Assessing New Market Opportunities for Smallholder Farmers in Malawi

Using technology to analyze future profitability and develop a business plan

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Introduction:

Malawian smallholder farmer agri-business investment opportunities are limited due to lack of (1) information, (2) credit access, and (3) business management skills. A computer program (Minimum Data Set (MDS) Tool) is being developed by Catholic Relief Services (CRS) to aid smallholder farmers discover and evaluate market opportunities (CRS 2007/2009).

Problem Statement:

How can the MDS Tool be improved to help smallholder farmers effectively realize profitable agri-business opportunities in Malawi?

Key Objectives:

(1) Test the profitability calculator and business planner of the MSD Tool.
(2) Assess appropriateness and value addition of the MDS Tool to facilitate market extension services.
(3) Capture inputs and analyze feedback from potential users of the MDS Tool. Inform designers to improve quality and acceptability of the tool.

Minimum Data Set (MDS) Tool:

- The MDS Tool is a software program that is being created to easily, quickly, and accurately determine the financial feasibility of a rural agricultural enterprise.
- Smallholder farmers in Malawi are looking to reach high-value markets and diversify their production and income.
- Many of these farmers have difficulty analyzing future returns, current costs, and/or upfront investments.
- The MDS tool and its profitability calculator attempt to help farmers address this problem.



What We Did:

While in Malawi (January 3-15, 2011):


17 Farmer Visits


3 Market Visits


4 Discussion Days

- Our team consisted of three CADECOM staff (the local CRS agricultural extension partner), two students from Bunda College, University of Malawi, and a staff member of CRS-Malawi, in addition to our four-person Cornell team.
- We worked in groups of 3-4 to assess the strengths and weaknesses of the MDS tool by visiting with 17 farmer groups.
- Three market research days allowed us to gather input prices and product valuation data.
- Four discussion days were held to compare findings from the field visits and generate a report with recommendations for improvement of the MDS Tool and its use.

Post Field Work Deliverables (Spring 2011):

Building of a financial model:

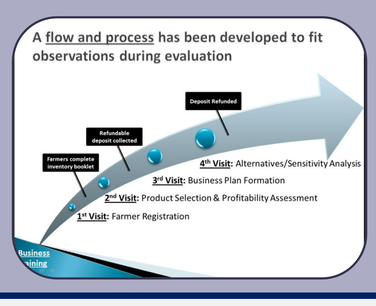
- We recommended to include in the MDS Tool a robust financial model that accounts for depreciation, free cash flow, the time value of money, and determines loan needs, returns to assets, and returns to labor more accurately.
- In March, 2011, we presented this model, built in Excel, to CRS-Baltimore staff for integration into the newest MDS Tool (ongoing).

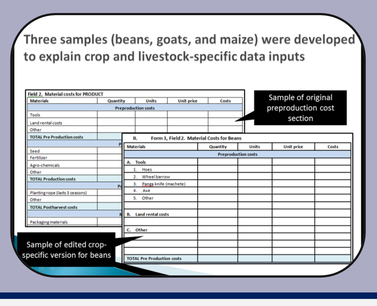
What We Learned:

- The MDS Tool needs to be part of a larger business development process..
- Farmers need upfront basic business training to help them with profitability analyses.
- Extension staff working with farmers need training on how to use the software and contribute to the process of realizing the value of the technology.
- Some data can be pre-populated into the tool to simplify and expedite data collection.
- Multiple meetings with farmer groups are needed at different stages of the process.
- Language used in the computer software needs to reflect farmer reality. Technical business terms are not used by rural farmers.

What We Recommended:

- Change the flow and process , specifically:
  - Provide basic business training to extension staff and farmers prior to introducing the MDS Tool.
  - Introduce an inventory booklet in which farmers can note their inventory.
  - Establish a refundable deposit so farmers are invested in the process.
- Make edits to the forms within the MDS Tool.
- Gather market data prior to farmer meetings, and update the software to reflect market conditions.





What We Delivered:

1. Oral presentations of findings and specific recommendations to CRS-Malawi and Catholic Development Commission (CADECOM) while in Malawi ,and to CRS-Baltimore.





2. A 49-page report describing research methodology, findings from field work, and specific details of the recommendations, including page-by-page recommended changes to the existing forms.

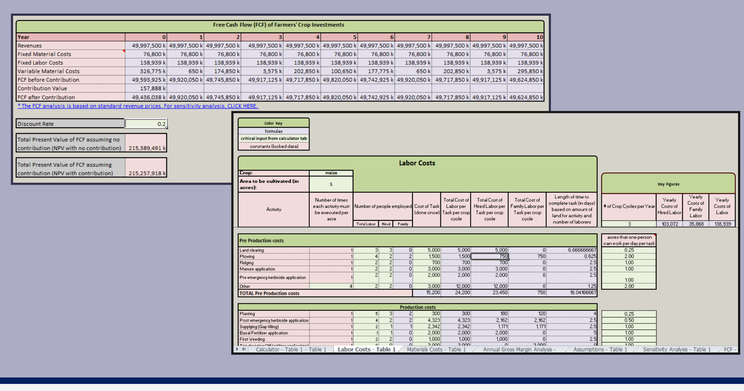

MDS Field Implementation Evaluation

Report of a 2-week Evaluation of the MDS Tool Developed by Catholic Relief Services
January 4-15, 2011, Malawi

January 23, 2011

Meredith Gethin-Jones, Katie Ricketts, Xenia Rudenko, Quirine Ketterings (Cornell University)
Alifeyo Nyasulu, Levison Sinoya Chilasa (Bunda College of Agriculture, University of Malawi)
Gift Chiwaula Luwe, Kennedy Kayira, Kumbakani Munthali (CADECOM)
Torrey Peace (Catholic Relief Services)

3. A robust financial model that includes free cash flow for farmer groups, and the net present value of an investment based on a multi-year analysis.


Free Cash Flow (FCF) of Farmers' Crop Investments

Year	0	1	2	3	4	5	6	7	8	9	10
Revenues	49,997,500 k	49,997,500 k	49,997,500 k	49,997,500 k	49,997,500 k	49,997,500 k	49,997,500 k	49,997,500 k	49,997,500 k	49,997,500 k	49,997,500 k
Fixed Material Costs	76,800 k	76,800 k	76,800 k	76,800 k	76,800 k	76,800 k	76,800 k	76,800 k	76,800 k	76,800 k	76,800 k
Fixed Labor Costs	138,939 k	138,939 k	138,939 k	138,939 k	138,939 k	138,939 k	138,939 k	138,939 k	138,939 k	138,939 k	138,939 k
Variable Material Costs	326,775 k	650 k	174,850 k	3,575 k	202,850 k	100,650 k	177,775 k	650 k	202,850 k	3,575 k	295,850 k
FCF before Contribution	49,593,925 k	49,920,050 k	49,745,850 k	49,917,125 k	49,717,850 k	49,742,925 k	49,920,050 k	49,717,850 k	49,917,125 k	49,824,850 k	
Contribution Value	157,888 k										
FCF after Contribution	49,436,038 k	49,920,050 k	49,745,850 k	49,917,125 k	49,717,850 k	49,820,050 k	49,742,925 k	49,920,050 k	49,717,850 k	49,917,125 k	49,824,850 k

* The FCF analysis is based on standard revenue prices. For sensitivity analysis, CLICK HERE.

Discount Rate	0.2
Total Present Value of FCF assuming no contribution (NPV with no contribution)	215,389,491 k
Total Present Value of FCF assuming contribution (NPV with contribution)	215,257,918 k

Color Key
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Labor Costs

Crop	maize
Area to be cultivated (in acres):	5

Activity	Number of times each activity must be executed per acre	Number of people employed	Cost of Task (done once)	Total Cost of Labor per Task per crop cycle	Total Cost of Hired Labor per Task per crop cycle	Total Cost of Family Labor per Task per crop cycle	Length of time to complete task (in days) based on amount of land for activity and number of laborers
	Total Labor	Hired	Family				
Pre Production costs							
Land clearing	1	3	3	0	5,000	5,000	5,000
Plowing	1	4	2	2	1,500	1,500	750
Ridging	1	2	2	0	700	700	700
Manure application	1	2	2	0	3,000	3,000	3,000
Pre emergency herbicide application	1	2	2	0	2,000	2,000	2,000
Urea	4	2	2	0	3,000	12,000	12,000
TOTAL Pre Production costs					15,200	24,200	23,450
Production costs							
Planting	1	4	3	2	300	300	100
Post emergence herbicide application	1	4	2	2	4,303	4,303	2,302
Supplying (Gap filling)	1	2	1	1	2,342	2,342	1,171
Urea 2 fertilizer application	1	4	1	0	2,000	2,000	2,000
Pest Weeding	1	2	2	0	1,000	1,000	0
TOTAL Production costs					9,945	9,945	5,573

Key Figures			
# of Crop Cycles per Year	Yearly Costs of Hired Labor	Yearly Costs of Family Labor	Yearly Costs of Labor
1	$13,072	35,060	108,939

acres that one person can work per day per task
0.25
2.00
1.00
1.00
2.5
1.00
2.00
1.79
50.04 5606
0.25
0.50
1.00
1.00
1.00
1.00

Calculator - Table 1 | Labor Costs - Table 1 | Materials Costs - Table 1 | Annual Gross Margin Analysis - | Assumptions - Table 1 | Sensitivity Analysis - Table 1 | FCF

What We Concluded:

The MDS Tool can be useful for communities where extension staff has established trusting relationships with farmers. To be effective, business training and infrastructure must exist. The MDS Tool should be modified to reflect current market conditions and farmers' language, and include (1) farmers' cash flow over time, and (2) a multi-year analysis of expected profitability.

References

- CRS. 2007. Preparing Farmer Groups to Engage Successfully with Markets; A Field Guide for Five Key Skill Sets. Downloadable at: http://crs.Org/publications/showpdf.Cfm?Pdf_id=14.
- CRS. 2009. Getting to Markets; From Agriculture to Agro-enterprise.