

**FIELD STUDY OF HEAT AND DROUGHT RESISTANCE OF
CHICKPEAS VARIETIES AND SAMPLES IN RAINFRIED AREAS
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Abstract:

During the growth and development of cultivated plants in agriculture, an increase in soil moisture and relative air humidity can cause various diseases during the plant development stage. If the plant is exposed to heat and drought, the number of stems of the plant will decrease, the productivity will decrease and the grain quality indicator will be low. Therefore, one of the urgent problems of today is the creation of crop varieties resistant to biotic and abiotic factors. Therefore, one of the urgent problems of today is the creation of crop varieties resistant to biotic and abiotic factors.

Keywords: Chickpea crops, varieties and samples, resistance to heat and drought.

During the last 10 years, according to the information of climatologists, as a result of a sharp increase in air temperature and a low amount of precipitation, the effect on the plant's productivity is significant. The rise in temperature during flowering of the chickpea crop causes the drying of the male pollen threads and the tip of the seed. According to the data, the important importance of chickpeas for food and fodder is noted, that it is a crop resistant to drought and cold, and its biological features are taken into account in the development of chickpea agrotechnics in each region[1]. According to the scientists, early ripening feature of the chickpea variety makes it possible to withstand drought, heat and get rid of damage from various diseases and harmful insects, as well as to increase the yield and quality of chickpea grain[2]. A high temperature during the flowering period of the chickpea plant leads to a 40-45% decrease in the yield index during the seed filling period[3]. The research was carried out in the experimental field of Southern Agricultural Scientific Research Institute in Qamashi district. The studied variety and number of samples were planted in 20 plots, 30 m², in 3 repetitions. Determining the resistance of varieties and samples to heat and drought in field conditions was carried out according to the 1989 method of "State variety testing of agricultural crops". When



studying the resistance of varieties and samples to drought in field conditions, it was observed that in 2020-2021, the number of plants was 40-59%, and in 2021, 60-79% of the plants were resistant. Compared to the model variety, 5 cultivars and samples 7 showed a high rate of drought tolerance of 60-79% (table 1).

Table 1 Evaluation of Heat and Drought Tolerance of Varieties and Samples under Field Conditions in a Competitive Seed Trial Nursery (Qamashi 2020-2022 year)

№	Name of variety and specimens	Drought resistance in field conditions, score			Average, score	Heat resistance in field conditions, score			Average, score
		2020-year	2021-year	2022-year		2020-year	2021-year	2022-year	
1	Обод (ср)	5	5	7	5	7	3	5	5
2	Polvon	5	5	5	5	5	3	3	3
3	KR-20-LCAYT-RF-1	7	7	7	7	9	5	7	7
4	KR-20-LCAYT-RF-6	5	3	3	3	5	3	3	3
5	KR-20-LCAYT-RF-11	9	5	7	7	7	5	5	5
6	Istiqlo	5	5	5	5	3	3	3	3
7	KR-20-LCAYT-RF-2	3	5	7	5	3	3	5	3
8	KR-20-LCAYT-RF-7	7	7	7	7	7	3	5	5
9	KR-20-LCAYT-RF-12	3	3	3	3	5	5	5	5
10	Javlon	7	3	5	5	3	3	3	3
11	KR-20-LCAYT-RF-3	9	5	7	7	7	7	7	7
12	KR-20-LCAYT-RF-8	5	5	5	5	3	3	3	3
13	KR-20-LCAYT-RF-13	7	5	3	5	5	5	5	5
14	KR-20-LCAYT-RF-4	7	5	3	5	3	3	3	3
15	KR-20-LCAYT-RF-9	3	3	3	3	3	3	3	3
16	KR-20-LCAYT-RF-14	9	5	7	7	7	7	7	7
17	Malxotra	7	3	5	5	7	3	5	5
18	KR-20-LCAYT-RF-5	5	5	5	5	7	5	3	5
19	KR-20-LCAYT-RF-10	7	3	5	5	3	3	3	3
20	KR-20-LCAYT-RF-15 (Лалмикор)	9	9	9	9	9	7	9	9
X	Most compact multiplier	3	3	3	3	3	3	3	3
X	A small multiplier	6	5	5	5	5	4	5	5
X	The highest multiplier	9	9	9	9	9	7	9	9

Izoh: 1 score is very low (0-20 %); 3 score is low (21-39 %); 5 score average (40-59 %); 7 score is high (60-79 %); 9 score is very high (80-100 %).

The variety KR-20-LCAYT-RF-15 (Lalmikor) has been tested over the years and has been proven to be 80-100% resistant to drought with 9 points. When the heat



resistance was determined in both varieties and samples, it was found that this indicator was average of 5 points in the model Obad variety. KR-20-LCAYT-RF-1, KR-20-LCAYT-RF-3, KR-20-LCAYT-RF-14 samples were 7 points higher, i.e. 60-79% of plants were preserved. It was observed that KR-20-LCAYT-RF-15 (Lalmikor) grade was 9 points, i.e. 80-100% of the plant was resistant to heat. In conclusion, it should be said that when evaluation of heat and drought resistance of chickpea varieties and samples was carried out in field conditions, it was observed that KR-20-LCAYT-RF-15 (Lalmikor) variety was resistant for years. It was noted that 6 samples showed high resistance to the model variety.

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