



Use of tied contour rain water harvesting (TC-RWH) system in small grain and legume production for improved household food security, nutrition and income in semi-arid smallholder farming areas of Zimbabwe

Summary

This action augments the many efforts that are on-going in Africa to enhance agricultural research and to improve the capacity of smallholder farmers to adapt to climate change. Considering that many smallholder farmers in Zimbabwe are located in semi-arid areas where rainfall is low, erratic and unreliable. It is therefore imperative to investigate the options to increase water productivity and water use efficiency in rain-fed semi-arid farming system with the aim of improving crop productivity. Climate change has resulted in most smallholder farmers failing to get any meaningful crop yields, being food insecure and in poverty. The situation has been worsened by lack of proper agricultural skills and employment opportunities. To address these challenges, we will promote the use of the tied contour water rain harvesting (TC-RWH) system to improve crop production and increase crop yields in semi-arid regions of Buhera and Mwenezi, Zimbabwe. We will carry-out on farm research to determine region specific crop performance and yield data for the various small grains and cereals under TC-RWH, integrated nutrient management and crop intensification. The research plots will also serve as demonstration and farmer learning sites, where farmers from other area can come and visit during field tours, and exchange visit) to promote uptake of the technology. We will train 6000 farmers in improved agronomic practices, post-harvest management in Buhera and Mwenezi. In addition we will train 500 smallholder farmers in value addition, and marketing and set up 2 community managed value addition centres. Overall the project will improve the food security, nutrition and income of smallholder farmers, especially women and the youths. The project will also have multiplier effects which include skills development, registration of patents and trademarks for the new products developed, and employment creation thus, moving farmers out food insecurity and poverty.

Target Groups

Our target groups are smallholder farmers and Agricultural Extension Officers in Buhera and Mwenezi, which are semi-arid districts situated in Eastern and South eastern part of Zimbabwe respectively. The farmers have limited agricultural skills, and training in value addition. The Agricultural Extension Officers require additional training in recent agronomic skills which include the use of TC-RWH technology, and post-harvest management and value addition. In addition the project targets disadvantaged members of the smallholder farming communities which includes women, youths, the disabled and the elderly.

Result Areas

There are 4 primary result areas in this action:

Result Area 1: Determination of the growth, performance and yield benefits of using TC-RWH system, integrated nutrient management and crop intensification in small grains and legumes, in semi-arid smallholder farming

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Project ID: RU/2018/
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Project duration:
48 months

Start Date:
1st March 2018

Total budget:
USD 350,000

Project partners:
Partner 1: University of
Zimbabwe

Partner 2: Magamba
Vocational Training College

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areas through on farm research in Buhera and Mwenezi districts.

Result Area 2: Training and capacity building of the farmers and Agricultural Extension Officers to construct and use TC_RWH. The training will be divided into phases, pre-season and post-harvest training. The innovative nature of the trainings will be; crowd sourcing learning experiences, use bottom up approaches and identify the most innovative and creative ideas and experiments in skills development in agriculture. In the pre-season training: farmers and extension officers training on making TC-RWH systems and on good agronomic practices (to cover, land preparation, planting dates, planting densities, weed management and control, pest control, fertilizer application). In the post-harvest training aspects of grain preservation and storage systems, grain storages and control of weevils and pests will be covered.

Result Area 3: Value addition and development of value chains. The project will promote value addition through: training in value addition of products that are identified by the community, marketing and in financial management. Training of farmers in making fortified cereals products (sorghum, finger millet and millet), for household food provision, which is the primary responsibility for women. The project will carry-out market analysis of various products developed and selected preferred products for commercialisation through value addition centres. To aid with this decision making, an economic analysis of each product developed will be done and those that are preferred and economically viable will be selected for commercialisation through the value addition centres.

Result area 4. Creation of business incubations and value addition centres through; setting up of community managed business incubation and value addition centres to further develop selected and preferred products after the market test.

General Activities:

- Recruit University Undergraduate Interns and TVET students for participation in selected project activities
- Evaluation of TC-RWH systems, in Buhera and Mwenezi districts. At least 60% of our research sites should be at women headed households.
- Gender lensing and gender mainstreaming, to enhance participation of women at every value chain node.
- Evaluate the growth performance and yield benefits of using TC-RWH system and crop intensification, where nutrients and management is concentrated on a small area to increase productivity, in small grains and legumes, and on the potential of integrated nutrient management and TC-RWH on increasing yields of small grains and legumes in semi-arid smallholder farming areas.
- Training and Capacity Building of farmers and extension officers were training is done to build capacity of the farmers and extension officers.
- Training in value addition and development of value chains
- Economic analysis of the most viable value added products
- Creation of business incubations and value addition centres

