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GROWING PERIOD OF LENTIL VARIETIES AND RANGES IN RAINFOREST FIELDS

Jabarov Farrukh Odirovich
Deputy Director for Scientific Affairs and Innovative Developments: Q/x.f.f.d.KIX,
Lalmikor Agricultural Research Institute Bakhmal Scientific Experimental Station

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Abstract:

This article presents information about the duration of the growing season of 30 varieties and ridges of lentils *(Lens culinaris)* studied in a controlled variety trial nursery under the conditions of rainy fields, compared with the model variety.

Keywords: rainy field area, lentil, heat-resistant, nursery of controlled variety trials, variety, ridge, reversible, flowering, formation of pods.

INTRODUCTION: Legumes, which include 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 FAO, total world lentil production in 2021 reached 5,610,104 tonnes.

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

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

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

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

According to the data obtained, it was emphasized that when properly selected and hybridized lentil parental and maternal genotypes resistant to a number of stress factors are selected, lentil varieties that are productive and resistant to abiotic factors can be created [4].

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

At the Lakmikor experimental field in the Gallaorol district of the Lakmikor Agricultural Research Institute, 30 varieties and lines of lentils were planted by hand in 3 rotations of 40 seeds each in order to select varieties and lines that are resistant to climatic factors, high-yielding and high in protein content.

According to the results of the study, when lentil crops were sown on February 16 at an average air temperature of 5-6 oC, 90-98% germination was observed on March 4-6. When analyzing the branching phase of lentil varieties and ridges by regression, it was determined on average on March 28-30, but late branching was observed due to low air temperatures. In this case, the standard varieties, namely "Darmon", "Sarbon" and "Oltin don", sprouted on March 4, while 21 ridges sprouted on the same day as the standard varieties, and the remaining 6 ridges sprouted on March 5-6. **(Table 1.1)**.

Table 1.1
Growth period indicators of lentil varieties and rows in the control nursery (Kamashi-2022.).

№	Name	Germination, date	Number of sprouted plants, pcs.	Branching, date	Budding, date	Bloom, date	Date of pod formation	Ripe, date	Days to maturity

1	**Darmon (andoza)**	4 mar	38	28 mar	14 apr	22 apr	11 may	20 may	77
2	**Sarbon (andoza)**	4 mar	37	29 mar	15 apr	23 apr	12 may	20 may	77
3	**Oltin don (andoza)**	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
Minimum indicator		4 mar	36	28 mar	13 apr	20 apr	10 may	19 may	75
Average score		4 mar	37	29 mar	14 apr	21 apr	11 may	20 may	77
Maximum indicator		6 mar	38	30 mar	15 apr	23 apr	13 may	21 may	78

It was determined that the standard varieties "Darmon" and "Oltin don" entered the branching phase of the varieties and ridges on March 28, and the "Sarbon" variety on March 29. Phenological observations revealed that 7 ridges branched in one day with the standard varieties "Darmon" and "Oltin don", 18 ridges in one day with the standard variety "Sarbon", and the remaining 2 ridges branched at the end.

When analyzing the budding period of the standard lentil varieties "Darmon" and "Oltin Don", the average budding period was observed on April 14, and the standard "Sarbon" variety on April 15. It was observed that 12 ridges with the "Darmon" and standard "Oltin Don" varieties entered the budding phase on the same day, 11 ridges with the "Sarbon" variety entered the budding phase on the same day, and the remaining 4 ridges entered the budding phase early on April 13.

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

It was observed that lentil varieties and ridges entered the podding period, with 10 ridges of the "Darmon" and "Oltin don" standard varieties on May 11, 13 ridges of the "Sarbon" standard varieties on May 12, and two of the remaining 4 ridges podded the next day, May 10, and two later, on May 13.

According to the results of the study, the ripening phase of lentil varieties and ridges fell on May 19-21. It was observed that 3 of the standard "Oltin don" variety and ridges fully ripened on May 19, the standard "Darmon" and "Sarbon" varieties and 13 ridges on May 20, and the remaining 11 varieties and ridges later, on May 21.

It was observed that the period to ripening in the standard varieties of lentils "Darmon" and "Sarbon" was 77 days, and in the "Oltin don" variety it was 76 days. As a result of the research, it was found that 13 varieties and ridges were ripened on the same day with the standard varieties "Darmon" and "Sarbon", 4 varieties and ridges were ripened on the same day with the standard variety "Oltin don", and 1 of the remaining 11 ridges was ripened earlier, 75 days later, and 10 were ripened later, 78 days later.

SUMMARY: It should be noted that, according to the results of studies conducted in the conditions of the lentil fields, it was determined from the data of the Kamashi district agrometeostation that the temperature of lentil varieties and ridges during the growing season was 1510oC. At an air temperature of 1510oC, the ridge KR20-LIEN-L-

18, which was heat-resistant and early-ripening compared to the standard varieties, was selected and transferred to the next stage of selection.

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