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INDEXES OF WHEAT GRAIN QUALITY IN THE STANDARDS OF  
UKRAINE AND USA

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ПОКАЗНИКИ ЯКОСТІ ЗЕРНА ПШЕНИЦІ У СТАДАРТАХ УКРАЇНИ ТА США

Improving the standardization system in Ukraine, implementation of international standards – a good prerequisite for creating enterprise systems of quality assurance. This will provide an opportunity to significantly increase the competitiveness of domestic products. Although international recommendations on standardisation are optional for all States, but the product complies with the norms of international standards and determine its cost and competitiveness in the international market. The application of international quality standards opens many possibilities for our enterprises in the world market. In Ukraine on control methods of cereals and legumes is valid 113 standards.

Wheat grain is classified according to various indicators, according to different standards and with different systems of evaluation adopted in a particular country of the world. For comparison, consider the various systems to determine the quality of grain used in the Ukraine and the United States.

There is no separate standard for wheat grain in the United States. It is represented in the form of units (M) in General, the standard which was developed on the basis of United States grain standards. It covers 12 grain crops: wheat, rye, grain mix, barley, oats, corn, sunflower seeds, sorghum, soybeans, flax seeds, triticale and hemp. In Ukraine, the standards are presented for certain types of grain. Unlike Ukraine, the US standards do not provide for the division of wheat on purpose, for food and unfood. There is no restrictive condition of grain in the standard of U.S.A. The feature of American standard is that the classification of grain is based on its biological properties and overall condition of the product. Grain quality is assessed according to two main categories: state and grain dockage.

In the American's classification, a measure of the content and quality of gluten are absent. Such indicators as humidity, dockage, protein content, falling number are not regulated by the standard. They are determined and are listed in trading operations with grain and quality certificates.

A significant feature of American standard is that the distribution of wheat types and classes of quality which is carried out only after removal and determination of the dockage content. In Ukrainian standard the concept of "dockage" is missing (tabl.1).

According to the US standards to the foreign material include all the impurities which differ from wheat and remain in the grain mass after the removal of the "dockage", shriveled and broken grains. According to the Ukrainian Standards related to weed a larger list of contaminants than what is determined by this concept in the US standard. It includes those impurities, which correspond to the American "dockage".

There are no restrictive rules of the grain moisture in the American standard for wheat. Grain moisture will be determined and specified in the certificate together with other quality indicators. In the Ukrainian standard for wheat set restrictive standards of moisture content for hard and soft wheat.

The glassiness of grain in the United States is a criterion for the distribution of wheat types in subtypes, and it is not among the indicators that determine the class of wheat. In

Ukraine the normative glassiness of grains set in the standard for soft and hard wheat. There are some significant differences in the method of determining glassiness of grain in the United States and Ukraine. In the USA a glassiness is determined on the amount fully glassy grains, in that time as a domestic method this index determines as a sum of the amount of fully glassy and 50 % amounts of semiglassy grains.

Table 1 – Comparison of grain weediness indicators

Ukrainian standard			American standard		
Weed impurity	Passage-way through the sieve of Ø 1,0		Dockage		
	Remain on the sieve of Ø 1,0	Mineral impurity			
		Organic impurity			
		Seed of wild-growing's plants			
		Damaged grains	Stumpy and broken grains		
	Fusarium grains	Grains of other cultures	Weed impurity	General mass of defects	
	Difficultly separable impurity	Difficultly separable impurity			
Grain impurity	Damaged grains	50 % of broken grains	Damaged grains		Damaged grains
		Germinating grain	Germinating grain		
		Frost-shattered grain	Frost-shattered grain		
		Grain damaged by drying	Fusarium grains		
		Damaged grains of barley, rye	Damaged germ		
		Green grains			
Especially taken into account impurity	Head grain		Black backteriosis		
			Wheat of contrasting types		
			Wheat of other types		
Basic grain			Basic grain		

In Ukraine one of major indexes, that determines baking properties of wheat is the content and quality of gluten. It's one of the main thing to determine the class of wheat and is governed by the standard. With the same level of protein content in the grain can be completely different gluten content and different gluten quality.

The determination of protein content in domestic and international standard is carried out by the same Kjeldahl method. However, in Ukraine and in Europe the protein content is for grain with a moisture content of 14 %, and in the United States and Canada – 12 %. If don't be aware of this difference, the protein in wheat, which is determined according to the American requirements, it will be smaller than in the test in Ukraine. In the US, parameters that determine the quality of protein complex of wheat is not regulated by the standard. It's not included in the list of indicators class of wheat. Indicators of content and quality of gluten is determined additionally to obtain a more complete features of the quality of the grain on its optimal use.

Thus to compare the performance of standards of different countries is not possible because there is a difference in methods and definitions of classification parameters. It is important to define the wheat grain qualities by the same standardized methods.