

# Assoc. Prof. Dr. Zlatina Ur: The challenges of climate change – the 2024/25 growing season is very different from the previous one for wheat. We expect a good harvest!

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Regarding the condition of the wheat crops during the 2024/25 growing season, the expected yield, the specifics of climate change, the challenges facing Bulgarian wheat breeding, precision farming and its application in the farm of the young farmer Nikola Nikolov in Aytos, as well as the importance of shelterbelts in Dobrudzha, we speak with Assoc. Prof. Dr. Zlatina Ur, Head of the Breeding-Genetic and Variety Maintenance Department, IPGR "K. Malkov" in Sadovo

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***At the “Farmer’s Day” in Sadovo, which was held on 30 May 2025, Chief Assistant Alexiev, in his presentation on cereal crops, noted that this year about 90% of the stands in the country are in very good and even excellent condition. If there are no climatic surprises, can we expect a year with high yields?***

– Unfortunately, in Bulgaria no accurate statistics are kept with observations by individual crops and regions, but by analysing the meteorological conditions and more specifically the temperature and precipitation, which are decisive for the development of wheat, it can be said that this growing season is very different from the previous one. This year in April the negative temperatures persisted for several days, as did the snow. This period coincided with the tillering phase and perhaps the beginning of stem elongation in the earliest varieties. The subsequent favourable conditions – rainfall and rising temperatures – were a prerequisite for the formation of more tillers, which could compensate for the losses from possible damage to the main ear. Rust is observed in part of the stands, so farmers should pay attention. There is still time until harvest and I hope the conditions will be close to optimal and high yields will be obtained. I would like to remind that in recent years in Southern Bulgaria in December, January and February almost no negative average daily temperatures and frosts are recorded for mid and late March.

***Bulgarian wheat breeding of IPGR “K. Malkov” is participating in both platforms – “The Road of Wheat” near the village of Poruchik Geshanovo and “Field Day” in Aytos. Which varieties were sown in Dobrudzha and how did they perform compared to the competing Western ones?***

– In Aytos the newest common winter wheat varieties of IPGR, Sadovo, were sown – Sashets, Yailzla, Farmer, Gizda, Blan, Pobeda and the triticale variety Rozhen. In the platform “The Road of Wheat” near the village of Poruchik Geshanovo the same newest common winter wheat varieties of IPGR, Sadovo, were sown, but without triticale. It is still too early to say how they have performed; let us wait for the harvest in order to have accurate data.

I can only say that they have recovered well after the late frosts and have continued their development.

***What are the main challenges facing modern breeding of Bulgarian wheat?***

– Bulgarian wheats have a number of advantages – they are of high quality and high yielding. Over the years I have repeatedly stated that for me the priority is quality wheat varieties which, in terms of their productive potential, are not inferior to varieties of lower quality. They can meet the needs both of wheat producers and of the baking industry. The flour obtained from such wheats is suitable for the preparation of quality bread without the use of artificial improvers and preservatives. This reduces the risk of allergies to them. Strong wheats, possessing high gluten content, can also serve as improvers of flour obtained from varieties of lower quality. In this way, quality wheat grain could be offered to Bulgarian consumers, to the Balkans and to the world market.

Unfortunately, there is no difference in the price of high-quality wheats from group A and those of lower quality from group B, also called “feed“ wheats. Such a term does not exist, but it is used by some producers and representatives of foreign companies. In my opinion, a state policy is needed to stimulate the production of quality grain. Their advantage is that the breeding process is carried out under the conditions where they are grown. These wheat varieties have undergone at least 5–6 years of evaluation in the organisation where they were created and then 3 years of testing at the ESCAA. This is both a natural and a targeted selection by the breeders according to certain traits – yield, quality indicators, drought and winter hardiness, etc. After 10 years they are more adapted to our conditions compared to foreign varieties, for which the conditions are new.

### ***Tell us about the new technologies applied by Eng. Nikola Nikolov in his farm, the host of the “Field Day” in Aytos***

– In the farm of Nikola Nikolov, the digitalisation and automation of all processes are a fact. He relies on “Precision Agriculture“, a technology that enables producers to manage arable land appropriately, depending on spatially differentiated information. *Precision agriculture* has great potential in developing economic and environmental benefits, which are expressed in reducing the use of water, fertilisers, plant protection products, labour and equipment. The essence of the approach is to take the right management decisions in agriculture based on the variable characteristics of the field and to obtain maximum yields. Nikola Nikolov uses plant growth indices, satellite analysis of upcoming meteorological conditions, and forecasting of optimal dates for plant protection, which makes it possible to reduce the costs from sowing to harvest only to those necessary for control and combating weeds, pests and diseases, and to reduce them to 20% of the standard. By using combined operations and modern machinery, he also achieves a reduction in the largest cost item in agriculture, namely fuel – from 6–7 litres before, currently it is only 4–5 litres per decare. All these, as well as many other advantages of modern precision agriculture, applied in the work of the young farmer from Aytos, also lead to

environmental protection, restoration of nature and maintenance of the soil. Work is now underway on the application of smart farming as well, and we are expecting developments.

***Agriculture is an integrated system in which each element requires special care in order to build sustainable or long-term results. This is why in recent years topics such as the preservation of biodiversity and soil health have been of essential importance for the overall approach to crop cultivation. Recently, the condition and financing of shelterbelts were discussed in Dobrich. According to data from the Ministry of Agriculture and Food, in wheat cultivation these shelterbelts could increase the yield by between 10% and 20%. The benefits for preserving the chernozem, biodiversity and moisture retention are more than clear. Do you think that the restoration of these facilities will be a successful step in the fight against climate change?***

– The restoration of shelterbelts is imperative and their importance is well known. They prevent or reduce the stress to which crops are subjected and, as a result, no yield reduction is recorded. They reduce wind erosion, retain moisture in the soil and preserve the conditions for the entire ecosystem. As an investment, this measure is quite expensive and perhaps subsidies will help to maintain and restore the strips. They are not “one whole“ with the arable land.