EFFORTS TO REDUCE AFLATOXIN CONTAMINATION OF PEANUT IN UGANDA
Role played by Peanut Collaborative Research Support Program (Peanut CRSP).

Kaaya, A.N., M. E. Christie, K. Mallikarjuna and C. Mutebi
Makerere University, Kampala; Virginia Tech, USA; KARI, Nairobi.

Background
One of the major problems affecting the quality of peanuts in Uganda are aflatoxins (AF) caused by Aspergillus flavus. Due to their health and economic effects, since 2004, the Peanut CRSP has been at the forefront in conducting research aimed at improving the health and livelihood of people of Uganda by addressing AF and gender-related constraints in groundnut production, processing and marketing.

Methodology
Several approaches were used throughout the peanut chain that include;

- Capacity building on AF control practices
  - Training of farmers and extension staff on pre and postharvest AF management
  - Training of traders and processors on handling and processing methods (UNBS standards, HACCP)
  - Training of graduate students (BSc, MSc & PhD)
  - Infrastructure capacity building: Lab equipment for AF testing
  - Support to test peanut for mould and AF contamination in peanut & products.
- Researched on Gender issues in AF Incidence and Control in Peanut Production
- Conducted peanut consumption studies in Uganda
- Support to NAWU: ethnographic studies to establish peanut preparations
- Support to Uganda National Bureau of Standards
- Initiated the Technical Committee on AF
- Researched on AF binding capacity of bentonite clays of Uganda

Conclusions and recommendations
The low level of farmer/processor education, cultural beliefs and poverty are among the factors hindering application of AF control strategies in Uganda. Thus, we recommend more AF awareness campaigns in the country to further reduce poisoning of consumers in Uganda.

Gender and Groundnuts: Important finding

...Women and men grow and manage peanuts differently. Women farmers produce on a smaller scale than men, use local seed varieties, maintain traditional methods of chopping and planting; and produce mainly for household consumption; and process peanuts into flour and paste. They prepare peanuts for family consumption, most often in a sauce that contributes key protein to the diet 3-4 times a week. Women also use peanuts for social reasons—to entertain guests, and as snacks for family members. The nature of tasks women perform related to the peanut positions them to play a major role in controlling AF contamination in production and postharvest....

Impacts
- Increased awareness of AF problem by the populace
- Over 500 farmers, traders, processors trained on AF management (Table 1)
- Over 1000 simple IEC materials (brochures and posters) developed in 6 commonly spoken languages and distributed in the country to educate the populace about AF control.
- Reduced AF contamination of peanut products
- Capacity building: 10 graduate students trained; 2 AF analytical equipment acquired (Fig 1)
- 3 Publications in refereed journals/Books
- First time to establish peanut consumption levels in the country (Table 2)
- UNBS set AF regulatory standards based on our research results
- 12 members of mycotoxin Technical Committee recruited

Table 1. Human capacity building (Training of trainers) on AF management practices

<table>
<thead>
<tr>
<th>District</th>
<th>Farmers</th>
<th>Extension staff</th>
<th>Traders/Processors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mubende</td>
<td>160</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>Iganga</td>
<td>120</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Mayuge</td>
<td>120</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Kamuli</td>
<td>40</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Tororo</td>
<td>30</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Kumi</td>
<td>50</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>Kampala</td>
<td>-</td>
<td>65</td>
<td>-</td>
</tr>
</tbody>
</table>

Majority of households: Highest proportion of children consume peanuts daily

Table 2. Households where peanut are consumed in any form by mothers and children

<table>
<thead>
<tr>
<th>No. consuming</th>
<th>Kampa</th>
<th>Mukono</th>
<th>Kamuli</th>
<th>Hoima</th>
<th>Lira</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of surveyed households</td>
<td>107</td>
<td>96</td>
<td>103</td>
<td>106</td>
<td>77</td>
</tr>
<tr>
<td>Households where peanut were consumed in any form</td>
<td>54</td>
<td>46</td>
<td>46</td>
<td>33</td>
<td>14</td>
</tr>
<tr>
<td>Households where a child ate peanut</td>
<td>47</td>
<td>41</td>
<td>40</td>
<td>28</td>
<td>12</td>
</tr>
<tr>
<td>Households where a woman ate peanuts</td>
<td>53</td>
<td>41</td>
<td>39</td>
<td>29</td>
<td>11</td>
</tr>
</tbody>
</table>

Acknowledgement
This research was funded by Peanut CRSP VT 134 Project. We thank the farmers, traders, processors, NAWU, UNBS and all those we’ve collaborated together on the Project.

- Farmers, traders/processors and extension staff were trained to train others; thus during M & E, we established that now over 1000 people per district are aware of AF and management systems.
- Majority of traders and processors trained are from Kampala city.