

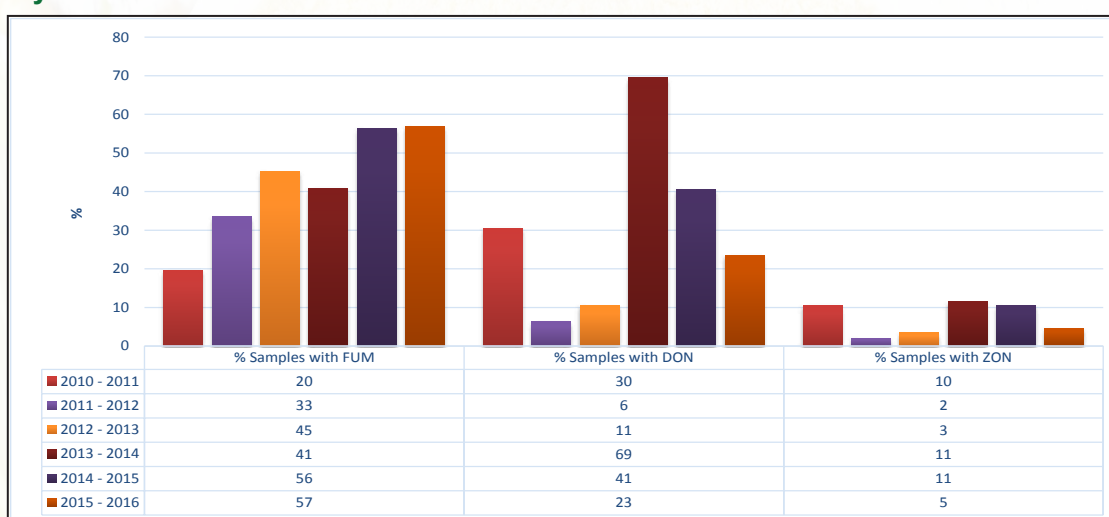
MYCOTOXINS

The annual maize crop quality surveys provide an ideal opportunity to evaluate the occurrence status of mycotoxins throughout all production regions in South Africa. Reliable analytical data is accumulated to establish a database to enable industry to comment on proposed legislative levels and to supply reliable data for targeted research projects to effectively manage the mycotoxin levels in maize.

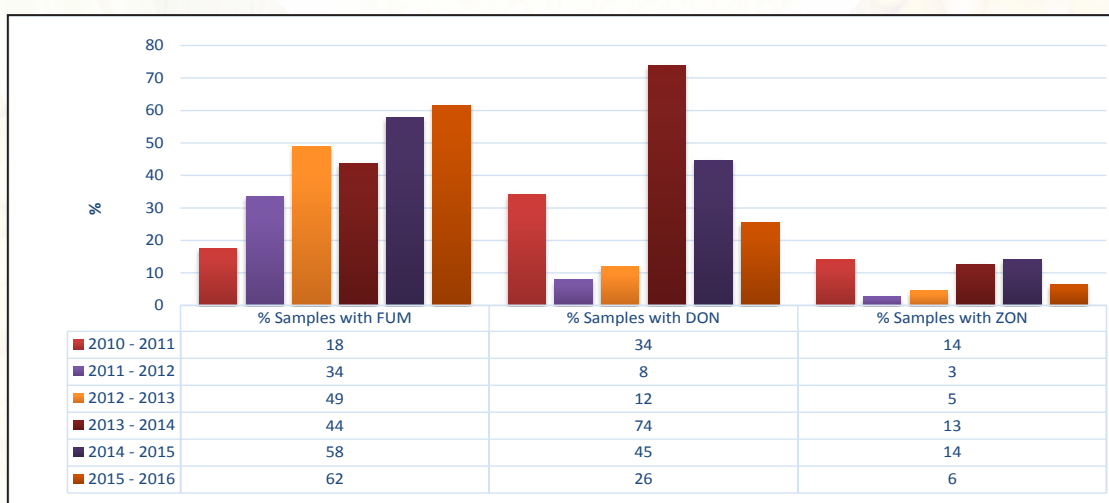
A total number of 325 samples were analysed for mycotoxin residue levels in the 2010/2011 season. From the 2011/2012 season onwards to this, the 2015/2016 season, 350 samples were analysed annually. The samples were selected to represent all the production regions as well as both white and yellow maize proportionally.

Graphs 49 to 51 provide a summary of the seasonal effect on the percentages white and yellow maize, white maize and yellow maize samples from the samples selected, that tested positive for Fumonisin (FUM), Deoxynivalenol (DON) and Zearalenone (ZON).

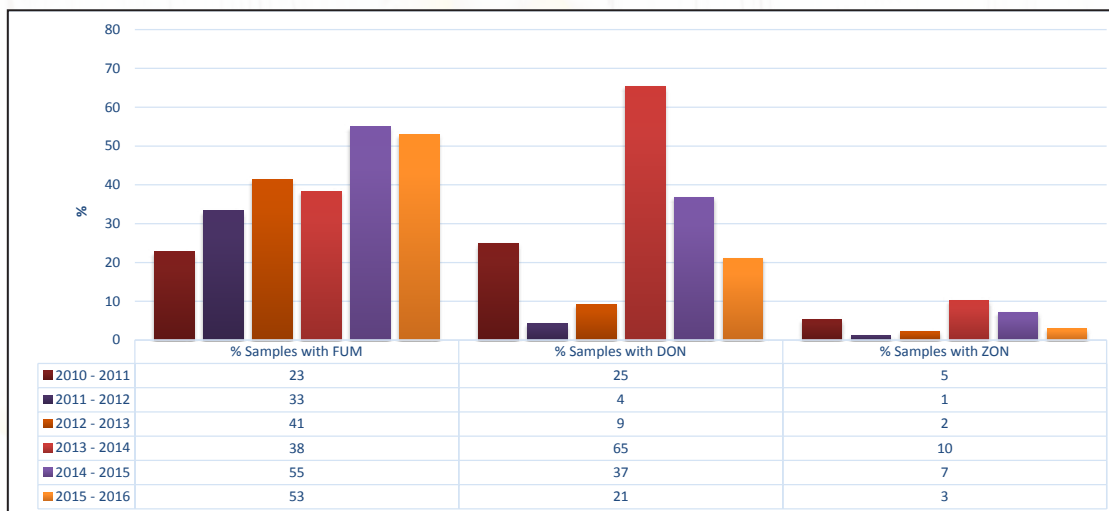
Graph 49: Percentage white and yellow maize samples that tested positive for mycotoxins over six seasons



Graph 50: Percentage white maize samples that tested positive for mycotoxins over six seasons

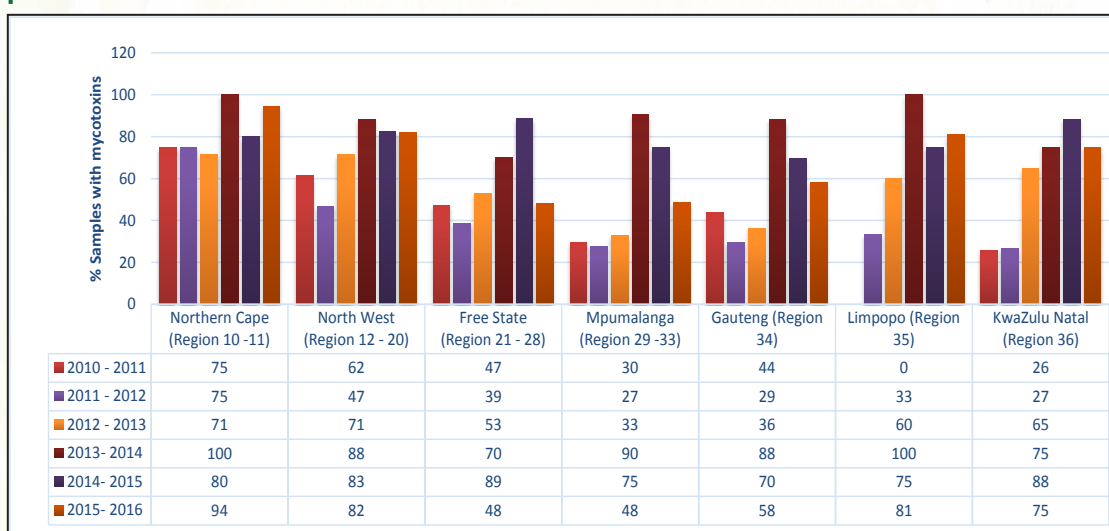


Graph 51: Percentage yellow maize samples that tested positive for mycotoxins over six seasons



The percentage of samples that tested positive for mycotoxins from the samples selected per season in the different provinces, are provided in Graph 52. Three samples tested positive for Aflatoxin (Afla) residues in the 2014/2015 season. All three samples were white maize from regions in North West.

Graphs 52: Percentage of samples that tested positive for mycotoxins per province over six seasons



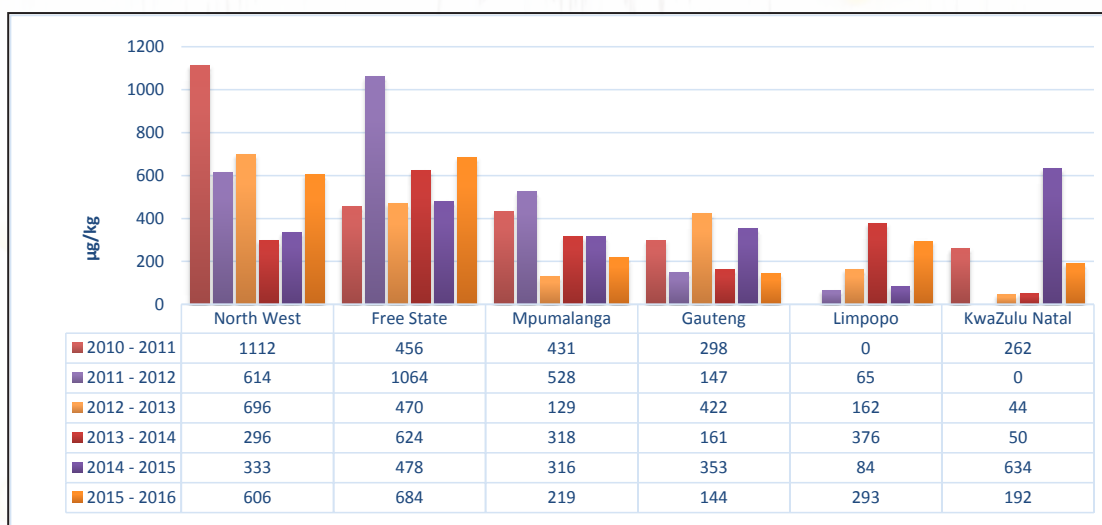
The annual BIOMIN World Mycotoxin Survey 2016 summarised the mycotoxin results of 16 511 agricultural commodity samples from 81 different countries analysed in 2016. The sixth monthly mycotoxin trends from January 2015 to December 2016 confirmed the influence of climate change patterns on the mycotoxin occurrence and levels.

Summaries of the regulated mycotoxins, aflatoxin, fumonisins, deoxynivalenol, ochratoxin A, zearalenone and T-2 toxin in the main commodities, finished feed, maize and cereals (including wheat, barley, oats and triticale) for Europe, Asia, Middle East, North America, South & Central America and Africa are included in this report.

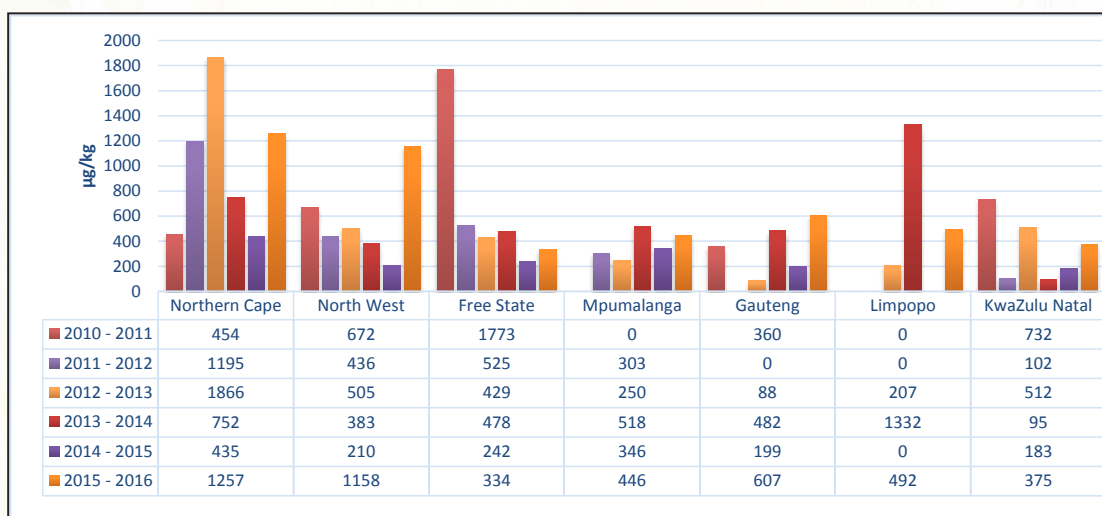
In South & Central America, DON was present in 62% of the 715 maize samples with an average of 1 185 µg/kg of the positive samples and a maximum of 43 770 µg/kg ppb. 94% of the 1 117 maize samples from South & Central America was contaminated with FUM at an average level of 2 894 µg/kg. The highest FUM concentration in maize worldwide was detected in this region (171 920 µg/kg). The average FUM content in 56 maize sample from Africa was 1 872 µg/kg. 24% of the 2 483 maize samples from South & Central America contained aflatoxins, with an average of 8 µg/kg. In Africa, 14% of the 56 maize samples tested contained aflatoxins, with an average of 3 µg/kg and a maximum of 9 µg/kg.

Locally, FUM and DON were found in samples from all the maize producing regions, except for Limpopo where no DON was found the past two seasons. Different patterns of occurrence are observed in different seasons. Mean concentration levels also differ over seasons. FUM tend to show higher mean concentrations on yellow maize compared to white maize from the same region. Please see Graphs 53 and 54.

Graph 53: Total Fumonisin mean concentration in white maize per province over six seasons

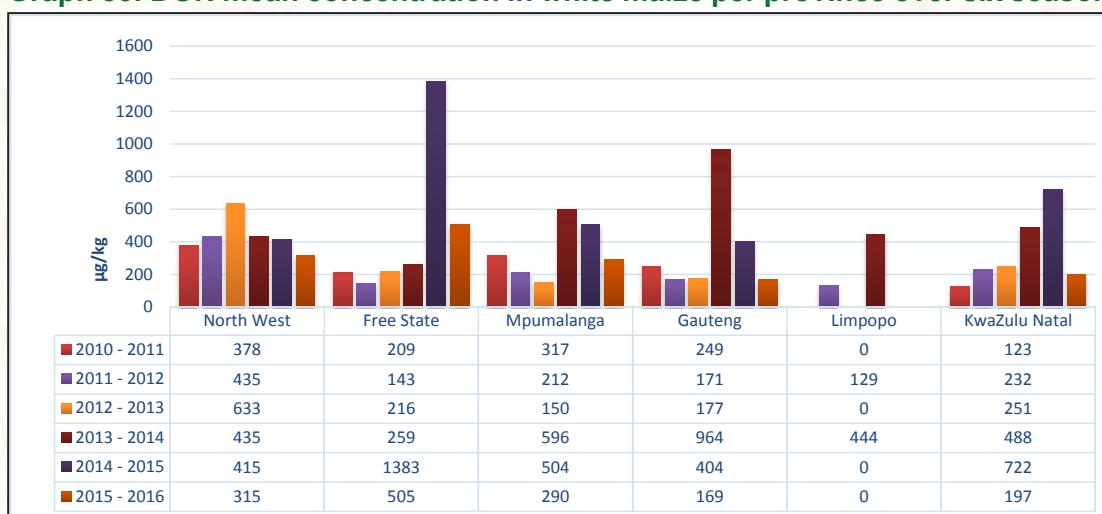


Graph 54: Total Fumonisin mean concentration in yellow maize per province over six seasons

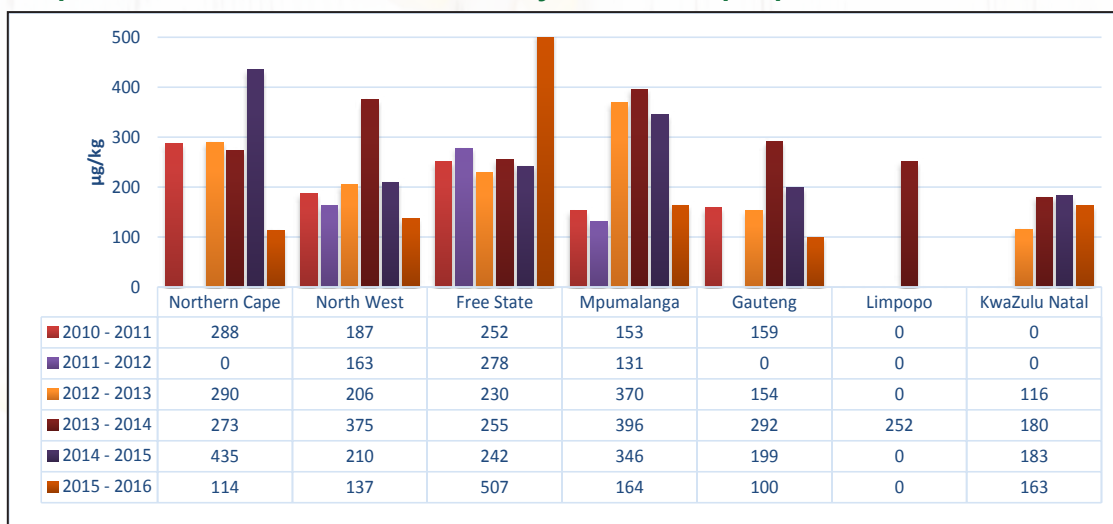


DON shows higher mean concentrations on white maize than yellow maize from the same region. Please see Graphs 55 and 56.

Graph 55: DON mean concentration in white maize per province over six seasons

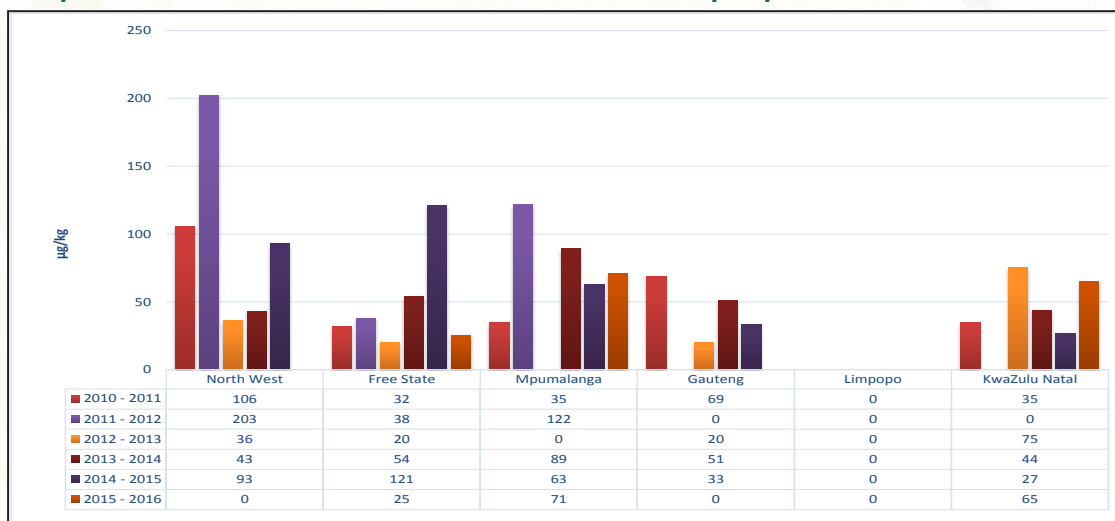


Graph 56: DON mean concentration in yellow maize per province over six seasons



ZON mean concentrations tend to show better correlation between white and yellow maize from the same region, than FUM and DON. Please see Graphs 57 and 58.

Graph 57: ZON mean concentration in white maize per province over six seasons



Graph 58: ZON mean concentration in yellow maize per province over six seasons

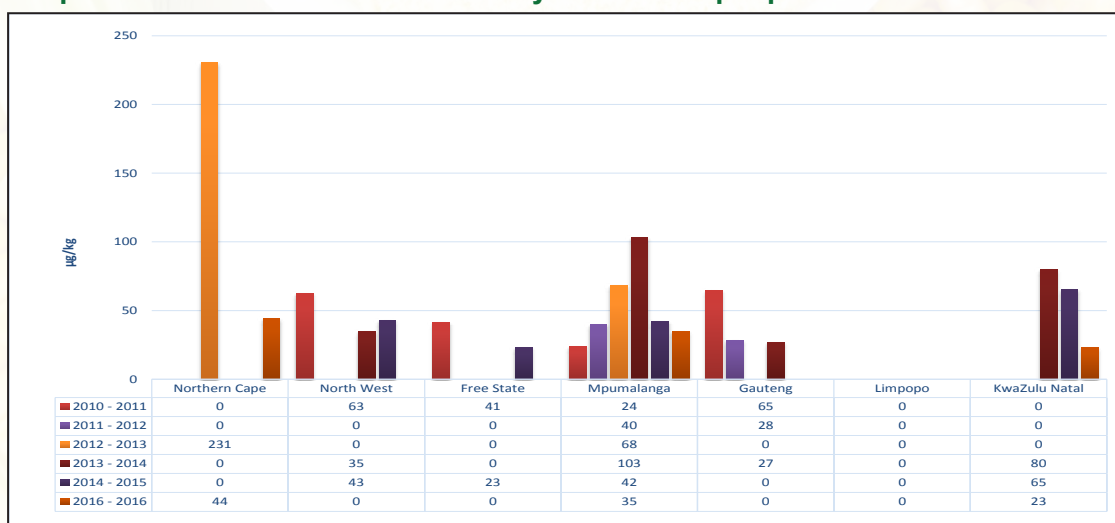


Table 22 on pages 76 to 87 provides the mycotoxin results of all 350 samples analysed for the 2015/2016 season. Table 23 on page 88 provides an overview of the mycotoxin results obtained from the 2004/2005 to 2015/2016 seasons.