

EFFECTS OF IRRIGATION REGIME AND FERTILIZER RATE ON WINTER WHEAT VARIETIES OF WHEAT PROTEIN

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Abstract: this article reveals the content of protein in the grain of winter wheat varieties “Grom”, “Bunyodkor” and “Gozgan” depending on the growing conditions and the applied agrotechnical measures and varietal characteristics, as well as, increasing the amount of protein in the grain from the norm of fertilizer $N_{120}P_{80}K_{60}$ to the norm of $N_{180}P_{120}K_{90}$ kg/ha has a significant positive effect; however, it has been found that the application of fertilizer standards $N_{240}P_{160}K_{120}$ kg/ha did not change significantly. As well as, In order to make high quality, soft, crunchy and delicious bread, the varieties of the created grain must meet the requirements of high quality.

Keywords: winter wheat, varieties, fertilizer, irrigation, norm, amount, growing, agrotechnical, indicator, quality, protein.

ВЛИЯНИЕ РЕЖИМА ОРОШЕНИЯ И НОРМЫ УДОБРЕНИЙ НА СОДЕРЖАНИЕ БЕЛКА СОРТОВ ОСЕННЕЙ ПШЕНИЦЫ

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Аннотация: в статье выявлено содержание протеина в зерне озимой пшеницы сортов «Гром», «Бунёдокор» и «Гозган» в зависимости от условий выращивания и применяемых агротехнических мероприятий и сортовых характеристик, а также увеличение количества протеина в зерне от нормы удобрения $N_{120}P_{80}K_{60}$ до нормы $N_{180}P_{120}K_{90}$ кг/га оказывает значительный положительный эффект; однако было обнаружено, что применение стандартов удобрений $N_{240}P_{160}K_{120}$ кг/га существенно не изменилось. Кроме того, для получения качественного, мягкого, хрустящего и вкусного хлеба сорта создаваемого зерна должны соответствовать требованиям высокого качества.

Ключевые слова: озимая пшеница, сорта, удобрение, полив, норма, количество, выращивание, агротехника, показатель, качество, белок.

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INTRODUCTION. Growing winter wheat is a source of protein and carbohydrates for human consumption as well as an excellent raw material for the production of high-quality compound feed products.

The quality of bread grown requires a high content of protein and carbohydrates.

In order to make high quality, soft, crunchy and delicious bread, the varieties of the created grain must meet the requirements of high quality. The amount of protein in grains varies for a number of reasons. The hot and dry climate contributes to the accumulation of protein in the grain.

For example, the wheat grown in our country, i.e. in hot climates, retains 2-3% more protein than wheat grown in the northern regions. As the amount of protein in the seed increases, the amount of carbohydrate decreases.

To the north, the amount of protein in crops decreases and the amount of carbohydrate increases. Protein content is affected by soil climatic conditions.

Wheat planting cereals from north to south and from west to east, the protein content begins to increase. Grain quality is affected by air humidity, sunlight (temperature), mineral fertilizer (nitrogen) content and increased agronomic processing.

Based on the above data, in our study we studied and analyzed the dependence of the chemical composition of grain on soil climatic conditions, agrotechnical measures, i.e. irrigation regime, fertilizer rates and varietal characteristics of winter wheat.

The object of the research. “Grom”, “Bunyodkor” and “Gazgon” varieties of winter wheat were obtained in the research.

Field experiments were conducted in central experimental field of the Kashkadarya branch of the Research Institute of Cereals and Legumes in the territory of Yakhshi Omonov CMTP of Karshi district.

In the field experiments, the options were placed in three replications, one section of plot. The total area of the ridges was 180 m²

The results of the research. According to research, one of the quality indicators of winter wheat varieties is the protein content of the grain.

It was found that protein content had been affected by irrigation regime, and mineral fertilizer rate.

The analysis showed that irrigation of winter wheat varieties in order of grain protein content in the order of LFCM (70-70-60), 1 control (without fertilizer) and 3 (N₁₂₀P₈₀K₆₀; N₁₈₀P₁₂₀K₉₀; N₂₄₀P₁₆₀K₁₂₀) in the experimental variant, the average grain protein content was 15,2%, in the order of LFCM (75-80-70) of irrigation in the experiment, the protein content in the grain was 14.1% in proportion to the norm of mineral fertilizers in the experimental variant.

Also, according to the order of options (1, 2, 3 and 4) in the irrigation regime of the experimental LFCM(70-70-60) irrigation regime, in the 1st variant, where the protein content of winter wheat varieties is controlled (without fertilizer), the variety “Grom” is 10.5%, “Bunyodkor” variety was 9.9%, “Gozgon” variety was 9.3 %, in the 2nd variant with mineral fertilizer rate N₁₂₀P₈₀K₆₀ kg/ha, the protein content of grain was 16.6 in proportion to the indicators of winter wheat varieties; in the case of 15.9 and 15.3%, the norm of mineral fertilizers N₁₈₀P₁₂₀K₉₀ kg/ha, the protein content in the grain was 18.0 in proportion to the values in option 3; 17.1 and 16.7% in variant 4 (N₂₄₀P₁₆₀K₁₂₀ kg/ha) the grain protein content was 18.6; 17.6 and 17.2% respectively (figure-1).

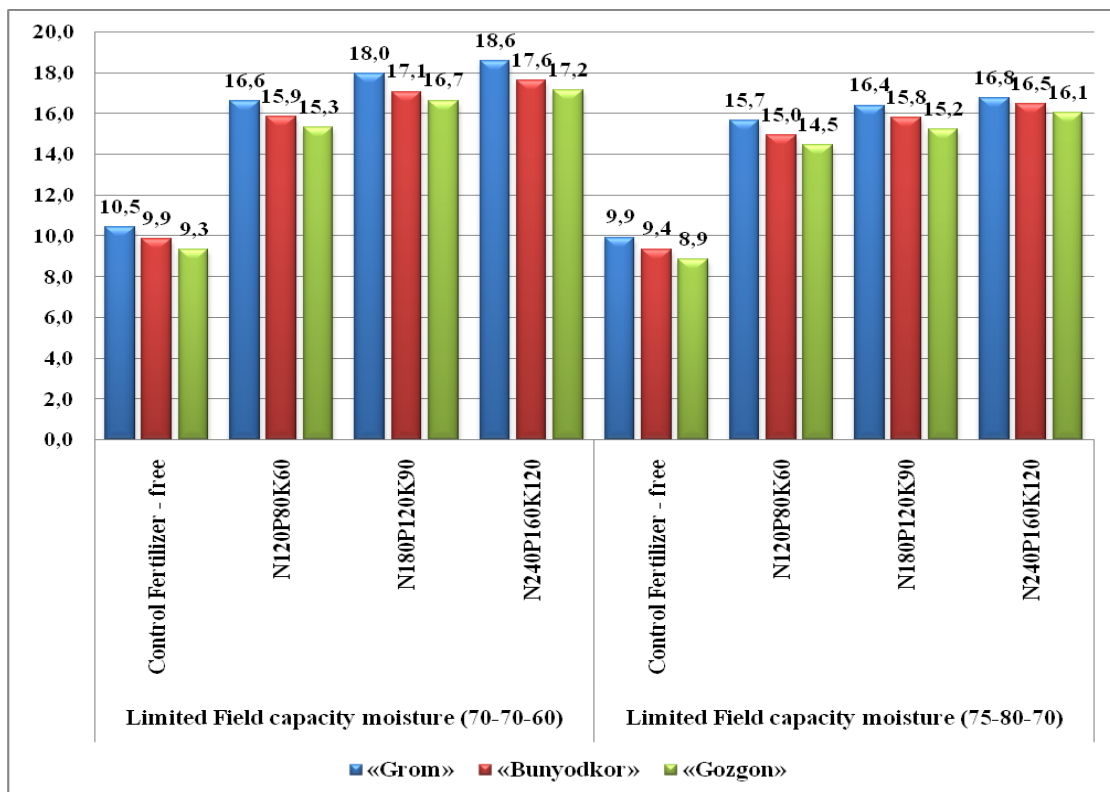


Fig. 1. The average grain protein content of winter wheat varieties is, (%)

In scientific studies, the protein content of winter wheat varieties was controlled (without fertilizer) in the irrigation mode of the next LFCM (75-80-70) “Grom” variety was 9,9%, “Bunyodkor” variety was 9,4% and “Gozgon” variety constituted 8,9% in the 5th variant with the norm of mineral fertilizers N₁₂₀P₈₀K₆₀ kg/ha in proportion to the varieties, the protein content of winter wheat grain is 15.7: 15.0 and 14.5% in the 6th variant, while the norm of mineral fertilizers was N₁₈₀P₁₂₀K₉₀ kg/ha in variant 7, the amount of protein in the grain was 16.4 in proportion to the values; 15.8 and 15.2%, in variant 8 (N₂₄₀P₁₆₀K₁₂₀ kg/ha) the grain protein content was 16.8; 16.5 and 16.1% respectively (Figure 1).

The analysis of the results of the study showed that the minimum grain protein content was 75-80-70% of winter wheat varieties in relation to LFCM in the irrigation regime, in the experimental control (fertilizer-free) variant of winter wheat "Gozgan" was 8.9%, in practice it was found that the highest grain protein content in winter wheat varieties in the irrigation regime of 70-70-60 % compared to LFCM, in the variant of mineral fertilizers $N_{240}P_{160}K_{120}$, the variety "Grom" was 18.6%, which is the highest in practice.

This pattern was observed in subsequent variants of the experiment, and it was found that when the norm of mineral fertilizers in winter wheat was increased from $N_{120}P_{80}K_{60}$ kg/ha to $N_{240}P_{160}K_{120}$ kg/ha, the protein content of the grain was higher.

According to the analysis, the protein content of winter wheat varieties in the experimental field in the mode of irrigation LFCM (70-70-60) "Grom", "Bunyodkor" and "Gozgon"; were found to be higher 1.2; 1.0 and 0.9% than in the regime of LFCM (75-80-70).

Studies have shown that mineral fertilizers have a sharp effect on the application of stratified autumn wheat varieties during the growing season.

According to the research, the fertilizer standard $N_{120}P_{80}K_{60}$ in the relation to the experimental control (without fertilizer) variant of winter wheat varieties "Grom", "Bunyodkor" and "Gozgon" were 5.9, 5.8 and 5.7%; 7.0 in proportion to the varietal performance of the variant used in the experiment $N_{180}P_{120}K_{90}$ fertilizer rate 6.8 and 6.7%, fertilizer rate $N_{240}P_{160}K_{120}$ 7.5 in the applied variant; 7.4 and 7.5%, respectively.

CONCLUSION. Thus, the amount of protein in the grain of winter wheat varieties varies depending on the growing conditions, the applied agro-technical measures, the characteristics of the variety.

In studies, the increase in the amount of protein in the grain from the norm of fertilizer $N_{120}P_{80}K_{60}$ kg/ha to the norm of $N_{180}P_{120}K_{90}$ kg/ha had a significant effect. However, it was found that the application of fertilizer standards $N_{240}P_{160}K_{120}$ kg/ha did not change significantly.

Also, in the study, the application of winter wheat irrigation in the 70-70-60 % regime of LFCM is the most optimal method, but it was found that the use of protein content irrigation of winter wheat in the mode of 75-80-70% of LFCM leads to a decrease in protein content.

References / Список литературы

1. *Siddikov R.* What the quality of grain depends on // Journal of agriculture of Uzbekistan. Tashkent, 2005. № 12. P. 18.
2. *Turaev A., Turaev P.* Norms for fertilizing and irrigating winter wheat // Journal of agriculture of Uzbekistan. Tashkent, 2003. № 5. P. 34-35.
3. *Umarova M.* Growing abundant and quality wheat // The first national conference in Uzbekistan on wheat selection, seed production and cultivation technology. Tashkent, 2004. P. 289-294.
4. *Khalilov N., Rahimov A.* Winter wheat: yield and quality// Journal of agriculture of Uzbekistan. -Tashkent, 2005. № 11. P. 20-21.
5. *Gaybullaev G., Toshkenboev F., Eshbekova M.* Yields and seed quality of winter soft wheat varieties// Journal of agriculture of Uzbekistan. Tashkent, 2017. №7. P. 37.
6. *Ёдгоров Н.Г., Халиков Б.М.* Взаимосвязь урожайности мягких сортов озимой пшеницы с количеством продуктивных стеблей, массы зерна колоса и его выходом НГ // Актуальные проблемы современной науки, 2018.