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Effects Of Sowing Scheme On Yield Elements And Yield Of Oil Sunflower Varieties

Zulfiya Kamalovna Yuldasheva

Candidate Of Agricultural Sciences, Associate Professor, Department Of Soybeans And Oilseeds, Tashkent State Agrarian University, Uzbekistan

Nargiza Khashimjanovna Ergasheva

Master Student, Department Of Soybeans And Oilseeds, Tashkent State Agrarian University, Uzbekistan

ABSTRACT

In this scientific article, new Buzuluk and Irtish fast-ripening and the local Dilbar varieties of sunflower from the All-Russian Scientific Research Institute of Oilseeds named after V.S. Pustovayt were planted in 70x20, 70x25, 70x30, 70x35 planting scheme, and among the varieties Buzuluk variety showed high results. Dilbar, Buzuluk varieties were found to have high yields in the 70x30 sowing scheme (27.5 and 32.6 ts/ha), and Irtish varieties in the 70x25 sowing scheme (25.6 ts/ha).

KEYWORDS

Oily sunflower, planting scheme, varieties, early ripening, yield, yield elements, seeds, basket.

INTRODUCTION

Sunflower (*Helianthus annuus* L.) is the main oil crop. Seeds of modern varieties and hybrids contain a yellowish color, good taste, containing 50 - 52% or more, 16% protein. Sunflower oil belongs to the group of semi-drying oils, has a high taste, and is superior to

other vegetable oils in terms of nutrition and absorption in the body. The special importance of sunflower oil as a food product is due to its high content of unsaturated linoleic acid, which is characterized by high biological activity. The presence of this acid in the human diet

accelerates the metabolism of cholesterol esters in the body, which has a positive effect on health.

Sunflowers are planted in one row with a row spacing of 90 cm. Seedlings are 90x20, 90x30, 90x40 cm thick and are planted at the rate of 27,37,55 thousand germinating seeds per hectare, respectively. When calculated before harvest, the thickness of seedlings is from 3 to 9 pieces per square meter [1].

Sunflowers are planted in one row with a row spacing of 70 cm. Seedlings are 70x20, 70x30, 70x40 cm thick and are planted at the rate of 28.42.56 thousand germinating seeds per hectare, respectively. Pre-harvest seedling thickness is 3 to 9 seedlings per square meter [5].

The optimal seedling thickness of varieties and hybrids in the cultivation of sunflower in different soil climatic conditions of Krasnodar region depends on the length of the growing season and ranges from 30 to 60 thousand hectares during the harvest [3].

The scientists noted that the increase in the seedling thickness of sunflower led to an increase in plant stems and an increase in seed oil content, but reduced the diameter of the baskets and the mass of 1,000 seeds. For the confectionery variety of sunflower in the Omsk region, the optimal number of plants per 20-30 thousand pieces/ha can be considered. For maximum oil yield, the number of seedlings per hectare for oil-bearing varieties of sunflower should not exceed 70,000 [2, 4, 6, 7].

THE OBJECT AND METHODOLOGY OF THE EXPERIMENT

Field experiments were conducted in 2020 in the conditions of the typical gray soils of the experimental field of the "Center for Innovative Developments and Consulting in

Agriculture" of Tashkent State Agrarian University. The total area planted experimentally is 0.20 ha. In the experiment, new varieties of sunflower "Dilbar" (control variety) and new Buzuluk, Irtysh varieties, which were brought from the All-Russian Scientific Research Institute of Oilseeds named after V.S. Pustovoyt of the Federal State Budget Scientific Institution "Federal Scientific Center" was planted in the scheme of 70x20, 70x25, 70x30, 70x35. Before plowing the soil, mineral fertilizer was applied in the amount of P80 K60 and N75 kg of nitrogen per hectare along with planting, N75 kg in the basket formation phase, and 50 kg in the flowering phase.

EXPERIMENTAL RESULTS AND THEIR DISCUSSION

It was found that the sowing scheme has a positive effect on the size of baskets of sunflower, the number of seeds in it, the weight of seeds, the percentage of yield of empty seeds. The basket width of the control variety Dilbar was 70x35 in the planting scheme - 24.0 cm and was found to be larger than the baskets in the other planting schemes in the experiment. In the 70x25 and 70x30 planting schemes, the width of the baskets was found to be the same width, but in the 70x20 planting scheme, it was observed that it was 20.4 cm and had a smaller size of 2.0–3.6 than other planting schemes in the experiment.

The width of the baskets in the 70x30 planting scheme of the Buzuluk variety was 0.8-1.2 cm larger than in the 70x20, 70x25, and 70x35 planting schemes. In the Irtysh variety, baskets were found to be slightly larger than 20.0 cm in the 70x20 and 70x30 planting schemes and 22.3 and 22.7 cm in the 70x25 and 70x35 planting schemes.

The baskets of Dilbar and Buzuluk varieties were found to be larger than the Irtish varieties.

The number of seeds in one basket of the Buzuluk variety was greater than the number of seeds in the baskets of the Dilbar and Irtish varieties, and their weight was also heavier. In the 70x35 sowing scheme of the Buzuluk variety, the average number of seeds was 1987.8 and their weight was 127.8 g. The 70x30 planting scheme was 141 more than the seeds

in the basket, but they were found to weigh 6.4 grams. The seeds in the 70x20 planting scheme were 232.0 more than the seeds in the basket, but their weight was 3.0 grams lighter. The seeds in the basket in the 70x25 sowing scheme were found to be at least 1371.0 in the sowing schemes and weighed 118.2 grams.

The same pattern was observed in the Dilbar control variety, with a large number of seeds in the 70x30 sowing scheme, but lightweight and minimal seeds in the 70x20 sowing scheme.

Table 1
Yield and yield rates of sunflower varieties

Nº	Varieties	Planting scheme	The width of baskets, cm	Number of seeds in one basket, pcs	Weight of seeds in the basket, gr	Empty seeds in the basket, %	Yield, ts/ha	Weight of 1000 seeds, gr
1	Dilbar (st)	70x20	20,4	1199,0	107,0	4,4	26,3	86,8
2		70x25	22,4	1221,3	124,8	4,2	25,3	89,0
3		70x30	22,5	1347,3	116,8	7,2	27,5	101,4
4		70x35	24,0	1211,2	129,7	3,1	25,6	110,1
5	Buzuluk	70x20	22,6	1755,8	130,8	1,6	28,0	65,9
6		70x25	22,6	1371,4	118,2	2,1	30,5	66,5
7		70x30	23,4	1846,8	134,2	1,5	32,6	77,2
8		70x35	22,2	1987,8	127,8	4,9	31,2	82,4
9	Irtish	70x20	20,5	1112,8	90,3	11,8	25,0	77,6
10		70x25	22,3	1706,8	107,3	1,5	26,5	79,6
11		70x30	20,0	1010,1	79,0	5,3	24,4	88,8
12		70x35	22,7	1161,5	126,2	4,1	24,0	106,8

1706.8 seeds with an average weight of 1073 grams were taken from the baskets of Irtish variety 70x25 sowing scheme and the weight was 107.3 grams. In the 70x35 sowing scheme, 1161.5 seeds were taken from the baskets and weighed 126.2 grams, which is 545.3 more than the seeds in the 70x25 sowing scheme, which had more seeds, but the seeds weighed 18.9

grams lighter, in other schemes the seeds were observed to be less and lighter in weight.

From these data, it can be seen that according to the planting schemes, the weight was lighter when the seeds were large, but heavier when the number of seeds in the basket was small. In terms of number and weight of seeds,

the Buzuluk variety was superior to Dilbar and Irtish varieties.

The number of empty seeds in the basket was 7.2% in the 70x30 sowing scheme of the Dilbar control variety, 4.9% in the 70x35 sowing scheme of the Buzuluk variety, and 11.8% in the 70x20 sowing scheme of the Irtish variety, which differed from other sowing schemes in the experiment.

The weight of 1000 seeds was found to be heavier on all planting schemes than the experimental varieties in the Dilbar control variety. 86x grams in the 70x20 sowing scheme, 89.0 grams in the 70x25 sowing scheme, 101.4 grams in the 70x30 sowing scheme, and 110.1 grams in the 70x35 sowing scheme, and it was found to be 20.9, 22.5, 24.2, 27.7 grams heavier than Buzuluk and 9.2, 9.4, 12.6 and 3.2 grams heavier than Irtish. This means that the seeds of Dilbar and Irtish varieties are larger and heavier than the seeds of the Buzuluk variety.

The yield of the Dilbar control variety was 27.5 ts/ha from the 70x20 sowing scheme and was 1.2-2.2 ts/ha higher than the experimental sowing scheme. In the 70x30 planting scheme, the yield was 32.6 ts/ha and 4.6-1.3 ts/ha higher than in other schemes. In the Irtish variety, the yield was higher on the 70x25 planting scheme and was found to be 1.5-2.5 ts/ha higher than on other schemes.

Among the varieties, high yields were obtained from the Buzuluk variety according to Dilbar and Irtish navigation according to planting schemes. It was found the yield of Dilbar variety and Irtish variety is higher to 1.7, 5.2, 5.1, 5.6 ts/ha and 3.0, 4.0, 8.2, 7.2 ts/ha respectively compared to planting schemes.

CONCLUSION

The positive effect of planting schemes on yield elements and productivity of Dilbar, Buzuluk, and Irtish varieties studied in the experiment was observed and Dilbar, Buzuluk varieties were found to have high yield elements and yields in the 70x30 planting scheme (27.5 and 32.6 ts/ha), while Irtish varieties were found to be high in the 70x25 planting scheme. Among the varieties, all indicators were observed to be high in the Buzuluk variety.

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