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EFFECTS OF SOWING NORMS ON GERMINATION IN FIELD CONDITION OF CAREPT MUSTRAD (BRASSICA JUNCEAE CZERN) VARIETY SEEDS

Abstract: It was found that the seeds of Carept mustard (*Brassica juncea* Czern) of Nika, Gorlinka and Yunona varieties influenced sowing norms in field conditions. Germination of mustard seeds in field conditions was 82.5-83.8% in Nika, 84.0-85.1% in Gorlinka and 85.6-86.5% in Yunona. Relatively high rates were observed in the variants sown with 1.5 million seeds per hectare, which is 0.3-1.3% higher than the variants sown with 1.0 and 2.0 million seeds per hectare.

Key words: Mustard, varieties, seeds, sowing norms, germinability.

Language: English

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Introduction

Carept mustard (*Brassica juncea* Czern) is not demandable to external conditions, resistant to short-term frost and drought, a long day plant. The growth period depends on the geographical region. In the northern region, the growth period is shortened. In general, the growth period lasts 70-115 days. The seeds germinate at 2-3°C. It can withstand -3°C during germination and -7-9°C and below during leaf formation. The seeds germinate after receiving 121% moisture [9].

The degree to which the problem has been studied.

When most varieties of mustard are grown for seed yield, the optimal sowing rate is 7-8 kg / ha (at the rate of 1.3-1.5 million germinated seeds). In the conditions of the Republic of Udmurt in 2017, in the experimental field of the Udmurt Agricultural Research Institute, when planted in norms 2.0, 2.5, 3.0, 3.5 and 4.0 million pieces of mustard variety "Raduga" per hectare (12-24 kg /), due to lack of heat, the vegetation period of the plant increased significantly and the period from germination to full

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flowering was 48 days. The highest yield of green mass was obtained from 3.0, 3.5 and 4.0 million seeds per hectare (11.14; 11.60 t / ha) [5].

It is necessary to determine the rate of sowing depending on the degree of moisture content of the soil in the area planted with mustard and the amount of weeds. In well-drained areas, the sowing rate of mustard is 2.5-3.0 million seeds per hectare, and in relatively low-moisture areas - 1.5-2.0 million seeds per hectare [6, 7].

In the researches which conducted in Kalmakstan, the yield of Carept mustard was 20.0 c / ha when sown with 2.5 million germinated seeds per hectare, and when sown with 3.0 million germinated seeds per hectare decreased by 2.0 c / ha compared to the planted option 2.5 million seeds per hectare. In the variant sown with 2.0 million seeds per hectare, the yield was 4.0 c / ha less than in the variant sown with 2.5 million seeds per hectare [1, 3].

Materials and methods

Our research was conducted in 2020-2021 in the conditions of typical sierozem soils of Tashkent region, and the effect of sowing norms on field germination of seeds of Carept mustard (*Brassica juncea* Czern) was studied. In our research, the norms of sowing mustard to 1.0, 1.5, 2.0 million pieces / hectare were tested.

The experiment included 9 options, each plot consisted on 60 m² area, of which 30 m² were taken into account. Four replications were conducted and the total area of the experiment was 0.216 hectares.

The research was conducted in the field and in the laboratory, in which the placement of field experiments, calculations and observations were carried out on the basis of "Methods of field experiments", plant analysis "Methods of state variety testing of agricultural crops" [2, 4, 8].

In the experiment, the varieties of Carept mustard (*Brassica juncea* Czern) "Nika", "Gorlinka"

and "Yunona" in the first ten days of March at the rate of 1.0, 1.5, 2.0 million seeds per hectare planted at depth 2-3 cm.

Result and discussion

In our research, it was found that the seeds of spring mustard varieties "Nika", "Gorlinka" and "Yunona" affected the germination rates in the field.

It should be noted that in our study, mustard varieties were planted on March 4, the germination rate of seedlings began 6-7 days after planting, and observations were continued every 2 days.

The highest germination rates of mustard seeds in the field were observed in all varieties with 1.5 million seeds per hectare. In the first term of observation, germinable seeds were found to be 13.6% in Nika variety, 13.5% in Gorlinka and 13.8% in Yunona. It was found that the germination of mustard seeds in the variants with 1.0 million seeds per hectare was 13.0-13.2%, while in the variants with 2.0 million seeds per hectare was 13.3-13.6% (Table 1).

In the third period of observation (March 15), the above figures, Where sown with 1.0 million seeds per hectare were 51.9% for Nika, 50.7% for Gorlinka and 52.3% of Yunona seedlings sprouted. It was found that the germination of mustard seeds in the variants with 1.5 million seeds per hectare was 51.6-53.4%, while in the variants with 2.0 million seeds per hectare sprouted 51.0-52.8%.

According to the results of the fourth period of observations (March 17), in the variant 1.0 million seeds per hectare, the number of mustard seeds per hectare was 71.3% in the Nika variety, 73.5% in the Gorlinka variety and 74.6% of Nika variety seedlings sprouted. In the variants sown with 1.5 million seeds per hectare, the germination of mustard seeds was 72.4-75.3%, while in the variants with 2.0 million seeds per hectare, 71.7-75.0% of seedlings sprouted.

Table 1. Influence of sowing norms on field germination of seeds of Carept mustard (*Brassica juncea* Czern), % (2021)

№	Mustrad cultivars	Sowing norms, mln.pcs/ha	Observation dates				
			11.03.	13.03.	15.03.	17.03.	19.03.
1	Nika	1,0	13,2	27,1	51,9	71,3	82,4
2		1,5	13,9	28,0	52,8	72,4	83,8
3		2,0	13,6	28,4	52,3	71,7	83,2
4	Gorlinka	1,0	13,0	26,6	50,7	73,5	84,0
5		1,5	13,5	27,4	51,6	74,6	85,1
6		2,0	13,3	27,1	51,0	74,1	84,8
7	Yunona	1,0	13,1	29,3	52,3	74,6	85,7
8		1,5	13,8	30,1	53,4	75,3	86,5
9		2,0	13,4	29,6	52,8	75,0	86,1

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According to the results of the last period of observations (March 19), 1.0 million seeds per hectare of mustard seeds were sown in Nika 82.4%, in Gorlinka 84.0%, in Yunona 85.7% of seedlings sprouted. It was found that the germination of mustard seeds in the variants with 1.5 million seeds per hectare was 83.8-86.5%, while in the variants with 2.0 million seeds per hectare germinated 83.2-86.1%.

Conclusion

It was found that the seeds of Carept mustard (*Brassica juncea* Czern) of Nika, Gorlinka and

Yunona varieties influenced sowing norms in field conditions. Germinability of mustard seeds in field conditions was 82.5-83.8% in Nika, 84.0-85.1% in Gorlinka and 85.6-86.5% in Yunona. Relatively high rates were observed in the variants sown with 1.5 million seeds per hectare, which is 0.3-1.3% higher than the variants sown with 1.0 and 2.0 million seeds per hectare.

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