## Ukraine: milling wheat quality in 2020, what to expect in 2021?



Arina KORCHMARYOVA, COTECNA INSPECTION

The overall quality of **Ukrainian milling wheat** of the harvest-2020 was good with high protein and gluten content, high falling number, and strength of the dough (W). The quality of wheat of the harvest-2020 nearly matched the average figure of the preceding crop, according to our data, the ratio of milling and feed wheat at 40:60 correspondingly in 2020. The average protein content of Ukrainian milling wheat was relatively high last year and was about 12.3%. Moreover, batches of wheat with protein content exceeding 13% are coming into elevators. Thus, they can blend cheaper feed wheat with milling wheat to get batches with 11.5% protein content.

One more parameter confirming the good quality of Ukrainian milling wheat is sedimentation and delayed sedimentation. Statistical data of our laboratory show that the sedimentation results reveal rather good gluten quality for baking (average 35 ml).

At the same time, despite high protein content, the quality of protein in some batches was relatively low due to the soft bond between protein molecules that results in weak gluten. Similar to in 2018, there were unfavorable weather conditions (rains) just before the harvesting campaign. Thus, in some regions, wheat was harvested in wet weather. That provided the development of a higher percentage of molds (fungi) in some wheat batches compared to the previous year.

Overall, I want to mention the **regional difference** in wheat quality in Ukraine mainly caused by the weather factor, and it results in batches with different baking quality (depending on the producing region). For example, dry and hot periods with heavy rains in between combined with adequate fertilizers application favor high protein content formation. On the other hand, the quality of protein is sensitive to high temperature and lack of moisture. Thus, dry weather resulted in high protein and gluten content in southern regions; however, the

quality of gluten is low. Such weather conditions lead to weak bonds between molecules and influence the shift in proportion between protein molecules. The same situation was observed in 2019, however, to a greater extent.

Importers' contractual requirements regarding milling wheat quality specify a standard set of parameters with typical limits. However, some countries like Turkey, Lebanon, Yemen pay attention not only to the common characteristics (protein, gluten, falling number, flour strength), but also to such additional rheological characteristics as dry gluten, gluten index, P/L ratio, sedimentation, and delayed sedimentation that allow them to make a better assessment of actual backing properties of export batches.

As already mentioned, **batch homogeneity** is significant for manufacturing bakery products with expected quality. Thus, some contracts specify laboratory assessment of rheological characteristics for each lot and not only for a composite sample.

Last several years, we see the new trend to **shift to organic produce** and decrease of chemical crop protection products usage. It is a positive trend as the food is becoming purer, tastier, and healthier. But still, Ukrainian farmers use different chemical pesticides (insecticides, fungicides, and herbicides) during the whole period of growth and development of grain to save the crop to the greatest possible extent. Based on the results of testing of 2019/20 MY samples, we formed the list of frequently detected pesticides - in all cases of pesticide detection they were not risky and below the EU limits.

One of the significant changes for the Ukrainin market in 2020 was that the EU changed **chlorpyriphos residual content** norms in importing agricultural products. Chlorpyriphos is widely used as a contact insecticide both on fields and during storage (and it's the main source of contamination for grains). Previous limits of the EU for wheat were 0.50 ppm, and the usual application of the chlorpyriphos did not cause the exceeding of the limit, despite rather a frequent detection – residuals of this pesticide were revealed in each fifth sample. However, the toughening of the limits by 50 times - the new limit at 0.01 ppm was implemented from November 13th, 2020 – turned of export of some grains into a problem.

I advise exporters and importers to control this topic themselves very attentively. Here, I would like to add on the importance of laboratory equipment and qualifications of personnel. European requirements to pesticides MRLs, authorized pesticides as well as test sensitivity and objectivity are toughened every year. A laboratory is responsible for analysis quality assurance, and its qualification is confirmed by a certificate of accreditation ISO 17025. For this, the laboratory must prove the validity of its operation. Such proofs include validation reports for each pesticide and successful participation in interlaboratory comparison (ILC), proving its qualifications. We recommend always asking for a Certificate of Accreditation ISO 17025 and accreditation sphere to understand the capability of the laboratory and its quality service level to be able to rely on it for

pesticide testing. It is also essential to check the equipment sensitivity and the list of pesticides, which the laboratory can analyze, and on what matrixes. The sensitivity is characterized by the LOQ (Limit of Quantification) parameter. Usually, modern equipment can provide the level of 0.005-0.010 mg/kg (ppm). If the laboratory can show such, you can trust it.

## What to expect in 2021?

Early forecasts for Ukrainian wheat **crop-2021** are quite optimistic; this optimism is based on quite good weather during the winter period, favorable conditions for the spring planting campaign, and price trends during 2020/21 MY providing high interest to the production of principal crops.

As for the winter wheat in Ukraine, in general, the winter period's weather conditions were quite favorable for all winter crops, taking into account the temperature regime and the total amount of precipitation in the form of rain and snow. The average air temperature for this winter was -2.1 ° C and turned out to be twice as high as the average multi-year norm, but slightly lower than the previous 3 years. Also, the calendar winter turned out to be relatively generous in precipitation, which in its amount exceeded the climatic norm by 13%.

Both agri ministry and private consulting companies expect **higher crop** of wheat this year than in the previous one – production forecasts vary from 27 to 29,5 mln t (vs 25,1 mln t in 2020). Despite the optimistic forecasts, there are some reasons for **moderate estimations** of the future wheat crop quality and quantity. Dry weather conditions that became typical for Ukraine last seasons could negatively impact planted crops at the final vegetation stage. Also, heavy rains just before and during the harvesting could drastically decrease wheat quality.

Regarding grain quality, it is important to mention that recently Ukraine has decided to establish maximum residue levels for **chlorpyrifos and chlorpyrifos-methyl** in agricultural and food products. According to the draft of the decree of the Ministry of Health, Ukraine to set the maximum residue level (MRL) for the content of chlorpyrifos and chlorpyrifos-methyl in agricultural and food products in the amount of 0.01 mg/kg (mg/l)", it is expected that the new regulations will act from the 1<sup>st</sup> of January, 2022.