# Mycotoxins

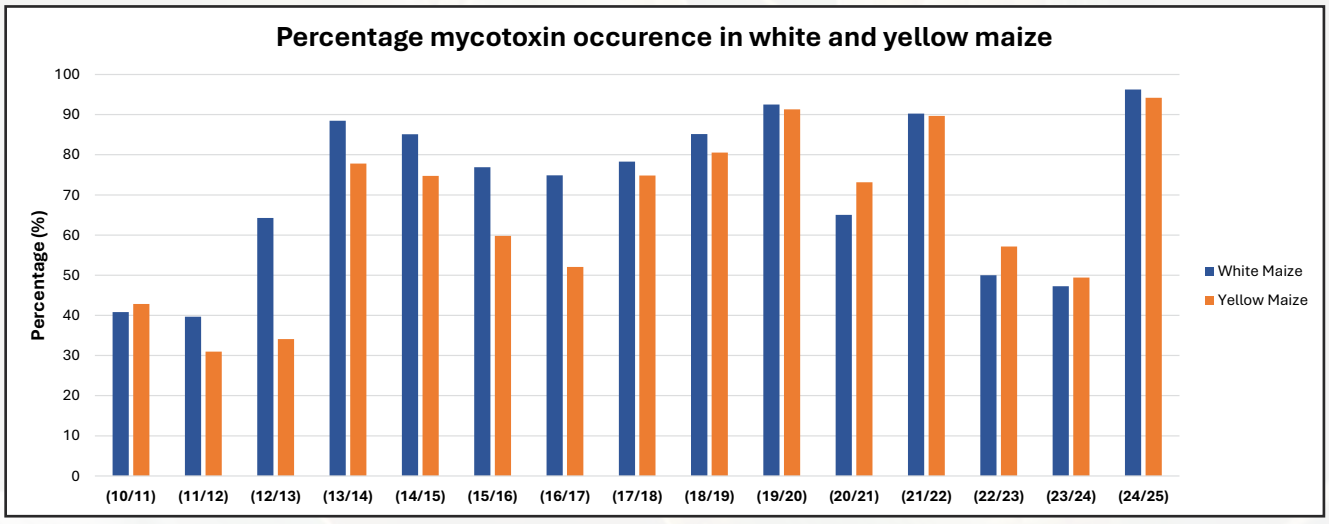
A total of fourteen mycotoxins, including aflatoxin (AFLA) $B_1$, $B_2$, $G_1$ and $G_2$, fumonisin (FUM) $B_1$, $B_2$ and $B_3$, deoxynivalenol (DON), 15-acetyl-deoxynivalenol (15-ADON), ochratoxin A, T2-toxin, H-T2 toxin, zearalenone (ZON), and diplodiatoxin were analysed in 350 maize samples selected from the 1 000 maize crop quality samples of the 2024/25 season. This report presents the concentrations for total AFLA (sum of $B_1$, $B_2$, $G_1$ and $G_2$), total FUM (sum of $B_1$, $B_2$), DON, ZON, and diplodiatoxin. Levels of 15-ADON, the acetylated derivative of DON, are commonly associated with DON levels and its individual levels are omitted from this report. Additionally, none of the samples analysed during the current season contained detectable levels of aflatoxins, ochratoxin A, T-2 toxin, or HT-2 toxin. It should be noted that the levels for diplodiatoxin should be seen as indicative values due to the lack of certified reference materials for this mycotoxin

## Number of samples analysed over the fifteen seasons

Since 2010, a total of 4 477 maize samples have been analysed in the maize quality monitoring program. During the first three seasons fewer samples were analysed, the number of samples was increased to 350 per year from the 2013/14 season. The majority of samples were analysed from the Mpumalanga, Free State, and North West production regions. More white maize samples were analysed from Free State, North West, Gauteng, and Limpopo, while more yellow maize samples were analysed for the Mpumalanga, KwaZulu Natal, and Northern Cape production regions. The fewest samples were analysed form the Western and Limpopo regions. No maize samples were submitted and analysed for the Eastern Cape (region 7-9).

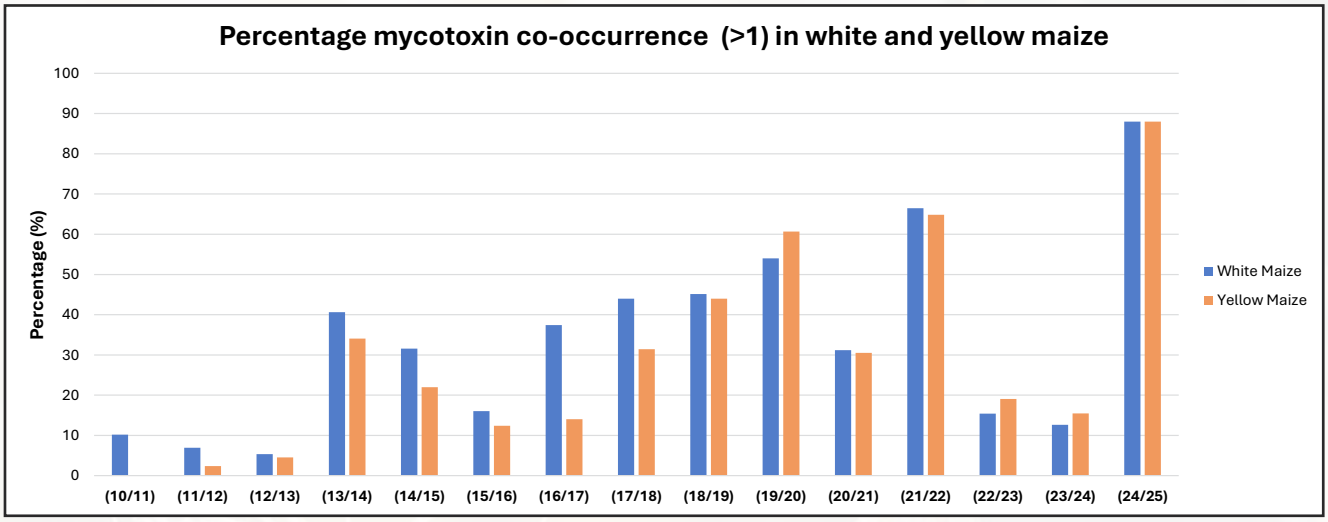
## Number of samples that tested positive for mycotoxins

The percentages of white and yellow maize samples testing positive for at least one mycotoxin during the current production season were the highest since the 2010/11 season (see Graph 60). Compared to the previous season (2023/24), occurrence increased from 47% to 96% in white maize and from 49% to 94% in yellow maize.




Graph 60: The percentage white and yellow maize tested positive for at least one mycotoxin over fifteen seasons from 2010 to 2025

The co-occurrence rate (samples containing more than one mycotoxin) was 88% for both white and yellow maize (see Graph 62), representing the highest percentage reported for all seasons. Compared with last season (2023/24), co-occurrence increased from 13% to 88% in white maize and from 15% to 88% in yellow maize.




Graph 61: The percentage white and yellow maize tested positive for more than one mycotoxin over fifteen seasons from 2010 to 2025

The following sections present the mean mycotoxin concentrations in white and yellow maize, calculated only for samples that tested positive. A summary of overall production regions is presented first, followed by a provincial analysis across each of the nine provinces. Note that diplodiatoxin was only included in the analytical scope from the 2018/19 season.

## All production regions

The mean mycotoxin concentrations in white and yellow maize across all the production regions over fifteen seasons from 2010 to 2025 are shown in Graph 62. The percentage samples testing positive for specific mycotoxins in white maize and yellow maize are shown in Graph 63. Maximum mycotoxin concentrations (µg/kg) in white and yellow maize samples are presented in Tables 37 and 38, respectively.

None of the samples analysed in the current season contained detectable aflatoxins, ochratoxin A, T2-toxin, or H-T2 toxin. The mean total FUM concentration for white maize was 811 µg/kg, the highest for all seasons. The mean total FUM concentration for yellow maize was 836 µg/kg, which is higher than the previous two seasons. FUM was detected in 53% of the white maize and 34% of the yellow maize samples. The mean DON concentration was 1 580 µg/kg in white maize and 972 µg/kg in yellow maize. These levels were higher than levels reported for all seasons. DON was prevalent in 84% of the white maize and 88% for yellow maize samples. The mean ZON concentration in white maize was 131 µg/kg, higher than the previous twelve seasons. In yellow maize, the mean ZON concentration was 90 µg/kg, remaining within the historical eleven season range of 33 to 131 µg/kg. An increase in the percentage maize samples containing ZON was observed for both white (59%) and yellow maize (57%), compared to the previous season of 4% and 3% for the respective maize.

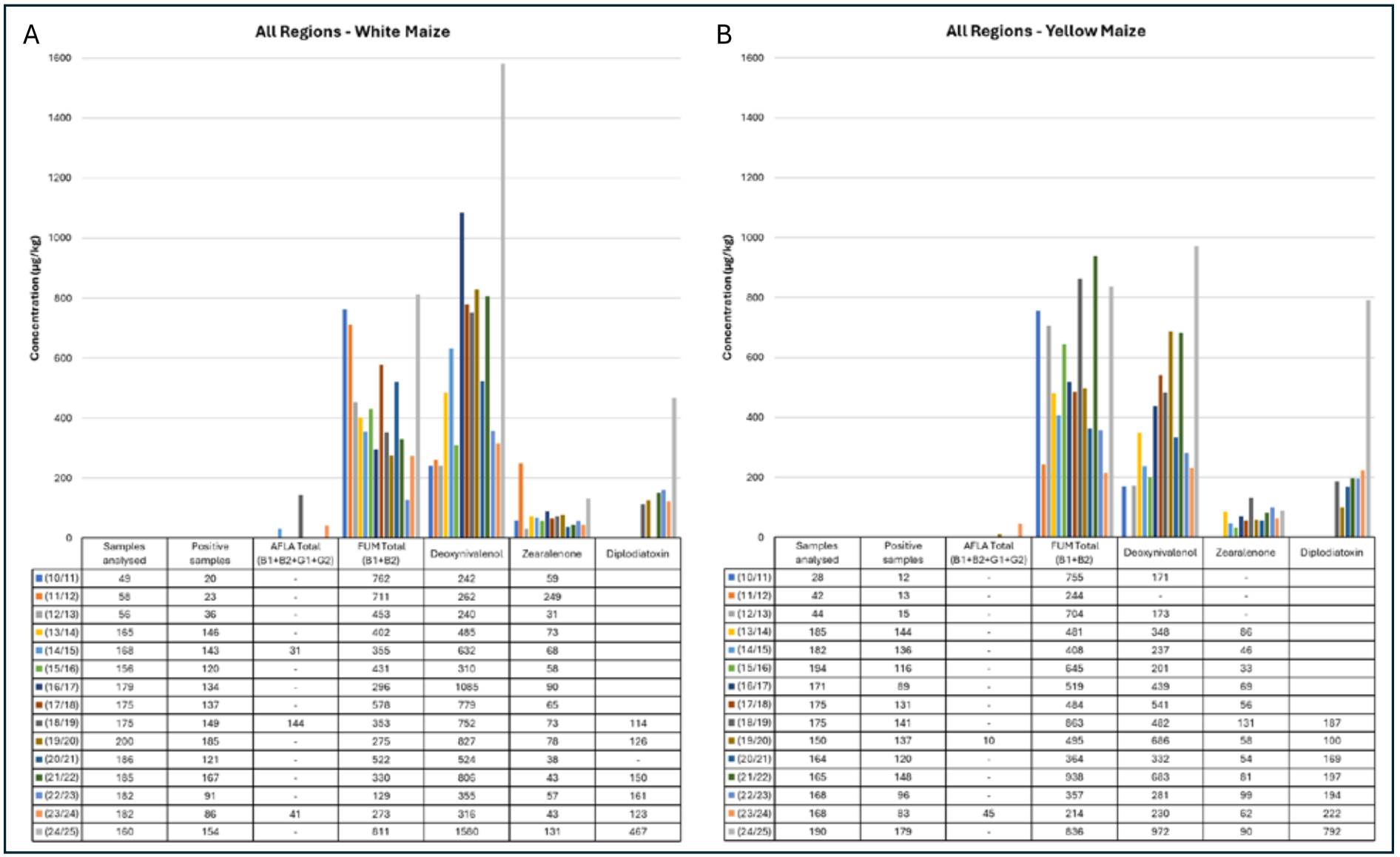
The mean diplodiatoxin concentration was 467 µg/kg in white maize and 792 µg/kg in yellow maize. Mean concentrations for the current season were notably higher than all previous seasons. Diplodiatoxin was detected in 67% of white maize samples and 74% of yellow maize samples.

## Table 37: The maximum mycotoxin concentrations (µg/kg) in white maize samples analysed for all production regions

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 49 | - | 1341 | 883 | 187 | |
| (11/12) | 58 | - | 4197 | 485 | 297 | |
| (12/13) | 56 | - | 1507 | 617 | 41 | |
| (13/14) | 165 | - | 2775 | 6134 | 445 | |
| (14/15) | 168 | 48 | 1695 | 9736 | 337 | |
| (15/16) | 156 | - | 6366 | 1585 | 127 | |
| (16/17) | 179 | - | 3500 | 7698 | 399 | |
| (17/18) | 175 | - | 7943 | 3510 | 361 | |
| (18/19) | 175 | 144 | 7040 | 11181 | 271 | 319 |
| (19/20) | 200 | - | 3635 | 7700 | 539 | 663 |
| (20/21) | 186 | - | 5069 | 3256 | 101 | - |
| (21/22) | 185 | - | 1277 | 3934 | 143 | 595 |
| (22/23) | 182 | - | 523 | 2061 | 107 | 560 |
| (23/24) | 182 | 41 | 1709 | 908 | 107 | 402 |
| (24/25) | 160 | - | 13243 | 10717 | 611 | 5230 |

## Table 38: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for all production regions

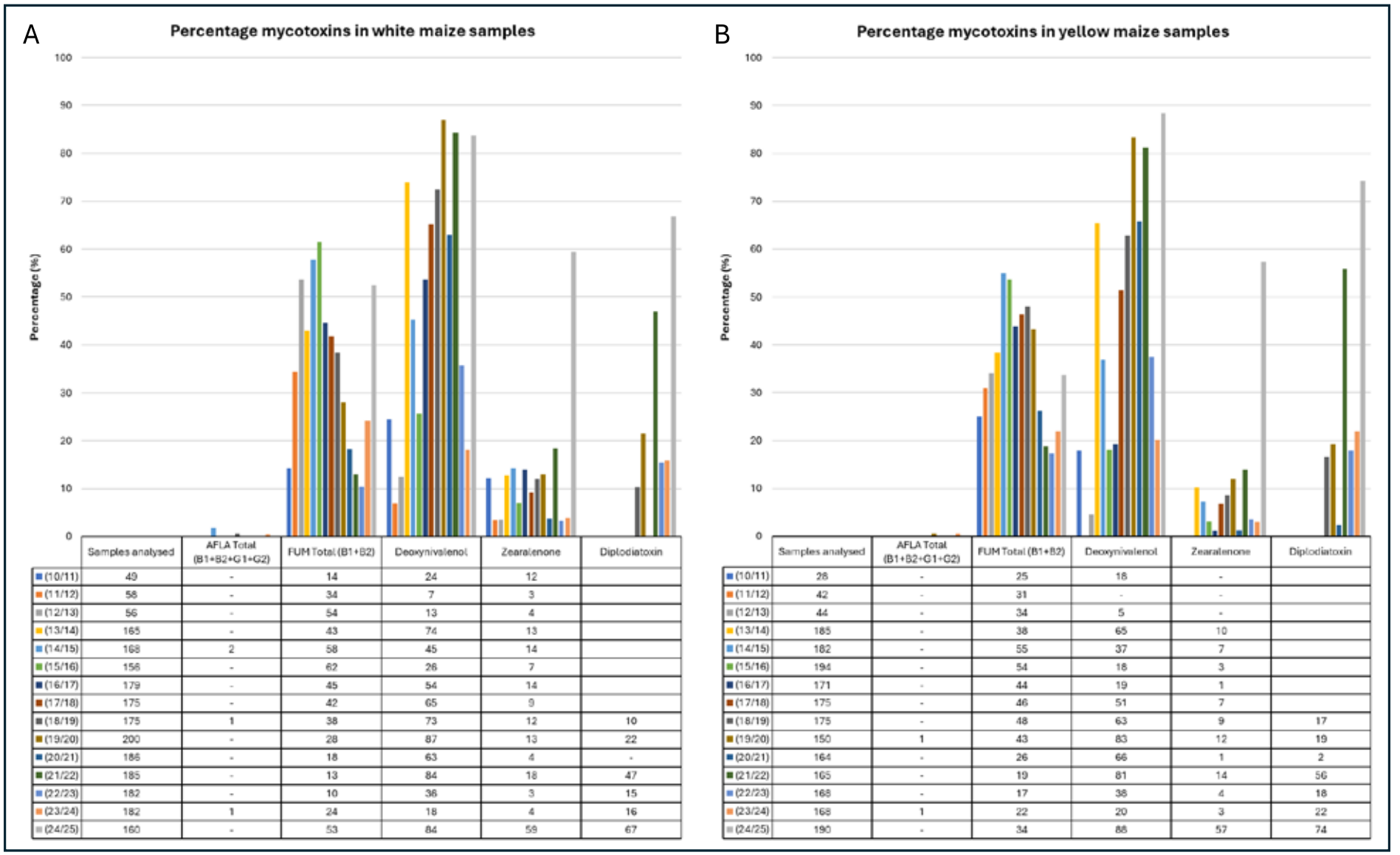
| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 28 | - | 1401 | 222 | - | |
| (11/12) | 42 | - | 674 | - | - | |
| (12/13) | 44 | - | 4055 | 184 | - | |
| (13/14) | 185 | - | 5056 | 2601 | 354 | |
| (14/15) | 182 | - | 3219 | 851 | 124 | |
| (15/16) | 194 | - | 10746 | 640 | 44 | |
| (16/17) | 171 | - | 5551 | 1552 | 113 | |
| (17/18) | 175 | - | 5645 | 2348 | 121 | |
| (18/19) | 175 | - | 30189 | 3256 | 957 | 1235 |
| (19/20) | 150 | 10 | 5555 | 5060 | 243 | 360 |
| (20/21) | 164 | - | 2459 | 2169 | 56 | 312 |
| (21/22) | 165 | - | 17195 | 6879 | 428 | 1347 |
| (22/23) | 168 | - | 2946 | 2205 | 328 | 777 |
| (23/24) | 168 | 45 | 1278 | 741 | 113 | 2389 |
| (24/25) | 190 | - | 3779 | 5919 | 543 | 8627 |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 49 | 20 | - | 762 | 242 | 59 | |
| (11/12) | 58 | 23 | - | 711 | 262 | 249 | |
| (12/13) | 56 | 36 | - | 453 | 240 | 31 | |
| (13/14) | 165 | 146 | - | 402 | 485 | 73 | |
| (14/15) | 168 | 143 | 31 | 355 | 632 | 68 | |
| (15/16) | 156 | 120 | - | 431 | 310 | 58 | |
| (16/17) | 179 | 134 | - | 296 | 1085 | 90 | |
| (17/18) | 175 | 137 | - | 578 | 779 | 65 | |
| (18/19) | 175 | 149 | 144 | 353 | 752 | 73 | 114 |
| (19/20) | 200 | 185 | - | 275 | 827 | 78 | 126 |
| (20/21) | 186 | 121 | - | 522 | 524 | 38 | - |
| (21/22) | 185 | 167 | - | 330 | 805 | 43 | 150 |
| (22/23) | 182 | 91 | - | 129 | 355 | 57 | 161 |
| (23/24) | 182 | 86 | 41 | 273 | 316 | 43 | 123 |
| (24/25) | 160 | 154 | - | 811 | 1560 | 131 | 467 |

| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 28 | 12 | - | 755 | 171 | - | |
| (11/12) | 42 | 13 | - | 244 | - | - | |
| (12/13) | 44 | 15 | - | 704 | 173 | - | |
| (13/14) | 185 | 144 | - | 481 | 348 | 86 | |
| (14/15) | 182 | 136 | - | 408 | 237 | 46 | |
| (15/16) | 194 | 116 | - | 645 | 201 | 33 | |
| (16/17) | 171 | 89 | - | 519 | 439 | 69 | |
| (17/18) | 175 | 131 | - | 484 | 541 | 56 | |
| (18/19) | 175 | 141 | - | 863 | 482 | 131 | 187 |
| (19/20) | 150 | 137 | 10 | 495 | 686 | 58 | 100 |
| (20/21) | 164 | 120 | - | 364 | 332 | 54 | 169 |
| (21/22) | 165 | 148 | - | 938 | 683 | 81 | 197 |
| (22/23) | 168 | 96 | - | 357 | 281 | 99 | 194 |
| (23/24) | 168 | 83 | 45 | 214 | 230 | 62 | 222 |
| (24/25) | 190 | 179 | - | 836 | 972 | 90 | 792 |

Graph 62: The mean mycotoxin concentrations in white maize (A) and yellow maize (B) from all production regions over fifteen seasons from 2010 to 2025




| | Samples analysed | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 49 | - | 14 | 24 | 12 | |
| (11/12) | 58 | - | 34 | 7 | 3 | |
| (12/13) | 56 | - | 54 | 13 | 4 | |
| (13/14) | 165 | - | 43 | 74 | 13 | |
| (14/15) | 168 | 2 | 58 | 45 | 14 | |
| (15/16) | 156 | - | 62 | 26 | 7 | |
| (16/17) | 179 | - | 45 | 54 | 14 | |
| (17/18) | 175 | - | 42 | 65 | 9 | |
| (18/19) | 175 | 1 | 38 | 73 | 12 | 10 |
| (19/20) | 200 | - | 28 | 87 | 13 | 22 |
| (20/21) | 186 | - | 18 | 63 | 4 | - |
| (21/22) | 185 | - | 13 | 84 | 18 | 47 |
| (22/23) | 182 | - | 10 | 36 | 3 | 15 |
| (23/24) | 182 | 1 | 24 | 18 | 4 | 16 |
| (24/25) | 160 | - | 53 | 84 | 59 | 67 |

| | Samples analysed | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 28 | - | 25 | 18 | - | |
| (11/12) | 42 | - | 31 | - | - | |
| (12/13) | 44 | - | 34 | 5 | - | |
| (13/14) | 185 | - | 38 | 65 | 10 | |
| (14/15) | 182 | - | 55 | 37 | 7 | |
| (15/16) | 194 | - | 54 | 18 | 3 | |
| (16/17) | 171 | - | 44 | 19 | 1 | |
| (17/18) | 175 | - | 46 | 51 | 7 | |
| (18/19) | 175 | - | 48 | 63 | 9 | 17 |
| (19/20) | 150 | 1 | 43 | 83 | 12 | 19 |
| (20/21) | 164 | - | 26 | 66 | 1 | 2 |
| (21/22) | 165 | - | 19 | 81 | 14 | 56 |
| (22/23) | 168 | - | 17 | 38 | 4 | 18 |
| (23/24) | 168 | 1 | 22 | 20 | 3 | 22 |
| (24/25) | 190 | - | 34 | 88 | 57 | 74 |

Graph 63: Percentage of samples testing positive for overall and specific mycotoxins in white maize (A) and yellow maize (B) from all production regions over fifteen seasons from 2010 to 2025

## Western Cape (Region 1 - 6) and Eastern Cape (Region 7 - 9)

The mean mycotoxin concentrations in yellow maize from the Western Cape and Eastern Cape regions over fifteen seasons from 2010 to 2025 are shown in Graph 64, and the maximum mycotoxin concentrations (µg/kg) in yellow maize samples are presented in Tables 39 and 40, respectively. No maize samples were analysed during the current season for the Eastern Cape region.

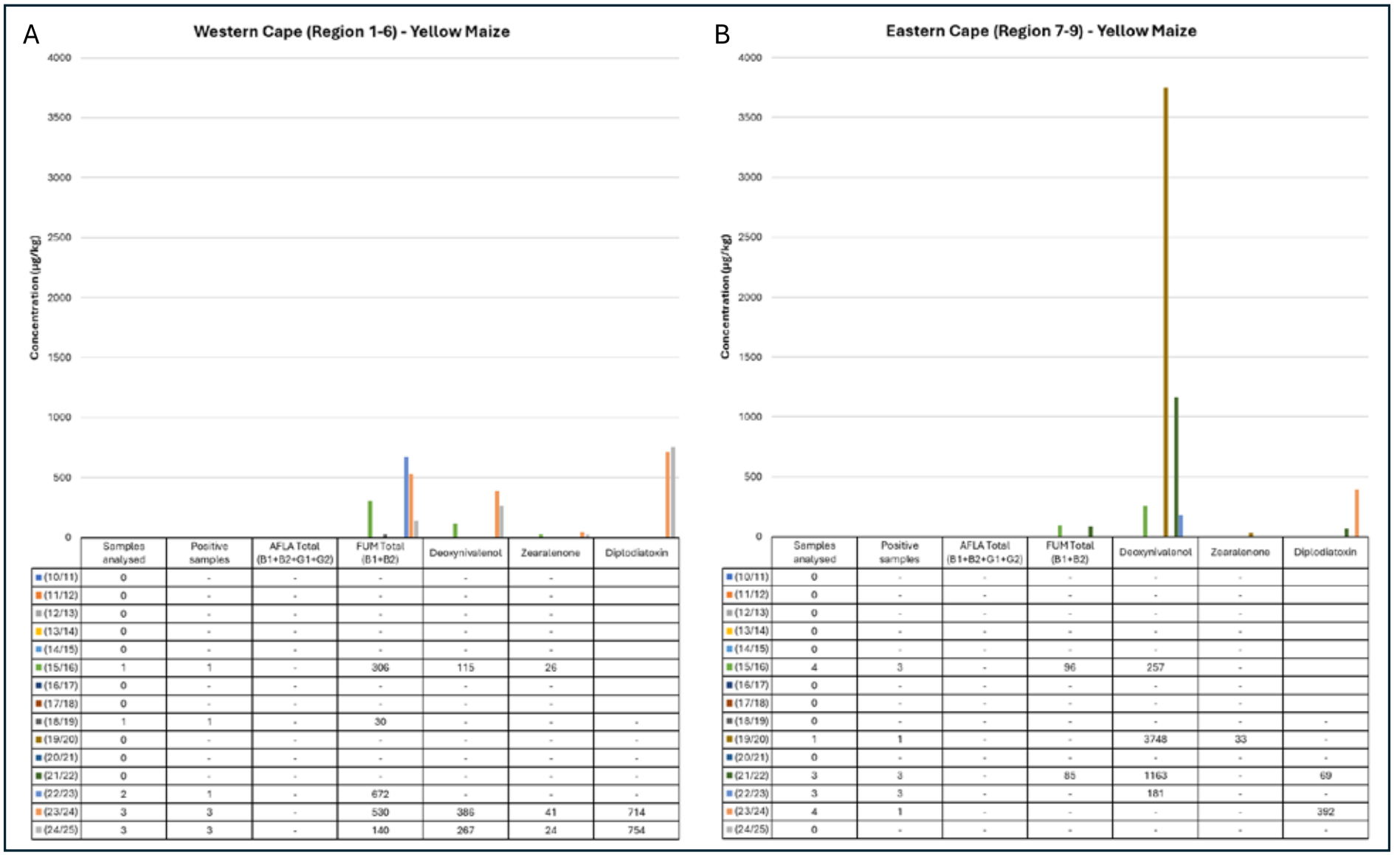
The mean concentrations for total FUM, DON, and ZON in the yellow maize samples for the Western Cape were 140 µg/kg, 267 µg/kg, and 24 µg/kg, respectively. The mean diplodiatoxin concentration was 754 µg/kg, which was similar to the previous production season (714 µg/kg).

Table 39: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for the Western Cape (Region 1-6)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | |
| (11/12) | 0 | - | - | - | - | |
| (12/13) | 0 | - | - | - | - | |
| (13/14) | 0 | - | - | - | - | |
| (14/15) | 0 | - | - | - | - | |
| (15/16) | 1 | - | 306 | 115 | 26 | |
| (16/17) | 0 | - | - | - | - | |
| (17/18) | 0 | - | - | - | - | |
| (18/19) | 1 | - | 30 | - | - | - |
| (19/20) | 0 | - | - | - | - | - |
| (20/21) | 0 | - | - | - | - | - |
| (21/22) | 0 | - | - | - | - | - |
| (22/23) | 2 | - | 672 | - | - | - |
| (23/24) | 3 | - | 1278 | 708 | 41 | 714 |
| (24/25) | 3 | - | 156 | 414 | 24 | 754 |

Table 40: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for the Easten Cape (Region 7-9)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | |
| (11/12) | 0 | - | - | - | - | |
| (12/13) | 0 | - | - | - | - | |
| (13/14) | 0 | - | - | - | - | |
| (14/15) | 0 | - | - | - | - | |
| (15/16) | 4 | - | 143 | 439 | - | |
| (16/17) | 0 | - | - | - | - | |
| (17/18) | 0 | - | - | - | - | |
| (18/19) | 0 | - | - | - | - | - |
| (19/20) | 1 | - | - | 3748 | 33 | - |
| (20/21) | 0 | - | - | - | - | - |
| (21/22) | 3 | - | 85 | 2001 | - | 69 |
| (22/23) | 3 | - | - | 241 | - | - |
| (23/24) | 4 | - | - | - | - | 392 |
| (24/25) | 0 | - | - | - | - | - |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | - | |
| (11/12) | 0 | - | - | - | - | - | |
| (12/13) | 0 | - | - | - | - | - | |
| (13/14) | 0 | - | - | - | - | - | |
| (14/15) | 0 | - | - | - | - | - | |
| (15/16) | 1 | 1 | - | 306 | 115 | 26 | |
| (16/17) | 0 | - | - | - | - | - | |
| (17/18) | 0 | - | - | - | - | - | |
| (18/19) | 1 | 1 | - | 30 | - | - | - |
| (19/20) | 0 | - | - | - | - | - | - |
| (20/21) | 0 | - | - | - | - | - | - |
| (21/22) | 0 | - | - | - | - | - | - |
| (22/23) | 2 | 1 | - | 672 | - | - | - |
| (23/24) | 3 | 3 | - | 530 | 386 | 41 | 714 |
| (24/25) | 3 | 3 | - | 140 | 267 | 24 | 754 |

| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | - | |
| (11/12) | 0 | - | - | - | - | - | |
| (12/13) | 0 | - | - | - | - | - | |
| (13/14) | 0 | - | - | - | - | - | |
| (14/15) | 0 | - | - | - | - | - | |
| (15/16) | 4 | 3 | - | 96 | 257 | - | |
| (16/17) | 0 | - | - | - | - | - | |
| (17/18) | 0 | - | - | - | - | - | |
| (18/19) | 0 | - | - | - | - | - | - |
| (19/20) | 1 | 1 | - | - | 3748 | 33 | - |
| (20/21) | 0 | - | - | - | - | - | - |
| (21/22) | 3 | 3 | - | 85 | 1163 | - | 69 |
| (22/23) | 3 | 3 | - | - | 181 | - | - |
| (23/24) | 4 | 1 | - | - | - | - | 392 |
| (24/25) | 0 | - | - | - | - | - | - |

Graph 64: The mean mycotoxin concentrations in yellow maize from the Western Cape (A) and Eastern Cape (B) regions over fifteen seasons from 2010 to 2025

## Northern Cape (Region 10 - 11)

The mean mycotoxin concentrations in white and yellow maize from the Northern Cape regions over fifteen seasons from 2010 to 2025 are shown in Graph 65, and the maximum mycotoxin concentrations (µg/kg) in white and yellow maize samples are presented in Tables 41 and 42, respectively.

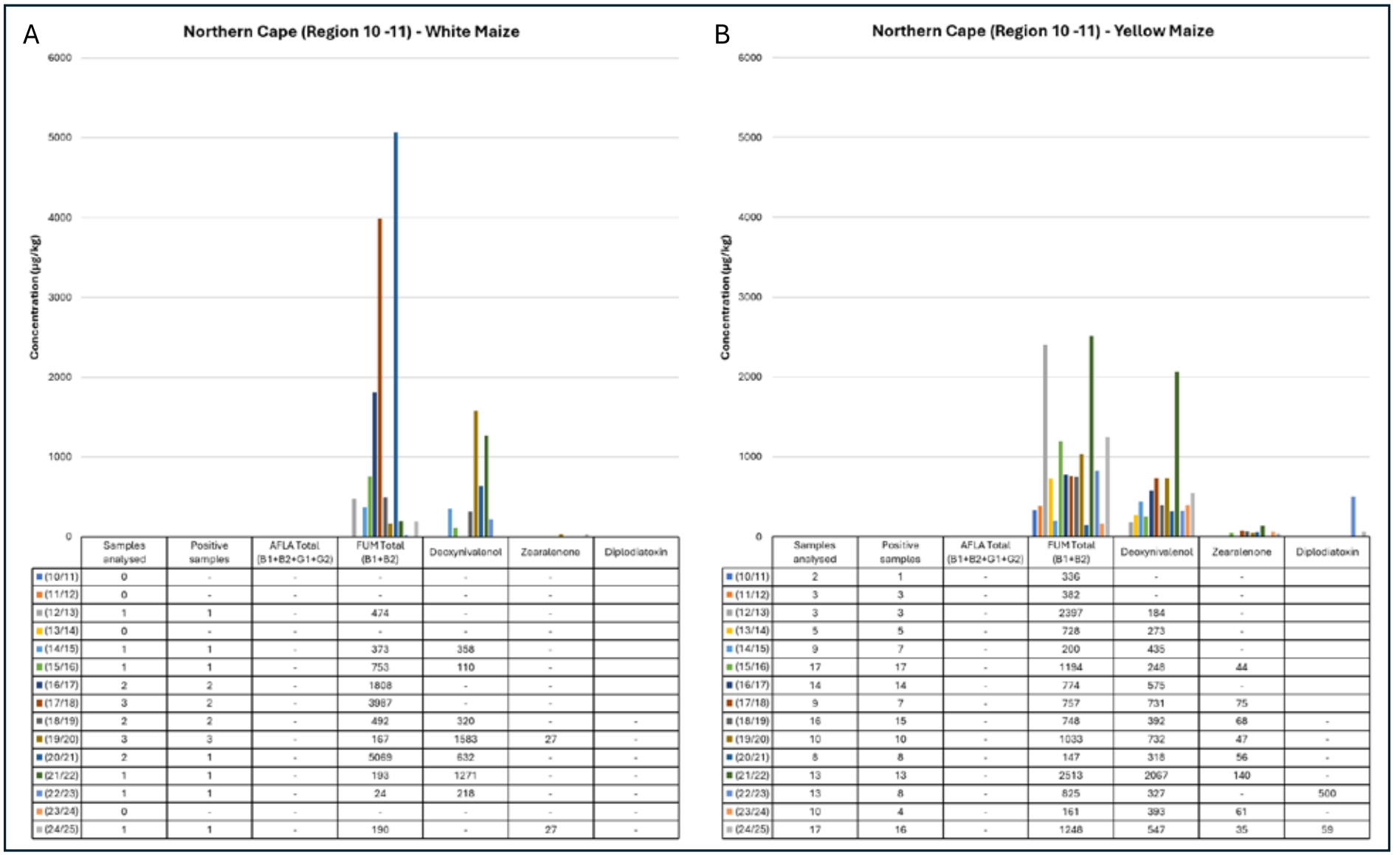
The single white maize sample analysed during this season contained FUM and ZON at 190 µg/kg and 27 µg/kg respectively. The mean total FUM concentration across seventeen yellow maize samples was 1 248 µg/kg, which was higher than the levels reported for the previous two production seasons. The mean DON concentration of 547 µg/kg was slightly higher than the previous two seasons, but lower than the mean concentration reported for the 2021/22 season. The mean ZON concentration in yellow maize was 35 µg/kg, which was lower than the previous season (61 µg/kg). Diplodiatoxin was detected only in yellow maize at a mean concentration of 50 µg/kg, which was lower than levels reported in the 2022/23 season.

Table 41: The maximum mycotoxin concentrations (µg/kg) in white maize samples analysed for the Northern Cape (Region 10 -11)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | |
| (11/12) | 0 | - | - | - | - | |
| (12/13) | 1 | - | 474 | - | - | |
| (13/14) | 0 | - | - | - | - | |
| (14/15) | 1 | - | 373 | 358 | - | |
| (15/16) | 1 | - | 753 | 110 | - | |
| (16/17) | 2 | - | 3500 | - | - | |
| (17/18) | 3 | - | 7943 | - | - | |
| (18/19) | 2 | - | 492 | 509 | - | - |
| (19/20) | 3 | - | 311 | 1915 | 27 | - |
| (20/21) | 2 | - | 5069 | 632 | - | - |
| (21/22) | 1 | - | 193 | 1271 | - | - |
| (22/23) | 1 | - | 24 | 218 | - | - |
| (23/24) | 0 | - | - | - | - | - |
| (24/25) | 1 | - | 190 | - | 27 | - |

Table 42: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for the Northern Cape (Region 10 -11)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 2 | - | 336 | - | - | |
| (11/12) | 3 | - | 670 | - | - | |
| (12/13) | 3 | - | 4055 | 184 | - | |
| (13/14) | 5 | - | 1731 | 391 | - | |
| (14/15) | 9 | - | 746 | 567 | - | |
| (15/16) | 17 | - | 7364 | 554 | 44 | |
| (16/17) | 14 | - | 2282 | 795 | - | |
| (17/18) | 9 | - | 2782 | 1822 | 75 | |
| (18/19) | 16 | - | 1900 | 1318 | 109 | - |
| (19/20) | 10 | - | 5555 | 1838 | 88 | - |
| (20/21) | 8 | - | 346 | 516 | 56 | - |
| (21/22) | 13 | - | 17195 | 6879 | 428 | - |
| (22/23) | 13 | - | 2946 | 642 | - | 500 |
| (23/24) | 10 | - | 235 | 559 | 61 | - |
| (24/25) | 17 | - | 3779 | 1362 | 59 | 59 |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | - | |
| (11/12) | 0 | - | - | - | - | - | |
| (12/13) | 1 | 1 | - | 474 | - | - | |
| (13/14) | 0 | - | - | - | - | - | |
| (14/15) | 1 | 1 | - | 373 | 358 | - | |
| (15/16) | 1 | 1 | - | 753 | 110 | - | |
| (16/17) | 2 | 2 | - | 1808 | - | - | |
| (17/18) | 3 | 2 | - | 3987 | - | - | |
| (18/19) | 2 | 2 | - | 492 | 320 | - | - |
| (19/20) | 3 | 3 | - | 167 | 1583 | 27 | - |
| (20/21) | 2 | 1 | - | 5069 | 632 | - | - |
| (21/22) | 1 | 1 | - | 193 | 1271 | - | - |
| (22/23) | 1 | 1 | - | 24 | 218 | - | - |
| (23/24) | 0 | - | - | - | - | - | - |
| (24/25) | 1 | 1 | - | 190 | - | 27 | - |

| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 2 | 1 | - | 336 | - | - | |
| (11/12) | 3 | 3 | - | 382 | - | - | |
| (12/13) | 3 | 3 | - | 2397 | 184 | - | |
| (13/14) | 5 | 5 | - | 728 | 273 | - | |
| (14/15) | 9 | 7 | - | 200 | 435 | - | |
| (15/16) | 17 | 17 | - | 1194 | 248 | 44 | |
| (16/17) | 14 | 14 | - | 774 | 575 | - | |
| (17/18) | 9 | 7 | - | 757 | 731 | 75 | |
| (18/19) | 16 | 15 | - | 748 | 392 | 68 | - |
| (19/20) | 10 | 10 | - | 1033 | 732 | 47 | - |
| (20/21) | 8 | 8 | - | 147 | 318 | 56 | - |
| (21/22) | 13 | 13 | - | 2513 | 2067 | 140 | - |
| (22/23) | 13 | 8 | - | 825 | 327 | - | 500 |
| (23/24) | 10 | 4 | - | 161 | 393 | 61 | - |
| (24/25) | 17 | 16 | - | 1248 | 547 | 35 | 59 |

Graph 65: The mean mycotoxin concentrations in white maize (A) and yellow maize (B) from the Northern Cape regions over fifteen seasons from 2010 to 2025

## North West (Region 12 – 20)

The mean mycotoxin concentrations in white and yellow maize from the North West region over fifteen seasons (2010 to 2025) are shown in Graph 66. The maximum mycotoxin concentrations (µg/kg) in white and yellow maize samples are presented in Tables 43 and 44, respectively. Fewer white and yellow maize samples were analysed compared to previous production seasons.

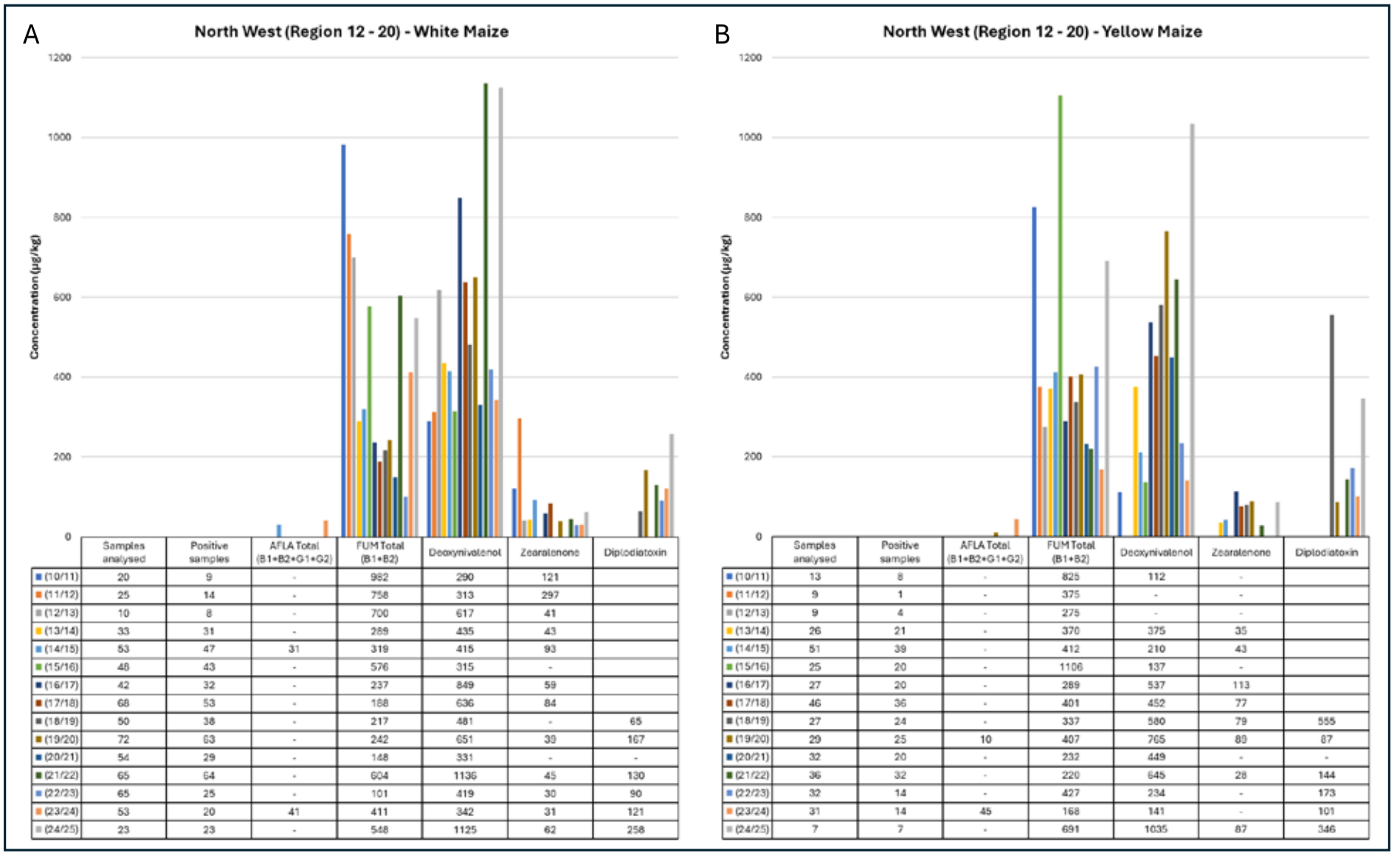
The mean concentration of total FUM in white maize was 548 µg/kg, which was higher than in the previous season (411 µg/kg). For yellow maize, the mean total FUM concentration was 691 µg/kg, which was higher than levels reported for the previous eight seasons. The mean DON concentration in white maize samples of 1 125 µg/kg was higher than in the previous season (342 µg/kg) and similar to levels reported for the 2021/22 season (1 136 µg/kg). In yellow maize, the mean DON concentration was 1 035 µg/kg, which was higher than levels reported for all previous seasons. The mean ZON concentration in white maize was 62 µg/kg, higher than in the previous season (31 µg/kg), while yellow maize recorded a mean concentration of 87 µg/kg. The mean diplodiatoxin concentration was 258 µg/kg for white maize and 346 µg/kg for yellow maize. Although diplodiatoxin levels in white maize were higher than in all previous seasons, the concentration in yellow maize remained lower than levels reported for the 2018/19 production season.

Table 43: The maximum mycotoxin concentrations (µg/kg) in white maize samples analysed for the North West (Region 12 – 20)

| Season | Samples analysed | AFLA Total ($B_1+B_2+G_1+G_2$) | FUM Total ($B_1+B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 20 | - | 1341 | 883 | 187 | |
| (11/12) | 25 | - | 2140 | 485 | 297 | |
| (12/13) | 10 | - | 1507 | 617 | 41 | |
| (13/14) | 33 | - | 739 | 1837 | 64 | |
| (14/15) | 53 | 48 | 1351 | 1391 | 93 | |
| (15/16) | 48 | - | 6366 | 598 | - | |
| (16/17) | 42 | - | 1316 | 7698 | 65 | |
| (17/18) | 68 | - | 740 | 3016 | 84 | |
| (18/19) | 50 | - | 756 | 2410 | - | 68 |
| (19/20) | 72 | - | 602 | 7516 | 54 | 663 |
| (20/21) | 54 | - | 313 | 810 | - | - |
| (21/22) | 65 | - | 1277 | 3678 | 132 | 491 |
| (22/23) | 65 | - | 229 | 2061 | 30 | 91 |
| (23/24) | 53 | 41 | 1414 | 604 | 36 | 299 |
| (24/25) | 23 | - | 2990 | 5152 | 176 | 541 |

Table 44: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for the North West (Region 12 – 20)

| Season | Samples analysed | AFLA Total ($B_1+B_2+G_1+G_2$) | FUM Total ($B_1+B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 13 | - | 1401 | 119 | - | |
| (11/12) | 9 | - | 375 | - | - | |
| (12/13) | 9 | - | 494 | - | - | |
| (13/14) | 26 | - | 964 | 1353 | 44 | |
| (14/15) | 51 | - | 2130 | 328 | 60 | |
| (15/16) | 25 | - | 10746 | 159 | - | |
| (16/17) | 27 | - | 1143 | 1488 | 113 | |
| (17/18) | 46 | - | 1955 | 1696 | 86 | |
| (18/19) | 27 | - | 1258 | 2501 | 127 | 555 |
| (19/20) | 29 | 10 | 1792 | 5060 | 243 | 112 |
| (20/21) | 32 | - | 667 | 2169 | - | - |
| (21/22) | 36 | - | 549 | 2955 | 42 | 711 |
| (22/23) | 32 | - | 1013 | 730 | - | 226 |
| (23/24) | 31 | 45 | 371 | 207 | - | 124 |
| (24/25) | 7 | - | 2611 | 2705 | 220 | 460 |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 20 | 9 | - | 982 | 290 | 121 | |
| (11/12) | 25 | 14 | - | 758 | 313 | 297 | |
| (12/13) | 10 | 8 | - | 700 | 617 | 41 | |
| (13/14) | 33 | 31 | - | 289 | 435 | 43 | |
| (14/15) | 53 | 47 | 31 | 319 | 415 | 93 | |
| (15/16) | 48 | 43 | - | 576 | 315 | - | |
| (16/17) | 42 | 32 | - | 237 | 849 | 59 | |
| (17/18) | 68 | 53 | - | 188 | 636 | 84 | |
| (18/19) | 50 | 38 | - | 217 | 481 | - | 65 |
| (19/20) | 72 | 63 | - | 242 | 651 | 39 | 167 |
| (20/21) | 54 | 29 | - | 148 | 331 | - | - |
| (21/22) | 65 | 64 | - | 604 | 1136 | 45 | 130 |
| (22/23) | 65 | 25 | - | 101 | 419 | 30 | 90 |
| (23/24) | 53 | 20 | 41 | 411 | 342 | 31 | 121 |
| (24/25) | 23 | 23 | - | 548 | 1125 | 62 | 258 |

| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 13 | 8 | - | 825 | 112 | - | |
| (11/12) | 9 | 1 | - | 375 | - | - | |
| (12/13) | 9 | 4 | - | 275 | - | - | |
| (13/14) | 26 | 21 | - | 370 | 375 | 35 | |
| (14/15) | 51 | 39 | - | 412 | 210 | 43 | |
| (15/16) | 25 | 20 | - | 1106 | 137 | - | |
| (16/17) | 27 | 20 | - | 289 | 537 | 113 | |
| (17/18) | 46 | 36 | - | 401 | 452 | 77 | |
| (18/19) | 27 | 24 | - | 337 | 580 | 79 | 555 |
| (19/20) | 29 | 25 | 10 | 407 | 765 | 89 | 87 |
| (20/21) | 32 | 20 | - | 232 | 449 | - | - |
| (21/22) | 36 | 32 | - | 220 | 645 | 28 | 144 |
| (22/23) | 32 | 14 | - | 427 | 234 | - | 173 |
| (23/24) | 31 | 14 | 45 | 168 | 141 | - | 101 |
| (24/25) | 7 | 7 | - | 691 | 1035 | 87 | 346 |

Graph 66: The mean mycotoxin concentrations in white maize (A) and yellow maize (B) from the Northern West regions over fifteen seasons from 2010 to 2025

## Free State (Region 21 - 28)

The mean mycotoxin concentrations in white and yellow maize from the Free State region over fifteen seasons (2010 to 2025) are shown in Graph 67, and maximum mycotoxin concentrations (µg/kg) in white and yellow maize samples are presented in Tables 45 and 46, respectively. The number of white maize samples analysed was similar to previous seasons, while more yellow maize samples were included for the current season.

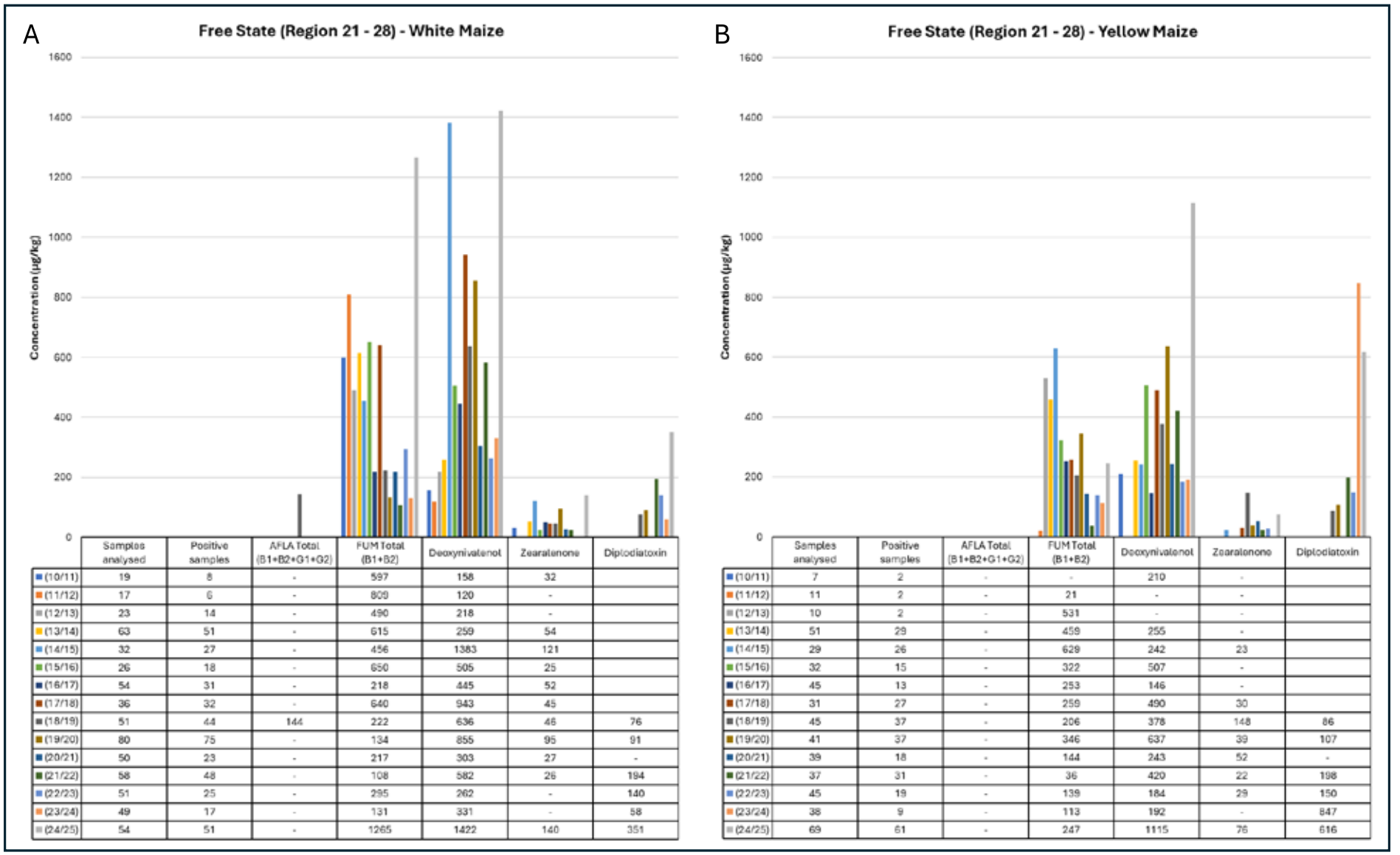
The mean total FUM concentration for white maize samples was 1 265 µg/kg, which was higher than levels reported for all previous seasons. During the current season, the maximum total FUM concentration in a white maize sample reached 13 243 µg/kg, which is the highest reported across all previous seasons. Although the mean total FUM concentration for yellow maize (247 µg/kg) was higher than in the previous season (113 µg/kg), the level remained lower than in most earlier seasons. The mean DON concentrations were 1 422 µg/kg for white maize and 1 115 µg/kg for yellow maize. Although DON levels in white maize were higher than in most previous seasons, they remained comparable to levels recorded during the 2014/15 season. In contrast, DON concentrations in yellow maize were notably higher than in all previous production seasons. The maximum DON concentration in a yellow maize sample was 5 919 µg/kg, which is the highest reported across all previous seasons. The mean ZON concentrations were 140 µg/kg for white maize and 76 µg/kg for yellow maize, consistent with levels reported for previous seasons. The mean diplodiatoxin concentration in white maize of 351 µg/kg was higher than in past seasons. For yellow maize, the mean diplodiatoxin concentration was 616 µg/kg, which was lower than the level reported for the previous season (847 µg/kg), although the maximum concentration of 5 348 µg/kg was the highest reported for all seasons.

Table 45: The maximum mycotoxin concentrations (µg/kg) in white maize samples analysed for the Free State (Region 21 - 28)

| Season | Samples analysed | AFLA Total ($B_1+B_2+G_1+G_2$) | FUM Total ($B_1+B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 19 | - | 1126 | 201 | 41 | |
| (11/12) | 17 | - | 4197 | 120 | - | |
| (12/13) | 23 | - | 1455 | 241 | - | |
| (13/14) | 63 | - | 2775 | 791 | 82 | |
| (14/15) | 32 | - | 1612 | 9736 | 337 | |
| (15/16) | 26 | - | 3248 | 1585 | 26 | |
| (16/17) | 54 | - | 760 | 1868 | 73 | |
| (17/18) | 36 | - | 6927 | 2378 | 91 | |
| (18/19) | 51 | 144 | 1229 | 3604 | 60 | 98 |
| (19/20) | 80 | - | 464 | 7700 | 539 | 188 |
| (20/21) | 50 | - | 239 | 1159 | 27 | - |
| (21/22) | 58 | - | 285 | 2545 | 35 | 595 |
| (22/23) | 51 | - | 523 | 653 | - | 396 |
| (23/24) | 49 | - | 209 | 855 | - | 65 |
| (24/25) | 54 | - | 13243 | 9589 | 589 | 1386 |

Table 46: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for the Free State (Region 21 - 28)

| Season | Samples analysed | AFLA Total ($B_1+B_2+G_1+G_2$) | FUM Total ($B_1+B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 7 | - | - | 222 | - | |
| (11/12) | 11 | - | 21 | - | - | |
| (12/13) | 10 | - | 890 | - | - | |
| (13/14) | 51 | - | 1645 | 868 | - | |
| (14/15) | 29 | - | 3219 | 528 | 23 | |
| (15/16) | 32 | - | 1052 | 640 | - | |
| (16/17) | 45 | - | 808 | 148 | - | |
| (17/18) | 31 | - | 661 | 1606 | 30 | |
| (18/19) | 45 | - | 872 | 1454 | 148 | 246 |
| (19/20) | 41 | - | 1345 | 2150 | 39 | 242 |
| (20/21) | 39 | - | 228 | 531 | 52 | - |
| (21/22) | 37 | - | 40 | 3330 | 22 | 806 |
| (22/23) | 45 | - | 252 | 562 | 29 | 281 |
| (23/24) | 38 | - | 147 | 308 | - | 2389 |
| (24/25) | 69 | - | 879 | 5919 | 282 | 5348 |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 19 | 8 | - | 597 | 158 | 32 | |
| (11/12) | 17 | 6 | - | 809 | 120 | - | |
| (12/13) | 23 | 14 | - | 490 | 218 | - | |
| (13/14) | 63 | 51 | - | 615 | 259 | 54 | |
| (14/15) | 32 | 27 | - | 456 | 1383 | 121 | |
| (15/16) | 26 | 18 | - | 650 | 505 | 25 | |
| (16/17) | 54 | 31 | - | 218 | 445 | 52 | |
| (17/18) | 36 | 32 | - | 640 | 943 | 45 | |
| (18/19) | 51 | 44 | 144 | 222 | 636 | 46 | 76 |
| (19/20) | 80 | 75 | - | 134 | 855 | 95 | 91 |
| (20/21) | 50 | 23 | - | 217 | 303 | 27 | - |
| (21/22) | 58 | 48 | - | 108 | 582 | 26 | 194 |
| (22/23) | 51 | 25 | - | 295 | 262 | - | 140 |
| (23/24) | 49 | 17 | - | 131 | 331 | - | 58 |
| (24/25) | 54 | 51 | - | 1265 | 1422 | 140 | 351 |

| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 7 | 2 | - | - | 210 | - | |
| (11/12) | 11 | 2 | - | 21 | - | - | |
| (12/13) | 10 | 2 | - | 531 | - | - | |
| (13/14) | 51 | 29 | - | 459 | 255 | - | |
| (14/15) | 29 | 26 | - | 629 | 242 | 23 | |
| (15/16) | 32 | 15 | - | 322 | 507 | - | |
| (16/17) | 45 | 13 | - | 253 | 146 | - | |
| (17/18) | 31 | 27 | - | 259 | 490 | 30 | |
| (18/19) | 45 | 37 | - | 206 | 378 | 148 | 86 |
| (19/20) | 41 | 37 | - | 346 | 637 | 39 | 107 |
| (20/21) | 39 | 18 | - | 144 | 243 | 52 | - |
| (21/22) | 37 | 31 | - | 36 | 420 | 22 | 198 |
| (22/23) | 45 | 19 | - | 139 | 184 | 29 | 150 |
| (23/24) | 38 | 9 | - | 113 | 192 | - | 847 |
| (24/25) | 69 | 61 | - | 247 | 1115 | 76 | 616 |

Graph 67: The mean mycotoxin concentrations in white maize (A) and yellow maize (B) from the Free State regions over fifteen seasons from 2010 to 2025

## Mpumalanga (Region 29 - 33)

The mean mycotoxin concentrations in white and yellow maize from the Mpumalanga regions over fifteen seasons from 2010 to 2025 are shown in Graph 68. The maximum mycotoxin concentrations (µg/kg) in white and yellow maize samples are represented in Tables 47 and 48, respectively.

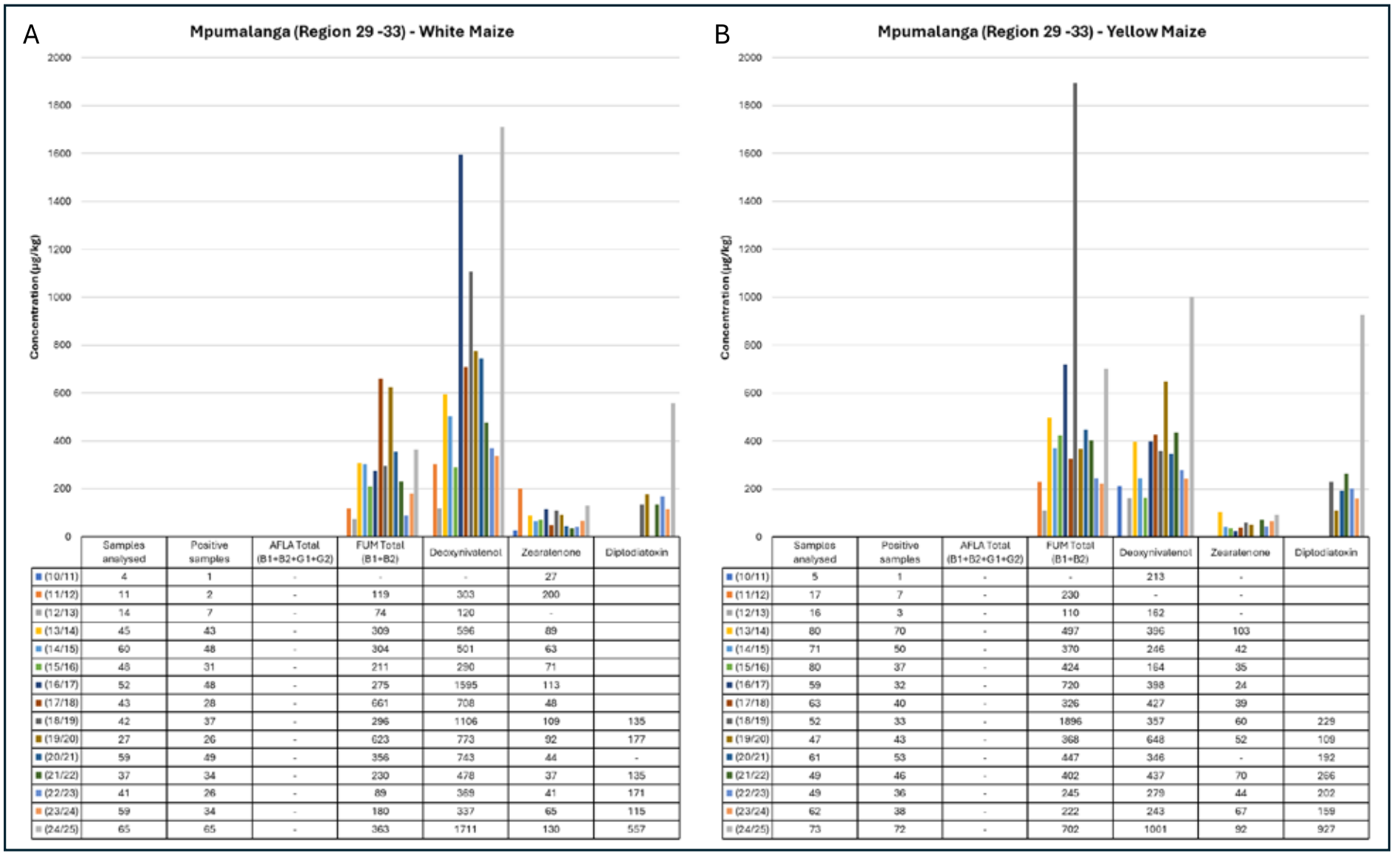
The mean total FUM concentration for white maize was 363 µg/kg. Although this level was higher than levels reported for the past four seasons, it remained within the historical range of 74 to 661 µg/kg. The concentration for yellow maize was 702 µg/kg, which was higher than levels reported for the past five seasons. The mean DON concentrations were 1 771 µg/kg for white maize and 1 001 µg/kg for yellow maize. These levels were higher than levels reported for all previous seasons. The mean ZON concentrations were 130 µg/kg for white maize and 92 µg/kg for yellow maize, both higher than in the previous season. The mean diplodiatoxin concentrations were higher than in all previous seasons for both white maize (567 µg/kg) and yellow maize (927 µg/kg). The maximum concentrations of 5 230 µg/kg for white maize and 8 627 µg/kg for yellow maize were the highest reported across all seasons.

Table 47: The maximum mycotoxin concentrations (µg/kg) in white maize samples analysed for Mpumalanga (Region 29 -33)

| Season | Samples analysed | AFLA Total ($B_1+B_2+G_1+G_2$) | FUM Total ($B_1+B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 4 | - | - | - | 27 | |
| (11/12) | 11 | - | 119 | 303 | 200 | |
| (12/13) | 14 | - | 143 | 139 | - | |
| (13/14) | 45 | - | 1130 | 2730 | 445 | |
| (14/15) | 60 | - | 1246 | 3260 | 212 | |
| (15/16) | 48 | - | 721 | 801 | 127 | |
| (16/17) | 52 | - | 1958 | 7671 | 399 | |
| (17/18) | 43 | - | 3136 | 2812 | 97 | |
| (18/19) | 42 | - | 1382 | 11181 | 271 | 319 |
| (19/20) | 27 | - | 3635 | 5225 | 270 | 504 |
| (20/21) | 59 | - | 2235 | 3256 | 101 | - |
| (21/22) | 37 | - | 559 | 1794 | 49 | 317 |
| (22/23) | 41 | - | 293 | 1366 | 43 | 560 |
| (23/24) | 59 | - | 607 | 908 | 107 | 304 |
| (24/25) | 65 | - | 1754 | 10717 | 388 | 5230 |

Table 48: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for Mpumalanga (Region 29 -33)

| Season | Samples analysed | AFLA Total ($B_1+B_2+G_1+G_2$) | FUM Total ($B_1+B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 5 | - | - | 213 | - | |
| (11/12) | 17 | - | 674 | - | - | |
| (12/13) | 16 | - | 212 | 162 | - | |
| (13/14) | 80 | - | 5056 | 2601 | 354 | |
| (14/15) | 71 | - | 1197 | 851 | 71 | |
| (15/16) | 80 | - | 1836 | 304 | 36 | |
| (16/17) | 59 | - | 5551 | 1552 | 24 | |
| (17/18) | 63 | - | 1467 | 2348 | 58 | |
| (18/19) | 52 | - | 30189 | 777 | 75 | 1235 |
| (19/20) | 47 | - | 1044 | 1857 | 79 | 360 |
| (20/21) | 61 | - | 2459 | 1248 | - | 312 |
| (21/22) | 49 | - | 1552 | 2373 | 179 | 1347 |
| (22/23) | 49 | - | 1211 | 851 | 45 | 777 |
| (23/24) | 62 | - | 557 | 741 | 113 | 676 |
| (24/25) | 73 | - | 2706 | 4904 | 543 | 8627 |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 4 | 1 | - | - | - | 27 | |
| (11/12) | 11 | 2 | - | 119 | 303 | 200 | |
| (12/13) | 14 | 7 | - | 74 | 120 | - | |
| (13/14) | 45 | 43 | - | 309 | 596 | 89 | |
| (14/15) | 60 | 48 | - | 304 | 501 | 63 | |
| (15/16) | 48 | 31 | - | 211 | 290 | 71 | |
| (16/17) | 52 | 48 | - | 275 | 1595 | 113 | |
| (17/18) | 43 | 28 | - | 661 | 708 | 48 | |
| (18/19) | 42 | 37 | - | 296 | 1106 | 109 | 135 |
| (19/20) | 27 | 26 | - | 623 | 773 | 92 | 177 |
| (20/21) | 59 | 49 | - | 356 | 743 | 44 | - |
| (21/22) | 37 | 34 | - | 230 | 478 | 37 | 135 |
| (22/23) | 41 | 26 | - | 89 | 369 | 41 | 171 |
| (23/24) | 59 | 34 | - | 180 | 337 | 65 | 115 |
| (24/25) | 65 | 65 | - | 363 | 1711 | 130 | 557 |

| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 5 | 1 | - | - | 213 | - | |
| (11/12) | 17 | 7 | - | 230 | - | - | |
| (12/13) | 16 | 3 | - | 110 | 162 | - | |
| (13/14) | 80 | 70 | - | 497 | 396 | 103 | |
| (14/15) | 71 | 50 | - | 370 | 246 | 42 | |
| (15/16) | 80 | 37 | - | 424 | 184 | 35 | |
| (16/17) | 59 | 32 | - | 720 | 398 | 24 | |
| (17/18) | 63 | 40 | - | 326 | 427 | 39 | |
| (18/19) | 52 | 33 | - | 1896 | 357 | 60 | 229 |
| (19/20) | 47 | 43 | - | 368 | 648 | 52 | 109 |
| (20/21) | 61 | 53 | - | 447 | 346 | - | 192 |
| (21/22) | 49 | 46 | - | 402 | 437 | 70 | 266 |
| (22/23) | 49 | 36 | - | 245 | 279 | 44 | 202 |
| (23/24) | 62 | 38 | - | 222 | 243 | 67 | 159 |
| (24/25) | 73 | 72 | - | 702 | 1001 | 92 | 927 |

Graph 68: The mean mycotoxin concentrations in white maize (A) and yellow maize (B) from the Mpumalanga regions over fifteen seasons from 2010 to 2025

## Gauteng (Region 34)

The mean mycotoxin concentrations in white and yellow maize from the Gauteng regions over fifteen seasons from 2010 to 2025 are shown in Graph 69. The maximum mycotoxin concentrations (µg/kg) in white and yellow maize samples are represented in Tables 49 and 50, respectively.

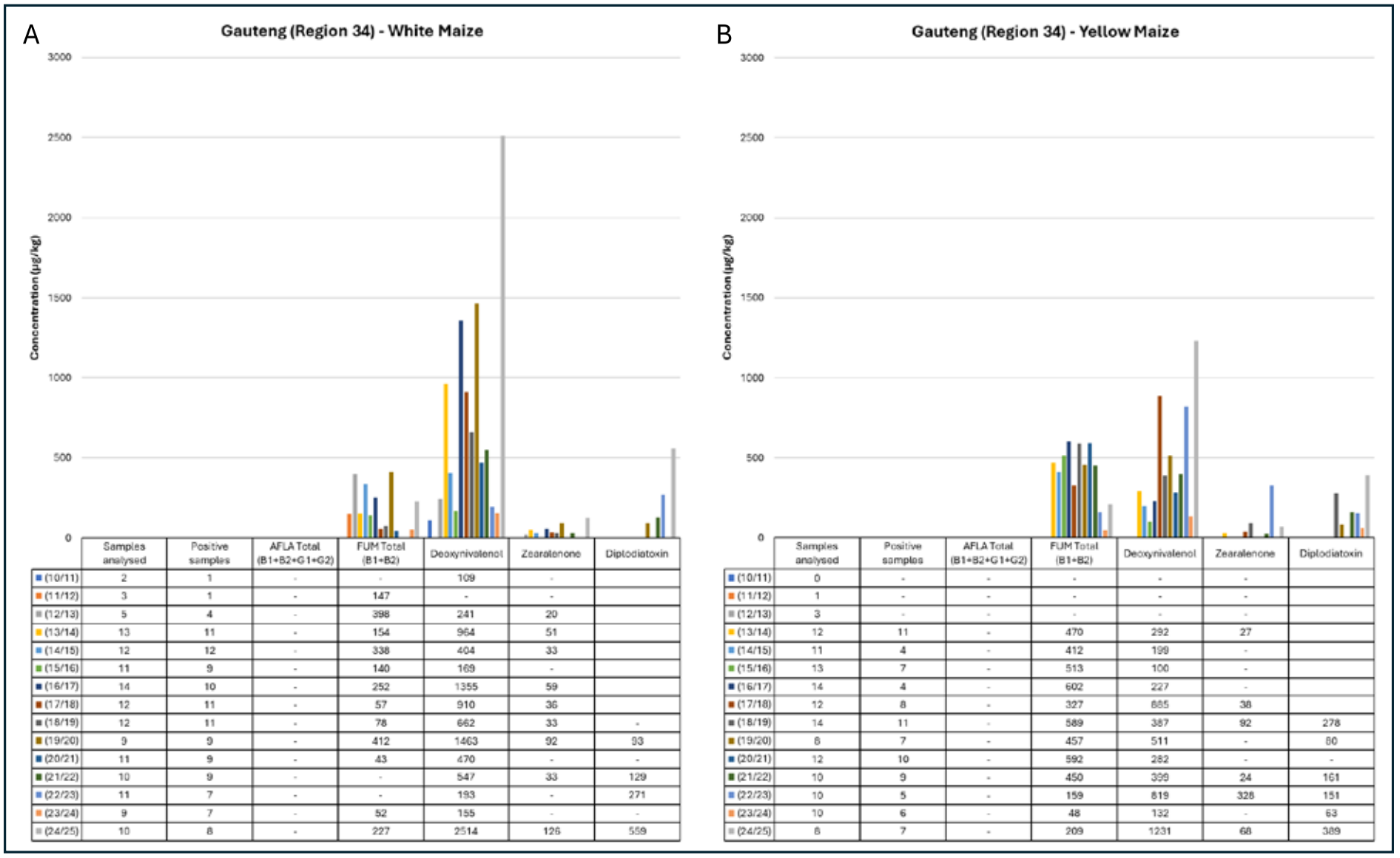
The mean total FUM concentration was 227 µg/kg for white maize and 209 µg/kg for yellow maize. Levels for white maize were higher than levels reported for the past three seasons and continued to be within the historical range of 43 to 412 µg/kg. The concentration for yellow maize was lower than levels reported for the 2010/11 to 2021/22 production seasons. In the current season, mean DON concentrations were higher than levels reported for all previous seasons for both white maize (2 514 µg/kg) and yellow maize (1 231 µg/kg). The mean ZON concentration was 126 µg/kg for white maize and 68 µg/kg for yellow maize. ZON was not detected in white or yellow maize during the previous production season. The mean diplodiatoxin concentrations were 559 µg/kg for white maize and 389 µg/kg for yellow maize.

Table 49: The maximum mycotoxin concentrations (µg/kg) in white maize samples analysed for Gauteng (Region 34)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 2 | - | - | 109 | - | |
| (11/12) | 3 | - | 147 | - | - | |
| (12/13) | 5 | - | 1092 | 241 | 20 | |
| (13/14) | 13 | - | 395 | 6134 | 56 | |
| (14/15) | 12 | - | 1695 | 1135 | 35 | |
| (15/16) | 11 | - | 317 | 257 | - | |
| (16/17) | 14 | - | 673 | 3157 | 117 | |
| (17/18) | 12 | - | 86 | 2432 | 49 | |
| (18/19) | 12 | - | 152 | 3394 | 33 | - |
| (19/20) | 9 | - | 1254 | 3975 | 124 | 101 |
| (20/21) | 11 | - | 50 | 1599 | - | - |
| (21/22) | 10 | - | - | 1044 | 44 | 129 |
| (22/23) | 11 | - | - | 413 | - | 477 |
| (23/24) | 9 | - | 52 | 243 | - | - |
| (24/25) | 10 | - | 569 | 5010 | 207 | 2274 |

Table 50: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for Gauteng (Region 34)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | |
| (11/12) | 1 | - | - | - | - | |
| (12/13) | 3 | - | - | - | - | |
| (13/14) | 12 | - | 1371 | 825 | 27 | |
| (14/15) | 11 | - | 621 | 287 | - | |
| (15/16) | 13 | - | 1308 | 100 | - | |
| (16/17) | 14 | - | 1212 | 321 | - | |
| (17/18) | 12 | - | 716 | 1828 | 38 | |
| (18/19) | 14 | - | 2787 | 804 | 180 | 711 |
| (19/20) | 8 | - | 1173 | 905 | - | 96 |
| (20/21) | 12 | - | 736 | 508 | - | - |
| (21/22) | 10 | - | 782 | 969 | 24 | 393 |
| (22/23) | 10 | - | 276 | 2205 | 328 | 151 |
| (23/24) | 10 | - | 54 | 134 | - | 65 |
| (24/25) | 8 | - | 436 | 2326 | 141 | 758 |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 2 | 1 | - | - | 109 | - | |
| (11/12) | 3 | 1 | - | 147 | - | - | |
| (12/13) | 5 | 4 | - | 398 | 241 | 20 | |
| (13/14) | 13 | 11 | - | 154 | 964 | 51 | |
| (14/15) | 12 | 12 | - | 338 | 404 | 33 | |
| (15/16) | 11 | 9 | - | 140 | 169 | - | |
| (16/17) | 14 | 10 | - | 252 | 1355 | 59 | |
| (17/18) | 12 | 11 | - | 57 | 910 | 36 | |
| (18/19) | 12 | 11 | - | 78 | 662 | 33 | - |
| (19/20) | 9 | 9 | - | 412 | 1463 | 92 | 93 |
| (20/21) | 11 | 9 | - | 43 | 470 | - | - |
| (21/22) | 10 | 9 | - | - | 547 | 33 | 129 |
| (22/23) | 11 | 7 | - | - | 193 | - | 271 |
| (23/24) | 9 | 7 | - | 52 | 155 | - | - |
| (24/25) | 10 | 8 | - | 227 | 2514 | 126 | 559 |



| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | - | |
| (11/12) | 1 | - | - | - | - | - | |
| (12/13) | 3 | - | - | - | - | - | |
| (13/14) | 12 | 11 | - | 470 | 292 | 27 | |
| (14/15) | 11 | 4 | - | 412 | 199 | - | |
| (15/16) | 13 | 7 | - | 513 | 100 | - | |
| (16/17) | 14 | 4 | - | 602 | 227 | - | |
| (17/18) | 12 | 8 | - | 327 | 685 | 38 | |
| (18/19) | 14 | 11 | - | 589 | 387 | 92 | 278 |
| (19/20) | 8 | 7 | - | 457 | 511 | - | 80 |
| (20/21) | 12 | 10 | - | 592 | 282 | - | - |
| (21/22) | 10 | 9 | - | 450 | 399 | 24 | 161 |
| (22/23) | 10 | 5 | - | 159 | 819 | 328 | 151 |
| (23/24) | 10 | 6 | - | 48 | 132 | - | 63 |
| (24/25) | 8 | 7 | - | 209 | 1231 | 68 | 389 |

Graph 69: The mean mycotoxin concentrations in white maize (A) and yellow maize (B) from the Gauteng region over fifteen seasons from 2010 to 2025

## Limpopo (Region 35)

The mean mycotoxin concentrations in white and yellow maize from the Limpopo region over fifteen seasons (2010 to 2025) are shown in Graph 70, and maximum mycotoxin concentrations (µg/kg) in white and yellow maize samples are presented in Tables 51 and 52, respectively.

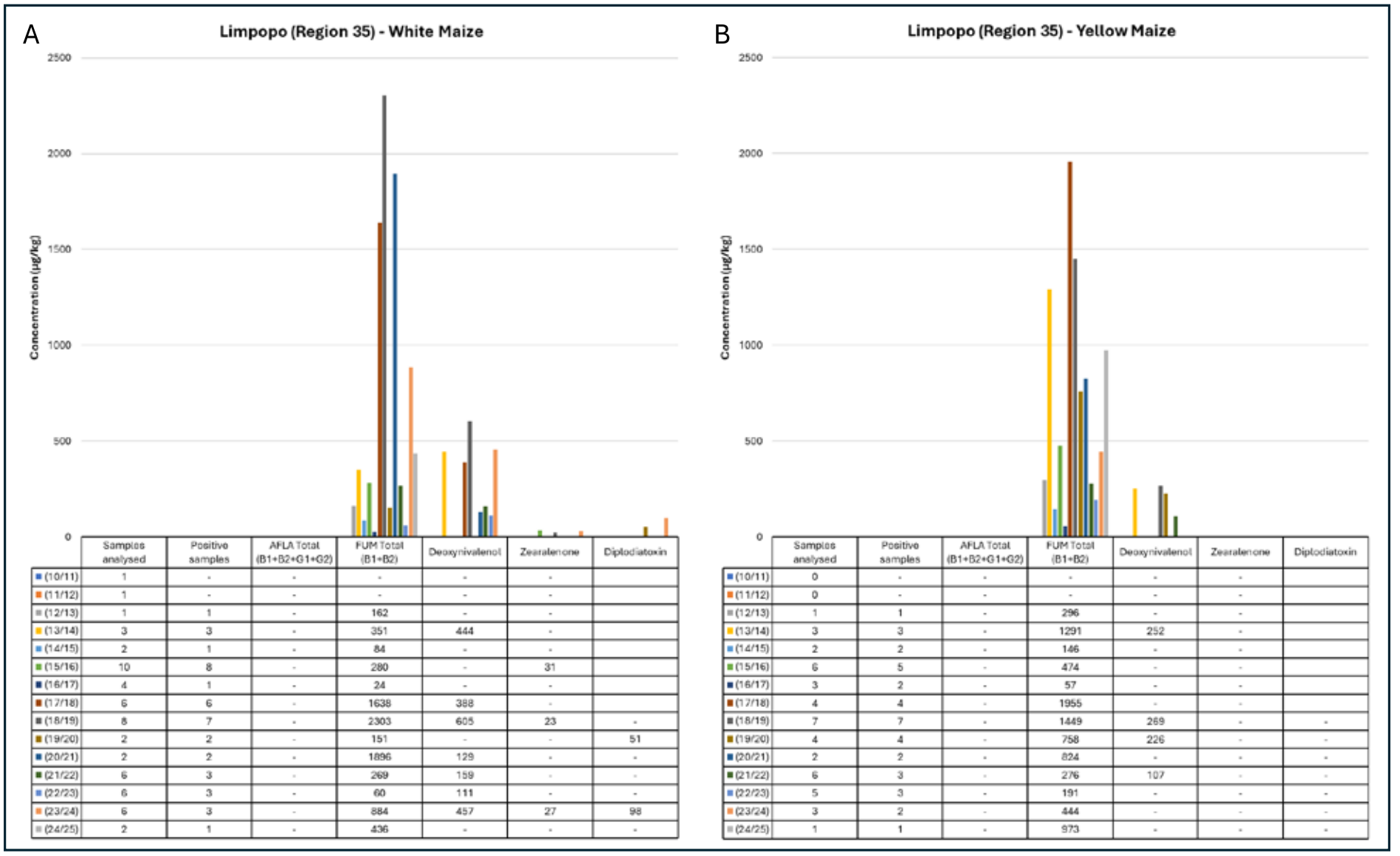
In the current season, only one white maize sample and one yellow maize sample recorded total FUM concentrations of 436 µg/kg and 973 µg/kg, respectively, which were consistent with levels from previous seasons.

Table 51: The maximum mycotoxin concentrations (µg/kg) in white maize samples analysed for Limpopo (Region 35)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 1 | - | - | - | - | |
| (11/12) | 1 | - | - | - | - | |
| (12/13) | 1 | - | 162 | - | - | |
| (13/14) | 3 | - | 372 | 444 | - | |
| (14/15) | 2 | - | 84 | - | - | |
| (15/16) | 10 | - | 826 | - | 31 | |
| (16/17) | 4 | - | 24 | - | - | |
| (17/18) | 6 | - | 4258 | 701 | - | |
| (18/19) | 8 | - | 7040 | 1047 | 23 | - |
| (19/20) | 2 | - | 253 | - | - | 51 |
| (20/21) | 2 | - | 3751 | 129 | - | - |
| (21/22) | 6 | - | 484 | 159 | - | - |
| (22/23) | 6 | - | 86 | 111 | - | - |
| (23/24) | 6 | - | 1709 | 457 | 27 | 98 |
| (24/25) | 2 | - | 436 | - | - | - |

Table 52: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for Limpopo (Region 35)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | |
| (11/12) | 0 | - | - | - | - | |
| (12/13) | 1 | - | 296 | - | - | |
| (13/14) | 3 | - | 2400 | 350 | - | |
| (14/15) | 2 | - | 210 | - | - | |
| (15/16) | 6 | - | 1055 | - | - | |
| (16/17) | 3 | - | 75 | - | - | |
| (17/18) | 4 | - | 5645 | - | - | |
| (18/19) | 7 | - | 4154 | 369 | - | - |
| (19/20) | 4 | - | 2507 | 226 | - | - |
| (20/21) | 2 | - | 1589 | - | - | - |
| (21/22) | 6 | - | 530 | 107 | - | - |
| (22/23) | 5 | - | 286 | - | - | - |
| (23/24) | 3 | - | 753 | - | - | - |
| (24/25) | 1 | - | 973 | - | - | - |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 1 | - | - | - | - | - | |
| (11/12) | 1 | - | - | - | - | - | |
| (12/13) | 1 | 1 | - | 162 | - | - | |
| (13/14) | 3 | 3 | - | 351 | 444 | - | |
| (14/15) | 2 | 1 | - | 84 | - | - | |
| (15/16) | 10 | 8 | - | 280 | - | 31 | |
| (16/17) | 4 | 1 | - | 24 | - | - | |
| (17/18) | 6 | 6 | - | 1638 | 388 | - | |
| (18/19) | 8 | 7 | - | 2303 | 605 | 23 | - |
| (19/20) | 2 | 2 | - | 151 | - | - | 51 |
| (20/21) | 2 | 2 | - | 1896 | 129 | - | - |
| (21/22) | 6 | 3 | - | 269 | 159 | - | - |
| (22/23) | 6 | 3 | - | 60 | 111 | - | - |
| (23/24) | 6 | 3 | - | 884 | 457 | 27 | 98 |
| (24/25) | 2 | 1 | - | 436 | - | - | - |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 0 | - | - | - | - | - | |
| (11/12) | 0 | - | - | - | - | - | |
| (12/13) | 1 | 1 | - | 296 | - | - | |
| (13/14) | 3 | 3 | - | 1291 | 252 | - | |
| (14/15) | 2 | 2 | - | 146 | - | - | |
| (15/16) | 6 | 5 | - | 474 | - | - | |
| (16/17) | 3 | 2 | - | 57 | - | - | |
| (17/18) | 4 | 4 | - | 1955 | - | - | |
| (18/19) | 7 | 7 | - | 1449 | 269 | - | - |
| (19/20) | 4 | 4 | - | 758 | 226 | - | - |
| (20/21) | 2 | 2 | - | 824 | - | - | - |
| (21/22) | 6 | 3 | - | 276 | 107 | - | - |
| (22/23) | 5 | 3 | - | 191 | - | - | - |
| (23/24) | 3 | 2 | - | 444 | - | - | - |
| (24/25) | 1 | 1 | - | 973 | - | - | - |

Graph 70: The mean mycotoxin concentrations in white maize (A) and yellow maize (B) from the Limpopo region over fifteen seasons from 2010 to 2025

## KwaZulu Natal (Region 36)

The mean mycotoxin concentrations in white and yellow maize from the KwaZulu Natal region over fifteen seasons from 2010 to 2025 are shown in Graph 71, and the maximum mycotoxin concentrations (µg/kg) in white and yellow maize samples are presented in Tables 53 and 54 respectively.

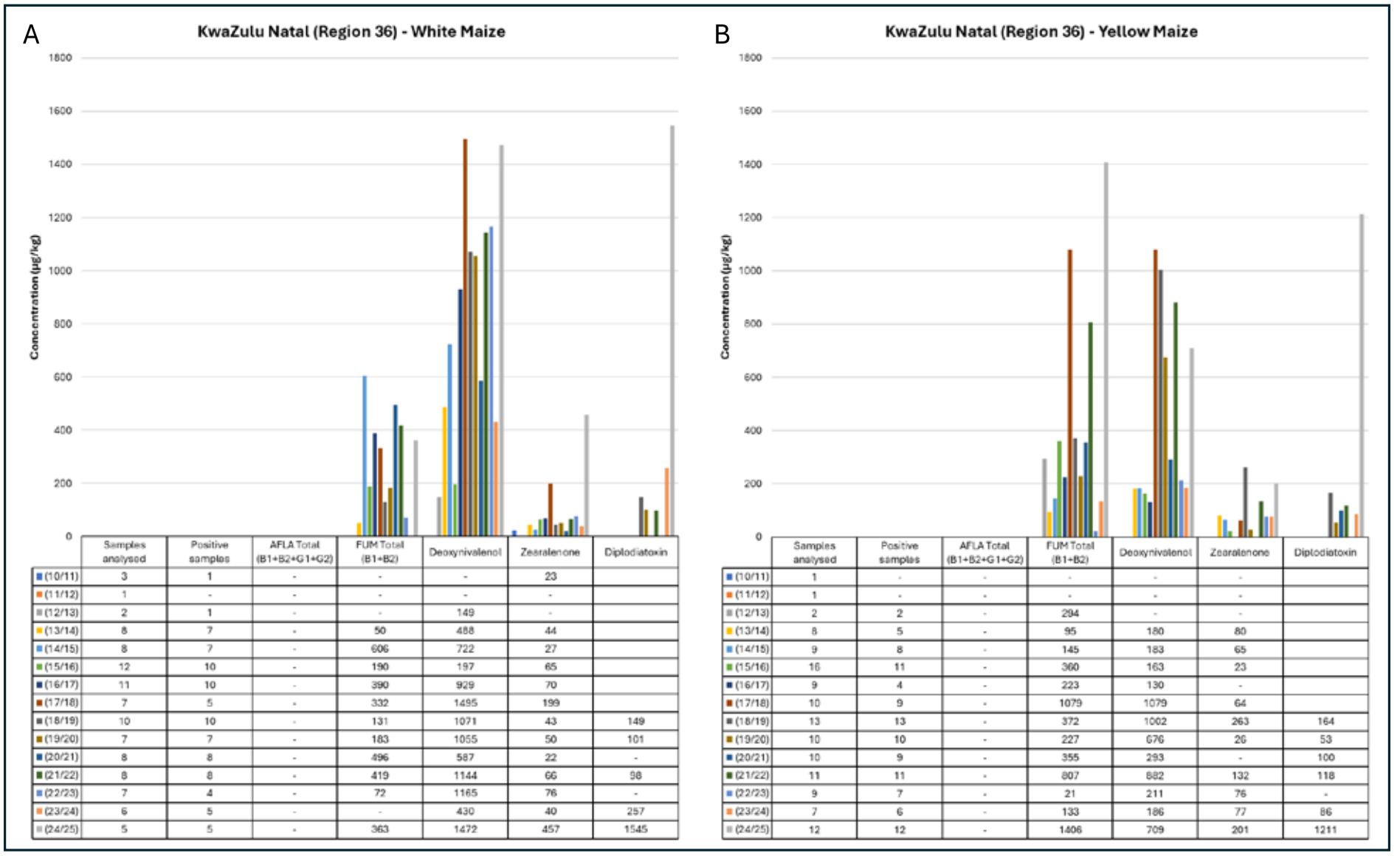
While FUM was not detected in white maize during the previous season, the total FUM concentration of 363 µg/kg was within the historical range of 50 to 606 µg/kg. In contrast, the total FUM concentration in yellow maize was 1 406 µg/kg, which was higher than levels reported for all previous seasons. The maximum concentration of 3 617 µg/kg for yellow maize was the highest reported across all seasons. The mean DON concentration for white maize was 1 472 µg/kg, which was higher than levels reported for the past six seasons. The DON concentration for yellow maize was 709 µg/kg and remained within the historical range of 130 to 1 079 µg/kg. The mean ZON concentration in white maize was 457 µg/kg, the highest level reported across all seasons. For yellow maize, the mean ZON concentration (201 µg/kg) was similar to the previous season. This season, mean diplodiatoxin concentrations for both white (1 545 µg/kg) and yellow maize (1 211 µg/kg) showed a noticeable increase compared to all previous seasons, with maximum concentrations of 2 919 µg/kg and 7 519 µg/kg for white and yellow maize, respectively.

Table 53: The maximum mycotoxin concentrations (µg/kg) in white maize samples analysed for KwaZulu Natal (Region 36)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+$G_2$) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 3 | - | - | - | 23 | |
| (11/12) | 1 | - | - | - | - | |
| (12/13) | 2 | - | - | 149 | - | |
| (13/14) | 8 | - | 78 | 1351 | 47 | |
| (14/15) | 8 | - | 1495 | 1285 | 36 | |
| (15/16) | 12 | - | 402 | 253 | 65 | |
| (16/17) | 11 | - | 714 | 3836 | 128 | |
| (17/18) | 7 | - | 418 | 3510 | 361 | |
| (18/19) | 10 | - | 400 | 4058 | 93 | 239 |
| (19/20) | 7 | - | 279 | 2105 | 78 | 145 |
| (20/21) | 8 | - | 791 | 1198 | 22 | - |
| (21/22) | 8 | - | 1032 | 3934 | 143 | 109 |
| (22/23) | 7 | - | 72 | 1848 | 107 | - |
| (23/24) | 6 | - | - | 675 | 49 | 402 |
| (24/25) | 5 | - | 1062 | 4673 | 611 | 2919 |

Table 54: The maximum mycotoxin concentrations (µg/kg) in yellow maize samples analysed for KwaZulu Natal (Region 36)

| Season | Samples analysed | AFLA Total ($B_1$+$B_2$+$G_1$+G2) | FUM Total ($B_1$+$B_2$) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|
| (10/11) | 1 | - | - | - | - | |
| (11/12) | 1 | - | - | - | - | |
| (12/13) | 2 | - | 361 | - | - | |
| (13/14) | 8 | - | 163 | 236 | 127 | |
| (14/15) | 9 | - | 308 | 372 | 124 | |
| (15/16) | 16 | - | 826 | 234 | 23 | |
| (16/17) | 9 | - | 418 | 130 | - | |
| (17/18) | 10 | - | 2595 | 1956 | 121 | |
| (18/19) | 13 | - | 1193 | 3256 | 957 | 493 |
| (19/20) | 10 | - | 625 | 1353 | 28 | 53 |
| (20/21) | 10 | - | 907 | 442 | - | 100 |
| (21/22) | 11 | - | 807 | 3128 | 257 | 233 |
| (22/23) | 9 | - | 21 | 358 | 111 | - |
| (23/24) | 7 | - | 217 | 332 | 77 | 110 |
| (24/25) | 12 | - | 3617 | 2085 | 525 | 7519 |




| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 3 | 1 | - | - | - | 23 | |
| (11/12) | 1 | - | - | - | - | - | |
| (12/13) | 2 | 1 | - | - | 149 | - | |
| (13/14) | 8 | 7 | - | 50 | 488 | 44 | |
| (14/15) | 8 | 7 | - | 606 | 722 | 27 | |
| (15/16) | 12 | 10 | - | 190 | 197 | 65 | |
| (16/17) | 11 | 10 | - | 390 | 929 | 70 | |
| (17/18) | 7 | 5 | - | 332 | 1495 | 199 | |
| (18/19) | 10 | 10 | - | 131 | 1071 | 43 | 149 |
| (19/20) | 7 | 7 | - | 183 | 1055 | 50 | 101 |
| (20/21) | 8 | 8 | - | 496 | 587 | 22 | - |
| (21/22) | 8 | 8 | - | 419 | 1144 | 66 | 98 |
| (22/23) | 7 | 4 | - | 72 | 1165 | 76 | - |
| (23/24) | 6 | 5 | - | - | 430 | 40 | 257 |
| (24/25) | 5 | 5 | - | 363 | 1472 | 457 | 1545 |



| | Samples analysed | Positive samples | AFLA Total (B1+B2+G1+G2) | FUM Total (B1+B2) | Deoxynivalenol | Zearalenone | Diplodiatoxin |
|---|---|---|---|---|---|---|---|
| (10/11) | 1 | - | - | - | - | - | |
| (11/12) | 1 | - | - | - | - | - | |
| (12/13) | 2 | 2 | - | 294 | - | - | |
| (13/14) | 8 | 5 | - | 95 | 180 | 80 | |
| (14/15) | 9 | 8 | - | 145 | 183 | 65 | |
| (15/16) | 16 | 11 | - | 360 | 163 | 23 | |
| (16/17) | 9 | 4 | - | 223 | 130 | - | |
| (17/18) | 10 | 9 | - | 1079 | 1079 | 64 | |
| (18/19) | 13 | 13 | - | 372 | 1002 | 263 | 164 |
| (19/20) | 10 | 10 | - | 227 | 676 | 26 | 53 |
| (20/21) | 10 | 9 | - | 355 | 293 | - | 100 |
| (21/22) | 11 | 11 | - | 807 | 882 | 132 | 118 |
| (22/23) | 9 | 7 | - | 21 | 211 | 76 | - |
| (23/24) | 7 | 6 | - | 133 | 186 | 77 | 86 |
| (24/25) | 12 | 12 | - | 1406 | 709 | 201 | 1211 |

Graph 71: The mean mycotoxin concentrations in white maize (A) and yellow maize (B) from the KwaZulu Natal region over fifteen seasons from 2010 to 2025