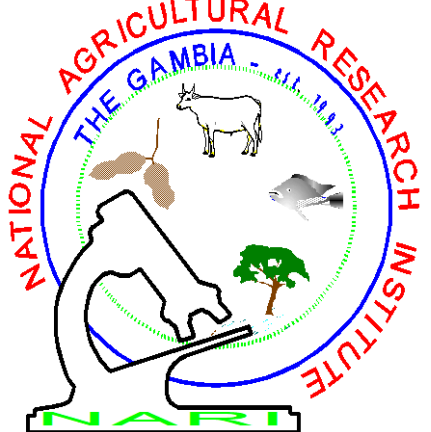




Aflasafe efficacy in the mitigation of aflatoxin in The Gambia



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Introduction

Aflatoxin are secondary metabolites of *Aspergillus species* with low molecular weight compounds that do not produce immediate symptoms when in contact but could have adverse long-term health effects and economic barriers. Aflasafe, a recently developed biocontrol product from non-toxicogenic (atoxicogenic) strains of *Aspergillus flavus* to mitigate aflatoxin. Aflasafe operates by out-competing and overshadowing its toxigenic cousin in the field. The competitive exclusion continues even during storage that continue to stay with the crop to protect it against contamination after harvest and decreased risk of aflatoxin contamination along the value chain.150 groundnut samples from farms where the aflasafe was applied and 60 from non-aflasafe field were collected and analyzed for aflatoxin contamination level using a Vicam.

OBJECTIVES

This study compares the efficacy of aflasafe in farms where the products are applied against farms without aflasafe in each region of the country

Materials and Methods

A 50 g of the feed sample and 10 ml NaCl was weight in a blender and 200 ml methanol (HPLC grade)/water (80:20) added, blended, filtered with 24 cm filter paper. Then 10 ml of the filtered extract is collected in a 50 ml falcon tube and 40 ml water added and thoroughly mixed. Then re-filtered through a 1.5µm microfiber filter paper and 10 ml collected in another smaller falcon tube then transferred in a syringe barrel to pass through an attached aflaTest affinity column with 1–2 drops/second. The column rinsed twice with 10 ml water at the same flow rate as the samples.

A vial place under the outlet of the column,1.0 ml methanol added in the barrel and collected in the vial/cuvette, A 1 ml freshly made aflatest developer (developer: water; 1:9) ml was pipetted into the glass cuvette and vortexed then cuvette inserted in the vicam and closed. The aflatoxin concentration was read after a countdown of 60 seconds.

Statistical analysis

Data was first arranged in Microsoft Excel and then subjected to analysis of variance (ANOVA) using the GenStat Statistical Package

RESULTS AND DISCUSSION

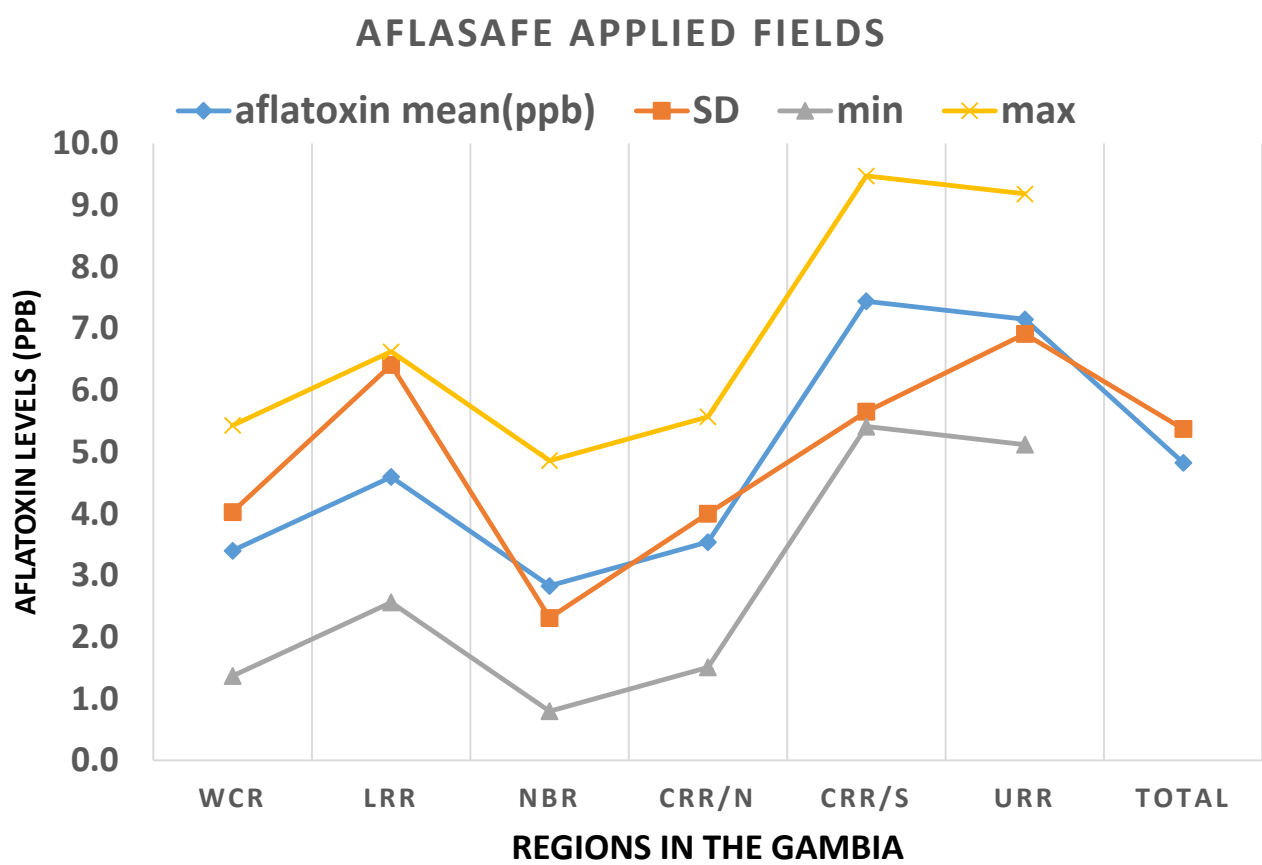


Figure 1

The grand mean of all the aflasafe applied fields was 4.826 ± 5.37, CRR/S (7.444) and NBR (2.828) recorded the highest and lowest, respectively figure 1

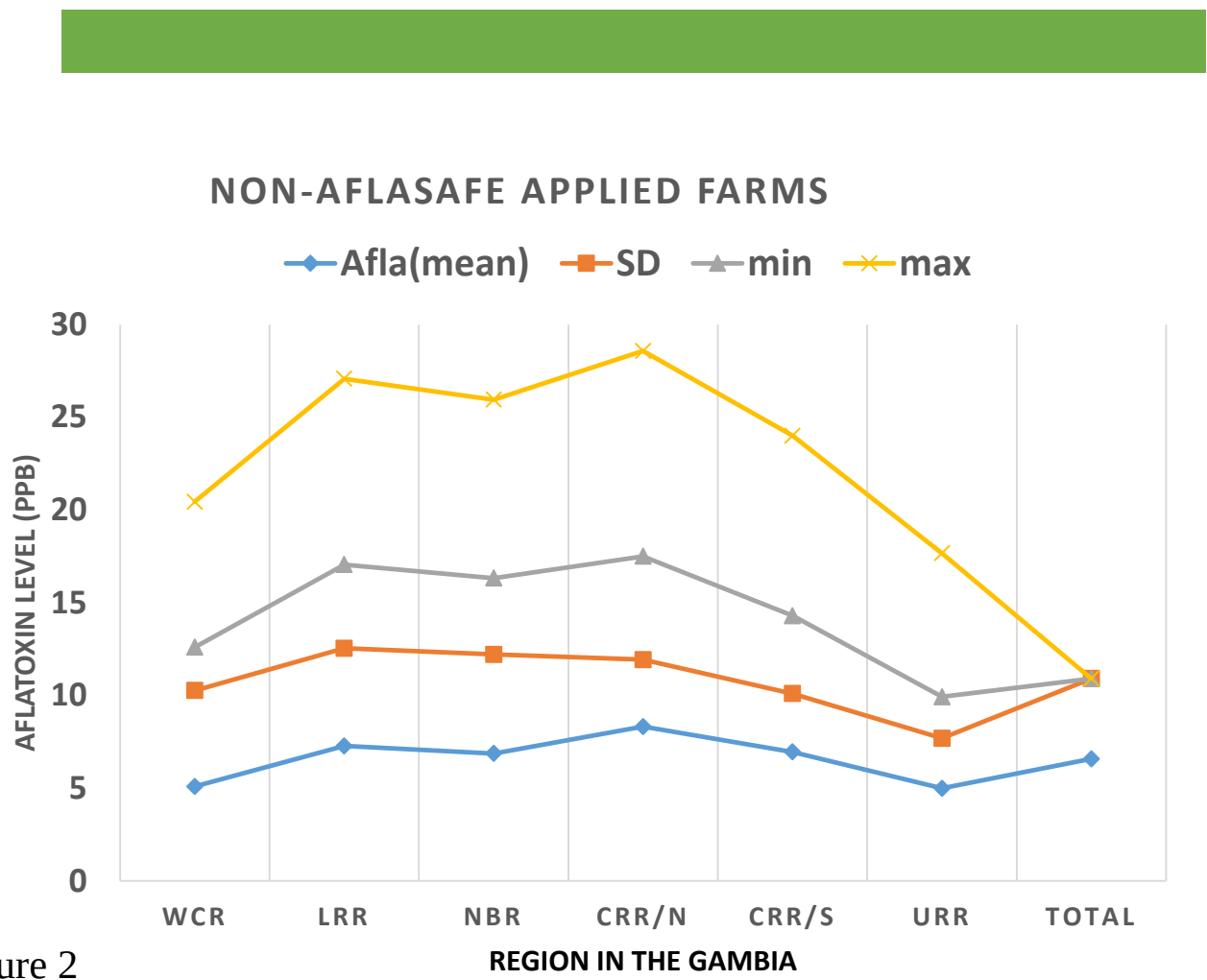


Figure 2

No significant difference in non-aflasafe applied fields among all the regions However, highest aflatoxin level in CRR/N (8.320) then LRR (7.271) and the lowest in URR (4.99) Aflatoxin levels in both WCR and URR (5.090 and 4.990, respectively) are lower than the total mean 6.58 ppb.

Table 1

Field Status	*REGIONS						SEM	P-value
	WCR	LRR	NBR	CRR/N	CRR/S	URR		
Afla Safe not applied	5.090	7.27	6.87	8.32	6.95	4.99	1.37	0.489
Afla Safe applied	3.399 ^b	4.594 ^{ab}	2.828 ^b	3.539 ^b	7.444 ^a	7.151 ^a	0.42	0.003

^{a-b}Values with different superscripts in a row are significantly different ($P < 0.05$).

No difference at non-aflaSafe applied, however (CRR/N) highest level (8.320) and URR the lowest (4.990). A significant difference ($p < 0.05$) was found in Aflasafe applied fields with CRR/S and URR recorded the highest (7.444 and 7.151, respectively) (Table 1)

Conclusion

Aflasafe protects from aflatoxin contamination throughout the value chain and even supply atoxicogenic isolates in the soil and in neighboring fields in subsequent seasons. The products should be made Available, accessible and affordable. Better management strategies to maximize the pordut's output.

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