

(58.7%) in the region is the Cruise variety of domestic selection.

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FEATURES OF AGRO-TECHNICAL METHODS OF GROWING SAFFLOWER DYE IN THE CONDITIONS OF SOUTHERN REGION OF UKRAINE

У статті подано біологічні особливості та особливості вирощування сафлору красильного в умовах південного степу України. Вказано перелік проблем в процесі вирощування сафлору та його використання в народному господарстві. Надано рекомендації щодо покращення умов вирощування та збільшення рівня врожайності.

Ключові слова: сафлор красильний, чортополох, технологія вирощування, Азія, пряме комбайнування, сівба, збирання.

The article presents the biological features of growing safflower dye in the conditions of the southern steppe of Ukraine. The list of problems in the process of

growing safflower and its use in the national economy is indicated. Recommendations for improving growing conditions and increasing yields are given.

Key words: *safflower dye, thistle, cultivation technology, Asia, direct combining, sowing, harvesting.*

With a significant increase in world population, the demand for vegetable oils, which can be used for both food and industrial purposes, has increased and continues to grow. But further increase in vegetable oil production in the southern regions due to the expansion of the area of cultivation of the main oil crop - sunflower is becoming more impossible every year due to the increase of quarantine facilities distributed in sunflower crops and its negative impact on the soil.

Safflower Dye (Latin *Carthamus tinctorius*, Aster family), also known as dye thistle, wild or American saffron - the only cultivated species of the existing sixteen members of the genus *Carthamus*, which is native to Asia Minor. It is one of the oldest oil and dye crops, which has valuable nutritional, technical, medicinal, cosmetic and dietary qualities. Safflower dye has been used by mankind for more than 4,000 years [1].

In terms of cultivation technology, safflower has much in common with sunflower: it is similar in development and structure and is grown in a row crop rotation wedge. The best precursors of safflower dye are winter and spring cereals, sown after perennial grasses or steamed. Placement after sunflower, sugar and fodder beet and sorghum is not allowed. These crops dry out the soil very much. It is recommended to return the safflower to the previous place on the 4th or 5th year [2].

For the South of Ukraine, the limiting factor in obtaining sustainable yields is moisture, so special attention should be paid to resource-saving tillage systems. In the experiments of scientists it was found that the highest yield of safflower can be obtained by using plowing with a depth of cultivation of 25 - 27 cm [3]. The

analysis of yield data of safflower seeds in the experiments of MNAU testifies to the advantage of plowing over disk tillage.

Regarding the timing of sowing, some authors recommend it for the winter, other authors prefer the early spring sowing period. But in fact all of them claim that for the zone of risky agriculture the sowing dates should be early. The dependence of yield on the timing of sowing and falling moisture resources was found in studies of V. Ivanov and V. Tolmachova [4]. The fall of moisture resources to critical at early sowing reached in the phase of "flowering-ripening", and at a later date in other phases - "budding-flowering". At the same time at later planting dates there was a reduction of the growing season by 13- 14 days, which negatively affected the yield of safflower. According to A. Nychporovych [5] sowing density is one of the leading methods of regulating the photosynthetic activity of plants. The level of photosynthetic potential of safflower crops in the experiments of MNAU, on average for 2018-2019, was the highest in the combination with plowing, and the lowest - in disk tillage to a depth of 14-16 cm. The dynamics of net productivity of safflower dye had almost opposite tendencies compared with the indicators of photosynthetic potential of the studied culture. There is no general opinion on the method of sowing, safflower is sown in the usual ordinary way and with a width between rows from 45 to 70 cm.

Agrotechnical measures for the care of agrocenoses of safflower dye are post-sowing rolling with ring rollers ZKKSH-6, harrowing seedlings across rows with the appearance of 4 - 6 true leaves, and on wide-row crops before the branching phase - 1-2 interrow cultivations [6]. Despite the high drought resistance, a number of studies have shown the effectiveness of growing safflower under irrigation.

Harvesting of safflower dye is carried out by direct combining when the seed moisture reaches 10 - 12%. Threshing is started when all the baskets on the plant are browned, and the seeds must harden. Although safflower seeds are not poured out of the basket, but when crops stop, they can crumble from mechanical impact - blows of the reaper blades.

Grain combines of different types (keyboard, rotary) are used for harvesting. The allowable height of the cut stems should be less than 10 cm from the branch of the lower productive shoots. Two-phase harvesting is recommended for large clogging of crops with weeds in the early stages of full maturity. Mowing in the rolls is carried out when 75% of the inflorescences are browned, and after 5 - 7 days when the seeds ripen and the rolls dry up, collection and threshing is carried out.

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