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Agricultural Income and Employment Development Program (AIED) Quarterly Report #1



OCTOBER – DECEMBER 2010

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Cover Photo: Banana plantation at the Mupangwa Irrigation Scheme in Honde Valley. Banana is a target product for Zim-AIED because the market potential is massive and good banana farmers can earn the equivalent of more than \$10 dollars/dav.



fintrac

Fintrac Inc.

www.fintrac.com
info@fintrac.com

US Virgin Islands
3077 KronprindsensGade 72
St. Thomas, USVI 00802
Tel: (340) 776-7600
Fax: (340) 776-7601

Washington, D.C.
1436 U Street NW, Suite 303
Washington, D.C.20009USA
Tel: (202) 462-8475
Fax: (202) 462-8478

Agricultural Income and Employment Development Program (AIED)
5 Premium Close
Mt. Pleasant Business Park
Mt. Pleasant, Harare
Zimbabwe
aied@fintrac.com
www.zim-AIED.org

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October - December 2010

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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1. EXECUTIVE SUMMARY

This is the first quarterly report (October-December 2010) for the Agricultural Income and Employment Development (USAID-AIED) program, funded by USAID/Zimbabwe under Task Order No. EDH-I-00-05-00007-00 with Fintrac Inc. The report summarizes achievements in activities, results and impact within the startup phase of this 53-month task order. In the first quarter of the Program most activities related to start-up of personnel, administrative activities were completed on schedule.

The overall goals of Zim-AIED are to increase rural incomes and food security. The Program is addressing humanitarian and food security needs through direct technical assistance to increase the incomes of 180,000 farmers as well as generating new income from employment generated in the agricultural sector. Fintrac is focusing on interventions which raise production; add value to products; expand market access; and increase the availability of credit and finance at all levels in the value chain. To maximize outreach and ensure sustainability these interventions will all be carried through partnerships with commercial companies or other types of nongovernmental organizations.

Zim-AIED has the resources to operate in any geographic area and Fintrac will invest these resources wherever feasible agribusiness projects are identified. Target crops and products selected for interventions in the first quarter are: groundnut, banana, tomato, flowers and vegetables for export, sugar bean, cotton, coffee, tea, avocado and macadamia plus dairy, poultry and pork products.

Partnerships with private sector traders, processors, input suppliers and technical service providers are a key part of Fintrac's approach to commercialization of small-scale farmers. Fourteen potential partners were identified during the first quarter and cost-sharing partnerships are being negotiated.

Two major activities were initiated during this period as part of the sub-contract between Fintrac and IRD to implement the credit and finance component of Zim-AIED. IRD prepared tender documents and identified a shortlist of appropriate financial institutions to manage the Zim-AIED revolving credit facility, AGRITRADE. A study was also initiated which will classify and create an inventory of financial products available to all stakeholders in farm-to-market value chains for the main agricultural products. This study will help the Program and USAID identify gaps and areas of possible intervention over the next four years.

A detailed market survey of paprika was carried out jointly by Zim-AIED and the STAMP Program. Further market analyses will be carried out and provided to stakeholders in the next quarter. Detailed crop budgets were produced for five target crops.

Fintrac's Memorandum of Understanding with the Ministry of Agriculture has not yet been approved. This is restricting field activities to those which can be implemented by approved sub-contractors and sub-grantees. Other challenges specific to Zim-AIED implementation relate to the financial weakness of partners; commercial inexperience of smallholder groups; neglected irrigation schemes; and smallholder expectations of free inputs based on previous humanitarian strategies. None of these challenges is life-threatening to the Zim-AIED Program.

No financial problems were experienced this quarter. Next quarter planned activities include a national baseline survey and approval of at least ten partnership agreements.

2. INTRODUCTION

2.1 BACKGROUND

This is the first Quarterly Report of the Zimbabwe Agricultural Income and Employment Development (Zim-AIED) Program. USAID's contract with Fintrac Inc. to manage the Program started on October 1st, 2010 and will run for 53 months through February 2015. Zim-AIED is addressing humanitarian and food security needs through direct technical assistance to increase the incomes of 180,000 farmers as well as generating new income from employment generated in the agricultural sector. Zim-AIED aims to commercialize small-scale growers on communal and non-contested land by raising efficiencies in production systems; providing access to credit; linking producers to local, regional and international buyers; and training farmers to adopt good business practices. The Program is building demand for a range of Zimbabwean crops and products by focusing on quality, continuity and cost-competitiveness. Fintrac is implementing the Program in cooperation with two sub-contractors - International Relief and Development (IRD) and the Cooperative League of the USA (CLUSA), and two sub-grantees - CARE International and Mercy Corps. These four partners are each implementing specific components of Zim-AIED based on successful results achieved on cooperative agreements funded previously by USAID-Zimbabwe.

An overview of the Program goals and objectives, geographical coverage, target crops and products, implementation approach and achievements for this quarter is provided below. Subsequent sections provide more details on activities and results achieved compared to work plan targets in the four main Program areas of crop productivity, finance and credit, value addition and market access.

2.2 GOALS AND OBJECTIVES

The overall goals of Zim-AIED are to increase rural incomes and food security. The specific objectives which Fintrac will pursue to achieve these goals are to:

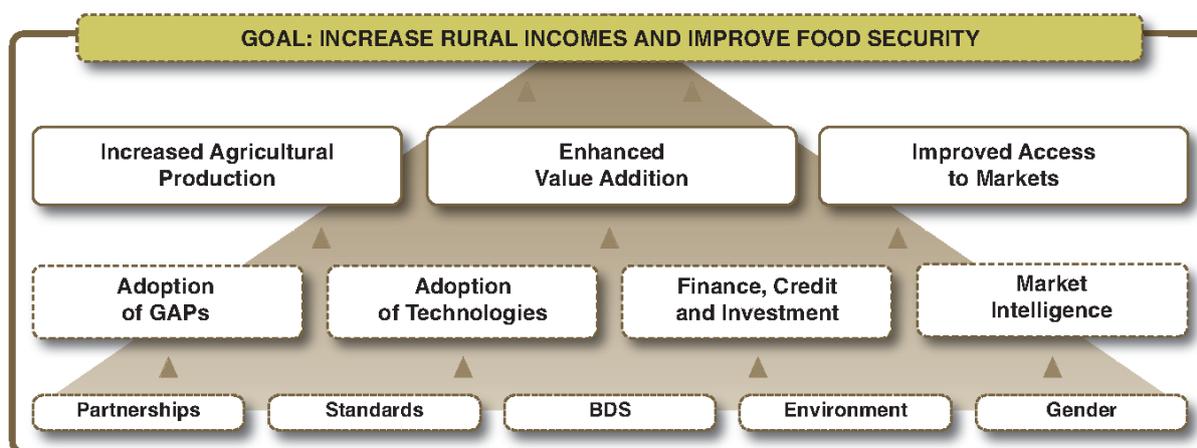
- Increase smallholder income from production and sale of crops and livestock products
- Increase incomes through generation of new employment opportunities in agriculture and agribusiness
- Increase food security through higher levels of food production (availability), increased incomes (access) and diversification of food production systems (nutrition)
- Raise agricultural productivity and national production
- Expand agro-processing capabilities and manufacture higher levels of processed products
- Increase private sector investment in agribusinesses

2.3 IMPLEMENTATION APPROACH

Fintrac's approach for the implementation of Zim-AIED is summarized in the Results Framework shown in Figure 2. We are focusing on interventions which raise production; add value to products; expand market access; and increase the availability of credit and finance at all levels in the value chain. To maximize outreach and ensure sustainability these interventions will all be carried through partnerships with commercial companies or other types of non-governmental organization. Fintrac's technical team will develop and manage these partnerships to create a national network of agribusinesses which can supply inputs efficiently; provide extension and training to growers as an embedded cost; provide working capital and finance at realistic rates; and guarantee access to markets at fair prices.

Zim-AIED managers will provide support and training to counterparts in these partner organizations which they can pass on to thousands of new small-scale growers who buy their products (in the case of input suppliers) or supply them with products (in the case of traders, processors and exporters). Partnerships may be supported through cost-sharing grants or through a revolving credit fund managed by Zim-AIED. The grants will be provided on a modified venture capital basis and credit facilities made available at fair market rates. The Zim-AIED budget includes \$5 million for each fund. This approach to commercialization will link small-scale growers to local, domestic, regional and global markets through strong trade relationships which will endure after Zim-AIED is over.

Figure 2: Zim-AIED Summary Results Framework



2.4 TARGET CROPS AND PRODUCTS

Since Zim-AIED is essentially a commercialization program, selection of target crops and products is being conducted primarily on economic feasibility based on:

- Market potential – accessibility, size, growth potential, buyer interest
- Returns on labor and capital – crop budget analysis (see Annex 1)
- Capital requirements and access to credit and finance
- Infrastructure and facilities required
- Availability of capable commercial partners

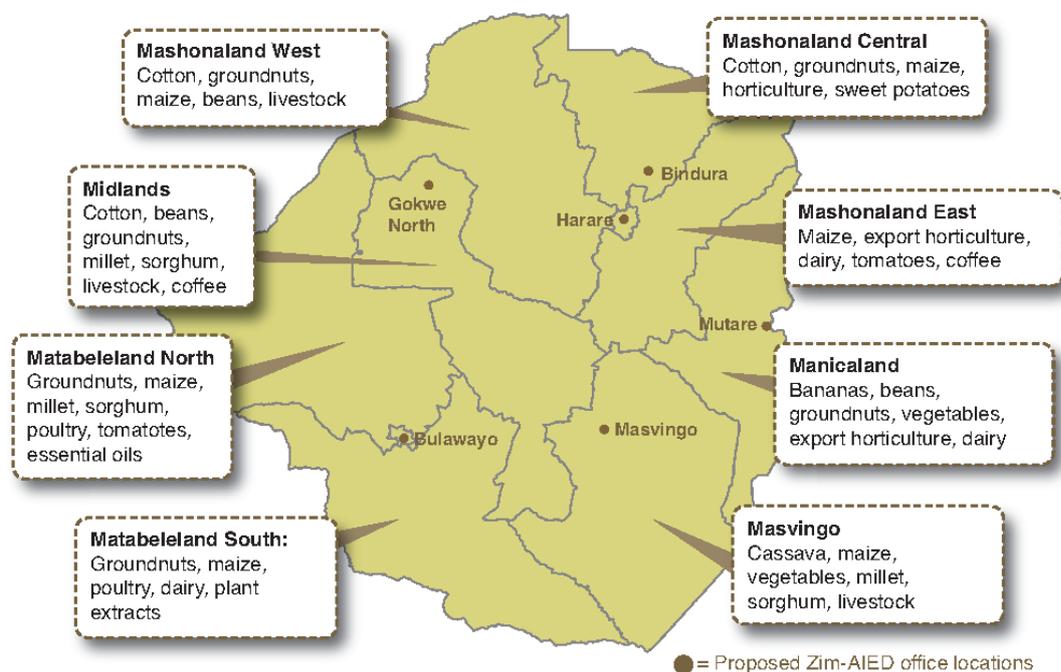
- Overall competitiveness in terms of product cost and quality – including analysis of grower knowledge, climatic and agronomic factors

Using these criteria, we are selecting a range of products for Zim-AIED support which can be produced competitively by small-scale growers and have strong income and market potential. As each target product is selected we identify and screen commercial stakeholders who are willing to co-invest their own resources in development of the product. The Zim-AIED management team then prepares and negotiates partnership agreements with each partner before Program funds are committed. More details on crops and products selected for support so far are provided below in section 3.1.

2.5 TARGET GEOGRAPHIC ZONES

Zim-AIED has the resources to operate in any geographic area and Fintrac will invest these resources wherever feasible agribusiness projects are identified. Table 1 shows the types of crops and livestock products proposed for support in different regions of the country at the start of the Program. During this first quarter the team has visited all of the areas and met with many farmers and buyers. Combined with economic analysis this is leading to a more realistic selection of crops and products for each zone. For example, sweet potato has more commercial potential than cassava or maize in Masvingo and coffee has greater long-term potential than beans in Manicaland. Selection of the most promising target products for each geographic zone will continue over the next three months.

Figure 1: Proposed Target Geographic Zones for Zim-AIED



2.6 MAIN ACHIEVEMENTS THIS QUARTER

In the first quarter of the Program most activities related to start-up of personnel, administrative activities were completed on schedule including:

- Four out of the five key personnel were fielded. Replacement of the long-term consultant on horticulture is in progress. Other technical staff members were hired to initiate crop, livestock, marketing and credit activities.
- The office was set up and administrative and accounting systems established.
- Draft work plan submitted and discussed. Revised version being prepared.
- Manual for award of grants under contract (GUC) submitted.
- Branding and marketing plan submitted.
- MOU submitted to the Ministry of Agriculture for approval.
- Computer equipment and vehicles procured.
- Zim-AIED intranet site set up.
- M&E systems installed and staff trained.
- Baseline study initiated.
- Meetings held with other USAID Programs and grantees.
- Meetings held with other donor-funded projects.

Technical interventions were also initiated. Field visits were made and discussions held with potential partners to gather information necessary for selection of target crops. Market information and crop budget data were collected from commercial and official sources and analyses carried out (see Annex1). Concept papers were received from fifteen companies showing proposed cost-sharing activities with Zim-AIED including targets, budgets and work plans. Some of these partnerships will be formalized through signed agreements over the next quarter following negotiation with the partners. A tender document for the Agritrade revolving credit facility was prepared by IRD and a shortlist of financial institutions selected for USAID approval. More information on each of these activities is given below.

3. PRODUCTS

3.1 CROPS

3.1.1 Groundnuts

This is a staple food crop providing an important source of dietary protein that has strong domestic and regional demand. Return on labor is relatively low at present but could be increased to \$5/day per unit of family labor (see Annex 1). During this quarter we worked closely with IRD and CLUSA to ensure the continuity of their work on groundnuts is continued under Zim-AIED when the current grant agreements end. Market demand is strong with buyers contracting growers in various parts of the country, in many cases providing seed and other inputs as well as an agreement to buy the crop. Technical assistance in future will focus on raising productivity levels, introducing post-harvest systems to improve quality and training in contract management for growers and buyers.

3.1.2 Bananas

Banana is a perennial food crop that contributes important dietary calories for children and has immediate potential for local and regional market growth. Smallholder outgrowers located close to commercial plantations can achieve high returns provided that they adopt efficient techniques and use recommended inputs. We are working closely with the two leading banana production and marketing companies in Zimbabwe to increase their supply from contracted outgrowers. Field data collected suggest that returns to successful growers could be as high as \$11/day per unit of family labor. Farmers will be assisted to access credit for inputs and investment finance for irrigation technologies to ensure increased yields and year round production. The existing cold chain infrastructure will be assessed and new investment opportunities will be identified that will improve quality and shelf-life during transportation, ripening and marketing.

3.1.3 Tomato

Tomato production is dominated by small-scale farmers but current production does not cover demand, so imports fill out the winter season gap. It is the most important vegetable in the national diet and generates high returns for competent growers. There is a massive potential demand for tomato paste, sauce and other processed products that were once produced locally but are now mainly imported. We will partner with medium-sized processors and distributors of fresh tomatoes around the country to create contracting agreements with smallholder suppliers, source credit at realistic interest rates, introduce traceability and food safety standards and upgrade processing plants to competitive levels.

3.1.4 Export horticulture

Zimbabwe has ideal conditions for growing fresh produce and flowers year round for the European market. It is counter-seasonal to Kenya and Ethiopia and has the range of day and night temperatures necessary to produce an assortment of products and varieties. The industry was growing fast in the 1990s and re-building the industry will be a priority for Zim-AIED with an emphasis on creating a smallholder production base to rival Kenya. Martinair currently air freights 50 tons of flowers to Holland three times per week out of Harare, produced by about fifty small-scale growers. Vegetables and fruit shipments on these flights are minimal. The immediate threat to this trade is that quantities will fall below 50 tons/shipment and Martinair will stop one or more of the flights. We are in

discussion with the growers to prevent this by increasing production and to improve the mix of fresh produce to achieve lower overall freight rates. Potential returns to growers are more than \$20/unit of family labor for high value crops such as mangetout (snow pea) and flowers (see Annex1)..

3.1.5 Cotton

Cotton is a controversial crop with current returns on labor often very low or negative. Nevertheless, it is currently grown by more than 200,000 smallholders and generates more cash income than many other crops. Apart from tobacco it is the only crop for which growers can obtain production credit from private sector buyers and Zimbabwean cotton has an international reputation for quality. There is general agreement among stakeholders that yields and net income achieved by communal farmers can be doubled with more inputs, better extension services and credit support. We have agreed with CLUSA to continue their work on cotton but with an emphasis on diversification into sesame, livestock or other products in combination with cotton to increase total family income. A detailed analysis of cotton growing systems will be initiated next quarter

3.1.6 Other products

Coffee, tea, macadamia, avocado and sugar beans are also being researched as potential target crops in cooperation with private sector investors. Two large scale plantations have proposed major initiatives to increase their on-farm production of tea and coffee simultaneously with Zim-AIED providing support to increase production from more than 3,000 potential outgrowers. Similar proposals have been received for avocado, macadamia and other tree crops. Sugar bean also has potential as a rain-fed crop with potential returns of \$5-10 per unit of family labor depending on weather conditions. We are discussing ways to continue the work on sugar beans started by several USAID grantees under cooperative agreements, with greater emphasis on participation by private sector partners. Work on paprika being conducted by grantees is also being monitored and will be continued if prices and returns to growers justify more investment by Zim-AIED. Sweet potato is an important family-produced food source in many areas with great market potential as a cash crop. We are working closely with CARE to develop a national strategy for sweet potato development.

3.2 LIVESTOCK

3.2.1 Dairy

Fintrac is currently in negotiation with Land O' Lakes to integrate its current cooperative agreement with USAID on dairy into the Zim-AIED Program. It is anticipated that a new sub-grant with Fintrac will be agreed before the current agreement ends in March 2011.

3.2.2 Poultry

Chicken for *meat and eggs* can be a profitable family business, giving **high returns from a value chain that is short and uncomplicated** with direct linkages between producers, processors and consumers. We are monitoring the technical assistance package on small-scale broiler production being provided by Technoserve under its cooperative agreement with USAID and will provide support as required.

3.2.3 Pigs

As with poultry, the key cost factor in pork production relates to the cost, quality and continuity of feed. Medium-scale intensive pig units have closed in recent years across the country due to problems

in obtaining maize, soya and other feed products. Zim-AIED will work with these investors, who have considerable sunk costs, to link them with growers and livestock on communal land and test the viability of reviving their businesses.

3.3 PROCESSED PRODUCTS

Zimbabwe was previously competitive in value-added products such as pre-packed vegetables, fruit juices, essential oils, paprika, spices, dried fruits, peanut butter, sunflower oil and processed tomato products, but production of processed products and plant extracts has fallen dramatically and, in some cases, stopped altogether. The raw materials for these products are ideally grown by smallholders, but they need the right varieties, technical knowledge and market linkages. Some products such as fruits and spices can be semi-processed on-farm for added value. In all cases, processing creates job opportunities – often for women and youth. We have spoken with processing companies during this quarter who are ready to renovate their facilities and bring production expertise to smallholder groups with support from Zim-AIED. Our approach to horticultural processed product development will be 100 percent private-sector driven and implemented, and we will promote contract production, new product development and market diversification through cost-sharing partnerships that encourage investment and innovation, not donor dependency.

A large number of small, medium and large scale companies have been involved in agri-processing in the past. As the first step in development of a strategic approach to value addition, the Zim-AIED team has started to compile an inventory of companies in the country that are still involved in agri-processing. With assistance from Zimtrade, profiles were obtained for 19 companies and organizations. When complete the inventory will provide the following information:

- Category of the processed products e.g. beverages, cereal preparations, fruit products, jams and jellies, sauces and spice mixes, processed meats and .
- Contact details and physical location of the company.
- Product range, quality and price competitiveness.
- Current status of operations.

Visits were made to processing companies and vegetable exporters interested in partnerships with Zim-AIED to view their facilities, obtain information on their product range and collect market data. Supermarket visits were made to validate information provided by the companies and compare the prices and quality of locally produced products compared with imported products. There is no doubt that Zimbabwean processing companies face stiff competition with imports, which have a lower landing cost and consequently a lower market price than locally produced products.

Local companies all cited high production costs as the main factor affecting their viability. Nevertheless, some have attempted to work with small-scale farmers to stay in operation. One company, for example, is providing aseptic bags for farmers to retain ownership and store tomato paste at its factory during gluts and wait until prices rise. A general conclusion of the study so far is that small and medium scale processors, supplying local markets around the country as well as Harare, have greater flexibility and can operate more profitably than the large-scale processors when supplies of raw material are low or unpredictable. Agreements are currently being developed with several of these to increase their production of tomato products, pickled vegetables and Tabasco chili.

5. FINANCE AND CREDIT.

Two major activities were initiated during this period as part of the sub-contract between Fintrac and IRD to implement the credit and finance component.

- IRD prepared tender documents and identified a shortlist of appropriate financial institutions to manage the Zim-AIED revolving credit facility, AGRITRADE.
- IRD initiated a study which will classify and create an inventory of financial products available to all stakeholders in farm-to-market value chains for the main agricultural products. This study will help the Program and USAID identify gaps and areas of possible intervention over the next four years.

The AGRITRADE-1 Facility will provide short term lines of credit to rural agro-traders for the sole purpose of financing the purchase of farm produce from small-holder farmers for sale to agro processing companies; for movement of commodities from surplus to deficit areas; and for export. The facility will have a national scope aiming to reach a maximum number of commercially viable rural traders during the period April 1, 2011 through September 30, 2011. Depending on the performance of the Facility, which will be assessed by IRD on a monthly basis, it will be incrementally funded with Zim-AIED revolving fund resources to a maximum total of \$2million based on demand. The manager of the fund is expected to match Zim-AIED contributions at least 1:1 from its own resources and to cover at least 50% of the costs related to defaulting clients. In October 2011 the performance of the fund will be assessed with potential restructuring based on market developments. Loans will range from \$6,000 to \$18,000. The AGRITRADE-2 Facility will be tendered and operated on a similar basis but is aimed at larger-scale companies and will provide higher lines of credit to agro-merchants from \$120,000 to \$200,000.

The performance of MicroKing's credit package for direct lending to small-scale growers, which is supported by a USAID grant to Mercy Corps, is being analyzed and will be modified and expanded by Zim-AIED if the results show promise. Similarly discussions were held with CARE on a number of village savings and loan groups which they support across the country and which have graduated to commercial levels of operation. These will be assessed during the next quarter.

6. MARKET DEVELOPMENT

Underpinning all aspects of Fintrac's approach is awareness of market conditions, regular contact with buyers and market analyses. Selection of the target crops and products described above in Section 3 is based on their market size and growth potential as well as analysis of current, mid- and long-term competitiveness. The market price data obtained from buyers and official sources has been incorporated into crop budgets provided below in Annex 1.

A detailed market survey of paprika was carried out jointly by Zim-AIED and the STAMP Program. Further market analyses will be carried out and provided to stakeholders in the next quarter based on data being collected on a continuous basis. Profitability and returns on labor for target crops will be monitored, and adjustments in crop selections will be made in response to changing market conditions.

ANNEX I: CROP BUDGETS

1.1 GROUNDNUTS

Analysis based on data provided by farmers and private sector partners

Costs					
Inputs		unit	quantity	price/unit	cost
Land Preparation	Ploughing (Oxen Hire)	ha	1	\$30.00	\$30.00
Planting Material	Seed	kg	60	\$1.80	\$108.00
Fertilizers	Compound D	kg	50	\$0.16	\$8.00
	Transport In	tons	0.05	\$0.75	\$3.75
Packaging	Bags	Bags	15	\$0.50	\$7.50
Transport (100km)	US\$/km/tonne	tons	0.62	\$0.75	\$46.15
Labor hired		ld	8	\$3.50	\$26.95
Total Variable costs - TVC					\$230.35
Income					
	Producer price (pp)	Gross yield (GY)	Losses (L)	Net yield (NY)	Gross income (GI)
	\$/kg	kg/ha	kg/ha	kg/ha	\$/ha
	\$ 0.60	615	0	615	\$369.23
Returns					
Gross Margin	GI-TVC	\$138.88			
Cost per kg	TVC/ny	\$0.37			
Break even yield	TVC/pp	383.92			
Net returns per \$ invested	GM/TVC	0.6			
family labor required		79.37			
Return to family labor	GM/Lf	\$1.75			

Groundnuts – potential budget following Zim-AIED intervention

Costs					
Inputs		unit	quantity	price/unit	cost
Land Preparation	Ploughing (Oxen Hire)	ha	2	\$30.00	\$60.00
	Ridging	ha	1	\$10.00	\$10.00
Planting Material	Seed	kg	100	\$1.80	\$180.00
Fertilizers	Compound L	kg	250	\$0.70	\$175.00
	Gypsum	kg	400	\$0.16	\$64.00
	Agricultural Lime	kg	400	\$0.12	\$48.00
	Manure	tons	5	\$0.00	\$0.00
	Transport In	tons	1.05	\$0.75	\$78.75
Herbicides	Dual 960	litres	1	\$13.00	\$13.00
	Basagran	litres	3	\$16.00	\$48.00
Pesticides	Cabaryl	kg	1	\$9.00	\$9.00
Fungicides	Shavit	litres	1	\$15.00	\$15.00
Packaging	Bags	Bags	96	\$0.50	\$48.00
Transport (100km)	US\$/km/tonne	tons	3.85	\$0.75	\$288.46
Labor hired		ld	8	\$3.50	\$26.95
Total Variable costs - TVC					\$1,064.16
Income					
	Producer price	Gross yield (GY)	Losses (L)	Net yield (NY)	Gross income (GI)
	\$/kg	kg/ha	kg/ha	kg/ha	\$/ha
	0.60	3,846	0	3,846	\$2,307.69
Returns					
Gross Margin	GI-TVC	\$1,243.53			
Cost per kg	TVC/ny	\$0.28			
Break even yield	TVC/pp	1773.60			
Net returns per \$ invested	GM/TVC	1.17			
family labor required		231.62			
Return to family labor	GM/Lf	\$5.37			

Assumptions - Yields average 3.5 to 4.5tonnes the lower limit is without irrigation and the upper limit is with irrigation

Project Intervention - The project will advocate for good agricultural practices to increase productivity and these include:

Ridging to allow free pod formation and easy for lifting and minimize losses, use of certified seed only retained once, use of organic and inorganic fertilizers including lime to increase nutrient availability, use of herbicides for efficiency weed control, pest and disease control based on threshold levels

1.2 BANANAS

Analysis based on data provided by farmers and private sector partners

Net Yield NY-(kg/ha)		2700			
Producer Price-PP- (US\$/kg)		0.1			
Gross Income GI-(US\$)		162			
Recovery Rate %	0.9				
VARIABLE COSTS					
Inputs	Item	unit	Quantity/ha	Price USD/unit	Cost (USD)
Land Preparation	Hire-Oxen	ha		\$30.00	\$0.00
Planting Material	Seedlings	plants		\$1.00	\$0.00
Fertilizers	Compound C	kg		\$0.80	\$0.00
	Superphosphate	kg		\$0.50	\$0.00
	Lime	kg		\$0.10	\$0.00
	Compound J	kg		\$0.70	\$0.00
	Ammonium Nitrate	kg		\$0.54	\$0.00
	Trace elements(Zn sulphate)	kg		\$3.00	\$0.00
	MOP	kg		\$0.96	\$0.00
Herbicides	Gramoxone	litres		\$7.00	\$0.00
	Glyphosate	litres		\$8.00	\$0.00
Pesticides	Chlopyriphos 48EC	litres		\$8.00	\$0.00
	Temik	kg		\$9.75	\$0.00
Fungicides	Dithane M45	kg		\$9.00	\$0.00
	Tilt	litres		\$11.00	\$0.00
	Copper Oxychloride	kg		\$9.00	\$0.00
Props	Poles	Units		\$0.50	\$0.00
Sleeves	Sleeves	M		\$0.40	\$0.00
Packaging					\$0.00
Transport					\$0.00
Labor contracted		Ld	0	\$3.50	\$0.00
Labor Family		days	108		
Total Variable costs - TVC					\$0.00
Returns		unit			
Gross Margin (profit/loss)	GI-TVC	\$/ha	\$162.00		
Cost per kg	TVC/ny	\$/kg	\$0.00		
Break even yield	TVC/pp	kg/ha	0		
Net returns per \$ invested	GM/TVC	\$1 : \$	\$0.00		
Return to family labor	GM/Lf	\$/day	\$1.50		

Bananas – potential budget following Zim-AIED interventions

Net Yield NY-(kg/ha)		49000			
Producer Price-PP- (US\$/kg)		0.28			
Gross Income GI-(US\$)		13720			
Recovery Rate %	0.98				
VARIABLE COSTS					
Inputs	Item	unit	Quantity/ha	Price USD/unit	Cost (USD)
Land Preparation	Hire-Oxen	ha	1	\$30.00	\$30.00
Planting Material	Seedlings	plants	2,000	\$1.00	\$2,000.00
Fertilizers	Compound C	kg	1,000	\$0.80	\$800.00
	Superphosphate	kg	500	\$0.50	\$250.00
	Lime	kg	2,500	\$0.10	\$250.00
	Compound J	kg	1,200	\$0.70	\$840.00
	Ammonium Nitrate	kg	600	\$0.54	\$324.00
	Trace elements(Zn sulphate)	kg	3	\$3.00	\$9.00
	MOP	kg	600	\$0.96	\$576.00
Herbicides	Gramoxone	litres	30	\$7.00	\$210.00
	Glyphosate	litres	15	\$8.00	\$120.00
Pesticides	Chlopyriphos 48EC	litres	2	\$8.00	\$16.00
	Temik	kg	40	\$9.75	\$390.00
Fungicides	Dithane M45	kg	15	\$9.00	\$135.00
	Tilt	litres	5	\$11.00	\$55.00
	Copper Oxychloride	kg	6	\$9.00	\$54.00
Props	Poles	Units	4,000	\$0.50	\$2,000.00
Sleeves	Sleeves	M	2,600	\$0.40	\$1,040.00
Packaging					\$0.00
Transport					\$0.00
Labor contracted		Ld	0	\$3.50	\$0.00
Labor Family		days	411		
Total Variable costs - TVC					\$9,099.00
Returns		unit			
Gross Margin (profit/loss)	GI-TVC	\$/ha	\$4,621.00		
Cost per kg	TVC/ny	\$/kg	\$0.19		
Break even yield	TVC/pp	kg/ha	32,496		
Net returns per \$ invested	GM/TVC	\$1 : \$	\$0.51		
family labor required		days	411		
Return to family labor	GM/Lf	\$/day	\$11.25		

1.3 DRYLAND SUGAR BEANS

Analysis based on data provided by farmers and private sector partners

Yield levels		tonnes	0.5		
Average price		\$/kg	1		
GROSS INCOME		\$	500		
Recovery rate is at	100%	of yield level			
VARIABLE COSTS					
	item	unit	quantity/ha	unit cost \$	total cost \$
Fertilizer:	Compound D fertilizer (7:14:7)	tonnes	0.15	600.00	90.00
	Ammonium nitrate	tonnes	0.05	540.00	27.00
	Agricultural lime	tonnes	0	120.00	-
Insecticides	Thiodan 35 MO (Endosulfan)	litres	0.80	7.38	5.90
	Apron Star 42WS	kgs	0.00	40.00	-
	Diazinon 30EC	litres	0.00	25.00	-
	Karate(Lambda-Chyalothrin)	litres	0.00	11.60	-
Fungicides	Benlate 50WP (Benomyl)	kgs	0	10.92	-
	Copper Oxychloride 80WP	kgs	4	9.00	36.00
	Dithane M45 (Mancozeb)	kgs	0	7.00	-
Herbicides	Bateleur Gold 650EC	litres	0	29.00	-
Seed		kgs	80	2.60	208.00
Transport in	\$45/tonne	tonnes	0.2	45.00	9.00
Transport out	\$0.025 per kg	kg	500	0.03	12.50
Harvesting & packaging	Polythene bags	number	10	0.50	5.00
Hired Labor	Preharvest	labor days	13.2	3.50	46.20
	Post Harvesting	labor days	1	3.50	3.50
Sundries @		1%	of above costs		4.43
TOTAL VARIABLE COSTS					447.54
GROSS INCOME					500.00
GROSS MARGIN					52.46
Cost per kg					0.90
Breakeven yield (kg)					447.54
Net Return per \$ invested					0.12
Total Labor days			58.22		
Total Family Labor days			44.02		
Return per Family labor					1.19
Assumptions: Yield ranges from 0.3 to 0.7 tonnes/ha, price ranges from USD800 to 1200 per tonne and varies with the season, labor: all family labor is not costed, ox drawn operations will be done using farmers own oxen and equipment					

Dry land sugar beans – potential budget following Zim-AIED interventions

Yield levels		tonnes		1.3		
Average price		\$/kg		1		
GROSS INCOME		\$		1300		
Recovery rate is at		100%	of yield level			
VARIABLE COSTS						
	item	unit	quantity/ha	unit cost	total cost	
Fertilizer:	Compound D fertilizer (7:14:7)	tonnes	0.3	600.00	180.00	
	Ammonium nitrate	tonnes	0.1	540.00	54.00	
	Agricultural lime	tonnes	0.25	120.00	30.00	
Insecticides	Thiodan 35 MO (Endosulfan)	litres	0.80	7.38	5.90	
	Apron Star 42WS	kgs	0.20	40.00	8.00	
	Diazinon 30EC	litres	0.90	25.00	22.50	
	Karate(Lambda-Chylothrin)	litres	0.15	11.60	1.74	
Fungicides	Benlate 50WP (Benomyl)	kgs	0.25	10.92	2.73	
	Copper Oxychloride 80WP	kgs	4	9.00	36.00	
	Dithane M45 (Mancozeb)	kgs	3	7.00	21.00	
Herbicides	Bateleaur Gold 650EC @	litres	1.2	29.00	34.80	
Seed		kgs	80	2.60	208.00	
Transport in		tonnes	0.65	45.00	29.25	
Transport out		kg	1300	0.03	32.50	
Harvesting & packaging	Polythene bags	number	26	0.50	13.00	
Hired Labor	Preharvest	labor days	34.1	3.50	119.35	
	Post Harvesting	labor days	6.5	3.50	22.75	
Sundries @		1%	of above costs		8.22	
TOTAL VARIABLE COSTS					829.74	
GROSS INCOME					1,300.00	
GROSS MARGIN					470.26	
Cost per kg					0.64	
Breakeven yield (kg)					829.74	
Net Return per \$ invested					0.57	
Total Labor days			93.06			
Total Family Labor days			52.46			
Return per Family labor					8.96	

Notes: yield ranges from 0.9 to 1.6 tonnes/ha, Apron Star seed dressing for control bean stem maggot and aphids, price ranges from \$800 to \$1,200 per tonne and varies with the season, labor: all family labor is not costed, ox drawn operations will be done using farmers own oxen and equipment

Project Interventions: Thrust on good agriculture practices, soil pH correction, herbicide and seed dressing, responsible use of chemicals, use of appropriate agro-chemicals, correct timing and placement of agrochemicals, correct plant population, appropriate fertilization, efficient market linkages, appropriate planting dates

1.4 MANGETOUT

Analysis based on data provided by farmers and private sector partners

	Gross Yield Level(kg)		2500	kg		
	% Saleable yield of Gross	90%	2250			
	Average price per kg		\$0.30			
	Gross Income		\$675.00			
	Variable Costs					
	Cost Item	Unit	Frequency	Rate	Unit Cost (\$)	Total Cost (\$)
	Seed	kg	1	40	\$2.00	\$80.00
	Fertilizer & Lime					
	Compound D	kg	1	150	\$0.56	\$84.00
	Ammonium Nitrate	kg	2	50	\$0.54	\$54.00
	Transport in	tonnes	1	0.2	\$36.00	\$7.20
Insecticides	Dimethoate	kg	0.5	0.2	\$6.00	\$0.60
	Karate (Bollworms)	litres	0.2	0.15	\$15.00	\$0.45
Fungicides	Copper Oxychloride 85%WP	kg	3	1.5	\$9.00	\$40.50
	Dithane M45	kg	2	1	\$7.00	\$14.00
Irrigation & Water	Water usage (2000 m3)	m3		2000	\$0.03	\$0.18
Transport (50 km)	(loaded km @ 1500kg/load @ \$0.50/km)	km		2.25	\$25.00	\$56.25
Hired labor/tonne	Planting	labor days/tonne		19.25	\$3.50	\$67.38
	Grading	labor days/tonne		29	\$3.50	\$101.50
	Picking	labor days/tonne		30	\$3.50	\$105.00
	Sub total			78.25	\$3.50	\$273.88
	Total Cost					\$611.06
	Sundries	1%				\$6.11
	Total Variable Costs					\$617.17
GROSS INCOME						\$675.00
GROSS MARGIN						\$57.83
Break-even yield (kgs)					2057	
Total Labor Days					209.66	
Total Family labor days					131.41	
Return per family labor day						\$0.44
Return per \$ invested						0.09

Mangetout – potential budget following Zim-AIED interventions.

	Gross Yield Level(kg)		9000			
	% Saleable yield of Gross(kg)	90%	4050	4050		
	Average price per kg		\$1.60	\$0.50		
	Gross Income		\$6480.00	\$2,025.00		\$8505.00
	Variable Costs					
	Cost Item	Unit	Frequency	Rate/ha	Unit Cost (\$)	Total Cost (\$)
Seed	seed/hawksworth	kg	1	40	\$2.00	\$80.00
	Compound S	kg	1	500	\$0.68	\$340.00
Fertilizer & Lime	Muriate of Potash	kg	1	100	\$1.48	\$148.00
	Ammonium Nitrate	kg	3	300	\$0.54	\$486.00
	SSP	kg	1	200	\$0.75	\$150.00
	Transport in	tonnes	1	1.1	\$36.00	\$39.60
Herbicides	Dual(Broad Spectrum)	litre	1	1.5	\$7.50	\$11.25
	Prowl	litre	1	3	\$8.00	\$24.00
Insecticides	Dimethoate	kg	3	0.2	\$6.00	\$3.60
	Karate (Bollworms)	litres	3	0.15	\$15.00	\$6.75
Fungicides	Copper Oxychloride 85%WP	kg	10	1.5	\$9.00	\$135.00
	Dithane M45	kg	4	0.75	\$7.00	\$21.00
	Benomyl	kg	4	0.1	\$12.00	\$4.80
	Wettable Sulphur	kg	10	0.75	\$5.00	\$37.50
	Bravo	l	2	1	\$12.00	\$24.00
Irrigation & Water	Water usage	m3		2900	\$0.03	\$86.48
Transport (50 km) to market	(loaded km@1500kg/load@\$0.50/km)	km		6	\$25.00	\$150.00
	Hired Labor/tonne (See detailed labor schedule)					
	Planting	labor days		16.5	\$3.50	\$57.75
	Grading	labor days		104.4	\$3.50	\$365.40
	Picking	labor days		108	\$3.50	\$378.00
	Total Cost					\$2549.13
	Sundries	1% of above costs				\$25.49
	Total Variable Costs					\$2574.62
	GROSS INCOME					\$8505.00
	GROSS MARGIN					\$5930.38
	Break-even yield (kgs)				5315.625	
	Total Labor Days				510.51	
	Total Family labor days				281.61	
	Return per family labor					\$21.06
	Return per \$ invested					2.30

**Agricultural Income and
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