Aflatoxin Reduction in Groundnuts

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We can send you instructions to set up a local workshop and make these. All perishable parts come from used truck inner tubes.
Aflatoxin Reduction by Hand Sorting

... is still your first, best line of defense. BUT ...
The cheapest leap to better results can happen if you give all your sorters a pair of these...
Mechanical shelling

-Speeds shelling 50x

-Can split nuts, reveal toxic centers, which hand shelling won’t do.

-Prevents cross contamination by women’s fingers.

-A rubber cover on the rotor blanches the nuts.
Easy to Build Locally

30 hours after opening the bag of cement . . .

. . . . 3 co-op members from the Iganga Farmer’s Co-op pose with their first machine.

Shelling speed lets cost be shared by up to 15 farmers.
Electric or Pedal Power.

With Built in Fan for Shell Separation.
By raising the rotor, you can make the pile on the left smaller but you also open more diseased shells. Adjusting the rotor up will make this pile smaller, and this pile bigger but of poorer quality. Lowering the rotor has the opposite effect.
Mobile Assay’s mReader

$100US to purchase the tablet

$125 per year, software license

$5 for each test strip

With a 12 volt blender to prepare sample, you can do this test on a tailgate of a truck, anywhere.

Requires only simple lab skills
Simple Process to Teach

After 3 hours of instruction, staff from the Iganga Farmer’s Co-operative Ass’n were doing the 20 minute test perfectly.
The Nuts are Generally Safe Coming from the Field

Even with major field infestation, only 10% of the nuts will be toxic.

Most of the crop can be saved with quick shelling, splitting and hand sorting in the village.
Here’s Where the Trouble Starts

Bags have been there since when?
When do they come out?
Anybody’s guess.
Treat Groundnuts less like Maize and more like Eggs

Cartels and Traders are the Enemy of Food Quality. Value Chain from premium markets cannot lead back to the village if cartels and traders are part of it.

With Cartels and Traders out of the Value Chain, then there can be a conversation between the co-op and the processors about splitting the nuts in the village for greater safety.

Farm Co-ops have to start connecting their members with responsible processors.
The Future:

Looking Over The Horizon
Ozone as a Sterilizing Agent

Widely used in the US. USDA approved. GRAS listed.

Used to REVERSE aflatoxin contamination in maize.

Ozone can be easily generated on the spot.

Has a half life of about 12hrs before turning back into oxygen.

Half life depends on temperature and humidity.

Kills fungi, bacteria, insects and insect eggs.

No chemical residue.
Small Scale Ozone Production

60 watts

Less than $200US

Add a Compressed Air source
Ozone Fumigation
(work in progress)

Nuts tumbled through an adjustable ozone atmosphere.

Batches at different dose times and concentrations now being stored a good temperature for ozone and spore growth. Each batch to be tested at 1, 2, & 3 months.
Let’s Make it Happen in Africa 2017 !!

Thousands of small farmers (shelling and visual sorting)

Co-ops assure quality, ship directly to processors.

Processors (speedy roasting packaging and retesting final product)

Certified Aflatoxin Safe seal applied.

Local Distributors and Exporters connect to millions of Customers in Uganda, Africa, Europe and the Middle East.