Productivity of winter wheat in the conditions of slope farming in the Kabardino-Balkarian Republic

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Abstract. The article is devoted to the study of the influence of agrotechnical techniques on the yield intensity quality of agricultural crops in the conditions of the foothill zone of the Kabardino-Balkarian Republic. The work was carried out in 2021–2022 in the Zolsky district of the village settlement of Belokamenskoye, KBR, on the slope of the North-Western exposure with an average slope of 3.50 altitude above sea level 980 m. The scheme of the experiment provided for the placement of the studied crops according to different places of the slope: the upper (watershed), middle and lower parts when sowing along and across the experimental site. The classification of lands according to the degree of erosion and working conditions of agricultural machines, information on the quality of sowing material of winter wheat of the Yuzhanka and winter wheat of the Taulan (two-handed), the results of phenological observations and analysis of sheaf samples according to variants of field experience are presented. As a result of the research work carried out, it was revealed that the use of the method of sowing across the slope is the most realistic and least costly way to increase the yield and grain quality of winter and spring crops on sloping arable lands with a steepness of up to 40. The purpose of this work is to study the influence of sowing methods on the yield and quality of grain of ear crops on the slope lands of the Kabardino-Balkarian Republic.

Keywords: foothill zone, ground, sloping lands, agrotechnical techniques, seeding method, yield intensity, crop quality

REFERENCES

1. Zaslavsky M.A. Eroziya pochv [Soil erosion]. Moscow: Mysl', 1979. 245 p. (In Russian)

2. Ramazonov B.R. Anti-erosion control measures on sloping lands and foothill areas, desertification processes. *Scientific Journal*. 2021. Vol. 2. No. 5. Pp. 410–419. DOI: 10.24411/2181-1385-2021-00905.

3. Tarchokov Kh.Sh., Chochaev M.M., Kushkhabiev A.Z. et al. Anti-erosion efficiency of sowing methods on slope lands of the Kabardino-Balkarian Republic. *Vestnik APK Stavropol'ya* [Bulletin of the AIC of Stavropol]. 2019. No. 3(35). Pp. 66–72. (In Russian)

4. Skorokhodov V.Yu., Maksyutov N.A., Zorov A.A. et al. Preservation of soil fertility from erosion in the steppe zone of the Urals. *Plodorodiye*. 2021. No. 6(123). Pp. 22–25. DOI: 10.25680/S19948603.2021.123.06. (In Russian)

5. Konstantinov M.S. Zashchita pochv ot erozii pri intensivnom zemledelii [Protection of soils from erosion during intensive farming]. Chisinau: Shtiintsa, 1987. 240 p. (In Russian)

6. Lachuga Yu.F., Izmailov A.Yu., Lobachevsky Ya.P. et al. Scientific and technical achievements of agro-engineering scientific institutions for the production of basic groups of agricultural products. *Tekhnika i oborudovaniye dlya sela* [Equipment and equipment for rural areas. 2021]. No. 4(286). Pp. 2–11. (In Russian)

7. Lachuga Yu.F., Smirnov I.G., Shogenov Yu.Kh. Agricultural engineering science for production. *Tekhnika v sel'skom khozyaystve* [Technology in agriculture]. 2008. No. 3. Pp. 3–5. (In Russian)

8. Dospehov B.A. *Metodika polevogo opyta* [Methodology of field experience]. Moscow: Agropromizdat, 1985. Pp. 107–109. (In Russian)

9. Vanin D.E., Rozhkov A.G., Surmach G.P. et al. *Metodicheskiye ukazaniya po proizvod*stvennomu ispytaniyu agrotekhnicheskikh priyemov zashchity pochv ot vodnoy erozii [Guidelines for production testing of agrotechnical methods for protecting soils from water erosion]. Moscow: Kolos, 1976. 20 p. (In Russian)

10. Fisher R.A. *Statisticheskiye metody dlya issledovateley* [Statistical methods for researchers]: transl. V.N. Peregudova. Moscow: Gosstatizdat, 1958. 268 p. (In Russian)

11. Stukalo V.A., Stepanenko T.G., Drup V.D., Okrut S.V., Zelenskaya T.G. The influence of the development of erosion processes on the content of mobile compounds of phosphorus and potassium, the yield of winter wheat on arable land and forb-grass associations on virgin soil. *Zemledeliye*. 2020. No. 3. Pp. 24–26. DOI: 10.24411/0044-3913-2020-10304. (In Russian)

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