

Mycotoxins

The accredited multi-mycotoxin assessments included in the annual wheat crop quality survey for the past fourteen seasons, provide the most comprehensive overview of the multi-mycotoxin risk in commercial wheat produced and delivered to commercial grain storage companies in South Africa. Between 10 and 20% of the wheat crop samples were selected every season to proportionally represent all the production regions.

Constant monitoring of mycotoxin occurrence is crucial, as it is well documented that mycotoxin risk can vary significantly between production seasons and also different production regions. Application of good agricultural practices and storage conditions as well as effective mycotoxin risk management programs are essential elements in preventing the negative effects of mycotoxins. Continued research on the prevention and mitigation of mycotoxin contamination is also necessary.

The only proven way to determine whether grain, cereals, feed or food are contaminated, is to obtain reliable testing data through analytical testing.

Mycotoxin analyses were performed on 40 wheat samples, randomly selected to represent different regions. The samples were tested by means of a SANAS ISO/IEC 17025 accredited multi-mycotoxin method using UPLC-MS/MS. With this technique simultaneous quantification and confirmation of Aflatoxin B₁, B₂, G₁, G₂, Fumonisins B₁, B₂, B₃, Deoxynivalenol, 15-ADON, HT-2 Toxin, T-2 Toxin, Zearalenone and Ochratoxin A are possible in one run.

The absence of Aflatoxin B₁, B₂, G₁, G₂, Fumonisins B₁, B₂, B₃, Ochratoxin A, T2-toxin and HT-2 toxin in the wheat samples over the past fourteen seasons were confirmed in the 2024/25 season. Zearalenone residues have only been detected in three seasons, namely 2019/20, 2021/2022 and 2022/23.

Six of the samples (15%) tested positive for Deoxynivalenol (DON) residues, compared to the 28%, 43% and 35% of the previous three seasons respectively. None of the positive DON residue levels measured this season exceeded the national maximum allowable level (2 000 µg/kg) for cereals intended for further processing. No 15-ADON residues were detected.

The average value of the six positive DON results was 269 µg/kg (ppb) and the highest value measured 408 µg/kg. Last season, 11 samples (28%) tested positive for DON residues with an average value of 239 µg/kg (ppb), the highest value obtained was 478 µg/kg.

Please see the mycotoxin results in Table 6 on pages 57 and 58.