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DURATION OF THE GROWING SEASON OF MEDICINAL CAMELINA VARIETIES

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Abstract. The article describes the effect of seed sowing rates on the duration of the growing season and the development phases of winter camelina varieties under irrigated soil and climatic conditions of Surkhandarya region. It was found that, when cultivating winter camelina, the soil and climatic conditions and hydrometeorological conditions of the cultivation area affect both the development phases and the entire growing season, whereas sowing rates do not have a significant effect. Under irrigated soil conditions of Surkhandarya region, when seeds of winter camelina varieties were sown on October 15, the growing season of the Penzyak and Karat varieties was 169-214 days, respectively.

Keywords: camelina, variety, Penzyak, Karat, seed, sowing rate, winter hardiness, survival rate, plant density.

Abstract. The article highlights the influence of seed sowing rates on the duration of the vegetation period and development phases of winter camelina varieties under irrigated soil and climatic conditions of Surkhandarya region. It was established that the soil-climatic and hydrometeorological conditions of the sown area affect the timing of development phases and the whole vegetation period in winter camelina cultivation, while sowing rates do not exert a significant influence. When seeds were sown on October 15 under the irrigated soil conditions of Surkhandarya region, the vegetation period of the Penzyak and Karat varieties was 169-214 days, respectively.

Keywords: camelina, Penzyak, Karat, seeds, sowing rate, development phases, vegetation period.

Abstract. The article highlights the influence of seed sowing rates on the duration of the growing season and the development phases of winter camelina varieties under irrigated soil and climatic conditions of Surkhandarya region. It was found that the soil-climatic and hydrometeorological conditions of the sown area affect the development periods and the entire growing season in winter camelina cultivation, while sowing rates do not have a significant effect. When seeds were sown on October 15 under irrigated soil conditions of Surkhandarya region, the growing season of the Penzyak and Karat varieties was 169-214 days, respectively.

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Relevance of the topic**.** In irrigated areas, determining the winter hardiness of crops established in autumn and its effect on yield is considered an important factor. In the Republic, the development of agrotechnologies for cultivating medicinal plants for public health, and the production of medicines based on natural products, are among the urgent issues. The Decree of the President of the Republic of Uzbekistan No. PF-139 dated May 20, 2022, "On measures to create a value-added chain through effective use of the medicinal plant raw-material base and support for processing," sets out a number of measures aimed at the effective use of the medicinal plant raw-material base, the wider application of medicinal plants in disease prevention and treatment, the

organization of deep processing by supporting business entities establishing cultivated plantations of medicinal plants, and the creation of a value-added chain1.

Degree of study of the topic. V.V. Zubkov [1; p. 16] and A.A. Kshnikatkina [2; pp. 15-16] noted that the duration of the camelina growing period depends on sowing time and the meteorological conditions of spring and summer. According to T.Ya. Prakhova [3; pp. 783-784], P.A. Chekmarev [4; pp. 3-5], and others, long-term experience in cultivating camelina in Russia's Volgograd region shows that under different hydrothermal conditions it usually matures in the second ten-day period of July. According to the research results of P.A. Chekmarev and A.A. Smirnov [5; pp. 3-5], the full developmental cycle of winter camelina, from the beginning of emergence to maturity, including the winter dormancy period, is 290-315 days.

Research objective. The objective is to develop and introduce into production an agrotechnology for cultivating the nontraditional camelina crop under irrigated soil and climatic conditions of the southern regions of the Republic (Surkhandarya region). **Materials and methods used.** In the scientific studies (under the conditions of Kumkurgan district), the effect of sowing seeds of the winter camelina varieties "Penzyak" and "Karat" at rates of 4.0, 6.0, 8.0, and 10.0 million seeds/ha on field germination was determined. Soil samples for analysis were collected according to the methods "Methods of agrochemical, agrophysical and microbiological research in irrigated cotton-growing regions" (1963). Humus content was determined by the I.V. Tyurin method (GOST 26213); nitrate nitrogen by the ion-selective method, GOST 13496-10; total nitrogen, phosphorus, and potassium in a single sample by the I.M. Maltseva and L.P. Gritsenko method; mobile phosphorus in a 1% ammonium carbonate solution by the B.P. Machigin method; exchangeable potassium by the flame

1 https://lex.uz/docs/6027102 photocolorimeter using the P.V. Protasov method; water-soluble salts and dry residue were determined by the generally accepted method, GOST 26423-85; pH was determined in an aqueous extract using a potentiometer. In field conditions, soil bulk density was determined using a 500 cm3 cylinder by the Kachinsky method; specific gravity by the pycnometric method; soil porosity by calculation; and soil water permeability by the Kachinsky method. Field and laboratory experiments were carried out based on the methodological guidelines of the All-Russian Research Institute of Plant Industry (1985). Phenological observations and biometric analyses were conducted according to the methodological guidelines of the State Commission for Variety Testing of Agricultural Crops (1989). Plant growth and development were studied by recording field germination of seeds and plant stand density: at emergence and before harvest

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	Sowing date	Sowing rate	Variety	Replication	Emergence, date	True leaf formation, date	Stem formation, date	Budding onset, date	Flowering onset, date	Pod formation onset, date	Full maturity, date	Growing season, days	Plant height, cm
	15 Oct	4 mln seeds	Penzyak		22 Oct	30 Oct	5 Apr	15 Apr	22 Apr	26 Apr	23 May	213	90.1
		6 mln seeds			22 Oct	30 Oct	5 Apr	15 Apr	22 Apr	26 Apr	23 May	213	90.4
		8 mln seeds			22 Oct	30 Oct	5 Apr	15 Apr	22 Apr	26 Apr	23 May	213	90.6
		10 mln seeds			22 Oct	31 Oct	6 Apr	16 Apr	23 Apr	27 Apr	24 May	213	90.8
		4 mln seeds	Karat		22 Oct	30 Oct	5 Apr	15 Apr	22 Apr	26 Apr	23 May	213	89.9
		6 mln seeds			22 Oct	30 Oct	5 Apr	15 Apr	22 Apr	26 Apr	23 May	213	89.9
		8 mln seeds			22 Oct	30 Oct	5 Apr	15 Apr	22 Apr	27 Apr	24 May	213	90.7
		10 mln seeds			23 Oct	31 Oct	6 Apr	16 Apr	22 Apr	27 Apr	24 May	214	90.8
	01 Nov	4 mln seeds	Penzyak		13 Nov	25 Nov	12 Apr	22 Apr	27 Apr	30 Apr	25 May	195	88.1
0		6 mln seeds			13 Nov	25 Nov	12 Apr	22 Apr	27 Apr	30 Apr	25 May	195	88.3
1		8 mln seeds			13 Nov	25 Nov	12 Apr	22 Apr	27 Apr	30 Apr	25 May	195	89.6
2		10 mln seeds			13 Nov	25 Nov	12 Apr	22 Apr	27 Apr	30 Apr	25 May	195	89.7
3		4 mln seeds	Karat		14 Nov	26 Nov	14 Apr	24 Apr	28 Apr	1 May	25 May	196	88.2
4		6 mln seeds			14	26	14 Apr	24 Apr	28 Apr	1 May	25	196	88.0

					Nov	Nov					May		
5		8 mln seeds			14 Nov	27 Nov	14 Apr	24 Apr	28 Apr	1 May	25 May	96	88.6
6		10 mln seeds			14 Nov	26 Nov	14 Apr	24 Apr	28 Apr	2 May	26 May	96	89.1
7	15 Nov	4 mln seeds	Penzyak		7 Dec	5 Jan	17 Apr	25 Apr	29 Apr	2 May	26 May	69	87.0
8		6 mln seeds			7 Dec	5 Jan	17 Apr	25 Apr	29 Apr	1 May	25 May	69	87.5
9		8 mln seeds			8 Dec	6 Jan	17 Apr	25 Apr	29 Apr	1 May	25 May	70	89.4
0		10 mln seeds			7 Dec	5 Jan	17 Apr	25 Apr	29 Apr	1 May	25 May	69	89.9
1		4 mln seeds	Karat		9 Dec	7 Jan	18 Apr	26 Apr	30 Apr	2 May	26 May	71	86.3
2		6 mln seeds			10 Dec	8 Jan	18 Apr	26 Apr	30 Apr	2 May	26 May	72	86.5
3		8 mln seeds			10 Dec	8 Jan	18 Apr	26 Apr	30 Apr	3 May	26 May	72	87.0
4		10 mln seeds			10 Dec	9 Jan	18 Apr	26 Apr	30 Apr	3 May	26 May	72	87.5

Changes in the growth and development periods of camelina varieties under the influence of sowing rates (2024-2025)

by conducting continuous observations in the odd replications on 0.5 m2 plots located at three points along the plot diagonal.

Research results. In our studies, when the seeds of the winter camelina varieties Penzyak and Karat were sown on October 15 and November 1-15, emergence was observed from October 22 to December 10, true leaf formation from October 30 to January 9, stem formation from April 5 to April 18, budding from April 15 to April 30, flowering onset from April 22 to April 30, and pod formation onset from April 26 to May 3 (Table 1). According to our experimental results, the full maturity date of the varieties was recorded on May 23 for Penzyak and on May 23-26 for Karat. Based on the studies, when seeds were sown at different rates, full maturity occurred on May 23-26, and the growing season of the Penzyak and Karat varieties varied within the range of 169-214 days.

Table 1

In conclusion, when cultivating camelina, it was determined that the soil and climatic conditions and hydrometeorological conditions of the cultivation area affect the development periods and the entire growing season, while sowing rates do not have a significant effect. Under irrigated soil conditions of Surkhandarya region, when winter camelina varieties were sown on October 15 and November 1-15, the growing season of the Penzyak and Karat varieties was 169-214 days, respectively.

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