*УДК: 633.3.633.34*

*DOI:****10.35330/****1991-6639-2020-4-96-72-77*

**SOY IRRIGATION IN THE ARID STEPPE ZONE**

 **OF KABARDINO-BALKARIA**

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*In the agro-landscape of the arid zone of Kabardino-Balkaria in 2017-2019. studied the effect of irrigation on the yield of soybean variety Vilana selection of the Institute of Oilseeds n. a.. V.S. Pustovoyt (VNIIMK) by the method of laying down field experiments on the site of NPU № 2 of the institute.*

*The moisture supply regime of soybean crops for vegetation, yield and seed quality depending on the irrigation and irrigation rate was studied, the optimal terms (phases of soybean development) for seed yield of about 2.5 t / ha were determined.*

*It was found that in the conditions of the region, the natural moisture reserves of precipitation in the winter and spring months of soybeans are consumed during the time of germination, the beginning of the formation of beans. In the subsequent period of development (seed filling) there is a significant deficit of productive moisture, which is the main cause of low yields (0.5-0.7 t / ha).*

*Vegetation irrigation with an irrigation rate of 1650-2100 m3 / ha creates a deficit-free moisture regime of the root-inhabited (0-60 cm) layer of soil, is formed in 2.58-2.80 t / ha of seeds, a lower irrigation rate (1300 m3 / ha) provides - 2.1 t / Ha. Three-time irrigation of 250-300 m3 / ha at an irrigation rate of 850-900 m3 / ha does not provide for the moisture requirement of soybeans, and the seed yield does not exceed 1.50 t / ha, which is most often observed in production practice when irrigated with sprinklers.*

*The most critical period for soybeans in the region should be considered the phase of seed filling, and in dry years, like 2019, the time from the phase of bean formation and seed filling. With surface irrigation, the length of the irrigation furrow and the volume (specific jet) of water in the furrow is a crucial element to create a sufficient supply of moisture in the soil. Irrigation rate of water of the order of 650-850 m3 / hectare and soaking of a layer of 0-60 cm is provided at watering with giving in a furrow no more than 0,8-1,0l / sec. Increasing the flow of water in the furrow to 1.5-2.5 l / sec reduces the irrigation rate to 400-250 m3/ ha, which provides a yield of not more than 1.4-2.0 t / ha.*

*The extremely necessary irrigation rate of 1800-2100 m3 / ha improves moisture supply and formation of soybean seeds. In this mode of moisture supply, a high protein content is achieved (35.3-37.8%), and the weight of 1000 seeds is 150 g. The percentage of oil content is inversely related to the amount of protein. The effect of watering on the percentage of oil in the seeds is insignificant.*

**Keywords:** soy, seeds, watering dates, rate, soil, root layer, developmental phases, yield, crop rotation.

**REFERENCES**

1. Chamurliev O.G., Zinchenko E.V. *Resursosberegayushchiye priyemy vozdelyvaniya soi na oroshenii* [Resource-saving techniques for soybean cultivation on irrigation] // Agriculture. 2010. No. 4. Pp. 38-39.

2. Fortinskaya G.S., Musaev G.V. *Vozdelyvaniye soi na oroshayemykh zemlyakh* [Soybean cultivation on irrigated lands] // Agriculture Abroad. 1975. Pp. 49-52.

3. Butilin T.G. *Izucheniye priyemov vozdelyvaniya soi na oroshayemykh* *zemlyakh* [The study of methods of soybean cultivation on irrigated lands] // Agriculture Abroad. 1975. Pp. 197-216.

4. *Soya: biologiya i tekhnologiya vozdelyvaniya* [Soya: biology and cultivation technology] / Ed. Baranova V.F. and Lukomets V.M. Krasnodar, 2005. 443 p.

5. Ovchinnikov A.S., Chamurliev G.О. *Resursosberegayushchiye rezhimy orosheniya i sposoby osnovnoy obrabotki pochvy pod soyu* [Resource-saving irrigation regimes and methods of basic tillage under soybeans // Problems of agro-industrial complex development of the Region. Scientific and practical journal of Daghestan SAU n. a. M.M. Dzhambulatov. 2016. № 1 [25]. Part 1. Pp. 52-55.

6. Lgov G.K. *Oroshayemoye zemledeliye Severnogo Kavkaza* [Irrigated agriculture of the North Caucasus]. Ordzhonikidze, 1967. 326 p.

7. *Metodika provedeniya polevykh agrotekhnologicheskikh opytov s maslichnymi kul'turami* [Methodology for conducting field agrotechnological experiments with oilseeds] / Under the general editorship of V. Lukomets. Krasnodar, 2010. 332 p.

8. Fiapshev B.Kh., Kerefov K.N. *Pochvennyye rayony Kabardino-Balkarii i ikh sel'sko-khozyaystvennyye osobennosti* [Soil regions of Kabardino-Balkaria and their agricultural features]. Nalchik, 1968. 142 p.

9. Ageev V.V. *Intensivnoye ispol'zovaniya pashni* [Intensive use of arable land]. M., 1984. 199 p.

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