

SHORT COMMUNICATION

Sorting is an Affordable Technology that can Reduce Mycotoxin Contamination to Safe Levels.



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Africa as a whole has been hit by mycotoxin contamination, with Aflatoxin recording the highest occurrence among the mycotoxins. Some of the countries that have reported high aflatoxin contamination in groundnuts and cereal grain include: Gambia, Ghana, Guinea, Nigeria, Senegal, South Africa and Uganda. Nigeria and Kenya have had to destroy contaminated produce.

In Kenya there have been several outbreaks of Aflatoxin, majorly in Eastern Kenya. These occurred in 1982, 2001, 2004 and 2005. The worst case was in 2004 where 317 cases were reported and 125 lives lost.

Loss of lives can be prevented in the future by the simple technology of sorting the grains and the groundnuts. Sorting technology can be through high cost electronic sorters (infra-red) for large-scale systems, or simple sorting done either manually (as shown in the figure below) or by simple machines. Kenyan industries can adopt the manual sorting since there is sufficient labour in Kenya. This can help off-load the high unemployment rate among the youth.

It has been observed that sorting can reduce the aflatoxin contamination in the grains by over 90%. This was seen through Nestle demonstration on how to reduce aflatoxin in their quality plant Centre in Abidjan as represented by Head of Nestle Quality Assurance centre in Abidja, Dr. Owen P. Fraser in the first East African Food Safety, Nutrition, Agro-processing and Innovation Conference.

To achieve this level of reduction of aflatoxin in groundnuts and cereals, the manual sorters need training to ensure they can get reproducible results, no matter who does the

sorting. This will include showing the sorters what to look for and what is considered defective.

This simple technology can help ensure food safety by ensuring that the aflatoxin contamination is reduced to acceptable levels. Food security will also be ensured since a whole batch will no longer be destroyed but instead, only contaminated grains are destroyed. The income of the suppliers will also be improved since their produce will not be entirely destroyed.



Women trained on sorting:
doing the sorting of maize
before processing



Photos courtesy of Nestle Central and West Africa

The figure shows maize before and after sorting.

This reduces Aflatoxin concentration from $135\mu\text{g}/\text{kg}$ to $2\mu\text{g}/\text{kg}$. This accounts for 98% reduction in Aflatoxin concentration in the maize.