2		N <sub>120</sub> P <sub>10</sub>	5	4	6	6	7	13	13	20	17	91
4		<sub>0</sub> K <sub>60</sub>										
2		N <sub>140</sub> P <sub>12</sub>	5	4	6	6	7	13	13	20	17	91
5		<sub>0</sub> K <sub>60</sub>										
2		N <sub>0</sub> P <sub>0</sub> K <sub>0</sub>	6	4	5	5	6	12	12	19	16	85
6												
2	N <sub>80</sub> P <sub>60</sub>	6	4	5	5	7	12	13	19	16	87	
7	K <sub>60</sub>											
2	N <sub>100</sub> P <sub>80</sub>	6	4	5	6	7	13	13	20	17	91	
8	K <sub>60</sub>											
2	N <sub>120</sub> P <sub>10</sub>	6	4	6	6	7	13	13	20	17	92	
9	<sub>0</sub> K <sub>60</sub>											
3	N <sub>140</sub> P <sub>12</sub>	6	4	6	6	7	13	14	20	18	94	
0	<sub>0</sub> K <sub>60</sub>											

It was found that the average vegetation period of seeds in the medium and late term was 87-94 days and 85-95 days for the "Diyor" and "Jahongir" varieties, and 83-91 days and 85-94 days for the "Jahongir" varieties.

**Conclusion.** It was found that in the conditions of light gray soils of the Kashkadarya province, the growing season of sunflower seeds of the "Diyor" and "Jahongir" varieties was 83-100 days, and since air temperature and relative humidity did not differ significantly during this period, and agronomic factors were applied equally, a sharp difference was observed between the growing seasons of the seeds.

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