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SELECTION OF VARIETIES AND RANGES OF LENS (LENS CULINARIS) WITH HIGH GRAIN YIELD AND HIGH PROTEIN CONTENT

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Abstract:

There are more than 7 billion people on earth today, of which 3 billion live in hunger.Along with the amount of products grown for food, it is important for its diversity, ecological purity, and the richness of minerals useful for the human body and health.These beneficial substances are found in large quantities only in legumes, including lentils.Therefore, creating new varieties of lentils, increasing their productivity and grain quality is one of the urgent tasks.

Keywords: lentil, yield, protein, southern region, selection, variety, ridge, return, template, phenological observation.

INTRODUCTION: The role and importance of the agricultural sector in ensuring the food security of the population on a global scale is increasing day by day. In particular, in our country, it is an urgent issue to use the available resources and opportunities to provide the population with guaranteed agricultural products, to further increase productivity and interest, and to introduce scientific achievements and modern approaches to the field.

Today, the effects of high temperature and water stress are attracting attention because they seriously threaten the productivity of leguminous crops, as they affect pollen viability, fertilization and pod set [1].

In the irrigated field of the Southern Agricultural Research Institute in the Karshi district, 20 varieties and varieties of lentil were planted in 3 rotations on an area of 2 m2 in the nursery of a competitive variety of lentil.

According to the results of the conducted research, it was observed that the germination period of lentil varieties and ridges in the nursery of competitive varieties was analyzed, according to returns, on average, it corresponded to the dates of March 5-7. It was observed that the number of sprouted plants of lentil varieties and ridges was 36-38 (90-95%). The number of sprouted plants in the model "Darmon" and "Sarbon" varieties is 37. It was found that the number of sprouted plants in 5 ridges is higher compared to the model varieties (Table 1).

Table 1

The growth period of lentil varieties and ridges in the competitive variety testing nursery (Karshi - 2022).

№	Nomi	Unibchiqish, sana	Unibchiqqano`, simliklarsoni, dona	Shoxlanish, sana	G`uncha-lash, sana	Gullash, sana	Dukkakhosilbo`lish, sana	Pishish, sana	Pishishgachabo`lgankun
1	**Darmon (andoza)**	05.mar	37	06.apr	20.apr	29.apr	11.may	27.may	83
2	**Sarbon (andoza)**	06.mar	37	05.apr	20.apr	28.apr	10.may	27.may	82
3	KR20-LIEN-E-07	06.mar	37	06.apr	21.apr	28.apr	10.may	26.may	82
4	KR20-LIEN-E-08	06.mar	38	06.apr	20.apr	27.apr	09.may	27.may	82
5	KR20-LIEN-E-10	07.mar	38	06.apr	19.apr	28.apr	10.may	25.may	79
6	KR20-LIEN-E-11	07.mar	37	06.apr	21.apr	28.apr	10.may	28.may	82
7	KR20-LIEN-E-13	06.mar	37	05.apr	21.apr	28.apr	10.may	27.may	82
8	KR20-LIEN-E-18	07.mar	37	06.apr	21.apr	27.apr	09.may	24.may	78
9	KR20-LIEN-E-25	07.mar	37	06.apr	20.apr	27.apr	10.may	26.may	80
10	KR20-LIEN-L-01	07.mar	37	06.apr	21.apr	27.apr	10.may	27.may	82

11	KR20-LIEN-L-04	06.mar	37	06.apr	21.apr	29.apr	09.may	27.may	81
12	KR20-LIEN-L-06	05.mar	38	06.apr	21.apr	28.apr	10.may	27.may	83
13	KR20-LIEN-L-09	06.mar	37	06.apr	20.apr	28.apr	10.may	27.may	82
14	KR20-LIEN-L-10	06.mar	37	07.apr	19.apr	27.apr	09.may	26.may	81
15	KR20-LIEN-L-14	07.mar	37	05.apr	20.apr	28.apr	10.may	25.may	79
16	KR20-LIEN-L-16	06.mar	38	06.apr	21.apr	28.apr	10.may	28.may	83
17	KR20-LIEN-L-18	06.mar	38	05.apr	20.apr	28.apr	10.may	26.may	81
18	KR20-LIEN-L-22	07.mar	36	07.apr	20.apr	27.apr	09.may	26.may	81
19	KR20-LIEN-L-23	07.mar	37	06.apr	20.apr	27.apr	10.may	25.may	80
20	KR20-LIEN-L-25	06.mar	37	05.apr	20.apr	27.apr	10.may	27.may	81
O`rtachako`rsatkich		**06.mar**	**37**	**06.apr**	**20.apr**	**28.apr**	**10.may**	**26.may**	**81**
Minimumko`rsatkich		**05.mar**	**36**	**05.apr**	**19.apr**	**27.apr**	**09.may**	**24.may**	**78**
Maksimumko`rsatkich		**07.mar**	**38**	**07.apr**	**21.apr**	**29.apr**	**11.iyun**	**28.may**	**83**

According to the results of the conducted phenological observation, it was determined as a result of the phenological observations that the transition of the lentil varieties and ridges to the branching phase corresponded to April 5-7 on average.

When analyzing the budding phase according to the results of phenological observation of lentil varieties and ridges in the trial nursery of the competitive variety, on average, the returns included the days from April 19 to April 21. It was observed that the flowering phase lasted from April 27 to April 29 on average. Temperatures above 32/20°C (max/min) during flowering and pod filling have negative effects on lentil growth from germination to grain filling, affecting yield and nutritional quality [2].

The pod formation phase of lentil varieties and ridges was observed on average from May 9 to May 11. It was found that the model produced early pods in 5 ridges compared to the varieties.

Effects of heat stress, mainly during the reproductive stage and seed development of plants, seriously threaten the viability of pollen, fertilization and productivity of leguminous crops [3].

According to the conducted studies, the ripening period of lentil varieties and ridges was determined from May 24 to May 28. The ripening phase was observed earlier in 9 ridges compared to the model varieties.

It was observed that the days until ripening, that is, the growing period of lentil varieties and ridges, lasted from 78 to 83 days. As a result of the research, it was found that the growth period of 10 rows is compared to the model varieties (Fig.1).

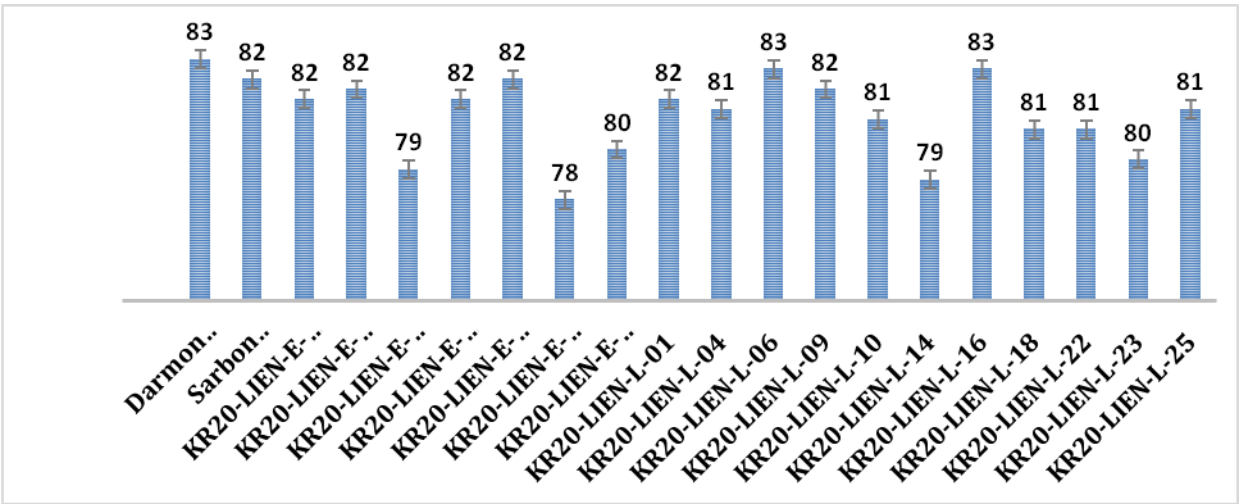

Figure 1. The day before ripening of lentil varieties and ridges. (Karshi - 2022.)

According to the results of biometric measurement of lentil varieties and ridges in the competitive variety testing nursery, it was determined that the average plant height is 29-55 cm. It was observed that the plant height index was higher in 10 ridges compared to the model varieties (Fig. 2).

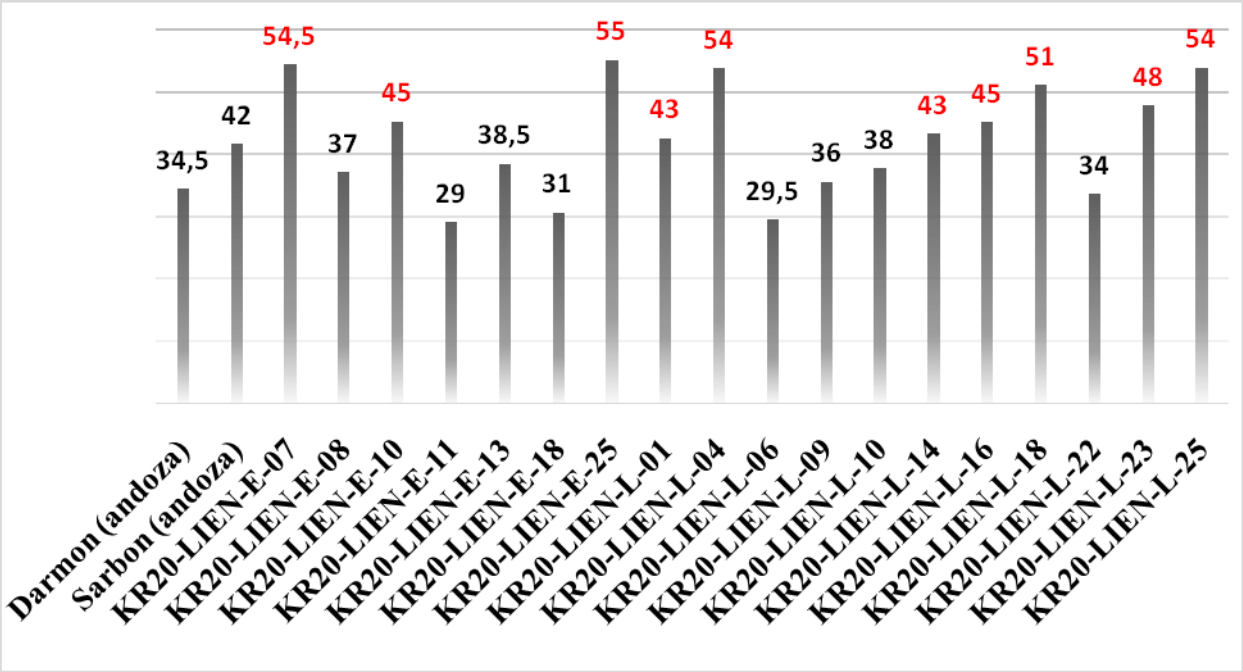

Figure 2. Lentil plant height, cm. (Karshi - 2022.)

According to the results of the conducted research, it was observed that the number of fully matured plants of lentil varieties and ridges is from 33 to 37 (82.5 - 92.5%) (Table 2).

Table 2

Productivity indicator of lentil varieties and rows in the competitive variety trial nursery (Karshi-2022).

№	Nomi	To`liqpishgan o`simliklarsoni, dona	Bir tup o`simlikda dukkaklar soni, dona				Birtupo`simlikdagidonlarsoni, dona	1000 tadonvazni, g	Jamidonsoni	Hosildorlik, s/ga	Oqsilmiqdori, %
			1 donli	2 donli	3 donli	Jami					
1	**Darmon (andoza)**	36	73	31		104	135	77	4858	18,8	25,4
2	**Sarbon (andoza)**	34	91	30		121	151	73	5070	18,5	26,6
3	KR20-LIEN-E-07	35	71	21		92	113	68	3978	13,5	27,8
4	KR20-LIEN-E-08	37	67	33		100	133	78	4919	19,3	25,4
5	KR20-LIEN-E-10	37	90	26		115	141	83	5263	21,8	26,7
6	KR20-LIEN-E-11	35	84	17		101	118	68	4099	13,9	24,4
7	KR20-LIEN-E-13	36	62	25	2	88	115	76	4180	15,8	25,4
8	KR20-LIEN-E-18	37	104	28		132	160	80	5878	23,5	25,8
9	KR20-LIEN-E-25	35	109	26	1	136	163	83	5691	23,5	26,9
10	KR20-LIEN-L-01	36	58	34		93	127	70	4613	16,1	24,6
11	KR20-LIEN-L-04	36	67	29		96	125	76	4511	17,1	29,4
12	KR20-LIEN-L-06	33	78	14		92	106	60	3510	10,5	22,0
13	KR20-LIEN-L-09	36	66	30	2	97	129	70	4601	16,2	23,3
14	KR20-LIEN-L-10	35	92	20		112	132	75	4565	17,1	24,2
15	KR20-LIEN-L-14	37	90	24		114	138	80	5072	20,3	26,6
16	KR20-LIEN-L-16	37	87	23		110	134	74	4942	18,3	29,7
17	KR20-LIEN-L-18	33	70	18		89	107	61	3490	10,6	28,4
18	KR20-LIEN-L-22	36	64	23	2	88	113	75	4030	15,1	23,7
19	KR20-LIEN-L-23	37	102	24	3	127	153	83	5621	23,2	25,6

20	KR20-LIEN-L-25	37	70	24		94	118	78	4354	17,0	28,3
O`rtachako`rsatkich		36	80	25	2	105	131	74	4662	17,5	26,0
Minimumko`rsatkich		33	58	14	1	88	106	60	3490	10,5	22,0
Maksimumko`rsatkich		37	109	34	3	136	163	83	5878	23,5	29,7

It was determined that the number of one-grain pods in one bush of lentil varieties and varieties is 58-109, the number of two-grain pods is 14-34, and the number of three-grain pods is 1-3. It was observed that the total number of pods in one bush is 88-136 (Fig. 3).

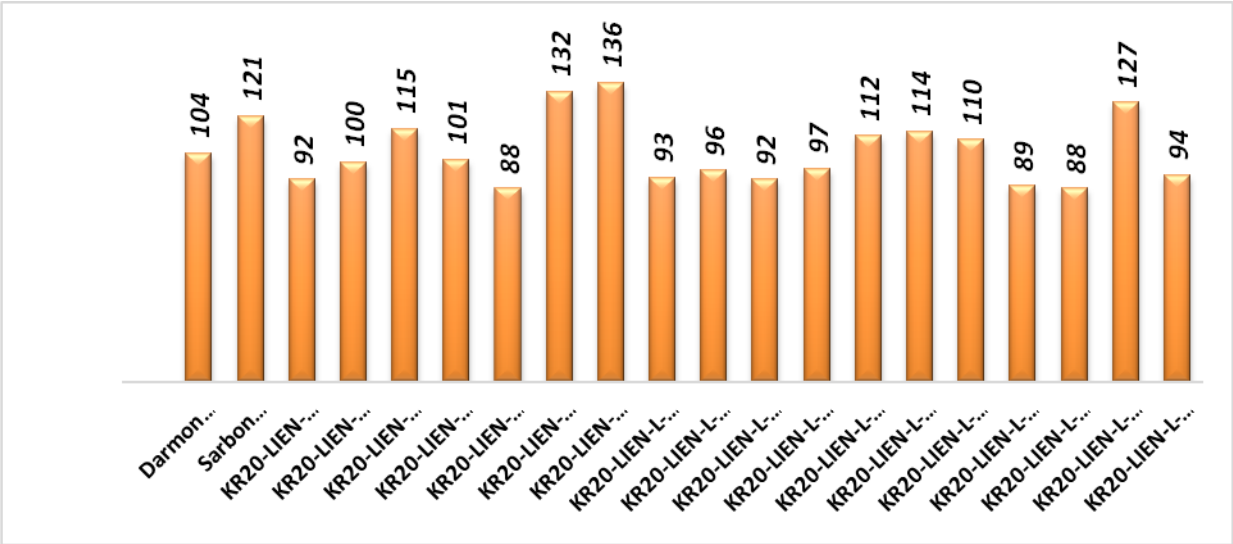

Figure 3. The number of pods in one plant of the lentil plant, one. (Karshi - 2022.)

According to the results of the experiment, it was determined that the number of grains in one bush of lentil varieties and varieties is 106-136. The weight of 1000 grains of lentil varieties and varieties was determined to be 60-83 grams when studied in laboratory conditions. It was determined that the weight of 1000 grains of the sample "Darmon" variety is 77 grams, and the weight of 1000 grains of the "Sarbon" variety is 73 grams. 1000 grain weight was found to be higher in 6 ridges compared to standard varieties (Fig. 4).

According to the results of the conducted research, it was observed that the average yield of lentil varieties and ridges is from 10.5 s/ha to 23.5 s/ha. It was determined that the productivity indicator of the sample "Darmon" variety is 18.8 s/ha and the productivity indicator of the "Sarbon" variety is 18.5 s/ha. Compared to standard varieties, it was found that the productivity of 6 ridges is higher

Several days of high temperatures limit many physiological processes, including photosynthesis, metabolic pathways, electron flow, and respiration rate[4].

According to the results of research carried out in laboratory conditions, it was found that the average protein content of lentil varieties and varieties is 22.0-29.7%. It was found that the protein content of the sample "Darmon" variety is 25.4%, and the protein content of the "Sarbon" variety is 26.6%. Compared to the model varieties, it was found that the protein content was higher in 7 strains.

In conclusion, it should be noted that the high temperature during the stages of development of leguminous grain crops, including lentils, had a significant effect on plant grain yield and protein content.

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