

## THE IMPACT OF DIFFERENT PLANTING TIMES, NORMS AND FERTILIZERS ON GRAIN YIELD IN THE CULTIVATION OF WINTER WHEAT SORTS

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**Abstract:** This article gives brief description on the development of sowing norms, timing and demand for mineral fertilizers and their impact on grain yield, based on the biology of each created wheat varieties in the cultivation of high and sustainable yields of cereals.

**Keywords:** Standard, fertilizer, yield, hard wheat, temperature, drought, variants, grain quality, spikes.

Nowadays, in the Republic of Uzbekistan, there is an opportunity to grow high-quality grain crops due to the correct placement of winter soft wheat varieties in the regions and full use of the internal potential of each variety, timely implementation of agro-technological measures such as soil, climatic conditions, optimal timing and norms of sowing, irrigation and fertilization.

Due to the data analysis, the effective usage of autumn soft wheat sowing period allows to adjust the most important developmental periods of the plant to the favorable time of the external environment, thus increasing grain yield by 20-30%, in some years by 40-52% [1].

Yield is the sum of the yields of plants in a given unit. If the plants in the field are sparse, the yield will be low despite the high productivity of each individual plant. As the thickness of the bush increases, the productivity of the individual plant decreases, but the yield increases to a certain extent. In this case, the number of plants in a given unit area is optimal, the yield is the highest, followed by a gradual decrease in yield [2; 3].

In our research of light gray soils of Kashkadarya region, when the seeds of winter wheat varieties Krasnodarskaya-99, Yaksart, Bunyodkor and Gozgan were sown in the medium term (20.10), the grain yield was 3.5% in the control variants. -3.4; 2.6-3.4; 3.5-2.7 and 3.2-

2.8 ts / ha, respectively, these values are 5.8-5.7, depending on the sowing dates and varieties in the seedlings applied fertilizers N180P108K54 kg / ha; 6.1-5.5; 6.0-6.0 and 6.5-5.7 ts / ha, fertilizer rate increased (N<sub>210</sub>P<sub>147</sub>K<sub>105</sub>kg/ha ) the average yield is 5.5-6.0 when grown on used seedlings; 5.9-5.2; 5.3-6.1 and 4.8-6.1 ts / ha, respectively. Also, in the optimal sowing period (20.10), when the sowing rate is increased from 4.0 million to 5.0 million germinated seeds, the grain yield of winter soft wheat varieties Krasnodarskaya-99, Yaksart, Bunyodkor and Gozgan is 1.5 per hectare; 1.9; 0.9 and 1.0 ts / ha, respectively, the sowing rate increased from 5.0 million to 6.0 million per hectare. when increased, the grain yield is 7.4 according to the varieties; 8.3; 7.1 and 6.7 ts / ha, respectively.

It should be noted that after the optimal sowing dates, the yield of winter soft wheat varieties decreased in all sowing norms, but when the sowing rate was increased from 4.0 million to 6.0 million germinated seeds per hectare, the average grain yield was 6.4-9.6 t. / increased. Thus, in the conditions of irrigated light gray soils of Kashkadarya region, the sowing rate of Yaksart, Bunyodkor and Gozgan varieties of winter soft wheat at an early stage (1.10) is 4.0 mln. 6.0 million seeds were sown late (10.11) and 5.0 million seeds were sown late (20.10) and provided high grain yields.

**Table-1 Sowing period, norms and effect of fertilizers on grain yield of winter soft wheat varieties, ts / ha**

№	Options	Mln	Name of sorts	Early	Medium	Late
1	Control	4,0	Krasnodarskaya-99	18,4	21,9	18,4
2			Yaksart	19	21,6	18,1
3			Bunyodkor	18,9	22,3	18,6
4			Gozgon	19,9	23,0	19,1
5		5,0	Krasnodarskaya -99	20,8	23,8	19,7
6			Yaksart	21,7	24,2	20
7			Bunyodkor	22,1	24,5	19,8
8			Gozgon	22,2	25,0	21,6
9		6,0	Krasnodarskaya -99	21,6	24,7	20,4
10			Yaksart	22	25,4	20,7
11			Bunyodkor	23,6	26,4	21,6
12			Gozgon	24,3	27,1	22,2
13	N <sub>180</sub> P <sub>108</sub> K <sub>54</sub>	4,0	Krasnodarskaya -99	44,2	50,1	39,4

14	N <sub>210</sub> P <sub>147</sub> K <sub>105</sub>		Yaksart	46,8	52,7	40,4	
15			Bunyodkor	48,7	54,7	42,8	
16			Gozgon	51,4	57,9	45,5	
17			5,0	Krasnodarskaya -99	46,7	51,5	40,7
18		Yaksart		50,5	54,6	44,6	
19		Bunyodkor		50	55,6	44,7	
20		Gozgon		53,6	58,9	46,3	
21		6,0	Krasnodarskaya -99	51,7	57,4	45,6	
22			Yaksart	55,6	61,1	50	
23			Bunyodkor	55,8	61,9	50,7	
24			Gozgon	58,9	64,7	51,9	
25			4,0	Krasnodarskaya -99	56,8	59,0	48,3
26				Yaksart	54,9	60,7	49,4
27				Bunyodkor	58,5	63,8	51,8
28				Gozgon	63,5	66,3	56,7
29			5,0	Krasnodarskaya -99	54,1	60,0	48,6
30	Yaksart			60,5	65,8	54,3	
31	Bunyodkor			61,1	67,0	55,3	
32	Gozgon			63	68,7	55,5	
33	6,0		Krasnodarskaya -99	54,9	60,9	49	
34			Yaksart	61,5	66,7	54,2	
35			Bunyodkor	61,8	67,8	55,1	
36			Gozgon	63,8	69,9	56,5	

While the yield of winter soft wheat varieties sown in the medium term (20.10) was significantly higher than that sown in the early period (1.10) and especially in the late period (10.11), the yield of winter wheat grown with late sowing period (10.11) was Krasnodarskaya-99, Yaksart, It was observed that Bunyodkor and Gozgan varieties led to a significant decrease in grain yield. Thus, in the conditions of irrigated light gray soils, the highest grain yield of winter soft wheat varieties Krasnodarskaya-99, Yaksart, Bunyodkor and Gozgan, when sown at the optimal time (20.10) and in moderation (5.0 million germinated seeds / ha) and mineral fertilizers N<sub>210</sub>P<sub>147</sub>K<sub>105</sub> kg/ha when used in norms, 60.0 according to varieties; 65.8; 67.0 and 68.7 ts / ha were grown. The optimal sowing period of winter soft wheat varieties (20.10), the norm (5.0 million seeds) and the norm of fertilizers

(N<sub>210</sub>P<sub>147</sub>K<sub>105</sub> кг/га), a significant decrease was observed when planted early (1.10) or late (10.11).

To sum up, in the conditions of irrigated light gray soils of Kashkadarya region, the optimal sowing time for Krasnodarskaya-99, Yaksart, Bunyodkor and Gozgan varieties of winter soft wheat is 5 mln. when planted in the period (10.11), 6.0 mln. mineral fertilizers when sown at the expense of germinating seeds and at all sowing periods N<sub>210</sub>P<sub>147</sub>K<sub>105</sub> It was found that the application at the rate of kg / ha provided high grain yield. Under these conditions, it was taken into account that early (1.10) or late (10.11) sowing of winter soft wheat varieties led to a decrease in grain yield.

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