

TECHNOLOGICAL PROPERTIES OF WINTER WHEAT GRAIN IN THE PROCESS OF POST-HARVEST RIPENING

Kh.A. MALKANDUEV, R.I. SHAMURZAEV, A.Kh. MALKANDUEVA

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

Abstract. The article evaluates the effect of post-harvest ripening on the rheological properties of winter wheat grain. For the first time in the arid steppe zone of Kabardino-Balkaria, studies were carried out to study the influence of the timing and methods of harvesting on the physical properties and flour-baking qualities of the dough. The experiments were carried out on the winter soft wheat variety Knyazhna, bred by the P.P. Lukyanenko National Grain Center in 2013-2016. The purpose of the research is to carry out a comparative analysis of the quality of grain in the period of post-harvest ripening and to determine its flour-grinding and baking properties, to assess the rheological parameters of grain in different phases of ripeness. The main task was to study the quantitative and qualitative changes occurring in the grain depending on the ripening period and the type of harvest, as well as to substantiate the optimal harvest time. The threshing of grains was carried out at various stages of ripeness (pasty state, beginning, middle, end of waxy and full ripeness, when the grain was over-matured for 5 and 10 days from full). In addition, the effect of post-harvest ripening on flour-baking qualities was studied. Determined such indicators as: the content of raw gluten, flour yield, elasticity, hydration capacity, elasticity of the dough, water absorption capacity (WAC) and others.

It is noted that in the period of post-harvest ripening, the quality of grain improves. Thus, the content of wet gluten increased towards the end of waxy and full ripeness, while the elasticity also improved. In the grain harvested in the middle, end waxy and full ripeness phases, the hydration capacity also increases. According to the research results, these indicators are slightly higher in the variant after 5 months of storage than in the original grain. The level of water absorption capacity of flour increased in the process of post-harvest ripening, reaching the optimal parameter (60.8%). In addition, the elasticity of the dough in the mid-to-end phases of waxy and full ripeness also increased, which is associated with the strengthening of gluten during ripening. The grain harvested in the early stages of ripeness, due to incomplete biochemical processes, had lower alveogram indicators than in the middle, end of waxy and full ripeness.

Keywords: wheat, harvest time, gluten, extensibility, elasticity, water absorption capacity, calorimetric assessment

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Information about authors

Malkanduev Khamid Alievich, Doctor of Agricultural Sciences, Head of the Laboratory of selection and seed production of ear crops of the Institute of Agriculture – branch of Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences;

360004, Russia, Nalchik, 224 Kirov street;

malkandyewaax@mail.ru, ORCID: <https://orcid.org/0000-0003-4946-3818>

Shamurzaev Rustam Ilyasovich, Candidate of Agricultural Sciences, Senior Researcher of the Laboratory of selection and seed production of ear crops of the Institute of Agriculture – branch of Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences;

360004, Russia, Nalchik, 224 Kirov street;

tama8333@mail.ru, ORCID: <https://orcid.org/0000-0002-0169-6826>

Malkandueva Aminat Khamidovna, Candidate of Agricultural Sciences, Senior Researcher of the Laboratory of selection and seed production of ear crops of the Institute of Agriculture – branch of Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences;

360004, Russia, Nalchik, 224 Kirov street;

malkandyewaax@mail.ru, ORCID: <https://orcid.org/0000-0003-4306-3733>