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INFLUENCE OF THE MULTIPLICITY OF VARIETAL CLEANING ON THE QUALITY OF SUNFLOWER SEEDS AT DIFFERENT PLANT DENSITY

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Annotation: In the article is shown the influence to sorts quality of seeds grown in primary nursery for the production of elite seeds of sunflower with the density of 20,4 thousand, 23,8 thousand, 28,6 thousand, 35,7 thousand and sorts cleanness one time before blossoming, one time in mass blossoming, two times in riping period, one time before harvesting totally five times.

Key words: sunflower, primary seeding, selective elite, reproduction nursery, appreciation on generation, super elite, density stability, production index, quantity of sort cleanness, sort purity, planting quality of seeds.

Introduction.

Sunflower oil is a quality oil in terms of its nutritional value (100 g of oil is 329 kcal), fatty acid composition, richness of useful biologically active substances, vitamins (A, D, E, K), phosphatides, glycerides. Sunflower is grown in more than 100 countries of the world on an

area of more than 100 million hectares for oil production. Sunflower seeds contain 55% oil, which is environmentally and biologically pure and is mainly used for human consumption.

In order to fully implement the provision of the population of the Republic with edible vegetable oil, the President of the Republic of Uzbekistan Sh.M. Mirziev adopted resolutions to increase the area of oilseeds, including in paragraph 3 of the Action Strategy for the Development of the Republic of Uzbekistan for 2017-2021 and in the Presidential Decree of January 19 2018 for No. 418 "On additional measures for the accelerated development of the oil and fat industry" provides for the cultivation of soybeans, sunflower and maskhar on large areas. Considering all this, the area of sunflower has increased in the republic in recent years. In 2020, it is planned to cultivate sunflower on 40,000 hectares of irrigated land. However, it is necessary to provide 40 thousand hectares of irrigated land with seeds.

The bulk (90%) of vegetable oil imported into the republic is sunflower oil. The light-loving sunflower plant in the irrigated conditions of our republic makes it possible to obtain high yields not only as the main crop, but also as a secondary crop [1; -s. 11-12, 11; -s. 161-164].

The highly ecological plasticity of sunflower makes it possible to obtain high yields in various soil and climatic conditions, including conditionally irrigated lands and even on dry land. [12; -450-453-164 s.].

As our long-term studies show, the soil and climatic conditions of the Samarkand region of the Zeravshan valley of Uzbekistan are considered favorable for the growth and development of sunflower, which provides more than 30 c / ha of sunflower seed yield [1; -s.11-12].

In general, the presence in the republic of 1.1 - 1.2 million hectares of land freed annually from winter grain crops means that the potential for re-sunflower cultivation is high. However, the provision of such an area with high quality seeds is considered a very important task today. Since the supply of such a large area with high quality seeds is not fully established, seeds for sowing are imported.

In Russia, Ukraine, Moldova and Kazakhstan, elite sunflower seeds are cultivated according to the 4-year scheme proposed in the 70s of the XX century by Academician V.S. Pustovoit. [five; -s. 238-239]. According to this scheme, the production of elite seeds is carried out as follows. Initial work is carried out in elite seed-growing. Here, on super-elite fields, the

following are carried out: 1) Selection of plants of a typical variety. The selection of elite plants is carried out according to the height of the plants, the flexibility of the stem, the flatness of the surface of the baskets, the concavity or convexity of the baskets, the uniformity of the color of the grains and other indicators. The seeds of these plants are not sown in the field. In laboratories, oil content, shell yield, husk content, panzer content of seeds are determined. 2) The best seeds that have passed the analysis are grown by the families in the nursery for evaluating the progeny of the plants. Here the family of pairs is compared to the standard. That is, two families are compared to the same standard. The seeds of plants from a super-elite field are used as a standard [5; -s 238-239]. In this nursery, very serious work is being done to evaluate the offspring in duplicate. In the nursery, by offspring, such indicators are determined as the similarity of growth organs, the degree of infection of plants with diseases in families, the diameter of the baskets, the mass of 1000 seeds, the amount of oil in the grains, the yield of the shell and the panzer of seeds. The seeds of plant families that turned out to be better than the standard are transferred to the seed nursery. The seed nursery fulfills the task of the super elite 3) Superelite (seed nursery). In the seed nursery, the seeds are sown in a square-nesting way according to the scheme 70x70x1 cm and one plant is left in each nest [4; -s. 73-74 and 6; -s.15-17].

The main purpose of the work carried out in the sunflower seed nursery is to identify the purity of seeds of varieties. In the primary seed production of sunflower, in order to preserve the purity, the isolation distance should be at least 1500 meters [3; -s.45-51].

In this order, the following works are carried out for the production of elite seeds. In the seed nursery, special attention is paid to improving the variety of seeds. Varietal cleaning is carried out 3 times: once before flowering, once during mass flowering and once before harvesting. During the first and second cultivar cleaning, plants with signs of the disease, branchy plants, tall and undersized plants are rejected. And also in the flowering phase, plants with small baskets and seeds, differing in color and not meeting the standard, affected by diseases and pests are rejected. In this case, the bushes are not completely taken out, but only inflorescences or baskets are cut off and taken out [9; -s.85-87].

Purpose of the study:

Determination of the efficiency of carrying out 4 and 5-fold varietal cleaning in comparison with 3-fold, the advantages of the sowing schemes 70x60x1 and 70x50x1 or the planting density of 28.5 and 35.7 thousand bushes per 1 hectare compared to the scheme 70x70x1 cm or the planting density of 20.4 thousand . bushes per 1 ha for growing sunflower seeds that meet the requirements of grade and high quality under irrigated conditions of the Republic of Uzbekistan.

Materials and methods:

Field experiments were carried out in the Akdarya region in the fields of the training and experimental farm of the Samarkand Institute of Veterinary Medicine. The soils of the experimental plot are meadow-sierozem. The depth of the groundwater is 4-5 m. The soils are poorly supplied with nutrients. The amount of humus in the arable horizon is 1.15%, total nitrogen 0.97%, phosphorus 0.17%, exchangeable potassium 198 mg / kg.

As an object, seeds of the 2nd reproduction of an early-ripening sunflower variety SamSKHI 20-80 were used. The seeds were sown according to the following schemes: 70x40x1 cm; 70x50x1 cm; 70x60x1 cm; 70x70x1 cm, after weeding, one plant was left in each nest.

During the growing season, varietal cleaning was carried out: 1 time before flowering, 1 time during the period of mass flowering, 2 times during the ripening period and 1 time before harvesting only 5 times. The area of the plots was 112 m2, the experiments were repeated 3 times. The experiments were carried out according to the generally accepted methods of the All-Russian Research Institute of Oilseeds, Research Institute of Plant Cultivation of Uzbekistan (2009), and the State Commission for Variety Testing of Agricultural Crops (1972).

In 2015-2017. for field experiments, seeds were sown on April 1-2 using markers prepared in advance from boards. The sprouting was observed on April 10. Of the applied fertilizers (nitrogen 250 kg / ha, phosphorus 180 kg / ha, potassium 220 kg / ha from the annual rate), potassium and forsfor were applied completely before sowing. 20% nitrogen was introduced at sowing. The rest was introduced 30% during the germination period and 50% before the

formation of baskets. Together with the introduction of fertilizers during the germination and formation of baskets, cultivation was carried out. During the growing season, 4 waterings were carried out. The seed harvest was harvested on July 16-18 using a 2-phase method.

Research results: As the obtained information showed, with a change in sowing patterns from 70x40x1 cm to 70x70x1 cm, the area of plant nutrition increases from 2800 cm2 to 4900 cm2. With an increase in the feeding area from 2800 cm2 to 4900 cm2, a significant increase in plant height, number of leaves, leaf surface area, and plant productivity was observed. In sunflower plants with a sowing pattern of 70x40x1 cm, starting from the flowering phase, the length of the roots of 10-14 leaves of the shoot was 20-23 cm, the leaf surface was 23-26 cm2 and the total length of the leaves was 43049 cm, as a result of which a shift with the leaves of neighboring plants was observed. It was found that due to compaction, the plants received insufficient sunlight, as a result of which a decrease in photosynthetic processes was observed. In addition, in variants with compacted crops, the plants were affected by fungal diseases. When ripe, the leaves of the lower tiers dried up. As the obtained data of the research results show, with a sowing scheme of 70x40x1 cm, the ripening phase begins 2-3 days earlier compared to sowing according to a 70x70x1 cm scheme. The negative impact of these indicators on plant productivity and seed formation has been established.

Quantitative and qualitative indicators of sunflower plants are fully realized with a larger feeding area [6; -s. 238-239].

As the obtained data show, with a sowing pattern of 70x60x1 cm and 70x70x1 cm or with a larger feeding area (4900 sq. Cm and 4200 sq. Cm), good growth and development of plants, as well as high plant productivity, were observed. In these variants, the growing season of plants increased by 2 days, the number of leaves by 2-3 pcs. and the area of the leaf surface of the sheet is 110-125 sq. cm. Seed purity was 92% versus 89% (with the scheme 70x40x1cm) or 3% more, the weight of 1000 seeds was 76 g versus 70 g or 6 g more, laboratory germination was 93% versus 91% or 2% more, seed shell 97.5% against 96.8% or 0.7% more.

However, with the schemes 70x60x1 cm and 70x70x1 cm, there was no significant difference in the growth and development of plants. The sowing and varietal qualities of the seeds obtained in these variants were approximately the same.

The study of the multiplicity of varietal cleaning showed: the first varietal cleaning was carried out during the formation of sunflower baskets. With this varietal cleaning, tall and undersized plants, plants with bent stems, non-typical plants and plants damaged by diseases were culled. But, in order not to affect the density of the plants, the bushes were left, only sunflower baskets were removed. After the first varietal purification, the purity of the variety was 90.4-95.2%.

The second varietal cleaning was carried out during the mass flowering: plants were culled that bloomed very late, differing in the color of the flower calyx, inappropriate in the color of the central part of the basket and affected by diseases. As a result of the second varietal cleaning, the typicality of the variety reached 93.5-97.4%. During the third varietal cleaning, during the period of seed ripening, plants with inappropriate to varietal characteristics in the shape of baskets were rejected, taking into account the convexity and concavity of the surface of the baskets. After the third varietal cleaning, the typicality of varieties was 95.1-98.6%. At the fourth varietal cleaning during the period of full ripeness, plants with inappropriate baskets in shape, late maturing and baskets with different colors of seeds, as well as baskets damaged by diseases were rejected. As a result of the fourth varietal cleaning, depending on the plant density, the typicality of the variety was 96.4-99.7%. The fifth varietal cleaning was carried out along with the harvest. The seed crop was harvested using a two-phase method. For this, when the moisture content of the seeds in the basket is 15-20%, the baskets were half-cut and bent down to a length of 25-30 cm, which remained on the field until the moisture content of the seeds reached 8-12%. In the second phase, the baskets were collected and separated from the seeds. During the collection of the baskets and the separation of seeds, they were selected for their typicality. During the fifth grade cleaning, 99.7 or 100% grade typicality was achieved.

A significant effect of the amount of varietal cleaning on the typicality of seeds, armor and on the weight of 1000 seeds, an increase in laboratory seed germination was established. It

was also found that the purity of the variety increased by 3-4%, the mass of 1000 seeds per 2 g, laboratory seed germination by 1%. The positive effect of 5-fold cleaning in comparison with 4-fold in the seed nursery was almost not observed. The results of the 5th and 4-fold cleaning were almost identical.

Table Influence of the multiplicity of varietal cleaning on the quality of sunflower seeds at different plant densities in the breeding nursery

Sr. no.	Sowing scheme, cm	Standing density, thousand / ha	Number of varietal cleanings	Typical variety%	Seed purity %	Weight of 1000 seeds, g	Laboratory germ-tin,%	Carapace , %
	1		2		4	5	6	8
1	70x40x1	35,7	1раз	90,4	89	70	91	96,8
		35,7	2раза	93,5	92	73	94	97,2
		35,7	3раза	95,1	94	76	96	98.1
		35,7	4 раза	96,4	95	77	97	98,5
		35,7	5 раз	96,8	96	78	97	98,8
			$НСР_{05}$	1,5	1,9	-	-	1,1
2	70x50x1	28,5	1раз	92,3	91	73	92	97,1
		28,5	2раза	95,5	94	77	94	98,1
		28,5	3раза	96,5	95	78	96	99,0
		28,5	4 раза	97,1	96	79	97	99,3
		28,5	5 раз	98,3	96	80	97	99,4
			$НСР_{05}$	1,1	1,6	-	-	1.0
3	70x60x1	23,8	1раз	95,1	92	75	93	97,3
		23,8	2раза	97,4	95	78	95	98,4
		23,8	3раза	98,5	97	80	97	99,1
		23,8	4 раза	99,7	97	82	98	99,4
		23,8	5 раз	99,7	97	83	98	99,4
			$НСР_{05}$	1,2	1,4	-	-	0,8
4	70x70x1	20,4	1раз	95,2	92	76	93	97,5
		20,4	2раза	97,4	95	79	95	98,6
		20,4	3раза	98,6	97	80	97	99,2
		20,4	4 раза	99,7	97	82	98	99,4
		20,4	5 раз	99,7	97	83	98	99,4
			$НСР_{05}$	1,0	1,3	-	-	0,8

Conclusion:

In the primary seed production of sunflower, in order to obtain seeds that meet the regulatory requirements in breeding nurseries and in the fields of the elite, it is advisable to grow plants according to the scheme 70x60x1xcm or with a plant density of 23.8 thousand bushes / ha. In addition, when cultivating sunflower according to the 70x60x1cm scheme, irrigated lands are more efficiently used in comparison with the 70x70x1cm scheme. Carrying out 4-fold varietal cleaning during the growing season ensures 100% typicality compared to 3-fold (99%).

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