Navigating One’s Way Through Peanut Innovation Lab Projects in Africa: Opportunities Create Challenges

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North Carolina State University
Navigating One’s Way Through Peanut Innovation Lab Projects in Africa: Opportunities and Challenges

Half empty or half full? How much does it really matter?
And some Epicurean and Stoic philosophers came across him as well and said, “What would this seed-pecking ditherer like to say?”

David Bentley Hart

The speaker

This audience
Role of Agriculture

Produce adequate amounts of high-quality foods

Enhance the natural resource base and environment

Contribute to well-being of farmers and their communities

Make farming economically viable

NRC 2010 in Crowder and Reganold, 2015
Seminar Topics
Getting started
Value to US and host country
Quick overview of global peanut production systems
Variety release (Peanut CRSP)
IPM manual (Peanut CRSP)
PMIL (Peanut Mycotoxin or Peanut and Mycotoxin)
Brief overview of aflatoxin (US – Africa contrast)
Value chain results from Ghana
Aflatoxin book chapter (assumptions)
Ag Diversification project in Malawi
International Journey

UNI 323 (STS 323)
World Hunger Day
Church projects in Central America and Mozambique
Farmer to Farmer Exchange Program in Mozambique
Peanut CRSP in Ghana (2 cycles)
EHELD project in Liberia
PMIL (Ghana Value Chain, Southern Africa Value Chain, Haiti Value Chain)
Peanut Innovation Lab (current)
Ag Diversification in Malawi (current)
Value of USAID Projects

Host Country

Operating funds

Professional development

Discovery, verification and delivery of technologies

Recommendations to farmers
Value of USAID Projects

*United States - NCSU*

Operating funds
Professional development
Appreciation of budgeting
The bigger picture
Case studies for STS 323
Knowledge of aflatoxin
Getting along with people
Reading books
Perceptions of Undergraduate Students Regarding Global Hunger

Robert Patterson², David Jordan², Carla Cave², Gary Moore³, Wendy Warner³, Emily Sugg², Lori Unruh-Snyder² and Matthew Vann²
North Carolina State University
Raleigh, NC

1) Distribution and transportation
2) Awareness of the problem
3) Improve farmer education
4) Government and politics
5) Population dynamics
Ten years, 20 semester, ~4,000 students
Apparent draw to somewhat troubling topics
Value of USAID Projects

Both Partners

Lifelong friends and colleagues

Major and incremental impacts

Practice and application of science

Service

Purpose
Possible Titles

My $1.4 Million Data Set

Giving Away Your Operating Funds as PI Doesn’t Really Help

You Thought NCSU was Getting One Million: How did that Happen?

Wiring Your Personal Money to Africa to Get the Project Going is Not Wise Really?

It Seemed to be a Good Idea at the Time
Relative Distribution of Harvested Peanut Land Area (Percent of India) and Relative Yield per Unit Area (Percent of US)

Essential Elements of Efficient and Sustainable Peanut Production

Crop rotation and sequence
Crop genetics
Stand establishment
Pest management
Fertility
Adequate water
Harvesting capacity
Drying and storing capacity
Transportation and access to markets
Others
<table>
<thead>
<tr>
<th>Item</th>
<th>United States</th>
<th>Percent</th>
<th>Item</th>
<th>Argentina</th>
<th>Percent</th>
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<td>Planting</td>
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<td>Herbicides</td>
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<td>Fungicides</td>
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<td>Digging</td>
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<tr>
<td>Scouting</td>
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<td>3</td>
<td>Land rent</td>
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<td>Hauling</td>
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<td>4</td>
<td>Administration</td>
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<td>Dry and clean</td>
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<td>14</td>
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<td>Check off</td>
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<td>National</td>
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<td>Crop insurance</td>
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<tr>
<td>Tractor/machinery</td>
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<tr>
<td>Labor</td>
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</table>

Morichetti. 2016. Personal communication, Argentina.
## Estimated Budgets (% of total) for Peanut in India and Ghana

<table>
<thead>
<tr>
<th>Input</th>
<th>Percent</th>
<th>Input</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Labor</td>
<td>47</td>
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<td>91</td>
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<tr>
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</table>


Mochia and Abudulai. 2016. Personal communication, Ghana, West Africa.
Long flights help the transition from US system to Ghana system
Long flights help the transition from US system to Ghana system
Evaluation and Release of Two Peanut Cultivars: A Case Study of Partnerships in Ghana
Owusu–Akyaw et al., Peanut Science, 2019
## Released Groundnut Varieties
### August 7, 2012

<table>
<thead>
<tr>
<th>Breeder Code</th>
<th>Name</th>
<th>Descriptor</th>
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<tr>
<td>ICG (X) SM 87057</td>
<td>Yenyawoso</td>
<td><em>There is no one like you</em></td>
</tr>
<tr>
<td>ICGV 88709</td>
<td>Otuhia</td>
<td><em>Drives away poverty</em></td>
</tr>
</tbody>
</table>

1Drs. James Yaw Asibuo and Mike Owusu-Akyaw, Crops Research Institute, Kumasi, Ghana
ICRISAT's locations in the semi-arid tropics
Comparison of agronomic characteristics of the cultivars Otuhia and Yenyawoso to other cultivars available in Ghana in 2010.\(^a\)

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Days to 50% flowering</th>
<th>Days to pod maturity</th>
<th>Kernel content</th>
<th>Seed weight</th>
<th>Pod yield</th>
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<tbody>
<tr>
<td>Otuhia</td>
<td>27 b</td>
<td>105 ab</td>
<td>71 a</td>
<td>71 a</td>
<td>2,140 b</td>
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<tr>
<td>Yenyawoso</td>
<td>23 d</td>
<td>90 c</td>
<td>72 a</td>
<td>64 c</td>
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<tr>
<td>Adepa</td>
<td>28 ab</td>
<td>106 a</td>
<td>65 b</td>
<td>65 c</td>
<td>1,920 c</td>
</tr>
<tr>
<td>FMIX 20-1-45</td>
<td>27 b</td>
<td>104 b</td>
<td>67 b</td>
<td>69 ab</td>
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<tr>
<td>GK 7 High Oleic</td>
<td>29 a</td>
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<td>65 b</td>
<td>67 bc</td>
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<tr>
<td>Konkoma/Chinese</td>
<td>24 c</td>
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<td>RRR-MDR-8-16</td>
<td>27 b</td>
<td>106 a</td>
<td>65 b</td>
<td>68 abc</td>
<td>1,940 c</td>
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<td>Coefficient of variation (%)</td>
<td>3.3</td>
<td>1.0</td>
<td>4.0</td>
<td>5.2</td>
<td>5.5</td>
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\(^a\)Means within a column followed by the same letter are not significantly different at \(p < 0.05\) according to Fisher's Protected LSD test. Data are pooled over six locations (Atebubu, Derma, Ejura, Kwadaso, Somanya, and Wenchi) in 2010.
Seed Systems

Purity

Quality

Access

Availability

Delivery
Broader Message and *Fun* with Colleagues

Three Parables from a Development Project in West Africa
Letting Perfection be the Enemy of the Good?

Integrated Practices to Manage Diseases, Nematodes, Weeds and Arthropod Pests of Groundnut in Ghana

Editors
M. Owusu-Akyaw
M.B. Mochiah
S. Gyasi-Boakye
J.N. Asafu-Agyei
The Contributions of Pesticides to Pest Management in Meeting the Global Need for Food Production by 2050

ABSTRACT

The term pesticide has been around for centuries, and it describes many different chemicals. The term has also— at times— been maligned and misunderstood. The authors of this publication use extensive data and provide clear examples to establish that pesticides use in agriculture has:

• increased crop yield and quality;
• lessened the workload of pest management;
• improved the prospects for long-term sustainable food production.

This paper gives a brief background about the use of pesticides and a thorough examination of why they have become popular and widely used. Considering the inevitability of a growing population, cost-efficient food production must increase. Intelligent use of pesticides has led to crop management that is more efficient, sustainable, and productive (United Nations 2015). Of course, there are controversies and challenges, but with effective policies, proper regulation, and safety training, pesticide use will continue to play an important role in food production.

With a special consideration of catastrophic famines and crop management practices of the past, the authors organize the vast amount of information around several key concepts:

• Fungicides use and its impact both in the United States and around the world;
• Herbicide use, weed management, and higher yields that have resulted from sound weed control practices;
• Integrated pest management involving insecticide use, with a consideration of the problems that have occurred.
Pesticide Stewardship on a Global Scale

Worker Protection Standard for Agricultural Pesticides

EPA’s Worker Protection Standard for Agricultural Pesticides (WPS) is a regulation aimed at reducing the risk of pesticide poisonings and injuries among agricultural workers and pesticide handlers. The WPS offers protections to approximately 2.5 million agricultural workers (people involved in the production of agricultural plants) and pesticide handlers (people who mix, load, or apply pesticides) that work at over 600,000 agricultural establishments. The WPS contains requirements for pesticide safety training, notification of pesticide applications, use of personal protective equipment, application, decontamination supplies, and emergency medical assistance.