



## GROWTH PERIOD OF LENTIL VARIETIES AND RANGES

**Jabarov F.O.**

Head of the laboratory of genetics and selection of legumes

Doctor of Agricultural Philosophy

Southern Agricultural Research Institute, Karshi

Article history:		Abstract:
<b>Received:</b>	10 <sup>th</sup> January 2024	This article presents information about the duration of the growing season of 30 varieties and ridges of lentils ( <i>Lens culinaris</i> ) studied in a controlled variety trial nursery under the conditions of rainy fields, compared with the model variety.
<b>Accepted:</b>	08 <sup>th</sup> March 2024	
<b>Keywords:</b> rainy field area, lentil, heat-resistant, nursery of controlled variety trials, variety, ridge, reversible, flowering, formation of pods		

**INTRODUCTION:** Legumes, including peas and lentils, are the main source of dietary protein for approximately 30% of the world's population[1].

In 2021, Canada ranked highest in lentil production with 1,606,441 tonnes, followed by India and Australia. According to Faostat, the total production of lentils in the world in 2021 reached 5,610,104 tons.

In 2021, the area under lentil cultivation in Canada was approximately 1.7 million hectares. India has harvested more than 1.7 million hectares of lentils in 2021.

Legumes are one of the food sources with the best nutritional properties, and their consumption is associated with a number of beneficial properties for human health[2].

Lentils are sometimes called the "poor man's meat." This definition originated in ancient Europe.

Without rapid increases in productivity, the gap in legume production is estimated to increase to 10 million tons by 2050 [3].

According to the obtained data, it was emphasized that when the hybridization work is carried out by selecting the parental and maternal genotypes of lentil that are resistant to a number of stress factors, the creation of productive and resistant varieties of lentil to abiotic factors [4].

In addition, changes in temperature during the reproductive stage of legume development due to climate change primarily affect their yield and nutritional value. During flowering and fruiting, temperatures above 32°C damage the reproductive organs, which leads to significant losses in lentil grain yield [5].

**Table 1**

**Indicators of the growth period of lentil varieties and ridges in the control nursery (Kamashi -2022).**

No	Name	Germination, date	The number of sprouted plants, pcs	Branching, date	Budding, date	Bloom, date	Pod formation, date	Ripe, date	The day before ripening
1	<b>Darmon (template)</b>	4 mar	38	28 mar	14 apr	22 apr	11 may	20 may	77
2	<b>Sarbon (template)</b>	4 mar	37	29 mar	15 apr	23 apr	12 may	20 may	77
3	<b>Oltin don (template)</b>	4 mar	37	28 mar	14 apr	21 apr	11 may	19 may	76
4	KR20-LIEN-E-05	4 mar	37	29 mar	15 apr	22 apr	10 may	19 may	76
5	KR20-LIEN-E-06	4 mar	37	28 mar	15 apr	22 apr	11 may	21 may	78
6	KR20-LIEN-E-07	4 mar	37	30 mar	15 apr	22 apr	11 may	20 may	77
7	KR20-LIEN-E-09	5 mar	36	29 mar	14 apr	21 apr	12 may	21 may	77

8	KR20-LIEN-E-10	4 mar	37	29 mar	15 apr	22 apr	12 may	20 may	77
9	KR20-LIEN-E-12	4 mar	37	29 mar	14 apr	21 apr	12 may	20 may	77
10	KR20-LIEN-E-13	4 mar	38	29 mar	15 apr	21 apr	12 may	20 may	78
11	KR20-LIEN-E-14	5 mar	37	28 mar	15 apr	22 apr	12 may	21 may	77
12	KR20-LIEN-E-15	5 mar	37	30 mar	15 apr	23 apr	11 may	19 may	76
13	KR20-LIEN-E-16	4 mar	36	29 mar	14 apr	20 apr	13 may	21 may	78
14	KR20-LIEN-E-17	4 mar	36	28 mar	13 apr	20 apr	12 may	21 may	78
15	KR20-LIEN-E-18	4 mar	37	29 mar	14 apr	20 apr	11 may	21 may	77
16	KR20-LIEN-E-21	4 mar	36	29 mar	14 apr	21 apr	11 may	20 may	77
17	KR20-LIEN-L-01	4 mar	38	29 mar	14 apr	21 apr	12 may	21 may	78
18	KR20-LIEN-L-04	4 mar	38	29 mar	15 apr	22 apr	12 may	21 may	78
19	KR20-LIEN-L-06	5 mar	37	29 mar	14 apr	21 apr	11 may	20 may	76
20	KR20-LIEN-L-07	4 mar	37	28 mar	13 apr	20 apr	10 may	20 may	76
21	KR20-LIEN-L-08	4 mar	37	29 mar	15 apr	23 apr	11 may	20 may	77
22	KR20-LIEN-L-09	4 mar	37	29 mar	14 apr	21 apr	13 may	21 may	77
23	KR20-LIEN-L-15	4 mar	37	29 mar	14 apr	21 apr	12 may	20 may	77
24	KR20-LIEN-L-16	4 mar	37	28 mar	14 apr	21 apr	11 may	21 may	78
25	KR20-LIEN-L-18	6 mar	37	29 mar	14 apr	21 apr	11 may	20 may	75
26	KR20-LIEN-L-19	4 mar	37	28 mar	13 apr	20 apr	12 may	20 may	77
27	KR20-LIEN-L-21	4 mar	37	29 mar	14 apr	21 apr	11 may	20 may	77
28	KR20-LIEN-L-23	5 mar	37	29 mar	15 apr	22 apr	12 may	20 may	77
29	KR20-LIEN-L-24	4 mar	37	28 mar	13 apr	20 apr	12 may	21 may	78
30	KR20-LIEN-L-25	4 mar	37	29 mar	14 apr	20 apr	12 may	21 may	78
<b>Minimum indicator</b>		4 mar	36	28 mar	13 apr	20 apr	10 may	19 may	75
<b>Average indicator</b>		4 mar	37	29 mar	14 apr	21 apr	11 may	20 may	77
<b>Maximum indicator</b>		6 mar	38	30 mar	15 apr	23 apr	13 may	21 may	78

30 varieties and rows of lentil were planted with the help of manual labor in 3 rotations in order to select the varieties and rows that are resistant to climatic factors, fertile and with high protein content in the experimental area of the Southern Agricultural Scientific and Research Institute of Kamashi District.

According to the results of the conducted research, it was observed that when the lentil crop was planted on February 16 at an average air temperature of 5-6 °C, 90-98% germinated on March 4-6. When the branching phase of lentil varieties and ridges was analyzed according to returns, it was determined on average on March 28-30, and it was observed that branching was late due to low air temperature. In this case, the model varieties, i.e. "Darmon", "Sarbon" and "Golden Don" varieties germinated on March 4, it was observed that 21 ridges germinated on the same day as the model varieties, and the remaining 6 ridges germinated on March 5-6. it was found out (Table 1).

It was found that the model varieties "Darmon" and "Altin don" varieties branched on March 28, and the "Sarbon" variety branched on March 29. As a result of phenological observations, it was determined that 7 ridges were formed in one day with the model varieties "Darmon" and "Altin Don", 18 ridges were formed in one day with the model variety "Sarbon", and the remaining 2 ridges branched at the end.

When analyzing the flowering period of "Darmon" and "Altin Don" model varieties of lentils, according to returns, the average period of flowering of "Sarbon" model variety was observed on April 15. It was observed that "Darmon" and model "Altin Don" variety had 12 ridges in one day, "Sarbon" model variety had 11 ridges in one day, and the remaining 4 ridges entered the budding phase early on April 13.

The flowering period of lentil variety "Darmon" was observed on April 22, "Sarbon" variety on April 23, "Altin don" variety on April 21 and 7 ridges earlier on April 20.

The transition of lentil varieties and ridges to the period of podding, 10 ridges in one day with "Darmon" and "Altin Don" model varieties on May 11, 13 ridges in one day with "Sarbon" model varieties on May 12 and two of the remaining 4 ridges the first one was observed on May 10, and two later on May 13.

According to the results of the conducted research, the ripening phase of lentil varieties and ridges coincided with May 19-21. It was observed that 3 of the "Altin Don" varieties and ridges were fully ripened on May 19, "Darmon" and "Sarbon" model varieties and 13 ridges on May 20, and the remaining 11 varieties and ridges were fully ripened later on May 21.

It was observed that the period until ripening was 77 days in the model "Darmon" and "Sarbon" lentil varieties, and 76 days in the "Altin don" variety. With "Darmon" and "Sarbon" model varieties, 13 varieties and ridges in one day, with "Altin Don" model variety, 4 varieties and ridges in one day, and from the remaining 11 ridges, 1 early 75 days, and 10 late 78 days it was determined as a result of research

**IN CONCLUSION**, it should be noted that according to the results of research conducted in the conditions of dry areas, it was determined from the data of the Kamashi district agrometeorological station that during the growth period of

lentil varieties and ridges, it was 1510oC. KR20-LIEN-L-18, which is heat-resistant and precocious compared to the model varieties at an air temperature of 1510oC, was selected and transferred to the keying stage of selection.

### LIST OF REFERENCES

1. Afshin, A., Micha, R., Khatibzadeh, S., & Mozaffarian, D. (2014). Consumption of nuts and legumes and risk of incident ischemic heart disease, stroke, and diabetes: A systematic review and meta-analysis. *The American Journal of Clinical Nutrition*, 100, 278 – 288. <https://doi.org/10.3945/ajcn.113.076901>
2. Faris, M.A.I.E.; Takruri, H.R.; Issa, A.Y. *Role of Lentils (Lens culinaris L.) in Human Health and Nutrition: A Review*; Springer: Berlin, Germany, 2013; Volume 6.
3. Joshi, P. K., & Rao, P. P. (2017). Global pulses scenario: Status and outlook. *Annals of the New York Academy of Sciences*, 1,392, 6–17.
4. [Wiley Online LibraryWeb of Science@Google Scholar](#)
5. Kushwaha UKS, Ghimire SK, Yadav NK, Ojha BR, Niroula RK, "Genetic characterization of lentil (*Lens culinaris* L.) germplasm by using SSR markers. *American Journal of Agricultural and Biological Science* 2015; 1:16-26.
6. El Haddad N, Rajendran K, Abdelaziz S, Es-Safi NE, Nadia B, Mentag R, et al.. Screening the FIGS set of lentil (*Lens culinaris* Medikus) germplasm for tolerance to terminal heat and combined drought-heat stress. *Agronomy*. (2020) 10:1036. 10.3390/agronomy1007106 [[CrossRef](#)] [[Google Scholar](#)]