

**LEGUME INNOVATION LAB FOR COLLABORATIVE RESEARCH  
ON GRAIN LEGUMES**

**FY 2016 WORK PLAN**

**Project Code and Title: SO2.2: Enhancing Pulse Value-Chain Performance through Improved Understanding of Consumer Behavior and Decision-Making**

<b>Short Title: Grain Legume Value Chain Initiative</b>
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Lead U.S. Principal Investigator and University: Vincent Amanor-Boadu, Kansas State University

Collaborating Host Country and U.S. PIs and Institutions:

1. Gelson Tembo, University of Zambia
2. Lawrence Mapemba, Lilongwe University of Agriculture and Natural Resources, Malawi
3. Fredy Kilima, Sokoine University of Agriculture, Tanzania
4. Allen Featherstone, Kansas State University
5. Kara Ross, Kansas State University

## **I. Project Problem Statement and Justification**

Unlike maize, pulses are not traditional staples in Zambia, Malawi and Tanzania. The average annual per capita consumption of pulses between 2000 and 2011 in Tanzania, Malawi and Zambia is respectively 21.0 kg, 14.4 kg and 2.1 kg respectively. In terms of direction, the per capita consumption in Zambia is flat while Tanzania's is declining and Malawi's is increasing. It is important, however, to recognize that the foregoing represent averages across the country and food choices vary across ethnic and socio-economic lines. The market opportunities for grain legumes may differ from these average indicators in the focus countries.

The need to identify the potential demand profiles for grain legumes in the focus countries provide the justification for this research. The results would provide insights into how the legume industry in the different countries may be organized to improve smallholder producers' wellbeing. For example, by identifying consumer preferences for different types of legumes by specific socio-economic and demographic characteristics, it may be possible to develop well-structured value chains commencing from breeders through producers to distributors and retailers to maximize value addition at each of the stages. For example, information about consumer preferences may inform market segmentation and support a focus in the breeding programs being done by National Agricultural Research scientists and their international collaborators to increase payoff and impact. These focused breeding activities may facilitate the development of production clusters to serve specific markets on a national or regional basis, and in so doing, improve the market opportunities accessible to smallholder producers.

The project's fundamental problem is, thus, is to develop a new understanding of the forces and factors shaping and influencing consumers' food choice decisions and use this to facilitate improvements in legume value chains. We envisage this improvement to go from the breeder through the producer and the extension agent to the non-governmental organization working to enhance producers' lot and the industry association staff working to improve the wellbeing of industry members. The project has been structured to use both primary data to elicit information about

consumer preferences about legumes and where they fit in food hierarchies as well as secondary data collected by organizations such as the World Bank and national government agencies in the focus countries.

We see the empirical results from the research foundations insights into how industry stakeholders in the focus countries (private businesses, non-governmental organizations, producers, traders, processors, etc.) and public institutions (research institutes, universities, extension, government, etc.) may be engaged in a search for value creation and expansion opportunities as well as solutions to challenges preventing value chain effectiveness. We also plan to use the results from our analysis of industry capacity gaps to carefully develop and deliver outreach programs aimed at enhancing strategy development, management and decision-making. In the end, the project will provides innovative and unique pathways that bring smallholder producers and other stakeholders into specific alliances to help smallholder producers improve their economic wellbeing.

The project's geographic scope covers Zambia, Malawi and Tanzania; all Feed the Future focus countries. These countries reflect the different changes that are occurring in eastern and southern Africa: increasing urbanization; economic growth and increasing but unequally distributed incomes; and changing demographics, including in agricultural production. The results from this research hopes to provide insights into legumes may be used to the principal objectives of the Feed the Future initiative – reducing poverty, increasing incomes and improving nutrition.

## **II. Project Activities for the Work plan Period (October 1, 2015 - September 30, 2016)**

**Objective 1: Identify and analyze the principal factors shaping legume consumption and their relative positions in consumers' food rankings in the selected countries.**

Work continues this fiscal year on the identification and analyses of the principal factors affecting legume consumption in the study areas. One thesis has been completed and three more are under way and should be completed this coming fiscal year. The completed thesis confirmed that beans are very low on the food hierarchy in Zambia, receiving a lower income effect than even fruits and vegetables have. Preliminary indications are that the results might only be slightly different in Tanzania and Malawi. The principal reason for this may be the continued perception that beans are a “poor man's meat” and, as such, an increasing income situation leads to a lower allocation of income share. The preliminary indications suggest a broader campaign to develop outreach initiatives in collaboration with governments to alter this image of beans and help bring its value for nutrition characteristics front and center in consumer decision choices about food. The public and private institution partners of the project will be engaged in this fiscal year to drive this initiative forward as we complete the work on the analyses and confirm the position of beans and the principal factors influencing its relative position across the countries. From the scientific contributions perspective, we will complete work on comparing the factors across countries in order to shape the relative messages for more effective engagement with government and private policymakers.

### **Collaborators**

- Mr. Chance Kabeghe, IAPRI, Zambia
- Mr. Simon Mwale, CCARDESA, Botswana
- Dr. Jim Kelly, PI, SO1.A3 (MSU)
- Mr. Kennedy Muimui, ZARI, Zambia
- Dr. Eliud Birachi, CIAT
- Dr. Susan Nchimbi-Msola, Sokoine University of Agriculture

- Dr. Rowland Chirwa, CIAT Malawi
- Others in the CIAT/SABRN research community

## Approaches and Methods

Objective 1 employed a survey method to collect consumer information and uses stated preference (Discrete Choice Experiment) method to elicit consumer preferences among alternative legume products in each country. We are analyzing the data using STATA<sup>®</sup> and standard econometric modeling. We will meet with our private and public institution partners in the respective countries in this fiscal year to share the results and develop strategies in delivering effective outreach in attempt to execute the recommendations from the Objective 1.

Period	Activity	Specific Responsibility
October 2015	Begin planning for report rollout in each country in the winter. HC PIs will coordinate with local agencies and partners to maximize rollout impact.	Research team
December 2015	Complete cross country comparison analyses on legume consumption in the focus countries.	US PIs and HC PIs Leading
December 2015	Complete draft of policy brief based on consumption report, distribute to collaborators, industry stakeholders, country USAID missions and policymakers for comment, finalization and rollout process discussion.	Research Team with each HC PI leading their country initiative
January 2016	Consumption report distributed to Legume Innovation Lab partners, regional CG partners, country USAID missions and country policy makers.	US PIs and HC PIs Leading

**Objective 2: Conduct situation analyses for legume production and marketing/distribution systems with a view to identifying the nature and extent of the gaps in their value chains.**

## Collaborators

- Mr. Gerald Mgaya, Managing Director, Tanmush, Tanzania
- Ms. Grace Mijiga Mhango, Vice President, Malawi Grain Traders and Processors Association
- Mr. Chance Kabeghe, IAPRI, Zambia
- Mr. Simon Mwale, CCARDESA, Botswana

## Approaches and Methods

Objective 2 used secondary data to determine the situation of bean production in the focus countries and focus group interviews to assess gaps in the downstream segment of the legume industry. The approach used is econometric modelling and analyses to determine the production situation. This effort is being used as training opportunity for MS students in the HC countries who are working on the project as part of their degree completion requirements under HC PI supervision and mentorship.

There are two components to Objective 2: (1) Situation analyses of primary production; and (2) Situation analyses of downstream activities. The first component of Objective 2 has currently been completed with the help of our MS students in the respective HC institutions except for Zambia. Because of the delay in completing the contract for Zambia, we had some challenges recruiting students in FY2015. This challenge is not anticipated in FY2016, and we expect to have the situation analysis for Zambia completed in the first half of FY2016. We used the World Bank's nationally representative Living Standards Measurement Study-Integrated Survey on Agriculture

(LSMS-ISA) data for Malawi and Tanzania and we will use the Food Security Research Project (FSRP) dataset for Zambia to conduct the situation analyses of primary production in the three countries. The specific output will be reports describing and comparing the state of bean/cowpea production in the selected countries to identify the different paths that may be used to improve performance in each country. Additionally, three MS theses on the subject coming from the host countries. HC PIs are overseeing students' research activities. We are anticipating the report of the country comparison situation analyses of primary production to be completed by December 2015. The results from these analyses and Objective 1 results would inform the outreach programs planned for this fiscal year in the partner countries. The table below provides a schedule of activities planned for FY2016 in association with Objective 2.

Period	Activity	Specific Responsibility
November 2015	Complete the situation analysis of primary production for Zambia and complete the country comparison report	US PIs and HC PIs Leading
November - December 2015	Conduct focus interviews in the HC countries	US PIs and HC PIs Leading
November - December 2015	Begin planning for workshops in each country in the spring. HC PIs will coordinate with local agencies to maximize impact of workshops.	Research Team
April 2016	Complete a draft situation analyses of downstream activities and report on chain activities in the focus countries.	Research Team with each HC PI leading their country initiative
May 2016	Conduct workshops in each HC country to present lessons learned from Objective 1 and 2 and identify	Research Team with each HC PI leading their country initiative

**Objective 3: Implement formal and informal capacity building initiatives to address identified gaps and support value chain management capacity across the legume industry in the focus countries.**

### Collaborators

- Local trade associations
- Government departments of agriculture and food

### Approaches and Methods

HC PIs are on track in their recruitment of MS students. They have each recruited two MS students in line with the plan. We also have graduated one student already enrolled in the Master of Agribusiness (MAB) program at Kansas State University. The recruitment information for Academic Year 2016 is already out with HC PIs and they are working with industry stakeholders in their respective countries to identify potential candidates.

The results from the first two objectives would provide information for developing effective curricula to address the capacity and knowledge gaps in the legume supply chain in the three focus countries. We will work closely with industry stakeholders using innovative engagement methods to identify their strategic management challenges and develop the appropriate curricula to address the identified gaps. We plan to employ multiple pedagogies in delivering the training and exercises that

aim to improve skills and knowledge to enhance stakeholder capabilities. We also plan on using multiple delivery format to reach the most people in the legume industry in the three countries. To ensure sustainability of the training programs, we plan to train local stakeholders as trainers so that they can continue delivering the training programs after this project ends. Host country PIs have the responsibility to work with the industry, faculty and/or students to identify the knowledge and capacity gaps and publicize it with date, time and location.

Period	Activity	Specific Responsibility
January 2016	Begin planning for training workshops in each country in the FY2016. HC PIs will coordinate with local agencies to maximize participation in workshops.	Research Team
February - September 2016	Conduct a training workshop in each HC country.	US PIs and HC PIs Leading
October 2015 – September 2016	Work with local policymakers to undertake public education initiatives about the value for nitrification in their respective countries	HC PIs with US PIs support

### III. Contribution of Project to USAID Feed the Future Performance Indicators

The close collaboration between the project and industry stakeholders will allow us to build the Feed the Future performance indicators into our engagements. For example, we expect the capacity building initiatives to contribute to productivity across the whole legume supply chain, from breeders to retailers. To this end, we envisage the project contributing to Indicator #1 (number of people in our degree training programs) and #2 (number of people in short-term training – our seminars, workshops and other engagement initiatives). Because our efforts will include helping the legume industry stakeholders enhance their management capability and decision-making skills, the project will also contribute to Indicator #4. We will endeavor to facilitate public-private partnerships – e.g., between NARS’ breeders and the industry in using our information to streamline product development and commercialization. Therefore, we see the project contributing to Indicator #5.

### IV. Outputs

Three specific outputs will be delivered within this work plan period:

- A draft policy brief on how the results from the consumer research may be employed to facilitate public policy in support of the legume industry in the focus countries. It will be circulated for discussion among the stakeholders in each country by the first quarter of FY2016. (The final policy brief is scheduled to be completed in the first half of 2016).
- A report of the situation analyses of downstream activities and report on chain activities in the three focus countries.
- One day workshops to disseminate the results from the DCE survey and situational analyses in each country.
- Industry training workshops addressing knowledge and capacity identified in the industry.

### V. Engagement of USAID Field Mission(s)

Despite the high turnover that is the reality of the Missions, we have been lucky to have national staff who are already familiar with our work. We have met and briefed USAID/Zambia Mission about

this project and its expected outputs and impacts. The Director of the Economic Growth Office in Ghana with whom we have been working on another project is being transferred to Malawi as the Deputy Director of the Mission and this will provide us an improved access to the Mission in Malawi. We will continue to explore ways of leveraging our collective resources to enhance the effective impact of this project and those being undertaken by the Missions through associate awards or similar structures.

## **VI. Partnering and Networking Activities**

The nature of the project requires effective partnerships to make it work. To this end, we have built, and will continue to nurture, our relationships with the breeders and the CG institutions in the regions. Specifically, as our results come in, we will share them with our in-country breeders and Legume Innovation Laboratory scientists to explore how information emanating from our research may be incorporated into their own research initiatives to enhance consumption of legumes. We continue to explore partnerships with public and private institutions to facilitate the dissemination of the results even as we explore ways of improving the effectiveness of planned public outreach initiatives.

## **VII. Leveraging of CRSP Resources**

We have been successful in getting some Legume Innovation Laboratory funding to undertake institutional capacity building in Malawi. These resources will allow us to expand the depth of our outreach and capacity building effort through the research community at LUANR and the grain legume community in Malawi. We will continue to explore other opportunities from other institutions in our efforts to leverage our resources to expand our impact and reach.

## **VIII. Timeline for Achievement of Milestones of Technical Progress**

See Milestones for Technical Progress Worksheet

## **Appendix 1: Work Plan for Training and Capacity Building (FY 2016)**

### **Degree Training:**

The project's degree training is limited to MS in agricultural economics and Master of Agribusiness (MAB). We proposed sponsoring two students per year in the three HCs for the MS program and four MAB across the three countries. The tables below provide the situation of degree awarding training programs for the project. None of the beneficiaries are receiving full support under the project. The MS students are receiving a stipend to support their contributions to the research and outreach efforts of project staff. The MAB students receive a full scholarship for tuition and books but are responsible for their program related travel expenses. This has slowed down our recruitment effort. We are exploring some options on how this may be addressed.

**Please note: The project is not purchasing any equipment costing more than \$5,000.**

	<b>Student 1</b>	<b>Student 2</b>
<b>First and Other Names</b>	Marynia	Emily
<b>Last Name</b>	Mazunda	Malunga
<b>Citizenship</b>	Malawian	Malawian
<b>Gender</b>	Female	Female
<b>Training Institution</b>	LUANAR, Malawi	LUANAR, Malawi
<b>Supervising CRSP PI</b>	Dr L. Mapemba	Dr L. Mapemba
<b>Degree Program for training</b>	Master of Science	Master of Science
<b>Program Areas or Discipline</b>	Agribusiness Management	Agribusiness Management
<b>If enrolled at a US university, will Trainee be a “Participant Trainee” as defined by USAID?</b>	N/A	N/A
<b>HC Institution to Benefit from Training</b>	LUANAR	LUANAR
<b>Thesis Title/Research Area</b>	Situation analysis of post-production segments of Malawian legume industry	
<b>Start Date</b>	May 2014	August 2015
<b>Projected Completion Date</b>	October 2015	October 2017
<b>Training status</b>	Active	Active
<b>Type of CRSP Support for training activity</b>	Partial	Partial
<b>First and Other Names</b>	Charles	Ezekiel
<b>Last Name</b>	Lungu	Swema
<b>Citizenship</b>	Zambian	Tanzania
<b>Gender</b>	Male	Male
<b>Training Institution</b>	Sokoine University of Agriculture	Sokoine University of Agriculture
<b>Supervising CRSP PI</b>	Fredy T. M. Kilima	Fredy T. M. Kilima
<b>Degree Program for training</b>	Master of Science	M.Sc.
<b>Program Areas or Discipline</b>	Agribusiness Management	Agric. Econ.
<b>If enrolled at a US university, will Trainee be a “Participant Trainee” as defined by USAID?</b>	N/A	N/A
<b>HC Institution to Benefit from Training</b>	Sokoine University of Agriculture	Sokoine University of Agriculture
<b>Thesis Title/Research Area</b>		
<b>Start Date</b>	September 2015	September 2015
<b>Projected Completion Date</b>	October 2016	October 2016
<b>Training status</b>	Active	Active
<b>Type of CRSP Support for training activity</b>	Partial	Partial

<b>First and Other Names</b>	Mabvuto	Chalwe
<b>Last Name</b>	Zulu	Sunga
<b>Citizenship</b>	Zambian	Zambian
<b>Gender</b>	Male	Female
<b>Training Institution</b>	The University of Zambia	Stellenbosch University
<b>Supervising CRSP PI</b>	Gelson Tembo	Gelson Tembo
<b>Degree Program for training</b>	Master of Science	Master of Science
<b>Program Areas or Discipline</b>	Agricultural Economics	Agricultural Economics
<b>If enrolled at a US university, will Trainee be a “Participant Trainee” as defined by USAID?</b>	N/A	N/A
<b>HC Institution to Benefit from Training</b>	The University of Zambia	The University of Zambia
<b>Thesis Title/Research Area</b>		An Analysis of Consumer Preference for common beans: A comparative study of Malawi, Tanzania, and Zambia
<b>Start Date</b>	September 2015	September 2015
<b>Projected Completion Date</b>	September 2017	September 2017
<b>Training status</b>	Active	Active
<b>Type of CRSP Support for training activity</b>	Partial	Partial

## Short-Term Training

<b>Training Type</b>	<b>Workshop</b>	<b>Workshop</b>	
<b>Description</b>	Identifying the Different Governance Structures in Value Chains	Closing the Knowledge Gaps in the Legume Industry	Business Development and Entrepreneurial Action
<b>Location</b>	Zambia; Malawi; Tanzania	Zambia; Malawi; Tanzania	Zambia; Malawi; Tanzania
<b>Duration</b>	1 day	1 day	1 day
<b>Dates</b>	TBD	TBD	TBD
<b>Participants/Beneficiaries</b>	Agri-food sector stakeholders, faculty, students	Agri-food sector stakeholders, faculty, students	Agri-food sector stakeholders, faculty, students
<b>Anticipated Attendance</b>	30 per country (50% male)	50 per country (50% male)	50 per country (50% male)
<b>Responsible PI</b>	U.S. PI	U.S. PI	U.S. PI
<b>Other Funding Sources</b>	Not yet.	Not yet.	Not yet.
<b>Justification for Training</b>	In anticipation of building value chains in the legume industry, this workshop seek to prepare stakeholders for what it takes to build successful and manage successful value chains.	In response to identified capacity and knowledge gaps in the legume supply chain in the three focus countries, workshops will be developed to closed those gaps and mitigate strategic management challenges.	In response to participant feedback from the workshops done last fiscal year, we are going to deliver this workshop again in all three countries.