



Partnership
for Aflatoxin
Control in Africa

Partenariat pour
la lutte contre
l'aflatoxine en Afrique

Parceria para o
Controle da
Aflatoxina em África

الشراكة من أجل مكافحة
الافلاتوكسين في أفريقيا

“The economic impact of aflatoxins in West Africa: the case of Gambia, Nigeria and Senegal”

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PRESENTATION OUTLINE

- The Gambia, Nigeria, Senegal.
- For each country, we provide a very brief summary of the aflatoxin country situation analysis and economic impact assessments:
 - Methodology
 - Impacts
 - Recommendations



The Gambia

1. Introduction

Three commodities were selected based on crop susceptibility to aflatoxin contamination, production volumes, consumption levels and contribution to food security and GDP

- **Groundnuts** - major cash and export crop, also important component of diet of the population
- **Maize** - important component of diet of the population, particularly in rural areas
- **Rice** – staple food of Gambians

Economic Impact Assessment focused on human health and international trade. The impact assessment on agriculture and food security was not undertaken due to lack of data.



2. Methodology for economic impact assessment

2.1 Human health:

- **Estimation of aflatoxin exposure using biomarker based exposure dataset**
- **Estimation of population at risk of aflatoxin induced liver cancer (HCC)**
- **Estimation of Disability-Adjusted Life Years – derived from WHO's AFRD region data**
- **Estimation of medical and non-medical cost of**
- **Estimation of case fatality ratio new HCC cases**



Methodology for economic impact assessment

2.2 Trade losses: International trade

- Estimation of foregone revenue: in marketing lower priced groundnut products as “bird feed”, oil and cake as opposed to premium priced Hand Picked Selected (HPS)
- Estimation of losses due to rejected and returned export consignments in terms of difference in revenue from selling HPS bird feed and the actual revenue from oil and cake produced from returned consignments.
- For domestic trade, the economic impact assessment of aflatoxin was not undertaken as aflatoxin contamination has no influence in the marketing and pricing



3. Impacts

3.1 Human health

Gender	Median population modeled	Total HCC cases	Monetized DALY in Million \$
Adult female	36,530	1,420	36.8
Adult male	36,474	1,419	36.8
Children male	141,220	1,727	142.3
Children female	138,585	1,695	139.7
Total population	93,638	2,575	94.4

3.2 Impact on international trade resulting from price losses and rejected exports

- **Average price losses per annum: US\$1.5 M (2000-2014)**
- **Average annual loss from rejected exports: US\$62,854 (2012-2015)**



Total Economic Losses from Human Health and International Trade

Human Health comprised 98 %

International Trade comprised 2%



4. Recommendations

1. **Awareness needs to be raised in the entire spectrum starting at the political level and extended to value chain actors and consumers given the prevalent low level of awareness in the population**
2. **Aflatoxin should be mainstreamed into macroeconomic and all relevant sectoral policies and programmes**
3. **Aflatoxin related regulations should be developed and enforced**
4. **Draft policy on food safety and quality should be finalized**
5. **Food safety information system, including aflatoxin to be developed, maintained and disseminated .**
6. **Include aflatoxin induced diseases in the Ministry of Health's Integrated Disease Surveillance and Response programme, given its impact on human health**
7. **The Government of The Gambia should prioritize the mobilization of resources for the mitigation of aflatoxin**



Nigeria

A country assessment was commissioned in 2012

- The core steps used in conducting the country assessment included:
 - Identifying the Key Crops of Concern – Maize and groundnuts
 - Determining the Prevalence of Aflatoxin
 - Characterization of the Risks of Aflatoxin Contamination and Exposure
 - Estimating the Economic Impact from Aflatoxin Contamination
 - Identification of Opportunities for Aflatoxin Control
 - Conducting a Stakeholder Workshop to validate findings and Identify priority action steps.



ECONOMIC IMPACT: Agriculture and Food Security

- Nationally, maize and groundnuts contribute **10 percent of the calorie intake of Nigerian diets** and there is significant regional variation in diets: in the North Central, North East, and North West regions
- The **direct impact** of aflatoxin contamination on agriculture and perceived food security **is negligible** as aflatoxin contamination often does not cause visible damage to the crop.
- The market does not differentiate between aflatoxin-free and aflatoxin-contaminated food, farmers also do not incur any costs for mitigating aflatoxin as the use of good agricultural practices is low.



Trade - Domestic

- Awareness about aflatoxins (and other mycotoxins) is very low among Nigerian consumers.
- On the other hand, well-dried grain that is free from insect attack and without chaff does attract higher prices.
- Groundnut price differentials are largely based on the size of the grain, low moisture, and percentage of unspoiled nuts (NGN 5-NGN 25).
- Therefore for Nigeria the domestic market impact of aflatoxin contamination in maize and groundnuts is negligible as there is no enforcement of existing regulations



International Trade

- The majority of the groundnuts are consumed domestically or traded informally across borders
- A review of the EU alerts and border rejections suggests that between 2007 and 2012, 13 consignments of groundnut and groundnut-related products
- Government of Nigeria recognizes this and in September, 2012 signed a three-year collaborative program with ICRISAT to replicate ICRISAT's success in helping Malawi re-enter the European groundnut export markets through low-cost aflatoxin test kits and improving yields through disease resistant groundnuts.



Health

- The largest impact of aflatoxin contamination in Nigeria was on human health.
- Economic impacts/damages due to consumption of aflatoxin-contaminated food by humans come from health impacts of aflatoxin toxicity.
- The estimated damages to human health were also valued Viz: Disability Adjusted Life Year (DALY) lost, Monetised Health Impact
-
- At the national level, aflatoxin contamination in maize and groundnuts was estimated to be **7,761** liver cancer cases resulting in a total burden of **100,965 DALYs** (Number of healthy life years lost due to death or disability caused by disease).
- At a prevalence rate of 20 µg/kg, the monetised burden of aflatoxin contamination was between **\$112** and **\$942** million (2010 Us dollars) which was about 0.5 % of Nigeria GDP



RECOMMENDATIONS

- The country situation analysis resulted in a number of recommendations for:
 - Aflatoxin Control Strategies for Agriculture
 - Aflatoxin Control Strategies for Trade
 - Aflatoxin Control Strategy for Health
 - Institutional, Policy, and Regulatory Environment and Related Opportunities



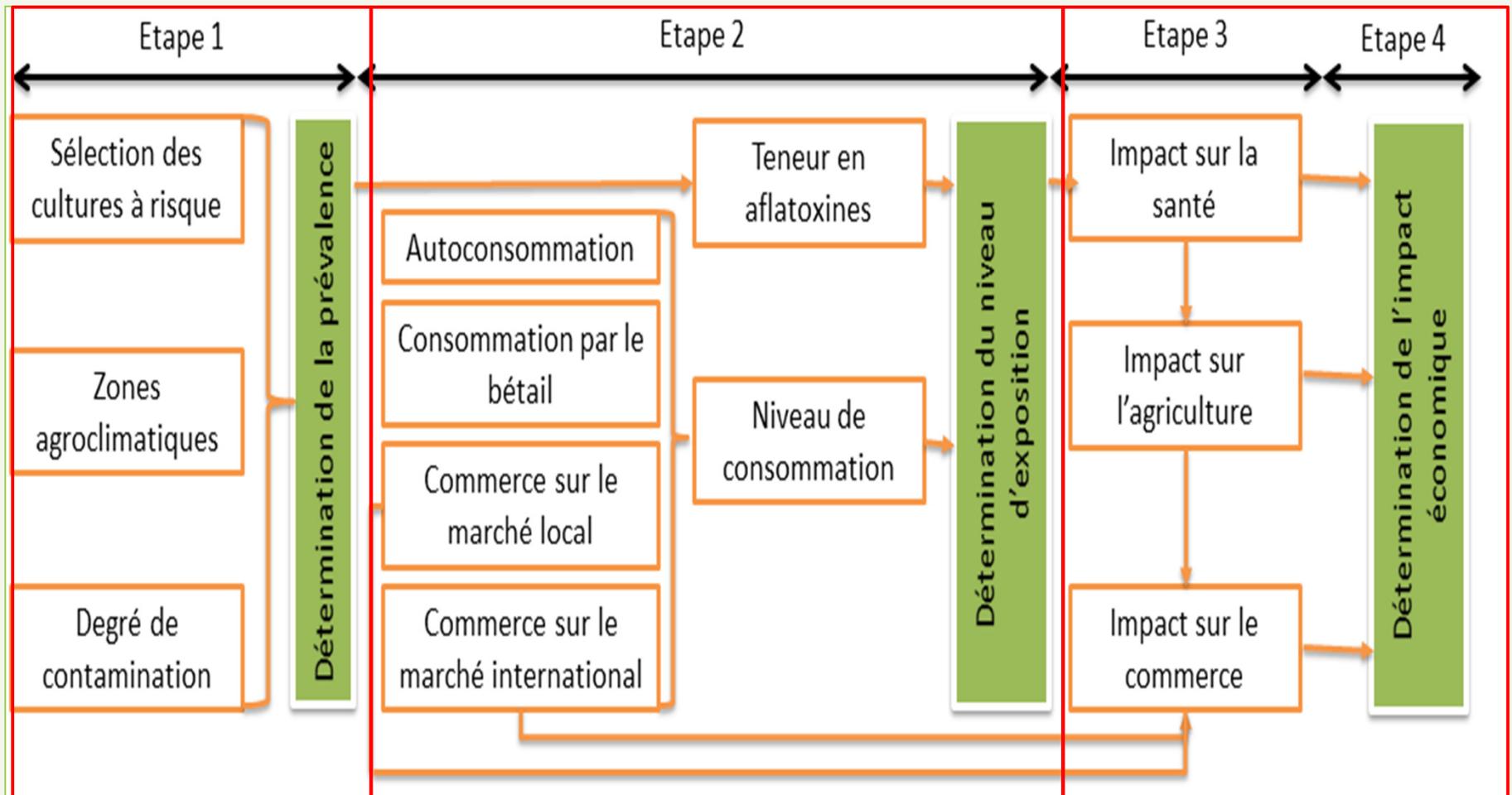
Republique du Senegal

Un Peuple – Un But – Une Foi



Cadre d'analyse

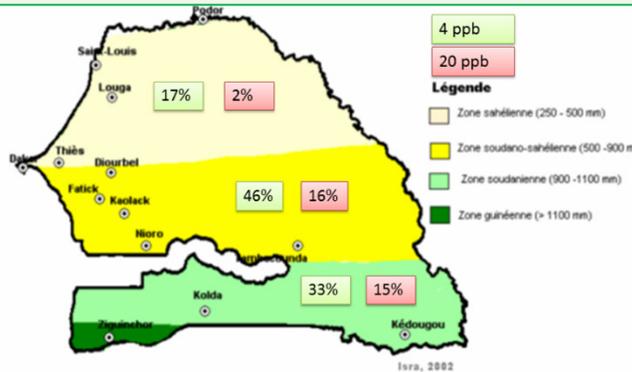
Cadre conceptuel d'évaluation des impacts liés aux aflatoxines



Prévalence des aflatoxines

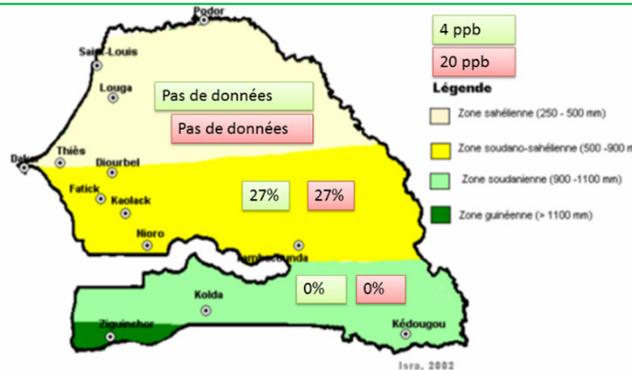
Taux de contamination par zone agroclimatique

Arachide



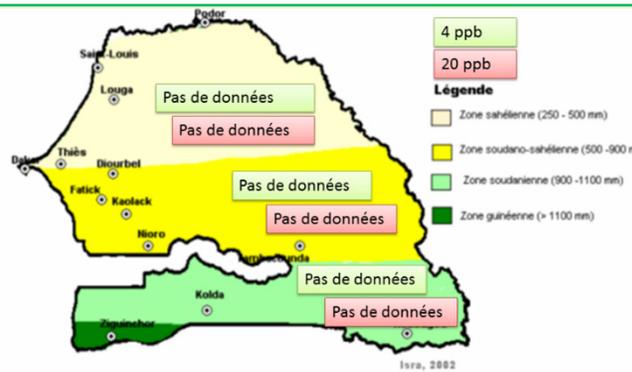
- Près du quart de la production est contaminé dans la zone sahélienne;
- Plus du tiers est contaminé en zone soudanienne;
- Près de la moitié est contaminé en zone soudano-sahélienne.

Maïs



- Dans la zone soudanienne, la proportion de maïs contaminée est faible avec des teneurs en aflatoxines en dessous des standards européens et américains.
- Par contre en zone soudano-sahélienne, plus du quart de la production est contaminée avec des teneurs en aflatoxines à 90% supérieurs au seuil de 20 ppb

Riz



- Les données de contamination ne sont disponibles ni sur la production nationale, ni sur le riz importé
- Des études récentes montrent des niveaux de contamination relativement importants pour le riz dans la sous-région (CIRAD, INPHB, Côte d'Ivoire, 2015).

Impact économique

Impact sur la santé

Pays	Population	DALY	VSL (min) en \$US 2013	VSL (max) en de \$US 2013
Sénégal	12873601	98 304	91 930 917	161 426 809
		F CFA	46 milliards	81 milliards
Budget du Ministère de la santé			34%	60%
			0,6% du PIB	1,1% du PIB

Impact sur le commerce international

1. Coût lié à l'ammoniation
2. 33 000 F/ t
3. Pour 60 000 t, 1,8 milliards de F CFA



Impact économique

Impact **potentiel** sur le commerce national

Arachide	Production (tonnes)	P	Quantité rejetée (tonnes)	Perte en milliers de F CFA
Quantité affectée au seuil 4 ppb	709 691	36%	253 856	41 886 318
Quantité affectée au seuil 20 ppb	709 691	14%	98 292	16 218 214

Mais	Production	P	Quantité rejetée (tonnes)	Perte en milliers de F CFA
Quantité affectée au seuil 4 ppb	223 234	73%	163 697	25 864 204
Quantité affectée au seuil 20 ppb	223 234	13%	29 757	4 701 621



Impact économique

Impact économique

1. Coût de l'inaction:

- 46 milliards de francs CFA au minimum
- 81 milliards de francs CFA au maximum

2. Coût de l'action

- 20 ppb s'élève à 21 milliards de francs CFA

3. Mesures pour accompagner les acteurs des chaînes de valeurs à lutter contre l'aflatoxine permettant de limiter ces pertes

4. Recommandations (idem que pour Gambie et Ng)

Merci de votre attention

