

IMPORTANT FACTORS IN IMPROVING WINTER WHEAT GRAIN QUALITY

КУЗГИ БУҒДОЙ ДОН СИФАТИНИ ОШИРИШНИНГ МУҶИМ ОМИЛЛАРИ

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**Abstract:** *In order to improve the grain quality of winter wheat under irrigated conditions, it should be fed with nitrogen three times during the season during the heading, tuberting and spike-flowering phases. Additional grain yield due to additional nitrogen feeding is 21-37 tons/ha.*

**Key words:** *wheat, grain, protein, gluten, quality, grain luster, grain viscosity, grain type, bread size, weak, medium and strong wheat*

**Аннотация:** *Суғориладиган шароитда кузги буғдой дон сифатини ошириш учун мавсум давомида уч марта тупланиш, найчалаш ва бошоқлаш-гуллаш фазаларида азотли озиқлантирилиши лозим. Қўшимча азотли озиқлантириш ҳисобига қўшимча дон ҳосили 21-37 ц/га ни ташкил этади.*

**Таянч сўзлар:** *буғдой, дон, оқсил, клейковина, сифат, доннинг ялтироқлилиги, доннинг қовушоқлилиги, дон натураси, нон ҳажми, кучсиз, ўрта ва кучли буғдой*

**Абстрактный:** *Для улучшения качества зерна озимой пшеницы в орошаемых условиях ее следует подкармливать азотом трижды за сезон в фазы колошения, клубнеобразования и цветения колоса. Дополнительная урожайность зерна за счет подкормки азотом составляет 21-37 т/га.*

**Ключевые слова:** *пшеница, зерно, белок, клейковина, качество, блеск зерна, вязкость зерна, тип зерна, размер хлеба, слабая, средняя и сильная пшеница.*

## INTRODUCTION

One of the most important quality indicators of grain is technological quality indicators, which include indicators such as protein, gluten content, grain shine, nature, flour strength, viscosity, and bread size. Wheat varieties are divided into three categories according to grain quality: strong, medium and weak wheat. Durum wheat grains are of the highest quality, and flours made from them are used as an improver for other types of flour. Average quality grain flour is mainly used for making bread and bakery products, and weak grain is mainly used as technical and animal feed. Wheat grain consists of 2 shells: outer - fruit shell; inner - seed shell and fruit shell (pericarp) consisting of the following layers.

According to the length of the grain.

1 Consists of several longitudinal tissues, transverse layer (epicarp), the upper row is called the epidermis.

2 Thick-walled, elongated tissue that is transverse to the grain transverse layer (mesocarp).

3 The grain is elongated and tube-shaped along the length of the grain layer (endocarp).

The seed coat (pericarp) consists of three layers. The first and second layers are made up of elongated tissues with thin walls. The first layer is clear and densely grown with the second layer. The second layer is called the pigmented layer because it contains pigments. The third layer is called the hyaline or scaly layer. The inner part of the grain is called endosperm (Latin enolo - inner, sperma - seed). The layer of endosperm attached to the seed coat is called the aleurone layer. The aleurone layer consists of dense-walled tissues. The aleurone layer is followed by large, thick-walled tissues of various shapes filled with starch granules. There is a layer of protein between the starch granules. The protein is tightly bound to the starch grains and is separated only after intensive processing. The other part of the protein is slightly separated and is called an intermediate protein. When the grain is cut lengthwise, the fringe of small tissues is clearly visible. You can see the rhizome, bud, and inflorescence of the bush separately. The stalk is densely located in the endosperm, and it is the organ that delivers nutrients from the endosperm to the shoot during grain germination.

**Table 1**  
**Dry anatomic parts of wheat grain, chemical composition**  
**amount relative to the substance, in % amount**

<u>Cereal parts</u>	Mass according to grain parts ratio	Protein	Starch	Sugar	Klechalka	Pentozale	fat	Ash
<u>Whole grain</u>	100,00	16,06	63,07	4,32	2,76	8,10	3,00	2,18
<u>Endosperm</u>	81,60	12,91	78,82	3,54	0,15	2,72	0,68	0,45
<u>Murtak</u>	3,24	41,30	-	25,12	2,46	9,74	15,04	6,32
<u>Aleurone layer with shell</u>	15,48	28,75	-	4,18	16,20	36,65	7,78	10,51

According to the table, the starch protein in the endosperm is the main nutrient during sprouting. Fiber, pentosans, ash substances in endosperm are very little. Therefore, the grade flour obtained from the endosperm is well digestible in the human body. Murtak has more pentosans and ash substances. But compared to other parts, it is rich in vitamins. Also, since it contains oil, it is extracted during the production of fine flour, as the oil gives it viscosity during storage. From 100 grams of high-quality wheat flour, up to 1000 cm<sup>3</sup> of quality bread can be made. Such flour is not only a source of nutrients, but also a catalyst for other types of flour. One of the important technological quality indicators of grain is the amount of protein in grain. The life activity of all organisms depends on the activity of proteins. Grain quality depends on several factors, in particular, climatic conditions, agrotechnical factors and

other factors. The factors affecting grain quality are mainly divided into two uncontrollable factors and the other controllable factors. Uncontrollable factors include climatic conditions, controllable factors include agrotechnical measures.

The effect of sowing dates on grain quality in irrigated conditions was studied by A.A. Amanov, Kh.N. Atabaeva, B.M.Azizov and other scientists. According to the results of the conducted experiments, in order to grow a quality crop from winter wheat under irrigated conditions, the seeds of late-ripening varieties should be sown in the second half of September, the seeds of mid-ripening varieties in the first half of October, and the early-ripening varieties in the second half of October. When the seed is sown earlier than the specified period, there are cases of the plant suffering from root rot and dormancy, which in turn has a negative effect on the quality of the grain. When the seed is sown later than the specified period, the seeds do not fully germinate due to the lack of effective temperature, due to the sparseness of the plant, weeds multiply in the field, the plant does not have time to go to the flowering phase of development before the first frost, growth and development lag behind, the flowering-harvest flowering period of the plant is the second half of May and June corresponds to the beginning of the month. During this period, the temperature exceeding 300C on some days has a negative effect on grain formation, grain quality deteriorates significantly. The most important indicator in the cultivation of winter wheat is undoubtedly the grain yield. Winter wheat grain quality and productivity depends on growing conditions [1. 42]. Protein, fat, starch, sugar, vitamins and carbohydrates, which are the main quality indicators of grain, are formed under the influence of external factors (climate, soil, variety, rate and type of mineral fertilizers, ratio of nutrients, planting period, rate, etc.). Depending on the wheat variety and growing conditions, the protein in the grain increases from 8 to 22% [5]. According to V.N. Remeslo, climatic conditions affect more than the relationship between yield and grain protein [2] Other authors point out that there is a relationship between N-P and gluten content [5]. Phosphorus has a comprehensive effect on the plant. It has the ability to develop the root system and grow quickly in the initial period [3]. Under the influence of phosphorus, winter resistance of autumn crops increases, earing speeds up, productivity increases and quality increases. Phosphorous fertilizers not only increase the yield when there is enough moisture in the soil, but also give good results when there is a shortage of moisture.

### **CONCLUSION**

Based on the results of the experiment, the following conclusions can be drawn: - In order to improve the grain quality, winter wheat should be fed with nitrogen three times during the season in the phases of heading, tuberting and spike-flowering; - Additional grain yield due to additional nitrogen feeding is 23-35 tons/ha. Also, in order to obtain quality grain, it is advisable to choose the right variety, to plant strong wheat varieties

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