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**CHANGE OF PROTEIN AMOUNT IN DIFFERENT SOIL-CLIMATE CONDITIONS
UNDER THE INFLUENCE OF HARVEST PERIODS BASED ON SOIL-CLIMATE
CONDITIONS AND GRAIN MOISTURE***Tursunov Muhridin Ne'mathon ugli**assistant**muhiddint56@gmail.com, Tel: (+998 99) 174-67-15*

Abstract. This article presents data on the changes in protein content under different soil-climatic conditions under the influence of soil-climatic conditions and harvest dates based on grain moisture.

Keywords: wheat, variety, protein content, soil-climate, moisture.

Login. In recent years, our country has been implementing consistent reforms to increase the yield and technological quality indicators of soft winter wheat varieties in various soil and climatic conditions. "Within the framework of the Strategy for the Development of Agriculture in our Republic for 2020-2030, "...to diversify production, improve land and water relations, create a favorable agribusiness environment and a high value-added chain, support the development of cooperative relations, widely introduce market mechanisms, information and communication technologies into the industry, as well as effectively use scientific achievements," research on the development of agro-measures to increase and maintain the yield of wheat varieties and improve quality indicators is considered important.

LX Tokhtiyeva, DN Doyev, BA Datiyeva The leading place among the main indicators characterizing the ripening quality of wheat belongs to gluten. In recent years, along with the amount of gluten, great importance has been attached to its quality. It is defined as a combination of physical properties such as elasticity, elongation, strength. Many scientists claim that the quality of gluten in the grain depends on the genetics of the variety by almost 50%, and the remaining 50% on growing conditions. As a result of ripening in winter wheat grain after harvest, as a rule, the amount and quality of raw gluten increase significantly, along with an increase in the volume and porosity of the bread. During the ripening process, gluten in the grain of group II passes into group I. His research has proven that the yield and quality of winter wheat grain largely depends on the variety, growing conditions, timely harvesting, optimal post-harvest processing of the crop, and product storage [1, 2].

Over the past decade, a steady decline in the quality of winter wheat grain has been observed. The protein and gluten content of the grain are the most important indicators of grain quality, and great attention is paid to them when evaluating starting materials at all stages of the selection process. The creation of winter wheat varieties of intensive type, which have a positive complex of economic and biological properties, as well as a high protein content in the grain, is one of the main tasks of breeding science and genetics. Numerous studies by domestic and foreign authors have shown that the protein content of the grain is a hereditary trait with a polygenic nature, but, nevertheless, the protein content of the grain has great variability depending on soil and climatic conditions, its duration, growing season, mineral nutrition,

predecessors and other factors. In recent years, the production of strong and valuable wheat, which is necessary for the production of high-quality bread flour, has decreased, so the creation of soft winter wheat varieties with a high protein content is currently relevant [3, 4]. The decisive moment in the formation of protein in the grain is the temperature regime: high temperature contributes to a more active aggregation of protein molecules due to intermolecular protein disulfide bonds, i.e., to the strengthening of gluten [5].

Research materials and methods. In scientific research, laboratory, field and production experiments, phenological observation, physiological and biometric analyses were carried out on the basis of methodological manuals such as "Methods of the State Commission for Variety Testing of Agricultural Crops", "Methods of Conducting Field Experiments", agrochemical properties of soils in the experimental field "Methods of Agrochemical Analysis of Soils and Plants of Central Asia", and the resistance of varieties to heat and drought in laboratory conditions "Physiology of Heat and Drought Resistance of Plants". Statistical analysis of the results obtained in field experiments was calculated using Microsoft Excel programs according to the B.A. Dospechov method.

Analysis and results . In our research, climatic conditions and heat during the wax ripening-full ripening period also affected the formation of protein content in the grain of the varieties studied.

When analyzing the varieties, it was found that the genetic characteristics of the variety, natural soil-climatic conditions, and grain moisture content were affected by the harvest period. In the 1st harvest period, the protein content of the varieties in the desert region was 15.3-15.8%, in the foothills - 14.5-15.4%, and in the foothills - 14.0-14.6%.

Table 1

Changes in protein content under different soil-climatic conditions under the influence of soil-climatic conditions and harvest dates

No	Harvesting times according to grain moisture content	Type	Protein amount , %		
			desert territory	desert took territory	mountain territory
1	Harvest in the 1st period, grain moisture content 20-22%	Yaksart	15.8	15.4	14.6
2		Krasnodarskaya-99	15.3	14.7	14.1
3		Selyanka	15.3	14.5	14
4		Gazgan	15.6	14.9	14.2
5		Turkestan	15.8	15.1	14.3
6	Harvest in the 2nd period , grain moisture content 14-16%	Yaksart	15.2	15	14.9
7		Krasnodarskaya-99	14.9	14.4	14.3
8		Selyanka	14.5	14.1	14.2
9		Gazgan	15.1	14.5	14.6
10		Turkestan	15.2	14.7	14.7
11	Harvest in the 3rd period , grain moisture content 10-12%	Yaksart	14.4	14.2	14.7
12		Krasnodarskaya-99	13.8	13.1	14.1
13		Selyanka	13.3	12.8	14.1

14		Gazgan	14.3	13.7	14.3
15		Turkestan	14.6	13.8	14.4
16		Yaksart	14.1	13.9	13.8
17	Harvest in the 4th period , grain moisture 8-9%	Krasnodarskaya-99	13.3	12.6	13
18		Selyanka	12.7	12.2	12.9
19		Gazgan	14.0	13.4	13.2
20		Turkestan	14.1	13.5	13.5

It appears from this that the high temperature during wax ripening leads to more active aggregation of protein molecules due to intermolecular protein disulfide bonds.

It was noted that the protein content of varieties of Krasnodar selection, which ripen later than local varieties, is lower under the influence of conditions due to the fact that this process takes a relatively longer period (see Table 1).

Also, when analyzing by variety, in the 1st harvest period, low protein content was observed in Krasnodarskaya-99 and Selyanka varieties in all regions, and high protein content in Yaksart, G'ozg'on and Turkestan varieties. This can be explained by the fact that physiological processes in soft winter wheat varieties created in local conditions are accelerated and the genetic property of the variety for protein accumulation prevails. It appears from this that the high temperature during wax ripening leads to more active aggregation of protein molecules due to intermolecular protein disulfide bonds. It was noted that the protein content of varieties of Krasnodar selection, which ripen later than local varieties, is lower under the influence of conditions due to the fact that this process takes a relatively longer period (see Table 1).

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In our studies, when the protein content of the grain of the varieties was determined in the 2nd harvest period, a decrease of 0.5-0.8% was observed in the desert region (14.5-15.2%) compared to the first harvest period when the grain moisture content was 20-22%, a decrease of 0.4-0.7% was observed in the steppe region (14.1-15.0%) compared to the first harvest period when the grain moisture content was 20-22%, while in the foothill region, on the contrary, an increase of 0.2-0.4% was recorded in the foothill region (14.2-14.9%) compared to the first harvest period when the grain moisture content was 20-22%. This situation can be explained by the warm temperature and high relative humidity of the air in the foothill regions during the wax ripening period. In the 3rd harvest period, when the grain moisture content was 10-12%, the protein content in the grain decreased by 0.6-1.1% in the steppe regions (13.3-14.6%) compared to the 2nd harvest period, a sharp decrease of 0.7-0.9% in the steppe regions (12.8-14.2%) compared to the 2nd harvest period, and a slight decrease of 0.1-0.4% in the foothill regions (14.1-14.7%) compared to the 2nd harvest period was recorded.

Our research revealed a decrease in the protein content of the grain even during the 4th harvest period, and by variety, the Selyanka variety had a lower protein content.

Conclusion, it can be said that in the central (Karshi) and desert (Kasbi) regions of the Kashkadarya region, the protein content was higher when the plants turned 75% yellow (during the wax ripening period), which can be explained by the more active accumulation of protein molecules due to the high temperature and intermolecular protein disulfide bonds, while in the



foothills (Shahrisabz) region, the higher protein content in the full ripening phase of the grain can be explained by the warm temperature and high relative humidity of the air during the wax ripening period.

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