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## SUB PROJECT SUMMARIES

### RICE

**No-6** PARTICIPATORY EVALUATION OF IMPROVED RICE VARIETIES TO INCREASE PRODUCTIVITY IN MALAWI, MOZAMBIQUE AND ZAMBIA

PROJECT TITLE	PARTICIPATORY EVALUATION OF IMPROVED RICE VARIETIES TO INCREASE PRODUCTIVITY IN MALAWI, MOZAMBIQUE AND ZAMBIA
PROJECT CODE	RC-P06-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	MALAWI
LEAD INSTITUTION	DEPARTMENT OF AGRICULTURAL RESEARCH SERVICES-MALAWI
PRINCIPAL INVESTIGATOR	Tenyson Mzengeza - <a href="mailto:tmzengeza@gmail.com">tmzengeza@gmail.com</a>
PROJECT PARTNER /PARTNERING COUNTRY	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI) / ZAMBIA
CO-PRINCIPAL INVESTIGATOR & ADDRESS	MWESHI MUKANGA, ZAMBIA AGRICULTURE RESEARCH INSTITUTE, MT MAKULU RESEARCH STATION, P/B. 7, CHILANGA
EMAIL ADDRESS	<a href="mailto:mmweshi@gmail.com">mmweshi@gmail.com</a>
TARGET # BENEFICIARIES	3,000 smallholder rice farmers
PROJECT DURATION	THREE (3 YEARS)
PROJECT START DATE	NOVEMBER 2014
PROJECT END DATE	OCTOBER, 2017
GEOGRAPHICAL AREA PER COUNTRY	WESTERN PROVINCE - Kaoma and Mongu districts NORTHERN PROVINCE - Kasama district MUCHINGA PROVINCE - Chinsali and Mongu districts

#### Overall Objective

Increase rice production in Malawi, Mozambique and Zambia

#### Expected Results/Outputs

- Increase availability of improved rice varieties, with at least 6.5 t/ha average yields

- Increased awareness of the availability of improved rice varieties through PVS, field days mass media
- Increase availability of at least 300 kg of breeder or pre-basic seed of improved rice varieties

### Major Activities

- Assemble, collect and distribute test varieties in the three countries by November 2014 and by November 2015
- Establish multi-location and replicated trials at 9 locations for two seasons
- Organize field days for farmers and stakeholders
- Hold rice consultative meetings and workshops
- Conduct seed production trainings for rice seed growers
- Submit proposals to Variety Release Committees to release varieties
- Multiply breeder seed and provide foundation seed to seed growers
- Publicize selected varieties, through electronic and print media

### Achievements

Three (3) best performing varieties (IR10L121, IR11N121 and IR08A104) identified by both farmers and researchers across three sites.

## LEGUMES

### NO-12 EVALUATION AND DISSEMINATION OF IMPROVED COWPEA VARIETIES AND CROPPING SYSTEMS IN MOZAMBIQUE AND ZAMBIA FOR ENHANCED FOOD SECURITY, FAMILY NUTRITION AND INCOME

PROJECT TITLE	EVALUATION AND DISSEMINATION OF IMPROVED COWPEA VARIETIES AND CROPPING SYSTEMS IN MOZAMBIQUE AND ZAMBIA FOR ENHANCED FOOD SECURITY, FAMILY NUTRITION AND INCOME
PROJECT CODE	LG-P12-2014
TYPE OF PROJECT	TECHNOLOGY GENERATION
LEAD COUNTRY	MOZAMBIQUE
LEAD INSTITUTION	EDUARDO MONDLANE UNIVERSITY
PRINCIPAL INVESTIGATOR	Rogério Marcos Chiulele <a href="mailto:rchiulele@gmail.com">rchiulele@gmail.com</a>
PROJECT PARTNER /PARTNERING COUNTRY	UNIVERSITY OF ZAMBIA (UNZA) / ZAMBIA
CO-PRINCIPAL INVESTIGATOR & ADDRESS	ALICE M. MWEETWA, UNIVERSITY OF ZAMBIA, DEPARTMENT OF SOIL SCIENCE, BOX 32379, LUSAKA
EMAIL ADDRESS	<a href="mailto:alice.mweetwa@unza.zm">alice.mweetwa@unza.zm</a>
TARGET # BENEFICIARIES	3000 FARMERS
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	JANUARY 2015
PROJECT END DATE (Month; YEAR)	DECEMBER 2017
GEOGRAPHICAL AREA per COUNTRY	<b>MOZAMBIQUE:</b> Chókwe in Gaza province, Mapupulo in Cabo Delgado, Nampula, Nhacoongo in Inhambane and Umbeluzi in Maputo; <b>ZAMBIA:</b> Nanga and Mochipapa in Southern Province, Msekera in Eastern Province, Mufulira in Copperbelt Province and Lusaka in Lusaka Province.

### Overall Objectives

To increase cowpea production and consumption in Zambia and Mozambique to enhance food security, family nutrition and income by increasing productivity of cowpea-based cropping systems in both countries.

### Expected Results/Outputs

- At least eight improved breeding lines with good performance evaluated in at least 6 locations in each country and the most stable and adapted varieties identified
- At least one farmers preferred varieties combining good sensorial, cooking qualities and good agronomic traits identified
- Improved cropping technologies tested and the best cropping technologies appropriate for farmers identified
- At least 64 on-farm trials established per country per year and best performing varieties under farmers' fields conditions identified
- At least 120 farmers involved in farmers' participatory varietal selection per country per year and the farmers most preferred varieties selected
- At least 60 demonstration plots established per country per year and the best technology promoted
- At least two field days conducted
- At least 30kg breeder seed, 300kg of basic seed and 3000 kg of certified seed of each variety produced per country
- At least 60 extension and research staff trained per country
- At least one manual and one leaflet of best practices of cowpea production developed
- At least one paper published in peer reviewed journal

### Major Activities

- Conduct multi-location trials to test the adaptability and stability of new improved varieties to the major cowpea growing conditions in Mozambique and Zambia
- Conduct on-farm trials and participatory varietal selection to identify best performing and farmers preferred varieties
- Conduct participatory rural appraisal to assess perceptions regarding preferences on varieties and traits and conduct sensory evaluation for assessing farmers and consumer perceptions regarding preferences on cooking and sensorial qualities
- Conduct demonstration plots of new improved varieties in comparison with commonly cultivated varieties under different cropping and farming systems to create awareness on new improved varieties and best cultivation practices
- Organize field days to promote the best-bet varieties and improved cultivation practices
- Provide technical assistance on seed production of the best-bet varieties to ensure availability of adequate seed to farmers
- Train extension officers, technical staff, agronomists and farmers on best cropping practices

### NO-13 EFFICACY OF VARIOUS AGRONOMIC PRACTICES IN REDUCING AFLATOXIN CONTAMINATION IN GROUNDNUTS IN MALAWI AND ZAMBIA

PROJECT TITLE	EFFICACY OF VARIOUS AGRONOMIC PRACTICES IN REDUCING AFLATOXIN CONTAMINATION IN GROUNDNUTS IN MALAWI AND ZAMBIA
PROJECT CODE	LG-P13-2014
PROJECT TYPE	TECHNOLOGY GENERATION

LEAD COUNTRY	MALAWI
LEAD INSTITUTION	DEPARTMENT OF AGRICULTURAL RESEARCH SERVICES
PRINCIPAL INVESTIGATOR	DONALD SIYENI
PROJECT PARTNER /PARTNERING COUNTRY	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI) / ZAMBIA
CO-PRINCIPAL INVESTIGATOR & ADDRESS	RICHARD KAUNDA, MISAMFU RESEARCH STATION, P.O Box 410055, KASAMA
EMAIL ADDRESS	kaundaric@aim.com
TARGET # BENEFICIARIES	40
DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	JULY, 2014
PROJECT END DATE (MONTH; YEAR)	JULY, 2017
GEOGRAPHICAL AREA PER COUNTRY	CHIPATA, KATETE, CHINSALI AND MUNGWI

### Overall Objectives

To determine the optimum liming rates for aflatoxin control in groundnuts as well as validate and upscale the technology to farmers in Malawi and Zambia

### Expected Results/Outputs

- The effectiveness of soil amendment with agricultural lime in reducing aflatoxin contamination among groundnut varieties determined
- Agronomic practices for improved groundnut productivity and reduced aflatoxin contamination identified
- Appropriate agronomic practices for improved groundnut productivity and reduced aflatoxin contamination up scaled

### Major Activities

- Conduct surveys for aflatoxin prevalence in target areas.
- On-station and on-farm trial implementation, monitoring and evaluation
- Capacity building of research technicians, extension agents and farmers (trial management, groundnut production and aflatoxin management, handling of inputs and chemicals as safeguard guides)
- Technology dissemination through field days, demonstrations, agricultural shows

### Achievements

- Conducted a social economic survey on cost benefit of using lime to control aflatoxins in groundnuts
- Disseminated three new groundnut varieties to smallholder farmers in Chipata, Katete, Kasama, Chinsali and Mungwi
- 45 demonstrations sites showcasing lime as an aflatoxin control amendment established
- Reached 895 farmers through demonstrations and field days

### No-14 DEVELOPMENT OF COMMON BEAN AND COWPEA WITH ALUMINIUM TOLERANCE

PROJECT TITLE	DEVELOPMENT OF COMMON BEAN AND COWPEA WITH ALUMINIUM TOLERANCE
PROJECT CODE	LG-P14-2014
PROJECT TYPE	TECHNOLOGY GENERATION

LEAD COUNTRY	ZAMBIA
LEAD COUNTRY	ZAMBIA
LEAD INSTITUTION	THE UNIVERSITY OF ZAMBIA (UNZA)
PRINCIPAL INVESTIGATOR & ADDRESS	KALALUKA MUNYINDA, THE UNIVERSITY OF ZAMBIA, School Of AGRICULTURAL SCIENCES, DEPARTMENT OF PLANT SCIENCE, P.O. BOX 32379, LUSAKA, ZAMBIA. +260978270898
EMAIL	kalalukamunyinda@yahoo.com
PROJECT DURATION	3 YEARS
PROJECT START DATE	2014
PROJECT END Date	2017
GEOGRAPHICAL AREA PER COUNTRY	<p><b>ZAMBIA:</b> Provinces: Lusaka (Unza Liempe Farm, Field Station and Laboratories); Northern (Misamfu Regional Research Station); North-Western Mutanda Research Station); Central (Golden Valley Agricultural Research Trust); Muchinga (Mpika Ftc)</p> <p><b>MALAWI:</b> On Station: Chitedze, Chitala, Makoka, Kasinthula and Baka; On Farm: Lilongwe, Salima, Balaka, Chikwawa and Karonga Districts.</p> <p><b>MOZAMBIQUE:</b> Maputo, Manica, Tete, Nampula and Niassa Provinces</p>

### Overall Objective

To develop and promote productivity and production of bean and cowpea among smallholder farmers and enhance their access to the market in the bean and cowpea value chain.

### Expected Results/Outputs

- New genotypes developed with tolerance to Al toxicity
- Makers lined to Al toxicity identified
- Improved genotypes with Al tolerance accepted

### Major Activities

- Evaluation of on-station and on-farm results & write up by UNZA MSC students and FSR
- Marker-assisted selection: Make crosses between desirable and aluminum tolerant bean and cowpea genotypes to develop a mapping population. Extract DNA from F2 plants for genotyping
- Advance F2 for phenotypic evaluation and selection
- Dissemination of developed technologies-demonstrations, publication, agricultural shows, field days

### Achievements

- Two (2) promising mutants of cowpea have been preleased;
- Conducted organoleptic tests for five (5) common bean mutants

### No-15 PROMOTION OF VALUE-ADDITION AND MARKET ACCESS OF FOOD LEGUMES PRODUCTS FOR SMALLHOLDER FARMERS IN MALAWI, MOZAMBIQUE AND ZAMBIA

PROJECT TITLE	PROMOTION OF VALUE-ADDITION AND MARKET ACCESS OF FOOD LEGUMES PRODUCTS FOR SMALLHOLDER FARMERS IN MALAWI, MOZAMBIQUE AND ZAMBIA
PROJECT CODE	LG-P15-2014

PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	ZAMBIA
LEAD INSTITUTION	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI)
PRINCIPAL INVESTIGATOR & ADDRESS	GODFREY MUTALE, KABWE RESEARCH STATION, P.O. BOX 80908, KABWE, ZAMBIA
EMAIL ADDRESS	mutalegodfrey@gmail.com
TARGET # BENEFICIARIES	1,500 SMALLHOLDER FARMERS
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	OCTOBER 2014
PROJECT END DATE (MONTH; YEAR)	DECEMBER 2017
GEOGRAPHICAL AREA PER COUNTRY	<p><b>ZAMBIA:</b> Katete, Chipata, Lundazi, Nakonde, Isoka, Mporokoso, Kasama, Mbala, Choma, Kalomo</p> <p><b>MALAWI:</b> (Zomba and Mangochi), Central (Lilongwe, Salima, Ntchisi and Dedza) and Northern (Chitipa and Karonga.)</p> <p><b>MOZAMBIQUE:</b> Zambeze Provinces (Center region representing R7) for Pigeonpeas, Nampula province for cowpea and Bambara nuts and Niassa province for beans (Northern region representing R8 and R10).</p>

### Overall project objective

To promote sustainable value-addition to commonly grown food legumes (Bambara nuts, common beans, cowpeas and Pigeon peas) for improved market access and increased incomes among smallholder farmers in Malawi, Mozambique and Zambia.

### Expected Results/Outputs

- Available agro-processing technologies for beans, cowpea, pigeon peas and Bambara nuts identified
- Varieties suitable for different agro-processing requirements and meeting market preferences determined.
- Agro-processing technologies promoted
- Capacity along the Beans, Cowpeas, Pigeon peas and Bambara nuts value chain built
- Market linkages established and promoted

### Major Activities

- Awareness creation on Legume Agro-Processing
- Formation of Agro-Processing cooperatives
- Artisans' Innovation fair and Ex-Ante Economic Evaluation
- Machinery Acquisition
- Farmers' training workshop in agro-processing (Method Demonstration)
- Farmers' and extension staff training workshop (in Agri-business and Marketing skills)
- Legume Value – Chain Capacity Building
- Quality, Grades, Legumes Storage Management, Packaging and labelling Standards elucidated
- Linking Farmers to Markets

### Achievements

- Knowledge attitudes and perceptions survey conducted in 11 districts of Zambia
- 95 farmers trained in agro processing, agribusiness, and marketing skills
- Five agro processing technologies identified

**No-16 SCREENING COMMON BEAN GENOTYPES WITH IMPROVED BIOLOGICAL NITROGEN FIXATION FOR YIELD AND QUALITY**

PROJECT TITLE	SCREENING COMMON BEAN GENOTYPES WITH IMPROVED BIOLOGICAL NITROGEN FIXATION FOR YIELD AND QUALITY
PROJECT CODE	LG-P16-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	MALAWI
LEAD INSTITUTION	DEPARTMENT OF AGRICULTURAL RESEARCH SERVICES (DARS)
PRINCIPAL INVESTIGATOR	Chisale Virginia
PROJECT PARTNER /PARTNERING COUNTRY	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI) / ZAMBIA
CO-PRINCIPAL INVESTIGATOR & ADDRESS	KENNEDY MUIMUI, ZARI, MISAMFU RESEARCH STATION, P. O. Box 410055, KASAMA ZAMBIA / BRIAN GONDWE, MT MAKULU RESEARCH STATION, P/B 7, CHILANGA
EMAIL	Kmuimui04@yahoo.co.uk
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	JANUARY 2015
PROJECT END DATE (MONTH; YEAR)	DECEMBER 2017
GEOGRAPHICAL AREA PER COUNTRY	ZAMBIA: Kasama, Kabwe, Chipata, Chilanga, Solwezi; MALAWI: Lilongwe, nchisi, dedza, kasungu, rumphi, mzimba, chikwawa, zomba, thyolo; MOZAMBIQUE: Maputo, gaza, manica, tete, zambezia, nampula, niassa provinces

**Overall project objective**

To improve food, nutrition security and income amongst smallholder farmers, by increasing bean productivity and production in Malawi, Mozambique, and Zambia. This will be achieved through identifying and use of bean varieties that are high yielding and have enhanced biological nitrogen fixation

**Expected Results/Outputs**

- Improved cropping technologies tested and the best cropping technologies appropriate for farmers identified
- At least 15 on-station trials established per country per year and best performing varieties under farmers' fields conditions identified
- At least 10 demonstrations plots established per country per year and the best technology promoted
- 700 farmers and 150 extension agents trained on PVS
- Four new varieties with enhanced biological nitrogen fixation) promoted and disseminated
- 80 posters, 1,500 brochures and 4,000 leaflets produced and distributed
- At least one manual and one leaflet of best practices of co inoculation in bean production developed
- At least one paper published in peer reviewed journal

**Major Activities**

- Conduct multi-location trials to test the effects of co-inoculation of *Rhizobia* and *Trichoderma* on yield, quality and yield parameters.
- Conduct demonstration plots of co-inoculation in comparison with commonly used agronomy practices under same conditions.



- Organize field days to promote the best-bet varieties and improved cultivation practices
- Train extension officers, technical staff, agronomists and farmers on best cropping practices

#### Achievements

- Five (5) varieties with high BNF capacity identified

#### No-17 ENHANCING UTILIZATION AND MARKETABILITY OF GROUNDNUTS/BAMBARA NUTS THROUGH PROCESSING AND IMPROVED POST-HARVEST PRACTICES IN ZAMBIA, MALAWI AND MOZAMBIQUE

PROJECT TITLE	ENHANCING UTILIZATION AND MARKETABILITY OF GROUNDNUTS/BAMBARA NUTS THROUGH PROCESSING AND IMPROVED POST-HARVEST PRACTICES IN ZAMBIA, MALAWI AND MOZAMBIQUE
PROJECT CODE	LG-P17-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	ZAMBIA
LEAD INSTITUTION	UNIVERSITY OF ZAMBIA (UNZA)
PRINCIPAL INVESTIGATOR & ADDRESS	DR. VINCENT NYAU, UNIVERSITY OF ZAMBIA, SCHOOL OF AGRICULTURAL SCIENCES, DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY, LUSAKA. ZAMBIA PHONE: +260 969 692845
EMAIL ADDRESS	vincentnyau@yahoo.co.uk
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	JAN 2015
PROJECT END DATE (MONTH; YEAR)	JAN 2018
GEOGRAPHICAL AREA PER COUNTRY	ZAMBIA: Chipata, Petauke and Nyimba Districts. MALAWI: Ntchisi, Mzimba and Lilongwe Districts MOZAMBIQUE: Inharrime, Mogovolas and Montepuez Districts

#### Overall Project Objective

To increase the utilization and marketability of groundnuts and Bambara nuts grown in Zambia, Malawi and Mozambique through promotion of appropriate processing technologies.

#### Expected Results/Outputs

- Technology for processing of quality Bambara nut flours developed
- Technology for processing of various defatted groundnut flours of high quality developed
- Increase in the use of processed flours in community-based/commercial applications
- Farmers/extension workers' capacities to process quality groundnut/Bambara nut flours increased
- Women engaged in the processing of groundnut/Bambara flours increased

#### Major Activities

- Conduct exploratory study on the postharvest handling and curing of the nuts
- Conduct experiments on processing and optimization of technologies for the processing of Bambara nut flours
- Conduct experiments on processing and optimization of the technologies for the processing of defatted groundnut flours
- Conduct experiments to test the processed flours for microbial (total mesophilic aerobic bacteria (TMAB), *Escherichia coli*, *Bacillus cereus*, *Clostridium perfringens*, moulds and *Salmonella* spp), nutritional attributes

(mineral content, moisture, ash, crude protein, crude lipid, crude fibre and total carbohydrates), physicochemical attribute (oil absorption, wettability, emulsion capacity, and foaming capacity) and shelf life.

- Conduct experiments to investigate the performance of the processed flours in baked products and dishes from the catering enterprises, specifically their functional properties (oil absorption, wettability emulsion capacity, and foaming capacity).
- Promotes the uses of processed flours through the media (arising from the results from experiments in 2.1)
- Conduct training (training of trainers) to disseminate the developed technologies to farmers and extension officers
- Conducting trainings in the processing technologies for bambara/groundnuts targeting.

#### Achievements

- 20 farmers took part in the preparation of an improved post-harvest curing structure for groundnuts
- Two groundnut curing technologies generated
- Works on the proposed improved post-harvest curing for nuts in progress

#### No-18 DEVELOPMENT OF COMMON BEAN AND COWPEA WITH TOLERANCE TO BRUCHID

PROJECT TITLE	DEVELOPMENT OF COMMON BEAN AND COWPEA WITH TOLERANCE TO BRUCHID
PROJECT CODE	LG-P18-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	ZAMBIA
LEAD INSTITUTION	UNIVERSITY OF ZAMBIA
PRINCIPAL INVESTIGATOR & ADDRESS	LANGA TEMBO, UNIVERSITY OF ZAMBIA, BOX 32379, LUSAKA, ZAMBIA
EMAIL ADDRESS	langatembo@yahoo.com
PROJECT PARTNER	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI)
TARGET # BENEFICIARIES	2,700
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	JAN-15
PROJECT END DATE (MONTH; YEAR)	DEC-17
GEOGRAPHICAL AREA PER COUNTRY	ZAMBIA: Lusaka, Choma, Chipata, and Chibombo; MALAWI: Salima, Zomba, Mzimba, rumphi, Blantyre, dzedza, ntchisi

#### Overall Objective:

To increase the productivity and production of beans and cowpea by reducing losses in storage

#### Expected Results/ Output

- New genotypes developed with tolerance to bruchids
- Markers linked to bruchid tolerance identified
- Awareness of improved genotypes created

#### Major Activities:

- Development of Bean and Cowpea genotypes with tolerance to Bruchids

- Genotyping and Construction of a Linkage Map
- Identification of markers linked to Bruchid tolerance
- Creating awareness of improved varieties

#### Achievements

- Three bruchid tolerant mutants identified and subject to organoleptic sensory taste evaluation
- 87 genotypes generated for bean molecular marker mapping population
- One (1) scientific article submitted for publication

## MAIZE

### No-10 INVESTIGATING THE OCCURRENCE OF MAIZE LETHAL NECROSIS DISEASE IN MALAWI, MOZAMBIQUE AND ZAMBIA

PROJECT TITLE	INVESTIGATING THE OCCURRENCE OF MAIZE LETHAL NECROSIS DISEASE IN MALAWI, MOZAMBIQUE AND ZAMBIA
PROJECT CODE	<b>MZ-P10-2014</b>
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	MALAWI
LEAD INSTITUTION	DEPARTMENT OF AGRICULTURAL RESEARCH SERVICES (DARS)
PRINCIPAL INVESTIGATOR	<b>DOCTOR GONDWE</b> , <a href="mailto:doctorgondwe@gmail.com">doctorgondwe@gmail.com</a> <a href="mailto:gondwed@aol.com">gondwed@aol.com</a>
<b>PROJECT PARTNER /PARTNERING COUNTRY</b>	<b>ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI) / ZAMBIA</b>
PRINCIPAL INVESTIGATOR & ADDRESS	<b>DR K.K. MSISKA</b> , PLANT QUARANTINE AND PHYTOSANITARY SERVICE, P/B 7 CHILANGA, ZAMBIA
EMAIL ADDRESS	msiska12@yahoo.co.uk
<b>TARGET # BENEFICIARIES</b>	400,000 (ALL COUNTRIES)
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	JULY 2015
PROJECT END DATE (MONTH; YEAR)	DECEMBER 2017
<b>GEOGRAPHICAL AREA PER COUNTRY</b>	<b>MALAWI:</b> Karonga (Chitipa and Karonga districts), Lilonga, Blantyre, Salima, Mzuzu, Kasungu Shire Valley and Machinga Agricultural Development Divisions (ADD) <b>MOZAMBIQUE:</b> Northern tip along Niassa National, Montepuez and Pemba <b>ZAMBIA:</b> Muchinga (Nakonde, Mbala, Mpulungu), Lusaka and Copperbelt provinces

#### Overall Project Objective

To establish the occurrence of Maize Lethal Necrosis Disease (MLND) in Malawi, Mozambique and Zambia through disease and vector pest surveillance

#### Expected Results/Outputs

- MLND and vectors status established
- MLND status of maize seed produced by seed companies established.

- Knowledge/information on MLND among farmers, agricultural staff and stakeholders
- MLND diagnosis and identification capacity strengthened

### Major Activities

- Develop IEC awareness materials
- Project launch and stakeholders meetings
- Review of Institutional capacity/Geographical scope of study
- Procure equipment to support surveillance activities
- Capacity building for staff and farmers on MLND and surveillance methodology and related ISPMs
- Maize seed diagnosis from seed companies –setting up trials
- Identify collaborators for sample analyses and independent verification of samples
- Awareness creation
- MLND vector survey implementation in the survey area
- Collect maize and its related families for laboratory disease analysis
- Data analysis and interpretation
- Stakeholder and project management workshop to discuss the findings and formulate the way forward

### Achievements

- Conducted a training of Trainers workshop on maize lethal necrosis diagnosis and management
- The radio awareness programme conducted in Isoka district
- 120 brochures were distributed
- Drafted standard operating procedures (SOPs) for inspectors to use.
- Presentation of three papers at the phytosanitary conference.

## No-12 IMPROVING AND SUSTAINING MAIZE AND COWPEA PRODUCTIVITY AMONG SMALLHOLDER FARMERS THROUGH USE OF CONSERVATION AGRICULTURE TECHNOLOGIES IN MOZAMBIQUE, MALAWI AND ZAMBIA

PROJECT TITLE	IMPROVING AND SUSTAINING MAIZE AND COWPEA PRODUCTIVITY AMONG SMALLHOLDER FARMERS THROUGH USE OF CONSERVATION AGRICULTURE TECHNOLOGIES IN MOZAMBIQUE, MALAWI AND ZAMBIA
PROJECT CODE	<b>MZ-P12-2014</b>
PROJECT CODE	TECHNOLOGY GENERATION
LEAD COUNTRY	MOZAMBIQUE
LEAD INSTITUTION	MOZAMBIQUE AGRICULTURE RESEARCH INSTITUTE (IIAM)
PRINCIPAL INVESTIGATOR	<b>Henriques Victor Colial</b> , hvcolial@gmail.com
<b>PROJECT PARTNER /PARTNERING COUNTRY</b>	<b>INTERNATIONAL INSTITUTE FOR TROPICAL AGRICULTURE (IITA) / ZAMBIA</b>
CO-PRINCIPAL INVESTIGATOR & ADDRESS	<b>THERESE GONDWE, PHD</b> , IITA- ZAMBIA, 32 POPLAR AVENUE, AVONDALE, P.O. BOX 310142, LUSAKA, ZAMBIA
EMAIL	<a href="mailto:t.gondwe@cgiar.Org">t.gondwe@cgiar.Org</a>
TARGET # BENEFICIARIES	AT LEAST 15,000 RESOURCE POOR FARMERS
DURATION	3 YEARS

PROJECT START DATE (MONTH; YEAR)	OCTOBER, 2014
PROJECT END DATE (MONTH; YEAR)	OCTOBER, 2017
GEOGRAPHICAL AREA PER COUNTRY	<b>MOZAMBIQUE:</b> Nampula Province (Rapale, Murrupula and Erati Districts) Cabo Delgado Province (Montepuez District) <b>MALAWI:</b> Mangochi, Dedza, Balaka and Karonga districts <b>ZAMBIA:</b> Monze and Kazungula Districts

### Overall Project Objective

To promote sustainable agricultural production practices that incorporate retention of residue on the soil surface, minimize soil disturbance and encourage rotation focusing on including cowpea in a maize-based cropping system.

### Expected Results/Outputs

- At least two conservation agriculture-based best practices identified and promoted among small holder farmers;
- The selected CA-based soil management options demonstrated on farmers' fields in at least 10 farmers of each site
- The selected CA-based soil management options demonstrated on at least 16 farmer's field in at least 4 target communities in Mongochi, Balaka, Dedza and Karonga in Malawi; and 8 camps in Monze and Kazungula Districts in Zambia.
- Appropriate maize and cowpea varieties identified for specific agro-ecologies zone and promoted;
- Changes in soil physical and chemical properties associated with soil management options determined and documented;
- At least 6,000 farmers trained on sustainable soil fertility management practices in target communities in the three countries;
- At least 2 manuscripts produced for peer review journal publication

### Major Activities

- Organize farmers training sessions and also training for Extension Agents to train more farmers
- Establish trials and demo plots
- Organize mid-season farmer evaluations and field days
- Organize project review and planning meetings
- Prepare and disseminate extension materials to partners
- Prepare reports and manuscript for publication in peer-reviewed scientific journal

### Achievements

30 Trainings on improved cowpea production conducted

## No.13 IMPROVING YIELDS THROUGH USE OF INTEGRATED PESTS AND DISEASE MANAGEMENT TECHNOLOGIES IN IN MAIZE AND BEANS IN MALAWI, MOZAMBIQUE AND ZAMBIA

PROJECT TITLE	IMPROVING YIELDS THROUGH USE OF INTEGRATED PESTS AND DISEASE MANAGEMENT TECHNOLOGIES IN MAIZE AND BEANS IN MALAWI, MOZAMBIQUE AND ZAMBIA
PROJECT CODE	MZ-P13-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	MALAWI

<b>LEAD INSTITUTION</b>	DEPARTMENT OF AGRICULTURAL RESEARCH SERVICES (DARS)
<b>PRINCIPAL INVESTIGATOR</b>	ELISA MAZUMA
<b>PROJECT PARTNER /PARTNERING COUNTRY</b>	<b>ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI) / ZAMBIA</b>
<b>PRINCIPAL INVESTIGATOR &amp; ADDRESS</b>	<b>PATRICK CHIZA CHIKOTI</b> MT. MAKULU RESEARCH STATION, P/B 7 CHILANGA, ZAMBIA
<b>EMAIL ADDRESS</b>	chizachikoti@hotmail.com
<b>TARGET # BENEFICIARIES</b>	200,000 (ALL 3 COUNTRIES)
<b>PROJECT DURATION</b>	3 YEARS
<b>PROJECT START DATE (MONTH; YEAR)</b>	OCTOBER 2014
<b>PROJECT END DATE (MONTH; YEAR)</b>	OCTOBER 2017
<b>GEOGRAPHICAL AREA PER COUNTRY</b>	<b>MALAWI:</b> Chitedze Research Station, Chileka EPA (Lilongwe district), Bembeke EPA (Dedza district) in Central Region; Mbawa EPA (Mzimba district) in Northern Region and in Njuri EPA (Chiradzulu district) in the Southern Region. <b>ZAMBIA:</b> Chilanga, Luangwa, Sesheke, Kabwe, Mkushi, and Kasama <b>MOZAMBIQUE:</b> Southern Mozambique (Inhambane, Gaza, Maputo Provinces)

### Overall Objective

The overall objective is to improve maize and bean yields through enhanced use and promotion of eco-efficient and friendly IPDM technologies for major bean and maize pests and diseases in Malawi, Mozambique and Zambia

### Expected Results/Outputs

- Number of IPDM options identified and generated
- Number of farmers, researchers and extension agents trained in IPDM for maize and common bean pests
- Number of promotional materials produced and distributed for IPDM for maize and common bean pests
- Number of publications produced for wider dissemination of results
- Number of male and female farmers utilizing the IPDM option
- Cost of production reduction for maize and common bean
- Use of chemical pesticides reduced in maize and common bean production systems

### Major Activities

- On-station and on-farm testing and evaluation of IPDM options
- Analyze and interpret results to identify superior IPDM options
- Produce promotional materials to highlight results
- Train personnel on proper utilization of IPDM options
- Economic evaluation of IPDM options
- M&E to track progress and provision of technical backstopping
- Conduct demonstrations and field days

## MULTIPLE CROPS

### No-1 ENHANCING DROUGHT RESILIENCE IN RAINFED MAIZE AND UPLAND RICE USING SILICON BASED FERTILIZER

PROJECT TITLE	ENHANCING DROUGHT RESILIENCE IN RAINFED MAIZE AND UPLAND RICE USING SILICON BASED FERTILIZER
PROJECT CODE	MC-P01-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	ZAMBIA
LEAD INSTITUTION	MULUNGUSHI University
PRINCIPAL INVESTIGATOR AND ADDRESS	KELVIN MUNSANJE MULUNGUSHI UNIVERSITY , P.O Box 80415, KABWE, ZAMBIA
EMAIL	kmunsanje@hotmail.com
TARGET # BENEFICIARIES	2,000 SMALLHOLDER FARMERS
PROJECT DURATION	3 YEARS
PROJECT START DATE	OCTOBER 2014
PROJECT END DATE	SEPTEMBER 2017
GEOGRAPHICAL AREA PER COUNTRY	<b>MALAWI:</b> Karonga (Northern region), Nkhatabay (Northern region), Nkhotakota (Central region), Salima (Central region), Zomba (Southern Region), and Chikwawa (Southern region) <b>ZAMBIA:</b> Chama, Mambwe, Lusitu, and Kazungula Districts in Region I

#### Overall Objective

Improve productivity in rainfed maize and upland rice farming systems through the development of silicon based fertilizer material for enhanced resilience to moisture stress

#### Expected Results/Outputs

- Identified local sources of silicon
- Developed prototype Si based fertilizer
- Designed industrial production of Si based fertilizer

#### Major Activities

- Identify local sources of Si for agricultural use
- Identify processing technology for increased plant availability of Si from local sources
- Standardise technology for use of Si in rainfed maize and upland rice systems
- Field testing of Si in rain fed maize and upland rice systems
- Disseminate information on developed technology to industry and farmers.

#### Achievements

Characterization of identified silicon materials

## No-2 EVALUATION OF PESTICIDES RESIDUES IN MULTIPLE CROPPING SYSTEMS IN ZAMBIA, MALAWI AND MOZAMBIQUE

PROJECT TITLE	EVALUATION OF PESTICIDES RESIDUES IN MULTIPLE CROPPING SYSTEMS IN ZAMBIA, MALAWI AND MOZAMBIQUE
PROJECT CODE	MC-P02-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	ZAMBIA
LEAD INSTITUTION	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI)
PRINCIPAL INVESTIGATOR & ADDRESS	MUTINTA JESSIE MALAMBO, ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI), P/BAG 7, CHILANGA - LUSAKA
EMAIL ADDRESS	mtintha@hotmail.com
TARGET # BENEFICIARIES	7,000
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	JAN, 2015
PROJECT END DATE (MONTH; YEAR)	JAN, 2018
GEOGRAPHICAL AREA PER COUNTRY	<p><b>ZAMBIA:</b> Central (Mkushi), Northern (Mbala), North - Western (Solwezi), Lusaka (Chongwe), Southern (Kalomo), Copperbelt (Mpongwe) and Eastern Provinces (Chipata).</p> <p><b>MALAWI:</b> Northern (Mzimba District), Central (Lilongwe and Dedza) and Southern (Chiradzulu, Mangochi and Thyolo) regions of the country.</p> <p><b>MOZAMBIQUE:</b> Zambezia (Gurue and Mocuea) and Nampula (Meconta, Monapo and Malema) provinces.</p>

### Overall Objective

To contribute to improved access to safe food through the promotion of sustainable pesticide use among households in Zambia, Malawi and Mozambique

### Expected Results/Outputs

- Areas with high pesticide residue levels identified
- Pesticide residues in soils and crops quantified
- Awareness among farmers and stakeholders on pesticide residue levels in soil and crops created. This will enable them make informed decisions on health and environmental issues that affect their daily lives, ultimately contributing to farm productivity and improved livelihoods.
- Improved integrated pest management practices identified and promoted which will enhance the judicious use of pesticides among farmers

### Major Activities

- Undertake field survey (KAP)
- Undertake baseline soil and crop/plant sample collection
- Conduct soil and plant analysis
- Generate pesticide residue map
- Conduct field trials
- Conduct Training in improved IPM
- Develop information, Education and communication (IEC) materials
- Conduct TV and radio programmes for enhanced dissemination
- Hold dissemination meetings and workshops

### Achievements



- Developed one (1) IEC pamphlet on pesticide use in Chewa
- Conducted a KAP survey on pesticide use in Zambia
- 32 on-farm demonstrations on pesticide use established
- 60 private and public extensionist trained
- 2 publications printed and distributed
- 1 programme produced and aired

### No-3 IMPROVING GRAIN STORAGE STRUCTURES FOR SMALLHOLDER FARMERS IN MOZAMBIQUE AND ZAMBIA

PROJECT TITLE	IMPROVING GRAIN STORAGE STRUCTURES FOR SMALLHOLDER FARMERS IN MOZAMBIQUE AND ZAMBIA
PROJECT CODE	MC-P03-2014
TYPE OF PROJECT	TECHNOLOGY GENERATION
LEAD COUNTRY	MOZAMBIQUE
LEAD INSTITUTION	FACULTY OF AGRONOMY AND FORESTRY ENGINEERING (FAEF) - EDUARDO MONDLANE UNIVERSITY
PRINCIPAL INVESTIGATOR	Lucas Daniel Tivana, <a href="mailto:lucastivana@yahoo.co.uk">lucastivana@yahoo.co.uk</a> , <a href="mailto:lucas.tivane@uem.mz">lucas.tivane@uem.mz</a>
PROJECT PARTNER /PARTNERING COUNTRY	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI) / ZAMBIA
CO-PRINCIPAL INVESTIGATOR & ADDRESS	NSWANA KAFWAMFWA, ZARI, P.O. Box 630090, MOCHIPAPA-CHOMA, ZAMBIA
EMAIL ADDRESS	knswana@yahoo.com
TARGET # BENEFICIARIES	350
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	October 2014
PROJECT END DATE (MONTH; YEAR)	December, 2017
GEOGRAPHICAL AREA PER COUNTRY	MOZAMBIQUE: Maputo, Gaza and Manica ZAMBIA: Kasama, Choma/Pemba and Sesheke

#### Overall Objective

To contribute to the improved household food and nutrition security and income of smallholder farmers by the reduction of Post-Harvest storage losses of Maize, Rice, beans and Cowpea in Mozambique and Zambia

#### Expected Results/Outputs

- Grain storage period are increased to more than six (6) months
- Improved storage structures are adopted and integrated into the farm setup at smallholder farmer level.
- Post-harvest losses are reduced to less than 10% during storage among smallholder farmers in Zambia and Mozambique.
- Capacity of local as well as international companies in the manufacturing industry to develop and manufacture polyethylene storage tanks is enhanced.
- Capacity of extension staff as well as farmers in post-harvest handling, storage structure development are built and enhanced.

#### Major Activities

- Setting up and loading of on-station trials for the evaluation of effectiveness of polyethylene silo tanks (PST) and Super Grain Bugs (SGB) as alternative improved storage structures for Maize, Rice, Beans and Cowpea. Done
- Monitoring and data collection (Agronomic and socio-economic) of on-station trials.
- Field days/Shows for the demonstration of the improved storage structures as well as trial results obtained, among farmers and agriculture extension staff.
- Setting up and loading of on-farm demonstrations.
- Monitoring and data collection (Agronomic and socio-economic) of on-farm trials.
- Sensitization meetings with companies to supply PSTs & SGBs, creation of linkages for farmers, agriculture authorities and suppliers of PSTs & SGB

#### Achievements

- Poster presentation at Grain Legumes World Conference in Livingstone February 2016.
- Distributed Brochures in promotion of the project to a wider audience.

## CONSERVATION AGRICULTURE

### No-1 UNDERSTANDING FARMER CIRCUMSTANCES ON HERBICIDE WEED CONTROL AND PERFORMANCE AMONG SMALLHOLDER FARMERS PRACTICING CONSERVATION AGRICULTURE IN MALAWI, MOZAMBIQUE AND ZAMBIA

PROJECT TITLE	UNDERSTANDING FARMER CIRCUMSTANCES ON HERBICIDE WEED CONTROL AND PERFORMANCE AMONG SMALLHOLDER FARMERS PRACTICING CONSERVATION AGRICULTURE IN MALAWI, MOZAMBIQUE AND ZAMBIA
PROJECT CODE	CA-PO1-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	ZAMBIA
LEAD INSTITUTION	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI)
PRINCIPAL INVESTIGATOR & ADDRESS	CHRISPIN KAPUNDA, MOCHIPPA RESEARCH STATION P.O Box 630090, CHOMA
EMAIL ADDRESS	Ckapundap@Yahoo.Com
TARGET # BENEFICIARIES	600 SMALLHOLDER FARMERS (DIRECT BENEFICIARIES); 2000 INDIRECT BENEFICIARIES
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	4 DECEMBER 2015
PROJECT END DATE (MONTH; YEAR)	30 DECEMBER 2018
GEOGRAPHICAL AREA PER COUNTRY	ZAMBIA: Chibombo, Choma, Chongwe and Kalomo Districts MALAWI: Mzimba , Nkhotaka and Balaka Districts MOZAMBIQUE: Chókwè, Moamba, Boane and Machipanda

#### Overall Objective

To enhance the adoption of herbicides among farmers practicing CA in order to increase maize production and productivity by way of closing the gaps that hinder adoption of the technology.

#### Expected Results/Outputs

- Determinants on uptake of herbicides among smallholder farmers in CA maize based farming systems in

selected regions of Malawi, Mozambique and Zambia assessed.

- Effective and efficient Integrated Weed management strategies for increasing maize productivity under CA identified and packaged for promotion
- Increased adoption of integrated weed management strategies compatible with CA farming practice.

#### Major Activities

- Conduct an inception planning meeting
- Conduct a KAP survey; disseminate the findings of the survey as well as to publish the findings in a journal.
- Identify, recruit farmers to the sub project as well as training them on herbicide weed management options.
- Purchase materials and equipment for project implementation
- Establishment of On- farm and On-station trials for the first year production cycle
- Coordinate the project with other partners in Zambia, Malawi and Mozambique

#### Achievements

- Documentation of the draft KAP survey report marks a milestone in the implementation of the sub project activities.
- Training of extension personnel in the project sites is a key achievement that assures sustainability of the sub project scope beyond the project close.
- In Zambia, the project was able to target 80 lead farmers and 800 follower farmers from the districts of Kalomo, Choma, Chongwe and Chibombo to participate in demos, whilst a total of 600 farmers was separately reached during the provincial agricultural show that took place in southern province.

### No 2 DEVELOPING CONSERVATION AGRICULTURE IN MAIZE LEGUME SYSTEMS FOR SMALLHOLDERS IN ZAMBIA, MALAWI AND MOZAMBIQUE

<b>PROJECT TITLE</b>	DEVELOPING CONSERVATION AGRICULTURE MAIZE-LEGUME SYSTEMS FOR SMALLHOLDER FARMERS IN ZAMBIA, MALAWI AND MOZAMBIQUE
<b>PROJECT CODE</b>	CA-P02-2014
<b>PROJECT TYPE</b>	TECHNOLOGY GENERATION
<b>LEAD COUNTRY</b>	MOZAMBIQUE
<b>LEAD INSTITUTION</b>	MOZAMBIQUE AGRICULTURE RESEARCH INSTITUTE – IIAM
<b>PRINCIPAL INVESTIGATOR</b>	Chichongue, Oscar Joao, ochichongue@gmail.com
<b>PROJECT PARTNER /PARTNERING COUNTRY</b>	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI) / ZAMBIA
<b>CO-PRINCIPAL INVESTIGATOR &amp; ADDRESS (2)</b>	KAFULA CHISANGA, ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI), MOCHIPAPA RESEARCH STATION, P.O. BOX 630090, CHOMA
<b>EMAIL</b>	kafulac@yahoo.co.uk
<b>TARGET # BENEFICIARIES</b>	>1500
<b>PROJECT DURATION</b>	3 YEARS
<b>PROJECT START DATE (MONTH; YEAR)</b>	DECEMBER 2014
<b>PROJECT END DATE (MONTH; YEAR)</b>	OCTOBER 2017
<b>GEOGRAPHICAL AREA PER COUNTRY</b>	<b>MALAWI:</b> Mzimba, Karonga, Ntcheu, Salima, Balaka and Machinga <b>MOZAMBIQUE:</b> Nhacoongo, Sussudenga, Gurue and Lichinga <b>ZAMBIA:</b> Monze, Mpongwe and Chipata

### Overall Objective

To contribute to increased household food security of smallholder farmers in Malawi, Mozambique and Zambia and enhance their livelihoods while conserving and improving the natural resource base dedicated to agriculture

### Expected Results/Outputs

- Identified farmers' maize and legume production constraints and opportunities to introduce pigeon pea and other legumes in maize based systems including understanding legume input and markets
- CA best practices developed and validated and application information-knowledge available for potential scaling up/out
- Cost-benefit including production risk of introducing legumes into CA systems quantified
- Capacity building in the National Agriculture Research Systems (NARs) built

### Major Activities

- Establish demos/trials of CA practices for smallholder farmers in the project districts
- Facilitate technical training of extension agents on CA practices to integrate grain legumes in maize cropping systems
- Conduct training for at least 4 farmer groups on the use of legume as food nutrition and processing
- Elaborate and disseminate informative bulletins, brochures, leaflets and charts on CA practices and supply to communications media

### Achievements

20 extension staff have been trained across project sites

### No-3 IMPROVING SOIL FERTILITY AND REDUCING GAS EMISSIONS USING BIOCHAR IN CONSERVATION AGRICULTURE.

PROJECT TITLE	IMPROVING SOIL FERTILITY AND REDUCING GAS EMISSIONS USING BIOCHAR IN CONSERVATION AGRICULTURE.
PROJECT CODE	CA-P03-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	ZAMBIA
LEAD INSTITUTION	MULUNGUSHI UNIVERSITY / ZAMBIA
PRINCIPAL INVESTIGATOR & ADDRESS	PAUL SIMFUKWE, MULUNGUSHI UNIVERSITY, P.O. Box 80415, KABWE, ZAMBIA
EMAIL ADDRESS	p_simfukwe@yahoo.com; psimfukwe@mu.ac.zm
TARGET # BENEFICIARIES	>500
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	OCTOBER 2014
PROJECT END DATE (MONTH; YEAR)	OCTOBER 2017
GEOGRAPHICAL AREA PER COUNTRY	ZAMBIA: Region I- Sesheke; Region II - Choma, Kabwe and Mongu; and Region III - Mansa and Solwezi. MALAWI: Mkwinda and Mitundu EPAs (Extension Planning Area) under Kasungu and Lilongwe Plains and Salima in Lake Shore Agro-ecological zone.

### Overall Objective

To determine the benefits of biochar and compost/manure from on-farm wastes on soil fertility and reduction of GHG emissions in conservation agriculture.

### Expected Results/Outputs

- Improvement in soil fertility using farm waste
- Increase in crop yield
- Increased Knowledge empowerment, through education and communication materials

### Major Activities

- Collection and characterization of soils, compost and biochar for trials
- Production of biochar and acquisition of inputs for greenhouse trials and laboratory experiments
- Laboratory experiments on effects of biochar on selected parameters and reporting
- Conduct greenhouse experiments on downward migration of carbon and nutrient leaching
- Greenhouse trials on effect of biochar on maize yield
- Laboratory experiment on CO<sub>2</sub> emission
- Training of key players on biochar and on-farm nutrient recycling technologies
- Distribution of kilns and production of biochar
- Dissemination of findings (seminars, conferences, etc), publications of completed greenhouse trials and laboratory experiments field trials/demos, presentation of results (seminars, workshops, etc)

### Achievements

- Characterization of soils, compost and biochar for greenhouse and field trials
- Preliminary finding on the benefits of biochar produced from on-farm crop residues on soil fertility -nutrient retention, biomass and crop yields, have been determined.

#### No-4 EVALUATION OF FULL CONSERVATION AGRICULTURE TRADE-OFFS UNDER PARTIAL ADOPTION AND TRADITIONAL FARMING SYSTEMS FOR IMPROVED FOOD SECURITY AND INCOMES

PROJECT TITLE	EVALUATION OF FULL CONSERVATION AGRICULTURE TRADE-OFFS UNDER PARTIAL ADOPTION AND TRADITIONAL FARMING SYSTEMS FOR IMPROVED FOOD SECURITY AND INCOMES AMONG SMALLHOLDER FARMERS IN ZAMBIA AND MALAWI
PROJECT CODE	CA-PO4-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	ZAMBIA
LEAD INSTITUTION	ZAMBIA AGRICULTURAL RESEARCH INSTITUTE (ZARI)
PRINCIPAL INVESTIGATOR & ADDRESS	GODFREY SAKALA, MOUNT MAKULU RESEARCH STATION, P/BAG 7, CHILANGA, ZAMBIA.
EMAIL ADDRESS	godfrey.sakala@gmail.com
TARGET # BENEFICIARIES	35,000
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	OCTOBER 2014
PROJECT END DATE (MONTH; YEAR)	OCTOBER 2017
GEOGRAPHICAL AREA PER COUNTRY	ZAMBIA: Masumba in Chipata; Kabwe; Misamfu, in Kasama, and Mafinga MALAWI: Lilomgwe, Mzuzu, Salima and Zomba

### Overall Project Objective:

To improve productivity and production of safe and nutritious food within priority farming systems through increased adoption of Conservation Agriculture practices in Malawi and Zambia

### Expected Results/Outputs

- Validated partial CA technologies for better targeting
- Knowledgeable extension personnel and farmers to make informed decisions
- Evidence based information to help influence policy
- Improved yields for food security and income generation
- Reduced negative impacts on the environment following adoption of full CA technologies and;
- Farmers being better placed for resilience against the impacts of climate change

### Major Activities

- Conduct baseline survey on conservation agriculture in study areas.
- Conduct stakeholders meeting
- Train of site extension technicians and farmers
- Identify effective CA systems that result in increased nutrient availability, soil moisture conservation and improved maize performance
- Economic benefits of traditional and partially adopted conservation agriculture systems

### No- 5 DISEASE AND PEST CHALLENGES IN MAIZE PRODUCTION UNDER CONSERVATION AGRICULTURE CROPPING SYSTEMS: WHAT DO WE LEARN?

PROJECT TITLE	DISEASE AND PEST CHALLENGES IN MAIZE PRODUCTION UNDER CONSERVATION AGRICULTURE CROPPING SYSTEMS: WHAT DO WE LEARN?
PROJECT CODE	CA-P05-2014
PROJECT TYPE	TECHNOLOGY GENERATION
LEAD COUNTRY	MALAWI
LEAD INSTITUTION	Chitedze Research Station
PRINCIPAL INVESTIGATOR	Ivy Sichinga Ligowe
PROJECT PARTNER /PARTNERING COUNTRY	ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI) / ZAMBIA
CO-PRINCIPAL INVESTIGATOR & ADDRESS	MATHIAS TEMBO, ZAMBIA AGRICULTURE RESEARCH INSTITUTE, P/BAG 7, CHILANGA, LUSAKA, ZAMBIA
EMAIL ADDRESS	mathiastembo2002@yahoo.com
TARGET # BENEFICIARIES	30,000
PROJECT DURATION	3 YEARS
PROJECT START DATE (MONTH; YEAR)	JANUARY 2015
PROJECT END DATE(MONTH; YEAR)	DECEMBER, 2017
GEOGRAPHICAL AREA PER COUNTRY	<b>MALAWI:</b> Zomba, Neno, Mzimba, Lilongwe, Chitipa, Karonga, Bembeke, Tsangano, Chitala <b>MOZAMBIQUE:</b> Ribaue, Angoche, Monapo <b>ZAMBIA:</b> Lusaka, Choma, Mambwe, Kabwe, Mpongwe

### Overall Objective

To evaluate the disease and pest prevalence in maize under Conservation Agriculture cropping systems in the different agro ecological regions of Malawi, Zambia and Mozambique

### Expected Results/Outputs

- Understand the current status of conservation agriculture and maize production constraints and needs among smallholder farmers
- Identify maize leaf diseases and pests of economic importance in maize production under CA cropping system
- Assess the long term effect of continued maize crop residue retention on disease and pest build up under CA cropping systems
- Evaluate the performance of maize varieties under varying CA practices in the major maize growing agro-ecological regions of Malawi and Zambia
- Document and develop control measures for above and underground insect pests that affect maize production in CA cropping systems
- Investigate maize variety response to diseases and pests under conservation agriculture in different agro ecological regions

### Major Activities

- Hold participatory planning meetings
- Conduct Participatory Needs Assessment Survey
- Hold sensitization meetings
- Train extension officers and farmers
- Conduct field evaluation trials
- Hold field days
- Develop and distribute leaflets, brochures, posters

### Achievements

- Disease phenotypes under CA systems in Zambia established.