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ORGANIZATION OF PRIMARY SAFFLOWER SEED PRODUCTION

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Abstract: Currently, due to the lack of a scientifically-based seed production system for oilseed crops, a portion of each year's harvest is being re-sown as seed stock for the following year. In safflower cultivation, insufficient attention to its morphological and biological characteristics, combined with the absence of a systematic approach to primary seed production, has led to an observed decrease in gross yield, rather than an increase, despite the expansion of cultivated areas. This article provides information on establishing a primary seed production system for safflower and outlines the main requirements for seed quality.

Keywords: Variety, rainfed, crop, safflower, seed production, varietal purity, generation, family, line, standard, productivity.

Introduction

Currently, the population of the Republic is engaged in the production of food and paint and varnish products to provide local raw materials and strengthen the fodder base for livestock, poultry, and fish farming, as well as to enrich the assortment, one of the main tasks is to create new early-ripening, high-yielding safflower varieties with high oil content in seeds, resistant to various environmental stress factors, and to improve cultivation agrotechnology and implement it into production. The cultivation of oilseeds is of great importance in ensuring food security and meeting the population's needs for oil and fat products.

The safflower crop is the main crop widely cultivated in the Samarkand, Tashkent, Jizzakh, Kashkadarya, and Surkhandarya regions, which correspond to the rain-fed regions of our republic. Seed production is an important measure in increasing the yield of agricultural crops in our country and sharply increasing the volume of agricultural products; seeds prepared using this method increase crop yields by 25-30% [1].

To provide production with high-quality seeds, it is necessary to ensure the establishment of a primary seed production system and the use of scientifically grounded agrotechnical measures. In addition to conducting scientific research on oilseed crops in the rain-fed areas of our republic,

engaging in their seed production is of great importance. However, due to the fact that a clearly scientifically grounded seed production system has not been fully developed in the field of oilseed crops, the quality of seed products grown annually is declining, and as a result of the re-sowing of these seed products in subsequent years, yield indicators remain low. As a result, due to the low yield of oilseed crops and the lack of high-quality varietal seeds, only 40-50% of the potential yield of these crop varieties is being grown [2].

By organizing a seed production system for high-yielding varieties of oilseed crops with high oil content, resistant to drought and high temperatures, it will be possible to increase the yield of oilseed crops in the republic and introduce them on large areas. It is known that maintaining a seed production system for oilseed crops is crucial for ensuring the purity and yield of the created varieties; elite seeds are prepared, followed by reproduction seeds [3].

Currently, in the preparation of oilseed seeds, according to the state standards Qz DST 2823:2014, seed quality, purity, and other regulatory indicators have been established. According to the regulatory requirements for the variety and sowing qualities of seeds, standard indicators were used: original (OU), elite (EU), reproduction for seed purposes (RU), and for the production of commercial products (RUT) [4].

Materials and methods. At the Research Institute of Rainfed Agriculture, seed production of oilseeds was carried out on a systematic basis based on a primary seed production scheme, regulatory agrotechnical measures, and recommendations. When distinguishing varieties from each other and analyzing their morphological features, methodological guidelines for conducting research on the differences, similarity, and stability of safflower (Carthamus tinctorius L.) were used.

Results and discussion: The conducted research has been included in the State Register of Agricultural Crops and recognized as promising; the primary seed production system for safflower varieties Milyutin-114, Gallaorol, Jizzakh-1, and Moydor has been established.

During the experimental year, the primary seed production system for safflower varieties Milyutin-114, Gallaorol, Jizzakh-1, Moydor, and Tikandar, created by the laboratory and included in the State Register of Agricultural Crops, was fully established; 400 lines of each variety were planted in the 1st-year generation test nursery, and 200 lines were studied for the 2nd-year generation test nursery.

The timely and high-quality implementation of agrotechnical measures required in the nurseries has been ensured. During field observations, the varietal characteristics of all planted families, their general development period, early maturity, pest resistance, productivity, and main morphological traits were carefully studied and evaluated based on phenological observations.

Selection of safflower varieties in experimental nursery of the I-II generation

information on the obtained lines

(LDITI Gallaorol 2025).

					Broken lines

No.	Name of varieties	Number of lines, pcs.	Sown area, m2	Selected lines quantity, units	quantity, units
I- year offspring trial nursery					
1	Milyutin-114	400	1	375	25
2	Gallaorol	400	1	346	54
3	Jizzakh-1	400	1	360	40
4	Moydor	400	1	355	45
5	Tikandor	400	1	380	20
	Total	**2000**	**0,20**	**1816**	**184**
II- year offspring trial nursery					
1	Milyutin-114	200	5	155	45
2	Gallaorol	200	5	140	60
3	Jizzakh-1	200	5	168	32
4	Moydor	200	5	152	48
5	Tikandor	200	5	176	24
	Total	**1000**	**0,50**	**791**	**209**

As can be seen from the data in the table, during the research year, the economically valuable traits and properties of the studied lines were studied in comparison with the standard variety "Milyutin-114" by planting 400 individually selected high-quality lines of the "Milyutin-114," "Gallaorol," "Jizzakh-1," "Moydor," and "Tikandar" varieties separately on 1 m2. In the experiments, the number of seedlings, branching, budding, flowering, maturation dates, and disease and pest infestation were evaluated.

As a result of the analysis, non-varietal forms of the lines were rejected and removed based on negative selection. When assessing the damage to biotic factors, including diseases and pests, of the lines studied in the first-year trial nursery, a total of 1,816 lines were selected from a total of 2,000 lines studied in the first-year trial in terms of disease resistance and other high-yield traits. Lines with low yields and other economically valuable traits were declared unsuitable. A total of 184 of these unsuitable lines were found.

II- in the experimental nursery of the 2017 generation, 791 lines were selected for yield and other productive traits, and 209 lines with low yield and other economically valuable traits were declared unsuitable. Each selected plant was analyzed, and the seeds were manually cleaned and placed in separate bags according to the sequence number.

Conclusion. As a result of the systematic and correct placement of initial seed production of regionalized and promising safflower varieties in all seed nurseries, as well as the timely and high-quality implementation of all agrotechnical measures, high yields and other quality indicators were achieved, which laid the foundation for the preparation of high-quality seeds for future production.

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