Applying Peanut CRSP Research to USAID Initiatives

**Presenter**
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**Moderator**
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Applying Peanut CRSP Research to USAID Initiatives
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Picture: Peanut CRSP variety in Burkina Faso
Presentation Scope

Introduction

Peanut CRSP Experience
- CRSP
- Peanuts
- Peanut CRSP

Production
- Processing and Markets
- Nutrition and Child Survival
- Mycotoxins and Public Health

Application Examples
- Peanut Butter Cottage Industry and School Snack Program
- Production: Improved Varieties
- Managing Mycotoxins through toxin-binding technology

Policy Recommendations
- Mycotoxin Management
- Holistic Production Model
- Emergency Food
Collaborative Research Support Programs

- **Title XII programs** that deploy the expertise and resources of US universities for development and the alleviation of poverty and hunger

- **Long term**

- **Partnership** of US universities with developing country institutions

- Expected **mutual benefits**
FY 2010:
- **500** different institutions
- **70** countries
- **700** distinct partnerships

- **83** US Universities
- **177** Host Country Research Institutes
- **16** International NGOs
- **68** Host Country NGOs
- **19** US Government Offices
- **60** Host Country Government Offices
- **12** of the 16 CGIAR centers
Peanuts

- Protein
- Oil
  - PCRSP results improve shelf life (High O/L)
  - Heart Health benefits
- High Satiety
- Neutraceutical
  - Low glycemic index
  - Obesity
  - Blood Pressure
    - peptides and argenine
  - Diabetes
- Special Nutritional Values for Ready to Use Therapeutic Foods (RUTF)
- Flavor

“ a little peanut goes a long way “

1 Cup

<table>
<thead>
<tr>
<th></th>
<th>Peanuts</th>
<th>Cassava</th>
<th>Corn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (KCAL)</td>
<td>828.0</td>
<td>330.0</td>
<td>442.0</td>
</tr>
<tr>
<td>Protein (G)</td>
<td>37.7</td>
<td>2.8</td>
<td>9.91</td>
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<tr>
<td>Carbs (G)</td>
<td>23.6</td>
<td>78.4</td>
<td>93.8</td>
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<tr>
<td>Iron (MG)</td>
<td>6.7</td>
<td>0.6</td>
<td>4.2</td>
</tr>
<tr>
<td>Zinc (MG)</td>
<td>4.8</td>
<td>0.7</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Data from USDA
Peanuts in Developing Countries

- 2nd most important legume in world production
- >90% of peanut is on small farms in developing countries

Women’s crop in Africa
  - In Africa often grown, processed and marketed by women – usually with poor government interest & official documents
    - Example: Minister of Agriculture of Kenya

Production potential is 3-4 times present yield

>90% is consumed in producing country
  - Often part of daily diet – cheap protein
Peanut CRSP

- **Consortium** of 11 Universities
- **Collaborating** with 11 countries
- **Full Value Chain**
  - Production
  - Processing/Market Development/Access
  - Nutrition and Health
  - Mycotoxins
  - Capacity Development
- **Feed the Future** relevant

www.peanutcrsp.org
USAID and Peanut CRSP

- Help women to increase purchasing power
- Prevent stunting and mortality by better nourishment
- Increase Agricultural GDP

Increase Food Security

- Reduce maternal and under 5 mortality
- Prevent HIV infections
- Treat TB

Sustainable Economic Growth

Promote Global Health
2. Peanut CRSP Experience
Peanut CRSP Experience

- Production
- Economic Development
  - Processing
  - Markets
  - Products
- Nutrition and Child Survival
- Mycotoxins and Public Health

Village working on peanuts in Uganda.
• Peanut CRSP can increase yields by 2-3 times for African peanut farmers

• Sustainable production systems
  – Ghana soap-based fungicides
  – Resistant varieties

• Improved peanut varieties
  – Uganda
• Processing systems
  – Aflatoxin clean-up

• Incubator models
  – Philippines
  – Uganda
  – Ghana
  – Guyana

Successful peanut products in the market - Peanut CRSP helped with marketing and processing
Nutrition and Child Survival

- Weaning foods
- Ready to Use Therapeutic Food (RUTF)
- Vitamin Fortified Peanut Butter (Vitamin A)
- School Snack
- Heart Health, Diabetes, Hypertension and Obesity

Child with peanuts
Mycotoxins and Public Health

- 4.5 billion people exposed

- Mycotoxins come from fungi which affect:
  - Corn
  - Peanuts
  - Rice
  - Cassava

- Impacts
  - Nutrition
  - Immunity
  - Trade

- Suppressed immunity
  - Decreased vitamins A and E
  - Increased malaria infection
  - Modified immunity in HIV suggesting rapid progression and higher transmission

- Increased TB in HIV patients

- Increased maternal anemia

- More underweight children under 5 years old
3. Application Examples
GUYANA:
School Snacks and Peanut Butter Cottage Industry

- Fed 2750 students
- Employed 40 women full-time
- Established 27 peanut butter industry cottages
- Economic impact to the region
Peanut Butter Cottage Industry Model

- Increased Production
- Surplus
- New Market
- Industry Promotion
- Change in Price
- Policy Change
- New Users
- Industry Establishment
- Women Employed
- Nutrition Improved
- Better Class Attendance
- Economy Enhanced
- Secondary Markets
UGANDA: Feeding the Future with Peanuts

- Increased food security through increased production with improved varieties
- $47 million in benefits from new peanut lines
- Sharing the technologies with the region
GLOBAL: Toxin-binding technology

- Binds Aflatoxin making food safe for consumption
- Costs less than the price of salt
- Applied to food directly
- Impacts the poorest and most food insecure
4. Policy Recommendations
Mycotoxin Management

Control mycotoxins

Improve child health

Decrease stunting

Change a Nation...
Aflatoxin Management

None of these methods are 100% effective – failure contamination can occur at every stage.

- Sowing varieties resistant to fungus
- Competitive Fungi
- Irrigation
- Integrated Pest Management

- Moisture management
- Harvest time
- Harvest method

- Storage options
- Transportation
- Removal (sorting)

NEW Technology: Toxin-binding agent
## Corn and HIV

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cassava</th>
<th>Groundnuts</th>
<th>Maize</th>
<th>Rice</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Causes</td>
<td>0.05</td>
<td>-0.21</td>
<td>-0.02</td>
<td>0.03</td>
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<tr>
<td>Infectious and parasitic diseases</td>
<td>-0.09</td>
<td>-0.19</td>
<td>0.44</td>
<td>-0.31</td>
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<tr>
<td>HIV/AIDS*</td>
<td>-0.22</td>
<td>-0.23</td>
<td>0.69</td>
<td>-0.42</td>
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<tr>
<td>Diarrhoeal diseases</td>
<td>0.22</td>
<td>-0.12</td>
<td>-0.41</td>
<td>0.23</td>
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<tr>
<td>Childhood-cluster diseases</td>
<td>0.13</td>
<td>0.27</td>
<td>-0.43</td>
<td>0.20</td>
</tr>
<tr>
<td>Meningitis</td>
<td>0.14</td>
<td>-0.02</td>
<td>-0.42</td>
<td>0.30</td>
</tr>
<tr>
<td>Hepatitis B (g)</td>
<td>-0.03</td>
<td>-0.18</td>
<td>-0.38</td>
<td>0.38</td>
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<tr>
<td>Hepatitis C (g)</td>
<td>0.01</td>
<td>-0.28</td>
<td>-0.39</td>
<td>0.40</td>
</tr>
<tr>
<td>Malaria</td>
<td>0.39</td>
<td>0.11</td>
<td>-0.43</td>
<td>0.29</td>
</tr>
<tr>
<td>Tropical-cluster diseases</td>
<td>0.58</td>
<td>-0.11</td>
<td>-0.22</td>
<td>-0.03</td>
</tr>
<tr>
<td>Respiratory infections</td>
<td>0.17</td>
<td>-0.11</td>
<td>-0.41</td>
<td>0.24</td>
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<tr>
<td>Nutritional deficiencies</td>
<td>0.11</td>
<td>-0.19</td>
<td>-0.20</td>
<td>0.19</td>
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<tr>
<td>Vitamin A deficiency</td>
<td>-0.09</td>
<td>-0.20</td>
<td>-0.25</td>
<td>0.43</td>
</tr>
<tr>
<td>Iron-deficiency anaemia</td>
<td>0.03</td>
<td>0.04</td>
<td>-0.26</td>
<td>0.39</td>
</tr>
<tr>
<td>Malignant neoplasms</td>
<td>-0.07</td>
<td>0.05</td>
<td>-0.22</td>
<td>0.47</td>
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<tr>
<td>Oesophagus cancer*</td>
<td>-0.33</td>
<td>-0.40</td>
<td>0.52</td>
<td>-0.40</td>
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<tr>
<td>Liver cancer*</td>
<td>0.14</td>
<td>0.27</td>
<td>-0.31</td>
<td>0.30</td>
</tr>
</tbody>
</table>
Mycotoxins impact immunity and nutrition and should be included in HIV, TB, and malaria programming
- HIV and PEPFAR

Nutrition programs should use binding agents to improve food safety thereby:
- Decreasing child stunting
- Increasing birth weight
- Improving overall childhood nutrition

Mothers must avoid aflatoxin during the “1,000 days”
Holistic Production Model

Policy

Community Welfare

Markets

Peanut Production
Looking through a comprehensive lens

CRSP projects require a simultaneous multi-prong approach
- Increased production
- Identification of markets
- Community acceptance and participation

Project lens should be expanded and re-assessed

Policy change should be considered from the start not approached at the end

Think “outside the box”

Farmers working together on peanuts
Emergency Food

- Peanuts
- Local Ingredients
- Clay and Vitamins

RUTF

Stop Starvation
Emergency Food

- Peanuts are nutrient dense
  - Low payload factor
  - Low preparation energy requirement

- Peanut butters are an ideal medium for:
  - Probiotic bacteria
  - Vaccines

- Emergency food made with local ingredients
  - Optimized formulas for specific uses (HIV, pregnant women, severe malnutrition)

Uganda children playing in a peanut field awaiting for their mother who is weeding.
The conference will have three primary panel discussions and a special session on Mycotoxins:

- Peanut CRSP Perspective
- USAID Perspective
- Partner and Developing Country Perspective
- Mycotoxins Special Session

The focus of the meeting is to bring together Peanut CRSP researchers, host country collaborators, partners, and USAID to discuss emerging and current needs of developing countries through the lens of a peanut development platform.

Peanut CRSP researchers and host-country collaborators will engage to identify priority activities which respond to USAID mandates, host-country conditions, and emerging issues. These activities will use one or more of the following three approaches:

- research/technology development
- capacity building
- technology transfer
Thank you

For more information about
Peanut CRSP
www.peanutcrisp.org
Presentations and Screencasts will be available for download on Agrilinks.org

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Upcoming Events

November 30: Agriculture Sector Council Seminar
Senior Leadership Highlight the Importance of Research to the Success of Feed the Future

Visit the Agrilinks Blog at agrilinks.org/blogs