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OPPORTUNITIES FOR CULTIVATION OF WILD FLAX - *CAMELINA SATIVA* (L.) CRANTZ IN THE PRILEP PRODUCTION REGION

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Introduction

Wild or also known as false flax *Camelina sativa* (L.) Crantz, is an annual, self-fertile, oil-bearing plant belonging to the *Brassicaceae* family (Berti et al., 2016). The products obtained from this plant have been used since ancient times in the food, in cosmetic industry for skin care products, soaps, and soft detergents, alternative and veterinary medicine, as well as for the production of biofuels and biolubricants . Interest in this crop has increased in recent years due to the possibility of cultivation as a second crop, the short vegetation period 85-100 days from emergence to harvest (Marjanović 2021), the ability to adapt and grow in stressful conditions, the modest requirements for cultivation on less fertile soils with reduced fertilization and irrigation (Yuan and Li 2020), the relatively high seed yield and oil content in it (Krohn and Fripp 2012). In our country, this culture is not yet grown and there are no literary data from official research about it. The results of this research helped us to determine the most important morphological characteristics and the average seed yield of the two Novi Sad *camelina* varieties and the tendency for its spread and cultivation in the territory of the Republic of North Macedonia

Materials and methods

The research experiment on the wild flax *Camelina sativa* (L.) Crantz was placed on a colluvial-deluvial soil type with a low content of humus and nitrogen and medium availability of phosphorus and potassium. In the experiments, two genotypes of Serbian selection NS Zlatka and NS Slatka, which were created in the Republic of Serbia – Institute of Field and Vegetable Crops in Novi Sad (Marjanović-Jeromela et al. 2016), were tested. The experiment was set up in a randomized block system in three repetitions on the surfaces of the JNU Tobacco Institute - Prilep with coordinates N 41^0 22, 135', E $021^0$30, 707' and an altitude of 677 m. The dimension of the basic plot was 10 m^2, with 8 rows in the plot and an inter-row distance of 0.25 m. Sowing was done on April 8, while harvesting on July 8. The following important parameters were analyzed in this paper: plant height, root length, number of branches per plant, number of pods per plant, average number of plants per m^2 and average seed yield per unit area.

Results and discussion

One of the first morphological characteristics examined was the height of the above-ground part of the plant, which represents the distance from the base of the stem at ground level to its top. In the NS Zlatka variety, the maximum height of the stem was 110 cm, in the three repetitions, while the minimum height was 80 cm. The Novi Sad variety NS Slatka, was distinguished by a maximum height of 101 cm, and a minimum height of 81.5 cm. According to the obtained results, it can be noted that the average height of the variety NS Zlatka is 94.45 cm, while the average heigh of Novi Sad variety NS Slatka 93.58 cm (Tab. 1).

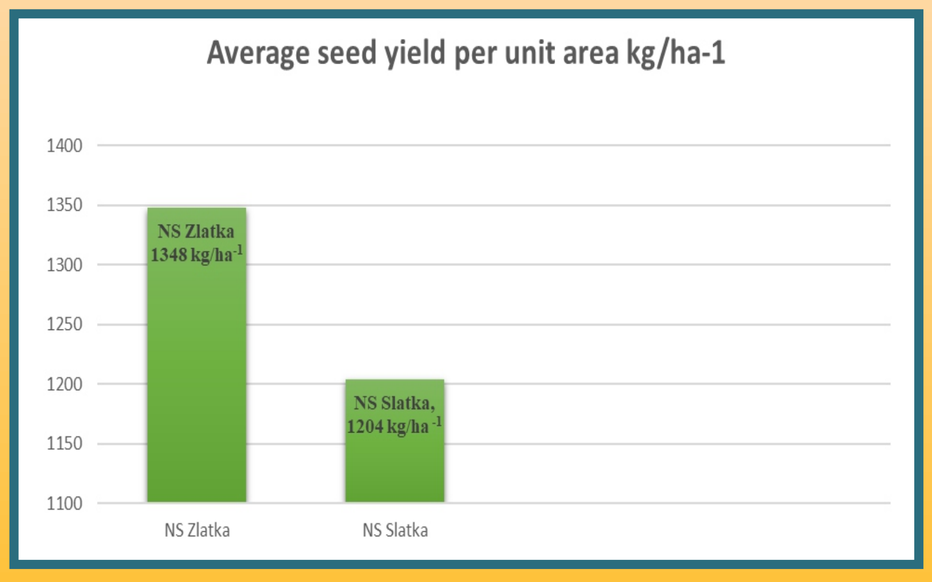
Table 1. Descriptive s for plant height of used Camelina's varieties: maximum value (max), minimum value (min) and average

Varieties	Min	Max	Average
NS Zlatka	80 cm	110 cm	94,45 cm
NS Slatka	81,5 cm	101 cm	93,58 cm

A second morphological characteristic examined is the number of primary lateral branches originating from the main plant stem. The average number of lateral branches at the both varieties NS Zlatka and NS Slatka was 7. According to this morphological characteristic, it can be noted that there are no differences in the number of lateral branches between the two studied varieties (Fig.1).

Figure 1. Number of lateral brunches at NS Zlatka and NS Slatka variety

In the research where the number of pods per plant was manually counted, a maximum number of 289 pods was recorded in both varieties. The average number of pods counted in the variety NS Zlatka was 184 and 164 pods per plant in the variety NS Slatka.The average number of plants per unit area is one of the most significant elements of yield. From the obtained results, it can be noted that the variety NS Slatka has an average number of 7,014,000 plants per ha^{-1}, while the variety NS Zlatka has 6,277,200 plants per $ha^{-1.}$. According to research done in the Prilep region, there is no significant difference in seed yield between the two studied varieties. From Graph 1, it can be concluded that the variety NS Zlatka, gives the highest seed yield, which is about 1348 kg/$ha^{-1,}$ while the second variety NS Slatka, is distinguished by a significant seed yield, which is 1204 kg/ha^{-1}.



Graph 1. Average seed yield per unit area kg/ha^{-1} of two varieties of *Camelina sativa* (L.) Crantz, (NS Zlatka and NS Slatka) cultivated in the Prilep region

Conclution

In view of the presented morphological characteristics of the investigated varieties of *Camelina sativa* (L.) Crantz, it can be concluded that these varieties are quite adaptable to our climatic conditions and there are no major deviations in terms of the average seed yield. Also, there are several necessary prerequisites for the introduction of this plant species into production, such as: enrichment of collections with new genotypes of wild flax, higher location and more years of practical research in order to assess agronomic and quality properties, crossing in selected varieties for optimal sorting and creating genotypes. The obtained results of this research can greatly help for the introduction, testing and development of other more profitable varieties of this oil-bearing crop in different regions of R. North Macedonia.

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