

INFLUENCE OF AGRICULTURAL TECHNIQUES ON YIELD AND QUALITY OF WINTER AND SPRING GRAINS IN THE CONDITIONS OF SLOPE AGRICULTURE OF THE KABARDINO-BALKARIAN REPUBLIC

Kh.Sh. TARCHOKOV, M.M. CHOCHAEV, A.Kh. SHOGENOV, O.Kh. MATAEVA

Institute of Agriculture –
branch of Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences
360004, Russia, Nalchik, 224 Kirov street

Abstract. The article is devoted to the study of the influence of sowing methods on the yield of ear crops in the conditions of slope farming in Kabardino-Balkaria. The presented results indicate that the method of sowing and the direction of movement of aggregates in relation to the slope fall is of great importance for increasing the yield of grain crops. The anti-erosion role of such sowing is that each row of plants slows down the surface runoff of rainwater, precipitates and delays agitated soil particles, reduces flushing, improves plant growth and development, helps preserve soil fertility, increases their protective role and yield. The research was conducted in 2020 in the conditions of the foothill zone of the Kabardino-Balkarian Republic (KBR). The results of phenological observations of the development and growth of spring barley of the Eney UA variety and winter triticale of the Bereket variety, the main indicators of grain quality of these crops depending on the methods of sowing (along and across) are presented according to different elements of the slope in the conditions of sloping arable lands of the village of Belokamenskoye of the Zolsky district of the KBR. The work was carried out within the framework of research work on the topic "Studying the influence of soil protection systems of agriculture on the intensity of erosion processes and crop yields in conditions of slope farming".

Keywords: slope lands, methods of sowing, crop rotations, fertility, yield, grain quality, soil.

REFERENCES

1. Dragavtseva I.A., Savin I.Yu., Erkenov T.Kh. et al. *Resursnyy potentsial zemel' Kabardino-Balkarii dlya vozdelevaniya plodovykh kul'tur* [Resource potential of the lands of Kabardino-Balkaria for the cultivation of fruit crops]. Nalchik: SKZNIISIV. 2011. Pp. 17–21. (in Russian)
2. Tarchokov Kh.Sh., Chochayev M.M., Kushkhabiev A.Z., Shogenov A.Kh., Gazheva R.A. Anti-erosion efficiency of sowing methods on slope lands of the Kabardino-Balkarian Republic. *Vestnik APK Stavropol'ya* [Bulletin of APK Stavropol]. 2019. No. 3 (35). Pp. 66–72. (in Russian)
3. Molchanov E.N. *Pochvennaya karta Kabardino-Balkarskoy ASSR* [Soil map of the Kabardino-Balkarian Autonomous Soviet Socialist Republic]. Moscow: Glavnoye upravleniye geodezii i kartografii pri Sovete ministrov SSSR. 1999. Pp. 15–17. (in Russian)
4. Dragavtseva I.A., Akhmatova Z.P., Morenets A.S. Features and trends of variability of limiting environmental factors for fruit crops of the North Caucasus in the winter-spring period taking into account climate change (on the example of apricot). *Sadovodstvo i vinogradarstvo* [Horticulture and viticulture]. 2018. No. 4 (214). Pp. 38–43. (in Russian)
5. Zaslavsky M.A. *Eroziya pochv* [Soil erosion]. Moscow: Mysl, 1979. Pp. 40–41. (in Russian)
6. Konstantinov M.S. *Zashchita pochv ot erozii pri intensivnom zemledelii* [Protection of soil from erosion during intensive farming]. Kishinev: Shtiintsa, 1987. Pp. 24–26. 240 p. (in Russian)
7. Lachuga Yu.F., Izmailov A.Yu., Lobachevsky Ya.P., Shogenov Yu.Kh. Scientific and technical achievements of agroengineering scientific institutions for the production of the main groups of agricultural products. *Tekhnika i oborudovaniye dlya sela* [Machinery and equipment for the village]. 2021. No. 4 (286). Pp. 2–11. (in Russian)
8. Lachuga Yu.F., Smirnov I.G., Shogenov Yu.Kh. Agroengineering science of production. *Tekhnika v sel'skom khozyaystve* [Machinery in agriculture]. 2008. No. 3. Pp. 3–5. (in Russian)

9. Bashorov V.A. *Tekhnologiya kompleksnoy otsenki sostoyaniya zemel' Kabardino-Balkarskoy respubliki* [Technology for a comprehensive assessment of the state of the lands of the Kabardino-Balkarian Republic]. Nal'chik: El'-Fa, 1999. Pp. 39–41. (in Russian)
10. Akhalaya B.Kh., Shogenov Yu.Kh., Starovoitov S.I., Tsench Yu.S., Shogenov A.Kh. A three-section tillage unit with universal replaceable working bodies. *Vestnik Kazanskogo gosudarstvennogo agrarnogo universiteta* [Bulletin of the Kazan State Agrarian University]. 2019. Vol. 14. No. 3 (54). Pp. 92–95. (in Russian)
11. Lachuga Y., Akhalaya B., Shogenov Y., Meskhi B., Rudoy D., Olshevskaya A. Energy-saving tillage with a combined unit with universal working bodies. In the collection: IOP Conference Series: Materials Science and Engineering. Ser. "International Scientific and Practical Conference Environmental Risks and Safety in Mechanical Engineering, ERSME 2020" 2020. P. 012121.
12. Akhalaya B.Kh., Shogenov Yu.Kh. Automated multifunctional tillage unit. *Rossiyskaya sel'skokhozyaystvennaya nauka* [Russian Agricultural Science]. 2017. No. 6. Pp. 55-58. (in Russian)
13. Dospekhov B.A. *Metodika polevogo opyta* [Field experiment technique]. Moscow: Agropromizdat, 1985, Pp. 107–109. 350 p. (in Russian)
14. Fischer R.A. *Statisticheskiye metody dlya issledovateley* [Statistical methods for researchers] / translated from the English by V. N. Peregudov. Moscow: Gosstatizdat, 1958. 268 p. (in Russian)
15. Taylor J. *Vvedeniye v teoriyu oshibok* [Introduction to the theory of errors]. Moscow: Mir, 1985. 272 p. (in Russian)

Information about the authors

Tarchokov Khasan Shamsadinovich, Candidate of Agricultural Sciences, Leading Researcher, Head of the Laboratory of Technology for Cultivation of Field Crops, Institute of Agriculture – branch of Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences;

360004, Russia, Nalchik, 224 Kirov street;

kbniish2007@yandex.ru, ORCID: <https://orcid.org/0000-0002-6187-7354>

Chochaev Magomed Makhmudovich, Senior Researcher of the Laboratory of Technology of Cultivation of Field Crops, Institute of Agriculture – branch of Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences;

360004, Russia, Nalchik, 224 Kirov street;

kbniish2007@yandex.ru, ORCID: <https://orcid.org/0000-0003-2442-6762>

Shogenov Anzor Khasanovich, Candidate of Agricultural Sciences, Researcher of the Laboratory of Technology of Cultivation of Field Crops, Institute of Agriculture – branch of Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences;

360004, Russia, Nalchik, 224 Kirov street;

kbniish2007@yandex.ru, ORCID: <https://orcid.org/0000-0002-1184-5397>

Mataeva Oksana Khasanovna, Junior Researcher, Department of Scientific and Technical Information, Institute of Agriculture – branch of Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences;

360004, Russia, Nalchik, 224 Kirov street;

o-mataeva@mail.ru, ORCID: <https://orcid.org/0000-0003-3590-5734>