APHLIS+

The African Postharvest Losses Information System

www.aphlis.net

Mycotoxin Agro-climatic Risk Warnings

APHLIS+ is funded by the Bill & Melinda Gates foundation and European Commission

Mycotoxins risk warning

- Models explain over 90% of mycotoxins development based on weather and other indicators, **but only around 50% in real field conditions**
- Data scarcity about mycotoxin occurence main limitation for model calibration and validation at the field level in an African context
- Quantitative relationship between pre-harvest weather anomalies and mycotoxin occurence at later stages practically impossible to measure
- questions:
  - Is it possible to do agro-climatic risk modelling for mycotoxins at the level of admin regions based on weather anomalies?
  - How useful are such risk maps knowing that they can not really be validated statistically?

Contents lists available at ScienceDirect

Field Crops Research

journal homepage: www.elsevier.com/locate/fcr

An improved simulation model to predict pre-harvest aflatoxin risk in maize

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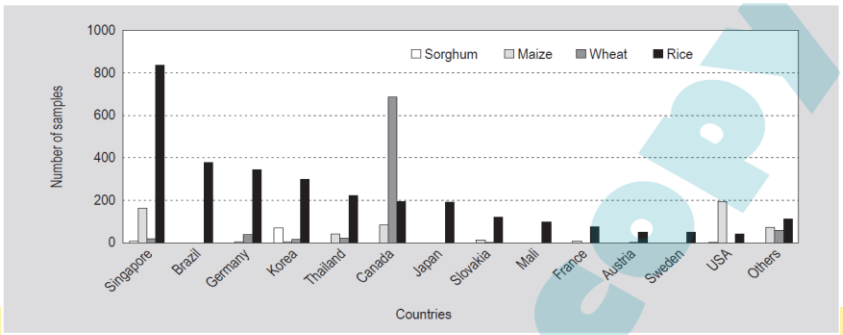
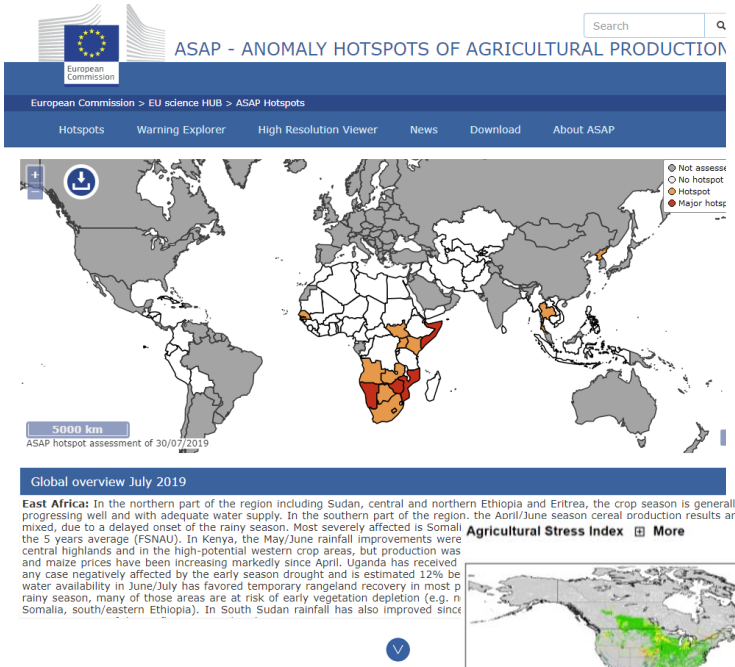
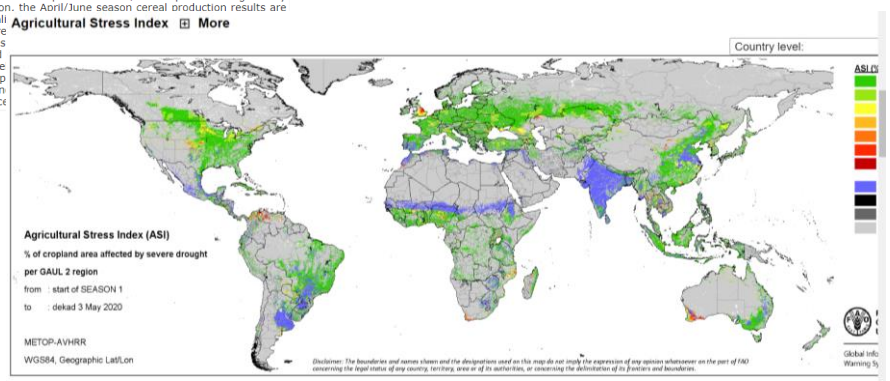


Figure 2. Number of samples submitted to the GEMS/Food database on aflatoxin in maize, rice, sorghum and wheat by country.

Use of existing agric. early warning systems

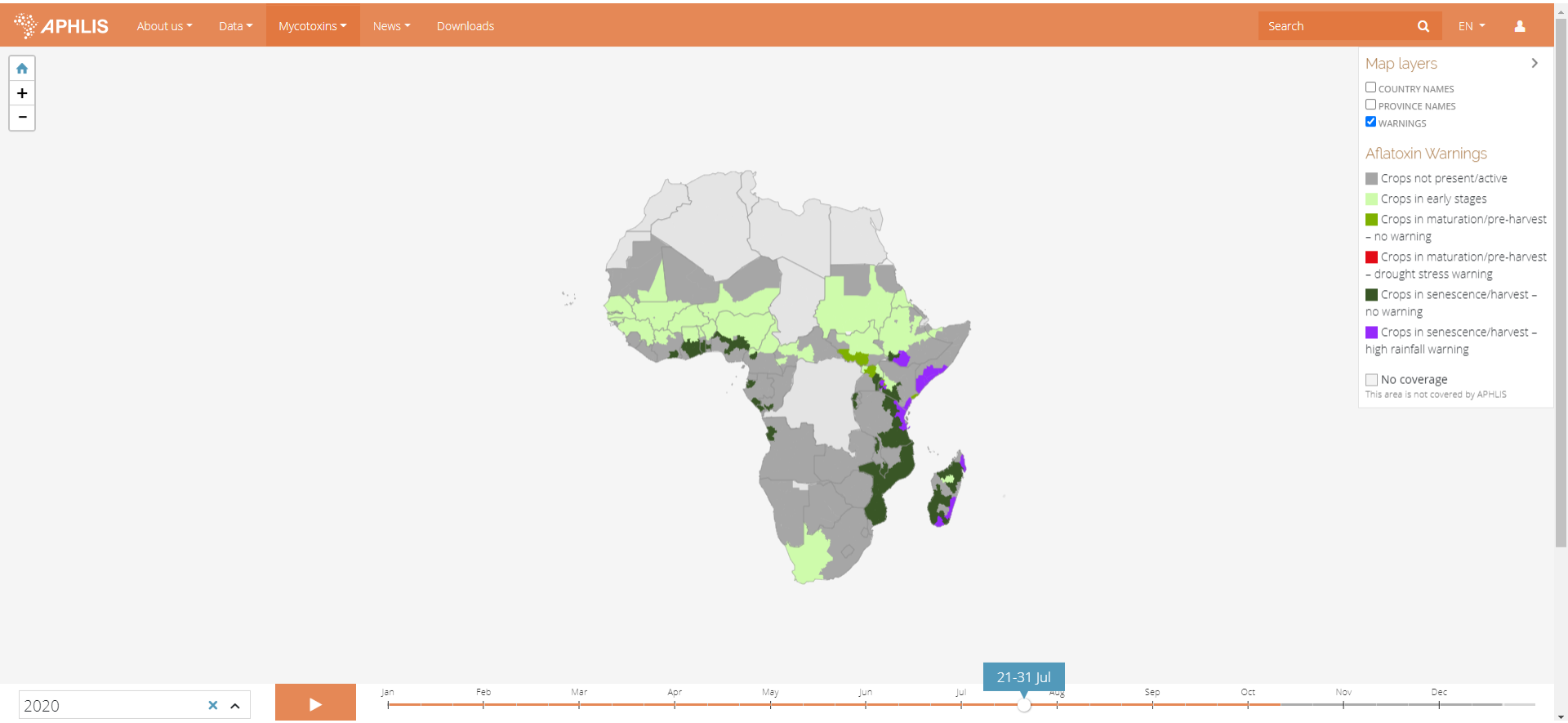
- Weather anomalies information such as drought and excess of rainfall is available thanks to existing global agricultural crop monitoring and early warnings sytems





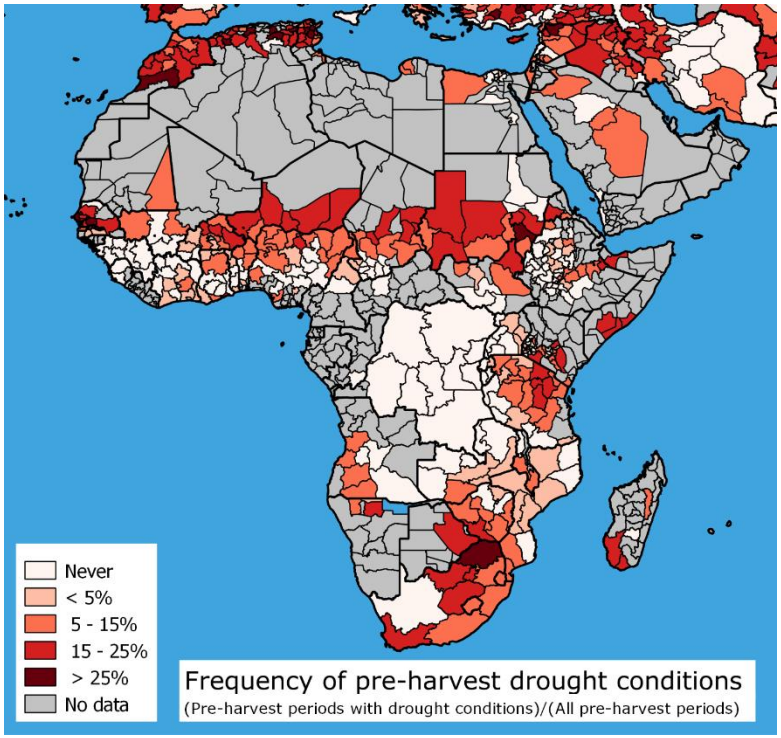
- Drought stress during the grain filling phase of maize is one pheno stage where crops are particularly sensitive.
- High moisture levels around harvest favour mycotoxin development

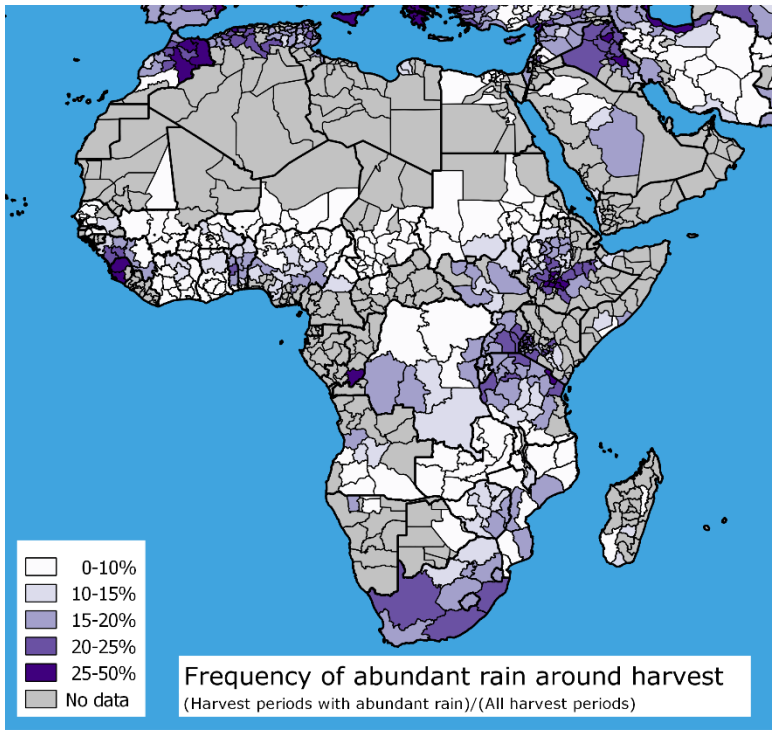
Mycotoxin risk maps (near real-time)



Mycotoxin risk maps (historical)

- Historical frequency warning maps have also been produced both for pre-harvest warnings linked to drought and warnings linked to rain at harvest time



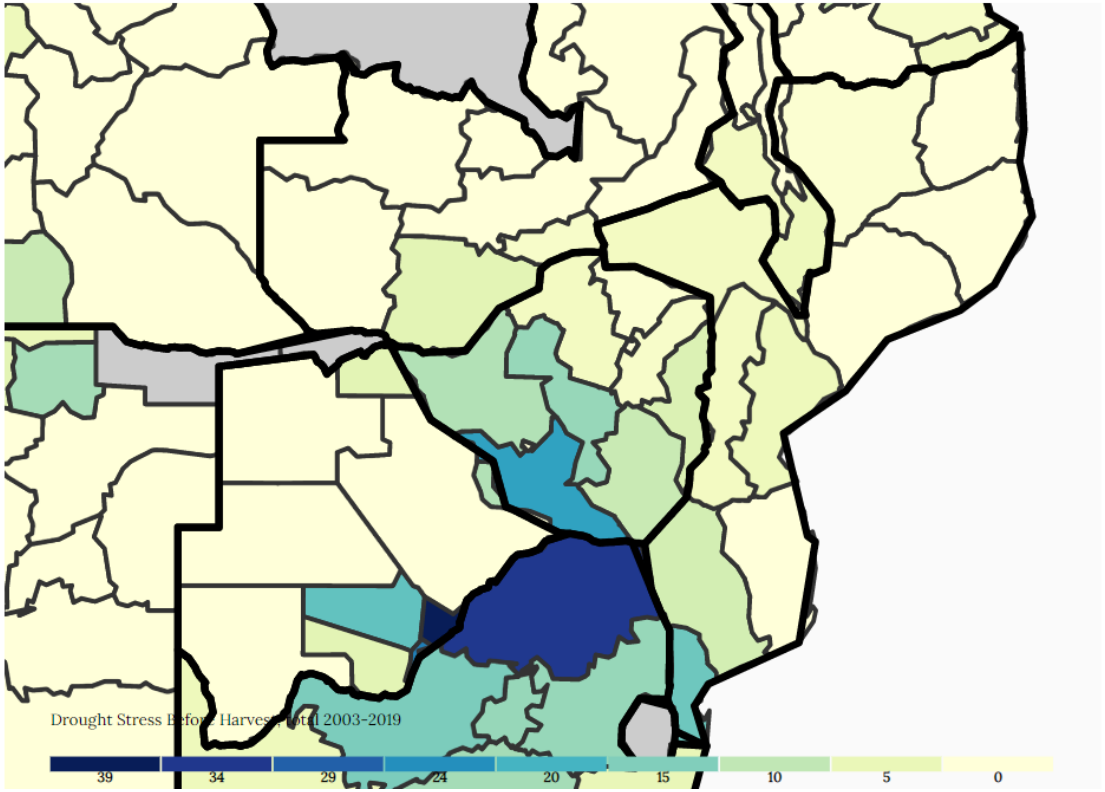


Aflatoxin Risk Prediction an ASAP data visualization

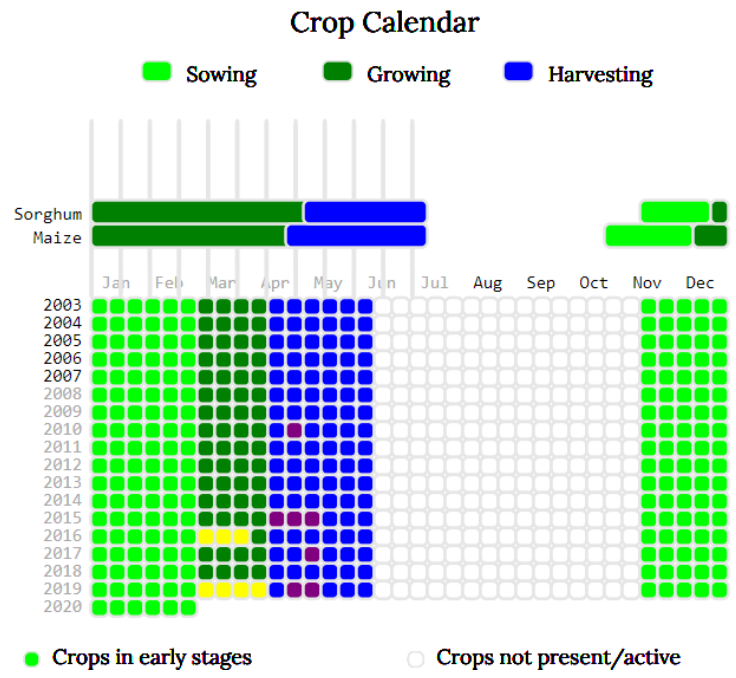
Factor: Drought Stress Before Harvest, total 2003-2019

Region: Africa

Level: provinces



Southern, Zambia



Next Steps

- Share the mycotoxin early warning maps with the expert community
- Understand usefulness vs. needs by differnet users communities
- plan improvements and collaboration with other teams based on this meeting
- For example: use a combination of remote sensing and innovative data collection for the improvement of information on:
  - exact time of the harvest
  - rainfall at harvest

For access to the mycotoxin agroclimatic risk maps (from 2002 to now) write to:
info@aphlis.net or felix.rembold@ec.europa.eu