

MYCOTOXIN RESEARCH AT THE MAIZE TRUST



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ARE MYCOTOXINS IMPORTANT?

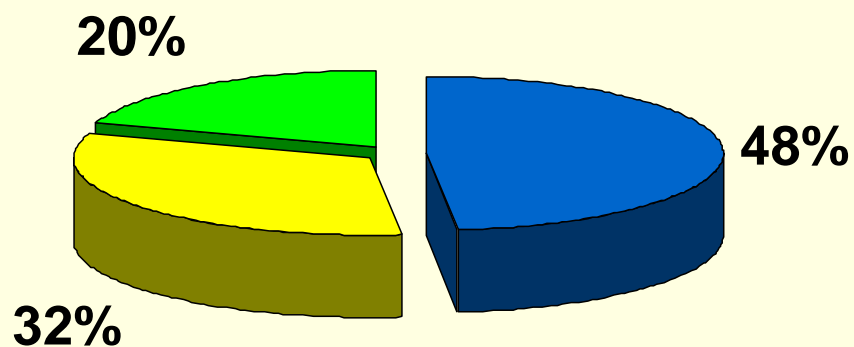
- Mycotoxins affect almost 25% of the world's food crops
- Mycotoxins affect almost 60% of the grain crops of Africa
- Mycotoxins affect the entire chain of food and feed production (growers, food and feed manufacturers, and livestock feeders)
- Toxic to humans and animals (mycotoxicoses)
- Restrict markets for developing countries

MYCOTOXINS OF MAIZE IN SA

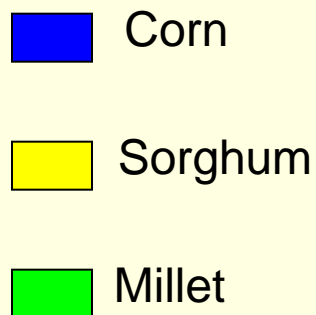
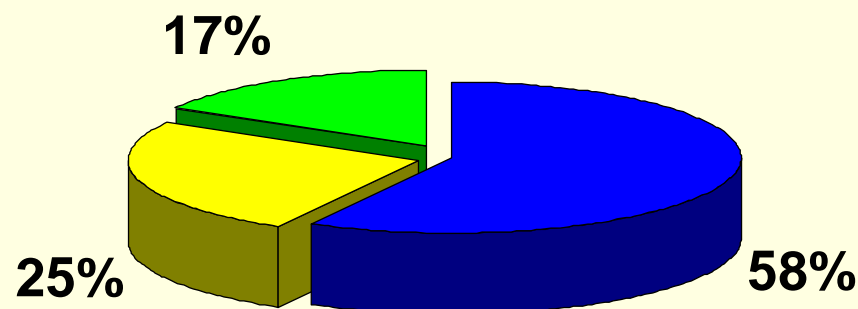
| Disease | Fungal species | Mycotoxin |
|---------------------|---------------------------|-----------------------------------------------------|
| Aspergillus ear rot | <i>A. flavus</i> | AFB ₁ , AFB ₂ |
| Fusarium ear rot | <i>F. verticillioides</i> | FB ₁ , FB ₂ , FB ₃ |
| | <i>F. proliferatum</i> | FB ₁ , MON, |
| | <i>F. subglutinans</i> | MON |
| Gibberella ear rot | <i>F. graminearum</i> | DON, NIV, ZEA |

GRAIN PRODUCTION IN AFRICA

1961



2005



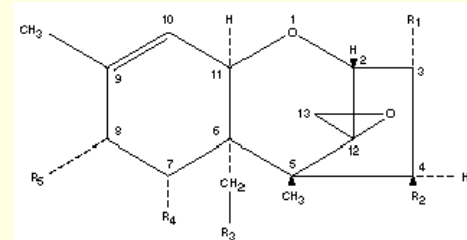
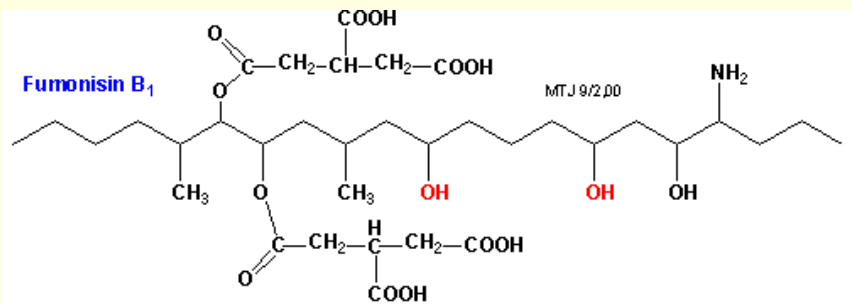
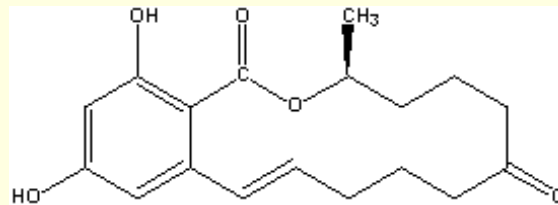
MAIZE UTILISATION (FOOD)

| Population | | Metric tons | |
|------------|-----------|-------------------|-------------------|
| | | 1961 | 2002 |
| 6.4 bil | World | 47 355 000 | 116 419 000 |
| 296 mil | USA | 1 470 000 | 3 879 000 |
| 1.4 bil | China | 14 455 000 | 20 074 000 |
| 39.5 mil | Argentina | 59 000 | 396 000 |
| 186.1 mil | Brazil | 1 985 000 | 3 701 000 |
| 741 mil | Africa | 10 700 000 | 35 395 000 |

([HTTP://faostat.fao.org](http://faostat.fao.org))

VISION

To enable leading mycotoxin research for the maize industry in South Africa



MISSION OF THE MYCOTOXIN RESEARCH PROGRAMME

It is the mission of the Strategy for Mycotoxin Research to have world-class mycotoxin research undertaken at South African universities and research institutions in order to ensure that safe maize is supplied to the food and animal feed industries, consumers and export markets.

STRATEGIC OBJECTIVES

- To determine the magnitude of mycotoxin contamination of maize
- To support the regular monitoring of the occurrence of mycotoxins in maize.
- To study the factors which contribute to mycotoxin contamination during the production, storage and processing of maize.
- To develop practical methods to manage toxigenic fungi in maize by the introduction of resistance in local maize cultivars.
- To develop sound mycotoxin risk management practices in the maize supply chain.

GUIDING PRINCIPLES OF THE RESEARCH STRATEGY

- The MF is committed to cutting edge research, guided by internationally accepted standards.
- The MF is committed to draw together teams of excellent researchers.
- The MF is committed to fostering interdisciplinary collaboration.
- The MF requires that all proposals be peer reviewed.
- The MF is committed to collaborative agreements with statutory bodies (e.g. ARC, CSIR and MRC), SAGL, NMISA, government departments, the NRF, and universities, to extend its research.
- The MF envisages that the effective implementation of the Strategy will lead to the creation of a DST supported virtual Network for Mycotoxin Research in Maize (and other cereals) in South Africa by 2012.

CURRENT PARTICIPATING INSTITUTIONS

- **ARC/GCI**
- **ARC/OVRI**
- **MRC/PROMEC**
- **SAGL**
- **Stellenbosch University**
- **Tshwane University of Technology**



WORKFLOW FOR THE MANAGEMENT OF PREPROPOSALS AND CONTINUATION PROJECTS