USAID
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PERFORMANCE EVALUATION

USAID/Haiti Feed the Future West/Watershed Initiative for National Natural Environmental Resources

November 2015

This publication was produced at the request of the United States Agency for International Development. It was prepared independently by Social Impact, Inc.

Evaluation: USAID/Haiti Feed the Future West/Watershed Initiative for National Natural Environmental Resources

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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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ACRONYMS

BAC	Bureau Agricole Communal
BIA	Agricultural Input Shops
CASE	Centre d'Appui en Suivi et Evaluation
CIAT	Comité Interministériel d'Aménagement du Territoire
CNIG	Centre National de l'Information Géo-Spatiale
CNSA	Coordination Nationale de la Securite Alimentaire
CRDD	Rural Center of Sustainable Development
DEC	Development Experience Clearinghouse
DPC	Direction of Civil Protection
FGD	Focus Group Discussion
FtF	Feed the Future
FY	Fiscal Year
IR	Intermediate Result
IVR	Interactive Voice Response
KII	Key Informant Interview
MARDNR	Ministry of Agriculture
MDE	Ministry of Environment
MEF	Ministry of Economics and Finance
MICT	Ministry of Interior and Territorial Collectivity
MPCE	Ministry of Planning
MTPTC	Ministry of Public Transport
NGO	Non-Governmental Organization
NRM	Natural Resource Management
PMP	Performance Management Plan
SARDP	Support to Agricultural Research and Development Program
SMS	Short Message Service
SOW	Statement of Work
SRI	System of Rice Intensification
US	United States of America
USAID	U.S. Agency for International Development
WINNER	West/Watershed Initiative for National Natural Environmental Resources

EXECUTIVE SUMMARY

EVALUATION PURPOSE AND EVALUATION QUESTIONS

The United States Agency for International Development (USAID)/Haiti contracted Social Impact, Inc. (SI) to conduct a $546,000 final performance evaluation of the USAID/Haiti Feed the Future (FtF) West/Watershed Initiative for National Natural Environmental Resources (WINNER) project. The WINNER project sought to improve the livelihoods of people living within the targeted corridors, reduce the threat of flooding, and invest in sustainable agricultural development in the selected corridors. The evaluation assessed the degree to which the WINNER project met its objectives and tested the underlying assumptions of the results framework. USAID/Haiti established the following four key evaluation questions to measure project success and to test the underlying assumptions of the WINNER results framework:

1) To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West Corridor?

2) To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?

3) What is the impact of market information in guiding farmer production and marketing decisions?

4) To what extent have project interventions actually reduced post-harvest losses?

PROJECT BACKGROUND

The $127 million WINNER project, implemented by Chemonics International, began in June 2009 and was originally designed to protect watersheds by preserving hillsides, stabilizing waterways, and building non-farm livelihoods options. As a result of the 2010 earthquake, the government of Haiti recommitted to watershed management and food self-sufficiency and the USG created a post-earthquake strategy. At the same time, President Obama rolled out the Feed the Future initiative. The confluence of these three simultaneous forces resulted in USAID/Haiti and Chemonics International redesigning the WINNER project. While some aspects of the original design remained, such as continuing to rehabilitate watersheds and augment farmer incomes through increased agricultural productivity, the refocused Haiti WINNER project had many notable changes. These changes included shifting the focus of activities from watershed stabilization to food security and agricultural productivity, establishing a geographic zone of intervention (ZOI), and targeting smallholder farmers rather than individuals living in targeted watersheds. While the bulk of WINNER activities ended in early 2014, the final construction of a dam and the close out of the project were completed in February 2015.

DESIGN, METHODS AND LIMITATIONS

Data collection methods aimed to generate the highest quality and most credible evidence, taking into consideration time, budget, and other practical factors. The team used document review, key informant interviews, focus group discussions, site visits, and a quantitative survey to conduct on-site data

collection in the Cul-de-Sac and Matheux corridors. Key informants constituted a purposive sample of national government officials, community leaders, the WINNER project staff, service delivery partners, and farmer associations. In total, the evaluation team spoke with 49 key informants (35 male, 14 female). The team conducted a total of 24 focus group discussions (FGDs) with stakeholders and farmers of each of the WINNER focus crops (plantains, beans, rice, and corn). The FGDs engaged a total of 249 individuals (187 male, 62 female). SI also designed and administered a quantitative survey targeting WINNER-assisted farmers, primarily to investigate various measures of agricultural productivity resulting from WINNER activities. In the absence of a WINNER beneficiary database, the evaluation team employed a productive zonal approach to identify WINNER beneficiaries, based on locations of WINNER agricultural campaigns, consultation with CRDD directors, and technical knowledge regarding locations of particular focus crops throughout Haiti. Through the productive zonal approach and a combination of purposeful stratified sampling and snowball sampling, the survey was administered to a total of 351 farmers. Forty-four cases were dropped during data cleaning, bringing the total sample size to 307. Qualitative data was analyzed through the use of evaluation matrices framed around each evaluation question, while quantitative data was analyzed using Microsoft Excel.

The evaluation team encountered some limitations related to the availability of a comprehensive beneficiary database from which to draw a sample for the survey. Given that WINNER activities largely concluded a year prior to fieldwork, some key informants may have provided inaccurate or incomplete recollections about past experiences. With the anticipated follow-on project in motion, survey respondents and key informants may have been motivated to provide responses that would be considered influential in obtaining donor support. The evaluation team worked closely with WINNER CRDD directors to identify key farmer associations. Selection bias is an inherent risk when implementers or project participants help to facilitate contact with project beneficiaries, as they may select the most active, responsive, or engaged beneficiaries—meaning that the evaluation team may only hear from key informants who report positive experiences. To address these issues, the team sought to incorporate probing questions in the survey and qualitative data collection to maximize likelihood that responses would be factually accurate and would refer specifically to results of assistance via WINNER.

Evaluation question one asks whether program activities have led to increased agricultural productivity. In the absence of a counterfactual, the evaluation team cannot definitively conclude whether or not the WINNER program has led to (is directly and solely responsible for) increased agricultural productivity. The team was also limited in its ability to fully answer evaluation question two, which seeks to understand the effect of watershed improvements on reducing crop damage and increasing agricultural production. Following the conclusion of the WINNER Project and all activities targeting watershed improvements in June 2015, there has yet to be a major storm to test the integrity of such improvements and their effectiveness in mitigating crop damage. In addition, agroforestry-related watershed improvements require as many as 20 years to take effect in combatting erosion. Consequently, the team was largely limited to collecting data on individuals' perceptions of their safety and the prospect of effectiveness of WINNER interventions. In addition, the evaluation team carried out site visits to ravine treatments in the Cul de Sac and Matheux corridors to observe WINNER watershed interventions. For additional detail on evaluation limitations, see Annex II of this evaluation report.

FINDINGS AND CONCLUSIONS

Q1 – To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West Corridor?

- During WINNER's implementation, farmers achieved modest increases in crop yields for beans (10%), corn (14%) and plantain (3%). The largest increase was for rice, an impressive 58%.

- Farmers benefitted from irrigation improvements on about 70% of the plots surveyed, 95% of which were gravity-fed and essentially all of which were irrigated before WINNER. There is a clear relationship between the presence of irrigation (regardless of whether or not it was improved by WINNER) and change in yields (from the period before individual farmers participated in WINNER to the last WINNER-assisted season for each farmer). Yields were essentially stagnant during WINNER on the rainfed plots, which comprised 20% of the total surveyed. The data clearly show that there was much more frequent use of mechanized land preparation and weeding methods, improved seed, and sprayers during WINNER, and a decline in the use of manual labor in land preparation.

- The farm-level survey and focus group discussions (FGDs) show that farmers overwhelmingly recognized the value of the agronomic practices recommended by WINNER and were highly appreciative of WINNER support. However, with the termination of WINNER support and subsidies, constraints in labor and input markets (fertilizer, seed, and credit) make it difficult for farmers to continue the full range of WINNER practices.

Q2 – To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?

- The survey and qualitative data show that WINNER's watershed management activities were highly visible in the communities and perceived as beneficial by a large majority of respondents. Perceptions are strongly related to location: farmers in the lowland plains were most aware of interventions that reduce flood risk, whereas soil erosion is the predominant concern in the sloping highlands. About 70% of the highland farmers who received WINNER on-farm anti-erosion support rated the measures as highly effective. Although the sample is small, 77% of the farmers with moderately or highly sloping land (slope >16%) felt that WINNER watershed activities had helped to improve crop productivity.

- Overall, four-fifths of the surveyed farmers believed that work by WINNER in their community or in the surrounding uplands helped to increase their production through reduced flood risk and erosion, better soil protection and stability, and better crop growth or reduced crop losses. These results are encouraging, but precise measurement of flood damage and any related change in agricultural productivity was beyond the scope of the evaluation survey. Additional studies are needed to quantitatively assess WINNER watershed impacts. Although 85% of the plains farmers believed that there is less flood damage because of WINNER, their perceptions must be interpreted cautiously because there has been no major flood event in the survey area during the past several years.

Q3 – What is the impact of market information in guiding farmer production and marketing decisions?

- WINNER provided crop and market information through three channels: SMS messaging, farm extension workers (REAs), and the Rural Centers of Sustainable Development (CRDDs). The quantitative analysis of market information examined three dimensions of impact: (i) outreach, i.e., the percentage of farmers who accessed the systems; (ii) relevance to types of individual farmer crops, and (iii) impact on decision making. Overall, market information from the REAs reached the highest share of survey respondents (32%), followed by the SMS system (20%) and the CRDDs (9%). A central finding is that while only 37% of the sample received market information from any WINNER source, the great majority (almost 90%) of those who did rated the information useful or very useful, with more than 80% saying they used the information for crop sales and planting decisions. The high utilization of WINNER's information for decision making suggests that it was very relevant to farmers needs overall. In the case of beans and corn, farmers who received and/or

used the market information had much higher yields before, during and at the time of the survey. WINNER market information activities had a particularly large impact on the marketing and planting decisions of women. The low outreach of the SMS system is notable, given that 84% of the respondents owned telephones, essentially all cell phones. This finding suggests that greater effort to publicize the system could significantly increase its benefits at very low incremental cost.

Q4 – To what extent have project interventions actually reduced post-harvest losses?

- Post-harvest losses for all focus crops declined during WINNER. As measured by the survey, losses of beans, corn, rice and plantain during WINNER were, respectively, 21%, 34%, 63% and 4% lower than in the pre-WINNER period. In the case of beans, corn and plantain, for which samples sizes were relatively large, the reduction in losses was generally largest among farmers who both received information from WINNER on post-harvest methods and consistently applied one or more of the recommended techniques.

- Among bean, corn and rice farmers, there was generally much more frequent use of relatively simple, on-farm post-harvest techniques (tarps, and jute or sisal bags), as compared to more sophisticated, community managed equipment (silos and humidity gauges). Few plantain farmers were able to use the techniques recommended by WINNER (packing frames [19%], crates [31%], and mobile collection units [only 3%]). The majority of farmers interviewed, as well as key informants from WINNER and government, suggested that the push for innovations for both productivity and post-harvest loss at times failed to consider needs from the farmer perspective, thus potentially hindering adoption rates.

RECOMMENDATIONS

While the evaluation team has identified specific recommendations related to each evaluation question, the overarching recommendations are as follows:

1. **Increase collaboration with GoH.** WINNER should collaborate and develop more formal interactions with MARNDR at all levels to leverage their experience and presence. During start-up, WINNER should collaborate with MARDNR to determine their national extension needs, and then collaboratively design a strategy to support MARDNR to sustainably implement the Master Plan for Agricultural Extension in Haiti.

2. **Utilize capacity assessments of project intermediaries to sharpen targeting of assistance.** To improve success rates for increasing productivity and changing post-harvest practices, the new project should be more selective about the groups it supports, tailoring approaches based on association and community capacity for collective effort, as well as market opportunities. In working with associations and cooperatives, WINNER should work with high-capacity cooperatives and associations and provide targeted management and sensitization training for weaker organizations.

3. **Focus on farmer needs prior to introducing innovations.** In focusing heavily on innovations, WINNER may not have always been in tune with the needs of individual farmers. Keeping in mind that one size does not fit all, a targeted needs assessment for farmers should be conducted prior to implementation of USAID agriculture projects. Interventions should be based on a strengthened process to collect reported farmer needs, and should be developed in collaboration with MARDNR and farmers associations.

4. **Collaborate with water user associations and government.** WINNER irrigation works should be carried out in collaboration with water user associations and MARDNR from the beginning to avoid the challenges that arise when water user associations are uninvolved in the implementation process with regard to credibility issues and a lack of trust from water users, which have long-term consequences on associations' ability to effectively carry out their mandates.

5. **Scale up the SMS market information system.** USAID and WINNER should build on the successes of the SMS market information system to scale up and reach additional farmers. The SMS system should be widely publicized and staffed appropriately for systematic scale-up. Registration should be as easy as possible, e.g., through a toll-free number or missed call system rather than manually through farmer associations. Registration should include options for specifying the crops and types of messages to receive.

6. **Establish a permanent home for market information sharing.** Future efforts should find an institutional home that does not rely on continuing external resources. In the case of WINNER, the successes of the Chanpyon brand, Mache Peyizan, and the network of WINNER cooperatives present potential entry points.

7. **Continue watershed interventions.** Successful interventions, such as anti-erosive structures including dry walls, gabions, and canal building and cleaning, should be continued by USAID, making sure structures are completed, canals are cleaned regularly, and support mechanical interventions with reinforcing biological approaches.

8. **Continue to focus on women.** Women are more likely to be involved in activities geared toward marketing and sales. As such, WINNER should ensure that post-harvest activities and campaigns be largely targeted towards women, taking into consideration their household responsibilities and availability for training and sensitization campaigns.

EVALUATION PURPOSE & EVALUATION QUESTIONS

EVALUATION PURPOSE

The United States Agency for International Development (USAID)/Haiti contracted Social Impact, Inc. (SI) to conduct a $546,000 final performance evaluation of the USAID/Haiti Feed the Future (FtF) West/Watershed Initiative for National Natural Environmental Resources (WINNER) project. The WINNER project sought to improve the livelihoods of people living within the targeted corridors, reduce the threat of flooding, and invest in sustainable agricultural development in the selected corridors. The evaluation assessed the degree to which the WINNER project met its objectives and tested the underlying assumptions of the results framework.

USAID/Haiti is interested in learning if the causal pathways upon which the WINNER results framework was built hold true and whether there are lessons from WINNER that can be applied to new project approaches. In a broader context, the evaluation report will guide designers and project implementers to better articulate strategy and techniques for improved performance. The evaluation findings can be extended to state agencies and donors for improving quality actions to increase food security and household incomes.

EVALUATION QUESTIONS

USAID/Haiti established the following four key evaluation questions to measure project success and to test the underlying assumptions of the WINNER results framework:

> I) To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West Corridor?
>
> 2) To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?
>
> 3) What is the impact of market information in guiding farmer production and marketing decisions?
>
> 4) To what extent have project interventions actually reduced post-harvest losses?

The performance evaluation is intended to cover the 2010-2014 period of the WINNER project. In some cases, the evaluation also contains information relevant at the time of data collection (June 2015). In addition to the evaluation questions above, the SI team has sought to identify any positive or negative unintended consequences of the project, and has considered any gender-specific impacts of project activities.

PROJECT BACKGROUND

The $127 million WINNER project, implemented by Chemonics International, began in June 2009 and was originally designed to protect watersheds by preserving hillsides, stabilizing waterways, and building non-farm livelihoods options. Following the earthquake, the project was refocused in March 2010. While some aspects of the former project remained, such as continuing to rehabilitate watersheds and augment farmer incomes through increased agricultural productivity, the refocused Haiti WINNER project had many notable changes. These changes included shifting the focus of activities from watershed stabilization to food security and agricultural productivity, establishing a geographic zone of intervention (ZOI), and targeting smallholder farmers rather than individuals living in targeted watersheds. While the bulk of WINNER activities ended in early 2014, the final construction of a dam and the close out of the project was completed in February 2015.

A summary of the geographic targeting, project beneficiaries, project objectives, and activity foci pre and post-earthquake are contained in Table 1. As a result of the earthquake, the government of Haiti recommitted to watershed management and food self-sufficiency and the USG created a post-earthquake strategy. At the same time, President Obama rolled out the Feed the Future initiative. The confluence of these three simultaneous forces resulted in USAID/Haiti and Chemonics International redesigning the WINNER project.

Table 1. Haiti WINNER modifications summary

Project Start-End Dates	1 June 2009 – 28 Feb 2010	1 Mar 2010 – 28 Feb 2015
Geographic Focus	Cul de Sac West Saint-Marc Gonaïves	Cul de Sac Corridor Matheux/Mirebalais Corridor
Project Beneficiaries	People living in targeted watersheds	Smallholder farmers (farm on less than 5 hectares of land)
Project Objectives	Improve livelihoods in the watershed through agriculture & other Improve critical infrastructure Strengthen watershed governance Establish public-private partnerships Enhance earthquake recovery	Increase agricultural productivity Improve watershed stability Strengthen agricultural markets
Activity Focus	Watershed management to reduce pressures on natural resources	Food security and agricultural productivity to increase incomes

As noted above, less than one year after beginning the Haiti WINNER project, USAID/Haiti changed the project focus and objectives. The second column contains the original project scope. The evaluation will only investigate the current locales and objectives as stated in the final column.

With the advent of FtF, USAID's geographic focus shifted from the political boundaries of Cul de Sac, Saint-Marc, and Gonaives to the Cul de Sac and Matheux/Mirebalais economic corridors. The Matheux corridor includes the two major watersheds of Saint Marc/Montrouis and Archaie/Cabaret.

The WINNER project was redesigned "to increase food and economic security by increasing rural incomes in selected corridors, improving agricultural productivity, stabilizing watersheds, and increasing the value of sales in key value chains" as its project goals. The Haiti WINNER project has three objectives which contribute to the overall Feed the Future (FtF) goals of increasing household incomes and reducing hunger. Each objective contains three or four intermediate results (IRs). Table 2 portrays

the current project's results framework, including all intermediate results (IRs). The underlying assumption of the results framework is that by applying the suite of IRs, the corresponding objectives will be met. WINNER provided a technical package to smallholder farmers to achieve Objective 1. This technical package included providing farmers with access to inputs, technologies (equipment and knowledge), and irrigation to increase productivity. The underlying hypothesis assumes that increasing the productivity of a farm will improve food security by increasing the availability of food as well as increasing farmers' incomes. To successfully grow crops in the productive plains of Cul de Sac and Matheux, hillside erosion needs to be substantially reduced. The project, therefore, stabilized the hillsides by planting vegetation and building water management infrastructure such as canals and gabions. Lastly, to maximize the gains of growing more food and to further increase farmer incomes, the project worked to reduce barriers for smallholder farmers to trade their commodities. These barriers included high transportation costs, lack of market information, unregulated markets, and preventable post-harvest losses.

Table 2 Haiti WINNER results framework

Objective 1: Agricultural Productivity Increase	Objective 2: Watershed Stability Improved	Objective 3: Agricultural Markets Strengthened
IR 1.1: Market-driven access to agricultural inputs	IR 2.1: Selected hillsides protected	IR 3.1: Transportation costs reduced
IR 1.2: Access to agricultural technologies increased	IR 2.2: Watershed governance improved	IR 3.2: Market information improved
IR 1.3: Irrigation	IR 2.3: Tree cover increased	IR 3.3: Market norms and standards strengthened
		IR 3.4: Post-harvest losses reduced

EVALUATION METHODS & LIMITATIONS

EVALUATION METHODS

This summative performance evaluation employed both qualitative and quantitative methods to answer USAID's evaluation questions. The mixed-methods approach combined a desk review with key informant interviews (KIIs), focus group discussions (FGDs), site visits, and an in-depth quantitative survey. This section of the report describes each method the team applied to understand the performance of the WINNER Project based on both existing, secondary data and empirical, primary data. See Evaluation Methods and Limitations (Annex II) for a detailed description of the evaluation design and methods, including a map of all data collection sites.

Table 3: WINNER evaluation respondents

Data Collection Method	Sex	Number	Subtotal
Key Informant Interviews	Males	35	49
	Females	14	
Focus Group Discussions	Males	187	249
	Females	62	
Quantitative Survey	Males	231	307
	Females	76	
Total			**605**

QUANTITATIVE METHODS

SI sub-contracted the data collection firm Centre d'Appui en Suivi et Evaluation (CASE) as the quantitative data collection partner for this evaluation. SI worked closely with CASE to pilot and refine the farmer survey, conduct a beneficiary mapping exercise to identify survey respondents, train the enumerators and data entry clerks, implement the survey implementation, and conduct data entry.

Overview of Farmer Survey. SI designed a quantitative survey (Annex III) targeting WINNER-assisted farmers primarily to investigate various measures of agricultural productivity resulting from WINNER activities. The survey also included questions looking at the effects of watershed improvements on crop damage and agricultural productivity, the role of market information on farmer decisions, and the effects of WINNER activities on post-harvest losses. Throughout the survey, farmers were asked about their agricultural practices before their individual participation in the WINNER project ("before WINNER"), during their *individual* participation in the WINNER project ("during WINNER"), and at the time of the survey implementation ("after WINNER").

Quantitative Survey Sampling. Based on guidance from USAID/Haiti, and in response to the absence of an authoritative WINNER beneficiary list that might serve as a sampling frame, the evaluation team was unable to implement a survey that would be statistically generalizable to the population of WINNER beneficiaries. As an alternative, the team utilized a zonal approach to sampling. The quantitative sampling for the evaluation was conducted in four steps (Table 4).

Table 4: WINNER sampling process

1. Identification of specific WINNER sub-zones in the communes.
2. Identification of significant WINNER associations.
3. Identification of WINNER beneficiaries.
4. Sampling of WINNER beneficiaries.

Table 5: WINNER evaluation productive zones

Corridor	Selected Commune	Specific Areas	Main Focus Crops
Cul-de-Sac	Croix-des-Bouquets	Dume, Roche Blanche, Pierou, Digneron, Campeche	Beans/Corn (Plains)
	Thomazeau	Merceron, Source Matela, Koten, Hatte Cadette	Rice
	Kenskoff	Duvier, Duval, Lefevre, Furcy	Beans (Upland)
Matheux	Archaie	Fond Baptiste	Beans (Upland),
		Robert, Corail, Saintard, Bois neuf, Barbancourt	Plantain, beans/corn (plains)
	Cabaret	Garisher, Deshapelle, Bethel, Dubiusson	Plantain, beans/corn (plains)
	St. Marc	Deluge, Bois-Neuf	Rice

Working with the productive zones and focus crops as identified in Table 5 by SI technical staff and CRDD directors, SI sought to randomly select a minimum of 30 farmers from WINNER associations from each of the communes and relevant focus crops.

Social Impact and CASE carried out a beneficiary mapping process as the first step in data collection in both corridors. CASE dispatched one team per corridor, headed by one agronomist in each region. The two teams coordinated with the local CRDD directors to confirm and provide input to the lists of WINNER associations that the evaluation team had identified during the document review. Following clarification of the main WINNER associations for the area, CRDD directors shared contact information for association leaders. The CASE teams met with the association leaders to obtain records of WINNER association members. Over 1,800 famers were identified as members of associations that received WINNER support through this process. Of the 13 associations identified and contacted for the Matheux corridor, 10 consented to participate in the survey, while three reported they did not receive WINNER support. In Cul-de-Sac, the team was able to successfully contact ten of the 11 identified associations. See table in Annex V for the locations of farmers identified through this process.
Based on this list, a purposive sample and backup list of stratified on communes (Croix-des-bouquets, Thomazeau, Kenskoff, Arcahaie, Cabaret, and St. Marc) in WINNER productive zones was pulled.

Pilot Testing and Enumerator Training. The survey was piloted twice by CASE, first in January 2015 and then again prior enumerator training in May 2015. The survey questions were adjusted accordingly, and lessons learned from the pilot testing were incorporated into the enumerator training. Enumerator training facilitated jointly by SI and CASE occurred over the course of three days. Mixed teaching methods were used to provide an introduction to the project, and the expected norms and ethics of the enumerators.

Table 6: Farmers surveyed by location

Corridor	Selected Commune	Number of Farmers Surveyed
Cul-de-Sac	Croix-des-Bouquets	34
	Thomazeau	42
	Kenskoff	29
Matheux	Archaie	82
	Cabaret	75
	St. Marc	45
Total		**307**

Quantitative Data Collection. Prior to field visits, CASE communicated with the identified association contacts to identify those farmers pulled in the sample. During this initial communication CASE verified the lists and identified reliable association field guides to assist in

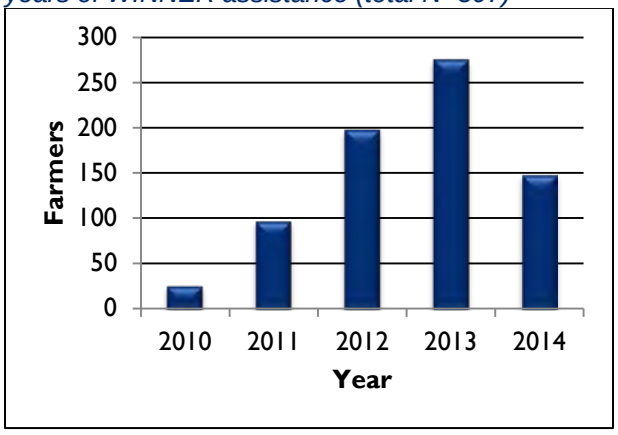
locating sampled farmers to participate in the survey. Due to a variety of reasons, including the guide not being able to locate the farmer, farmers having moved or changed occupations, death, or jail, the farmers were not always able to be located. 46 of the farmers on the original sample list were not located. When these events occurred, CASE used a back-up list of randomly selected farmers provided by SI. When that list had been exhausted, CASE also relied on the snowball method, asking WINNER farmers for referrals to other WINNER participants. 307 surveys were ultimately administered in the field (Table 6). See Annex VI for a complete breakdown of the farmers surveyed by crop, zone, and time period.

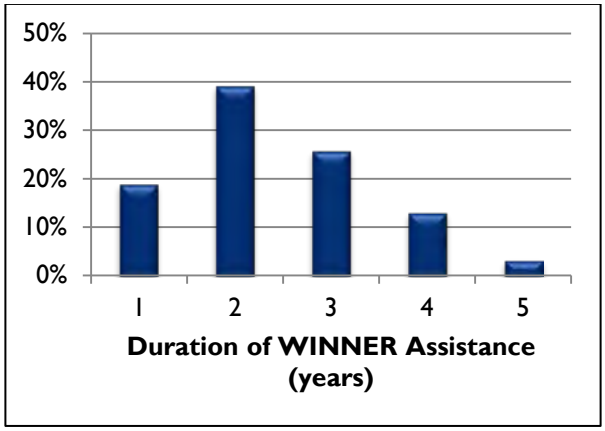
Quantitative Data Cleaning and Analysis. Data entry involved entering the survey data twice by two separate data entry assistants into a formatted template provided by SI to highlight discrepancies between the two entries. Any discrepancies were verified and corrected by referring to the original paper questionnaire. Upon receipt of the double-entered data from the CASE, Social Impact performed a number of checks to ensure the quality and accuracy of the survey responses.

The evaluation report provides summary charts that highlight key findings of the quantitative farmer survey. Annex VI provides detailed tables from which the charts are derived. A total of 351 farmers were originally surveyed in June 2015, but 44 observations were deleted in the process of data cleaning, leaving a sample of 307 farmers for whom the data were generally complete. The dataset and analysis were carried out in MS Excel. Since crop yields and harvest losses were crucial for the subsequent analysis, great care was taken in assessing the consistency of the data. As the data were organized, iterative consistency checks were undertaken by comparing basic results obtained from excel pivots (down Rows) and conditional statements (across Columns). For further information on dropped observations, steps taken during data analysis, and challenges encountered during data analysis, see Annex II.

Even within this sample of 307 farmers there are occasional missing observations on specific variables. As a result, sample sizes may vary slightly from table to table. All detailed tables in Annex VI show the specific sample sizes used. In interpreting the data, it is useful to bear in mind that many questions, particularly those dealing with crop output and post-harvest losses in the period before individual farmers participated in WINNER (indicated as "before WINNER" in the survey), required a recall period of 3 or more years for some respondents (Chart 1). The survey attempted to address this by collecting detailed, plot-specific information from farmers, using local units for all inputs and outputs, and checking farmer responses carefully for consistency both during the interviews in the field and in subsequent data processing.

Chart 1: Sample farmers by the years when they received WINNER assistance and by the total number of years of WINNER assistance (total N=307)





Analysis of the final data set frequently disaggregates the data by the respondent's gender, corridor, farm elevation, and farmer status. The sample sizes by these characteristics are shown in Table 7:

Table 7: Respondent Characteristics

Gender	Male	Female	Total
	231	76	307
Corridor	Cul de Sac	Matheux	Total
	105	202	307
Elevation	Plains	Highlands	Total
	246	61	307
Farmer status	Regular farmer	Master farmer	Total
	198	109	307

QUALITATIVE METHODS

Four members of the evaluation team carried out the qualitative data collection exercises including literature review, key informant interviews, focus group discussions, and observational site visits. FGDs were facilitated by one team member while a second took notes. KIIs were both facilitated and recorded by teams of two, which allowed tem members to cover a wider scope of key informants. Team members recorded data either in notebooks or via laptop computers. Site visits were primarily carried out by sub-teams of two however, some sites were visited by the entire team and others were visited by single team members.

WINNER farmers were interviewed in focus groups to maximize exchanges, validate facts, and discuss opinions. Male and female farmers were combined during FGDs to ensure a mix of ideas as they relate to gender issues. Master farmers and association leaders were interviewed separately from the association member FGDs to prevent bias. Stakeholders such as U.S. and Haitian government officials, community leaders, and private sector partners were interviewed individually as a practical approach to scheduling meetings and encouraging candor. The evaluation team was flexible in scheduling and accommodating KIIs as most WINNER staff members were no longer with the project and had limited availability to speak with evaluators.

The team carried out a series of site visits (Table 8) with the dual purpose of verifying the existence and functioning of

Table 8: Site visits

Commune, Corridor	Structures Visited	Type of Structure
Cabaret, Matheux	Ravine Bretelle	River Banks, Dams rehabilitated
Cabaret, Matheux	Ravine Torcelle	Dams rehabilitated, River Banks rehabilitated
Arcahaie, Matheux	Ravine Courjolle	Gabions
Arcahaie, Matheux	Road, green houses, and farms at Fonds Baptiste	Green houses, road, farms
Kenscoff, Cul de Sac Petion-Ville, Cul de Sac	Ravine Duvier, Ravine Matheux, Ravine Figaro, Ravine Millet, Ravine Mata, Ravine Malik	Gabions and dry walls
Thomazeau, Cul de Sac	Irrigation Canals Farms	Irrigation Canals
Croix des Bouquets, Cul de Sac	Irrigation Canals	Irrigation Canals

structures erected with program funding as well as providing the team with an opportunity to see structures and resources in use. Site visits were predominantly conducted to support the team's response to evaluation question 2 regarding the effect of watershed management on crop damage and agricultural production. These site visits included dams, irrigation canals, rehabilitated river banks and support structures, and gabions (large cages made of riprap filled with rocks). To a lesser extent, site visits examined other aspects of the WINNER project such as green houses, roads, and farms.

EVALUATION LIMITATIONS

This evaluation faced a number of challenges and limitations. The limitations discussed here are limitations to the evaluation and should not be considered as limitations of the WINNER Project. For a detailed discussion of further limitations, see Annex II.

Incomplete Beneficiary Monitoring Data. WINNER operated primarily first and foremost through associations rather than individual farmers; this proved a challenge when determining how to identify WINNER farmers to participate in the farmer survey. A comprehensive database of individual WINNER farmers was not made available to the evaluation team[1], and monitoring data shared by the implementing partner was not organized in a uniform format that would have allowed the evaluation team to reconstruct a full database from which to create a master universe of WINNER farmers. Due to the absence of a comprehensive, project-derived database of individual WINNER farmer beneficiaries, any resulting sample cannot be statistically generalizable to the experience of all WINNER farmers. To address this challenge, the evaluation team conducted an alternative sampling approach focusing on agricultural zones and key associations as identified by WINNER CRDD directors.

Selection bias. The survey sample was drawn by relying on the recall of CRDD directors and association leaders to identify WINNER associations and farmer beneficiaries. Selection bias is an inherent risk when implementers or project participants help to facilitate contact with project beneficiaries, as they may select the most active, responsive, or engaged beneficiaries—meaning that the evaluation team may only hear from key informants who report positive experiences. With a focus on major associations, the methodology excluded smaller associations, which were thus underrepresented in the sample. Compounding this limitation was the uncertainty regarding the extent to which the points of contact for each association provided a complete list of member beneficiaries who participated in WINNER. Finally, some beneficiaries belong to multiple associations, which potentially biases the sample towards farmers who are members of two or more associations. To address these challenges, the evaluation team utilized probing questions in quantitative and qualitative data collection to ensure that viewpoints of various participants was taken into consideration. In addition, the evaluation team utilized snowball sampling in the field to reach a wider configuration of WINNER beneficiaries.

Positive response bias. With the anticipated follow-on project in motion, survey respondents and key informants may have been motivated to provide responses that would be considered influential in obtaining donor support. Throughout the evaluation, the evaluation team was regularly asked by beneficiary farmer respondents when the new WINNER project was starting and whether it would

[1] From December 2014-February 2015, Social Impact communicated with USAID and Chemonics International via in-person discussions, phone discussions, and over email to secure a complete WINNER farmer beneficiary list from which to draw a representative sample of WINNER farmers. Social Impact was only provided partial lists deemed unusable for sampling purposes by both USAID and Social Impact for a variety of reasons including 1) lists provided were inconsistent in tracking farmer demographic data and contact information, 2) lists were in inconsistent formats (PDFs, Excel, Word), 3) lists did not include mechanisms to ensure farmers were not double-counted, and 4) evaluation team had no way of knowing if the various lists submitted to the evaluation were comprehensive.

come back to work with their associations. An analysis of the quantitative data shows, for some variables, notable uniformity of individual farmer responses when it came to identifying WINNER agricultural or post-harvest practices adopted. This could suggest farmer survey fatigue, or the desire to give positive responses across the board. Taking positive response bias into consideration, the evaluation team has interviewed a variety of stakeholders to collect various viewpoints.

Recall Bias and end of WINNER. Given that WINNER activities largely concluded a year prior to fieldwork, some key informants may have provided inaccurate or incomplete recollections about past experiences. As noted above, questions about the "before WINNER" situation entailed a recall period of 3 or more years for some respondents. Some project beneficiaries had not been in contact with the WINNER project since 2010. This multi-year gap between the original intervention date and the June 2015 survey measurement of yields increased the likelihood that differences seen in yields (positive or negative) resulted from causes other than the intervention. For example, other projects may have worked with the beneficiaries surveyed and contributed to increases in yields. The evaluation team addressed this constraint through qualitative interviews, asking farmers to discuss other projects they may have been involved in that sought to improve agricultural productivity.

Contextual Factors. Context and timing are also important limitations to consider. For example, during the WINNER implementation period and after, farmers experienced significant droughts as well as plantain pest infestations which would have affected productivity. Factors such as these are outside of the project's control and have been taken into consideration by the evaluation team.

Evaluation question 1 asks whether program activities have led to increased agricultural productivity. In the absence of a counterfactual, the evaluation team cannot definitively conclude whether or not the WINNER program has led to (is directly and solely responsible for) increased agricultural productivity. While the evaluation team has gathered extensive qualitative and quantitative data to lend insight into this important question, findings will be interpreted to inform correlation rather than causation

For several reasons, the team was limited in its ability to fully answer evaluation question 2, which seeks to understand the impact of watershed improvements on flood damage and agricultural productivity. First, watershed improvements involving agroforestry and reforestation require 5-10 years or more to take full effect in combatting erosion. Second, the technical resources in place to measure impacts – river flows, sediment loads, flood levels, and flood damage – are inadequate to provide a systematic assessment. Third, during the implementation of WINNER and following its conclusion in June 2015, there has not been a major storm to test the integrity of such improvements and their effectiveness in mitigating crop damage. Consequently, the team was largely limited to collecting data on individuals' perceptions of their safety and the prospect of effectiveness of WINNER interventions.

FINDINGS, CONCLUSIONS & RECOMMENDATIONS

EVALUATION QUESTION 1: To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West corridor?

WINNER APPROACH

WINNER's approach to improving farmer livelihoods focused on increasing productivity through the provision of agricultural inputs, introduction of agricultural technologies (improved agronomic practices, equipment and training), and improvement of access to irrigation. The project worked with farmer associations in the Matheux and Cul-de-Sac Corridors to improve the productivity of focus crops including plantains, corn, beans and rice, in addition to other products such as mangoes, vegetables, and flowers, which are not examined in this evaluation.

Agricultural inputs

Through WINNER, farmers had improved access to agricultural inputs, such as improved high quality seeds, fertilizers, and pesticides. WINNER worked through Agriculture Input Supply Stores (BIAs) to improve farmers' access to critical inputs by awarding in-kind grants of these items to BIAs, which were then sold to farmers at subsidized rates.

Technology & dissemination

WINNER introduced a variety of innovative tools and techniques to farmers through providing access to rural development centers called CRDDs (Centre Rural de Development Durable),[2] training of Master Farmers, and teaching farmers modern agriculture techniques for the four focus crops. CRDDs served as training and research centers as well as model farms. These centers hosted soil and water labs that allowed farmers to learn the nutrient content of their soil in order to match fertilizer formulas to crop types and needs. The project promoted new agricultural technologies, such as the System of Rice Intensification (SRI), disseminated improved seed varieties such as hybrid corn and improved beans seeds, and modern agricultural practices/planting techniques. To encourage knowledge sharing, WINNER technicians used the CRDDs to train Master Farmers, who were to share their knowledge with their communities by disseminating the project's promoted agricultural practices and encouraging their adoption. WINNER also increased farmer access to farm equipment to reduce labor demands. Twenty tractors were provided to the CRDDs and farmer associations to support plowing of soil. WINNER also introduced equipment such as conical weeders and urea deep placement devices for rice.

Irrigation

More reliable water is essential to increase agricultural productivity. The WINNER project rehabilitated several irrigation systems in both corridors, including gravity-fed and pump systems. WINNER also supported water users' associations with training to build their capacity to maintain the secondary and tertiary canals, as maintenance of primary canals is the responsibility of the Ministry of Agriculture,

[2] The project established seven CRDDs in Duvier, Kenscoff, Bas Boen, Montrouis, Goyavier, Tarasse, and La Branle. Each center provides specific extension services relevant to the needs and opportunities of local farmers.

Natural Resources and Rural Development (MARNDR). While not covered by this evaluation, a major water diversion dam was built on the Riviere Grise to ensure irrigation water supply in the Cul de Sac plains.

FINDINGS

Agricultural inputs

The evaluation team interviewed WINNER staff, farmers, Master Farmers, association and agricultural input shop (BIA) managers, major agricultural input suppliers, and government officials to learn about the BIAs' involvement in providing WINNER agricultural inputs to farmers. Of the farmers surveyed, 64% reported that WINNER association BIAs were their primary source of seed, fertilizer, and pesticide. BIAs reported receiving in-kind grants from WINNER to subsidize the sale of inputs to farmers, including improved seeds, fertilizers, and protective gear. Interviews with key informants and farmer focus groups largely revealed satisfaction with the improved seeds provided by WINNER. Findings related to improved seeds are discussed in the technology section below, organized by each of the WINNER focus crops. Despite the popularity of the improved seeds provided by the project, government officials interviewed for the evaluation expressed concerns that the National Seed Service (SNS) was not involved in the planning and design of any activities related to seeds. In addition, despite reported attempts by WINNER staff to include government officials in design and implementation of project activities, key informants from MARDNR, and the National Seed Service (SNS) reported a failure to come to an agreement on the strategies put forth by the project, thus affecting opportunities for design and collaboration.

In some cases, BIAs reported that during their participation in WINNER they were unable to sell items included in the grants due to a lack of demand. Overall, the BIAs continue to function following the close of WINNER, but they often encounter a variety of difficulties including operational challenges and seasonal challenges. Farmers and BIAs alike reported challenges acquiring the improved seeds and safe pesticides promoted by the project, in addition to a lack of fertilizer throughout Haiti due to pending government subsidies. While government officials interviewed for the evaluation indicated dissatisfaction with the way BIAs were selected for assistance, key informants from MARDNR agreed that the availability of inputs such as fertilizer during the project was a major strength. Because agriculture is largely seasonal, BIAs also reported experiencing periods of decreased business due to the agricultural calendar.

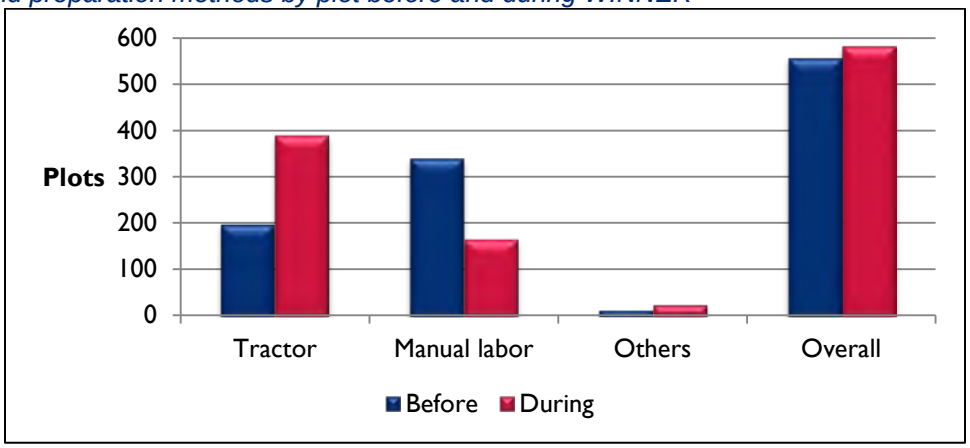
Technology dissemination and support

The evaluation team found the CRDDs to be the main vehicle for facilitating the delivery of WINNER services and technologies such as the training of Master Farmers, establishment of demonstration plots, and the management of tractors for plowing services to associations. The five CRDDs located in the Cul-de-Sac (Bas-Boen, Duvier, and Kenskoff) and Matheux (Montrouis and Goyavier) are still operational, although some are less active than others. The evaluation team visited the main CRDD at Bas-Boen and interviewed key CRDD personnel, farmers, association leaders, and other stakeholders. All praised the initiative and believed the CRDDs were essential in transmitting knowledge from the WINNER project to the farmers. Those CRDDs established early in the project have flourished, whereas CRDDs established later in the project experienced operational challenges even during the project. During the project, business plans were drawn up for the CRDDs. Key informants suggested that business projections for CRDDs were unrealistic and that the exit strategy for the CRDDs came too late.

The evaluation's quantitative survey clearly showed much more frequent use of mechanized land preparation (See Chart 2) and weeding methods, improved seed, and sprayers during farmers'

involvement with WINNER, as well as a decline in the use of manual labor in land preparation. Tractors were promoted by the CRDDs.

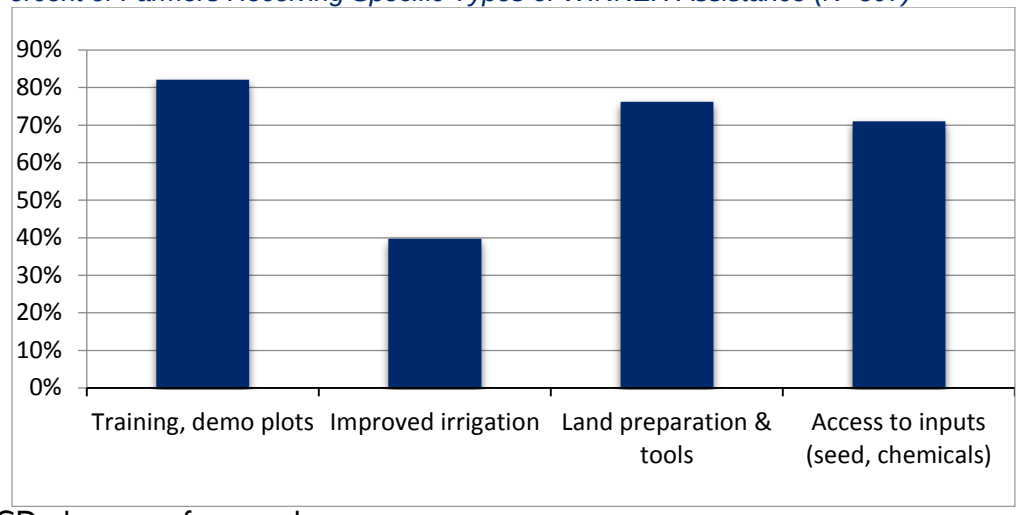
Chart 2: Land preparation methods by plot before and during WINNER



N = 554 plots before farmer participation in WINNER and 582 during their participation
"Others" includes mainly animal power and motor tillers.

According to FGDs with farmers, WINNER staff, and government officials, the tractor services subsidized by WINNER allowed selected farmers and associations to reduce costs of farm preparation by up to half when compared with prices of private providers. Next to training and demonstration plots, access or better access to land plowing equipment was the most widely used form of assistance received by farmers surveyed (Chart 3).

Chart 3: Percent of Farmers Receiving Specific Types of WINNER Assistance (N=307)



During FGDs, however, farmers also reported that demand for tractor services during WINNER was consistently high and specific requests for service for tractors managed by the CRDD were often delayed or unfulfilled. In various cases, farmers spoke of waiting so long for tractor

Text box 1: Access to Tractor Service

"It frequently happened that we wanted to get the tractor service [from the CRDD], but we couldn't get it. At that time, 50-60% requests were not met. This affected our productivity because the season could pass. Sometimes we couldn't get the tractors so we had to go back to traditional methods. Now we have our own tractor from WINNER and we can meet 100% of the requests." – Farmer Association FGD

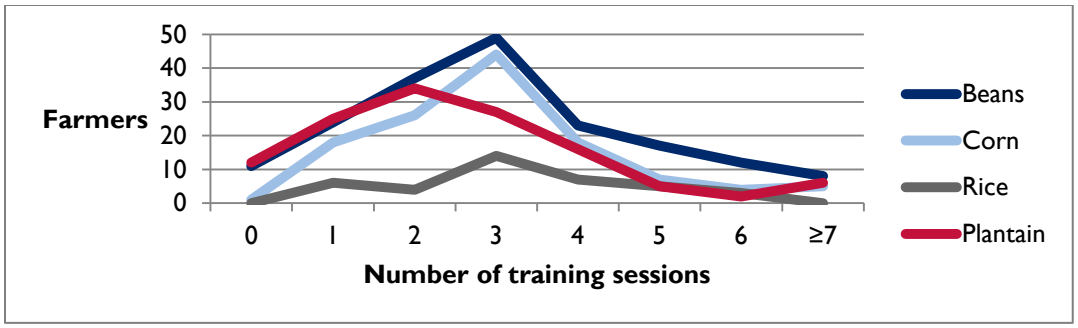
services during the project that they fell behind in the planting cycle and had to return to traditional methods because they could not delay any longer. WINNER's support in the form of providing tractor and plowing support to associations during the project, as well as after the close of project varied depending on the strength of the association. Those associations who were strong enough to receive individual tractors reported high levels of satisfaction and success in their ability to meet farmer needs.

Master Farmers

The CRDDs also served as the main centers for training Master Farmers to complement WINNER REAs as extension agents. In theory, stakeholders were largely in agreement with the overall WINNER approach of reaching farmers; the opportunity to train and build the skills of farmers in agricultural production and management was cited as a major strength of the project by WINNER staff, government officials, and Master Farmers alike. The evaluation team surveyed 120 Master Farmers and conducted FGDs with 130 Master Farmers in the Matheux and Cul-de-Sac corridors, in addition to interviewing non-Master farmers during separate FGDs (See Annex V for complete FGD list). Master Farmers interviewed in FGDs had a solid understanding of the theory behind WINNER techniques and were generally very positive regarding WINNER interventions. The WINNER project took a training of trainers approach, with the intention that Master Farmers would in turn provide training and guidance to regular farmers in their communities. Government officials noted that Master Farmers were a major strength of the project since they could potentially be used to build up a new national agricultural extension system. In practice, however, the survey showed that Master Farmers were infrequent providers of crop-specific training. About three-fourths of all farmers (76%) reported that they received training from WINNER technicians (REAs), 14% received no formal training, and the remaining 10% were trained by other providers, including association leaders (4%), the CRDDs (3%), Master Farmers (2%), and others (1%).

The evaluation team found inconsistencies in the roles of Master Farmers and how they were selected and compensated for services, and general confusion about their roles and responsibilities as extension agents. While most Master Farmers were nominated by association leaders, various associations complained of WINNER technicians (REAs – Responsible d'Encadrement Agricole) recruiting association members as Master Farmers without the association's knowledge. Most Master Farmers reported receiving tools for demonstration farms, but only some reported receiving stipends for their work as it was originally outlined they would receive. The vast majority of Master Farmers maintained that their role was more of a support role, and that WINNER REAs were responsible for training farmers. While WINNER Master Farmer training focused on the theory and practical application of techniques, Master Farmers reported they were not trained in how to sensitize other farmers and gain their buy-in, nor did they receive training tools for working with populations with low literacy levels. Overall, farmers reported skepticism about Master Farmers' abilities to provide support. It was stated in a FGD of WINNER farmers that they "are not real farmers." In addition, many farmers lamented the fact that the Master Farmers received training from WINNER, but did not adequately share their knowledge with the communities.

Chart 4: Farmer participation in crop-specific training (N=307)



Farmer training

Most farmers received formal training from WINNER specific to the crop or crops that they grew. The frequency of training varied by crop. On average, bean farmers participated in about 4 training sessions, rice farmers in about 2.8, corn farmers in 2.5, and plantain farmers in less than 2 (Annex VI).

Overall Impact on Crop Productivity

During their participation in WINNER, farmers achieved modest increases in yields of beans (10%), corn (14%), and plantain (3%). The largest increase was for rice, an impressive 58% (Table 9).[3] The increase in plantain yield (in bunches per hectare) appears small, but there was also a notable increase in the size and weight per bunch and, hence, in value, as is discussed further below.

Table 9: Changes in crop yields before and during WINNER

	Before	During	% Change
Beans	379	418	10%
Corn	473	539	14%
Rice	1,785	2,829	58%
Plantain	1,186	1,225	3%

Regimes/hectare for plantain, kg/ha for other crops

Even during WINNER's implementation, yields of beans and corn measured in the survey are somewhat below national averages as reported by FAO.[4] The evaluation team carefully assessed the reliability of the yield estimates derived from the survey, particularly for beans and corn. In the survey areas, the common practice of intercropping is one factor that contributes to the relatively low yields measured in the survey. Almost one-quarter of all plots (N=582 during farmer participation in WINNER) were intercropped. Intercropping is most common for corn and rare for rice. The data show that yields of corn and beans are lower in intercropped systems (Table 10), although the total value of output (all crops combined) is probably higher and more secure. Intercropped plantains are actually somewhat higher, which is thought to reflect the wide spacing of plantain, the timing of planting of the intercrops vis-à-vis their growth and canopy cover, and the common intercropping of plantain with beans, which supply nitrogen to the soil and thereby enhance yields.

Table 10: Effect of intercropping on crop yields before and during WINNER

		Before	During
Beans	Pure stand	394	445

[3] In all cases, the yield increases measured in the survey were far below the increases reported by WINNER. See: USAID-Haiti, "Increase in Yields for Target Crops in the Cul de Sac and Matheux (St Marc) Corridors," report prepared by Chemonics International International Inc. under WINNER contract No. EPP-I-0404-000200-00, April 2014. This can be found on the USAID Development Experience Clearinghouse website (https://dec.usaid.gov/dec/home /Default.aspx).

[4] FAOSTAT reports average corn yields of 531 kg/ha in 2012 and 855 kg/ha in 2013, and an average dry bean yield of 459 kg/ha in 2013 (the most recent available year). See: http://faostat.fao.org/site/567/DesktopDefault.aspx? PageID=567#ancor.

	Intercropped	334	332
Corn	Pure stand	516	575
	Intercropped	345	437
Plantain	Pure stand	1,150	1,210
	Intercropped	1,299	1,272

Kg or regimes/ha

Incomplete or incorrect application of WINNER agronomic practices, local variations in soil quality, rainfall and pests, and data recall biases also contribute to the relatively low yields measured in the survey. Some farmers who owned multiple parcels of land appeared to get quite different plot yields of the same crop, suggesting that they applied WINNER techniques on some parcels, but were unwilling or unable to adopt them fully. As a result, the average yields for their farms as a whole were below the yields achieved on their most productive plots.

As shown in the detailed tables (Annex VI), there is interesting variation in yields and in the changes in crop productivity by region and farmer status. For beans and corn, yield growth was well above the overall average in the Cul de Sac corridor and in the plains. Bean and corn yields in Matheux and in the highlands stagnated or even declined during the farmers' participation in WINNER as compared to before. In contrast, growth of rice yields was more uniform across regions, even though the survey sample sizes are relatively small (<20 farmers). Plantain production was highly concentrated in the plains of Matheux, so this region dominates the gain in productivity for the sample as a whole. Master Farmers achieved considerably higher productivity growth than regular farmers for plantain and rice, but the differences were much smaller for beans and corn. Women farmers did better in raising bean and plantain yields, but men were better with rice. This may reflect specialization by gender in the management of specific crops, but it may also reflect random sampling variation given that the cell sizes are often small, particularly for rice and plantain.

For all crops, the improvement in yields is associated with greater use of improved seed and fertilizer, and farmer willingness to try many, if not all, of the agronomic practices recommended by WINNER. Across the crops and recommended practices overall, the quantitative data show that less than 10% of the specific recommended practices were being used by farmers before their participation in WINNER,[5] 86-96% were used while they participated, and 62-76% were being used at the time of the evaluation.[6] There were some differences in the strength of the evidence,[7] but overall the qualitative and quantitative data both suggest that the decline in use of WINNER practices was greatest when these required inputs that were no longer available or affordable after WINNER delivery channels and subsidies ended, i.e., soil fertility analysis, improved seed, chemical fertilizer, and mechanization. Farmers tended to continue

[5] Plantain is an exception. Relatively high shares of farmers (20% or more) reported they were already using WINNER's recommended methods for land and seedling preparation, planting, water management and weeding prior to receiving WINNER support.

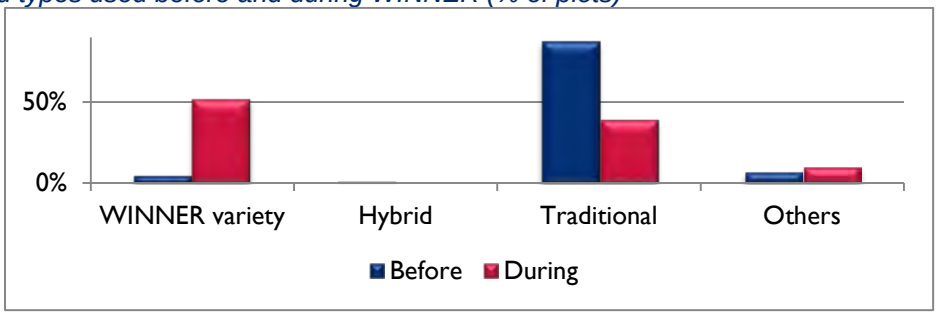
[6] These percentages apply to farmers who continued to grow WINNER crops. In some cases, however, farmers had switched to other crops or abandoned WINNER practices altogether, in which case the observations on their use of the recommended practices were missing. Among farmers who still planted WINNER crops, the use of the WINNER agronomic recommendations had declined fairly sharply by the time of the survey, but nonetheless a significant share of farmers continued to apply many.

[7] In the FGDs, some respondents were quite emphatic in assessing the relevance and impact of specific WINNER technologies, whereas the quantitative data tend to give a more balanced picture by capturing the opinions of a wider and more diverse group of beneficiaries.

practices that they found well-suited to their traditional knowledge of agriculture, their resource availabilities (labor and land), and their household food security needs. Some examples are provided below and detailed tabulations on the adoption of specific agronomic practices are in Annex VI.

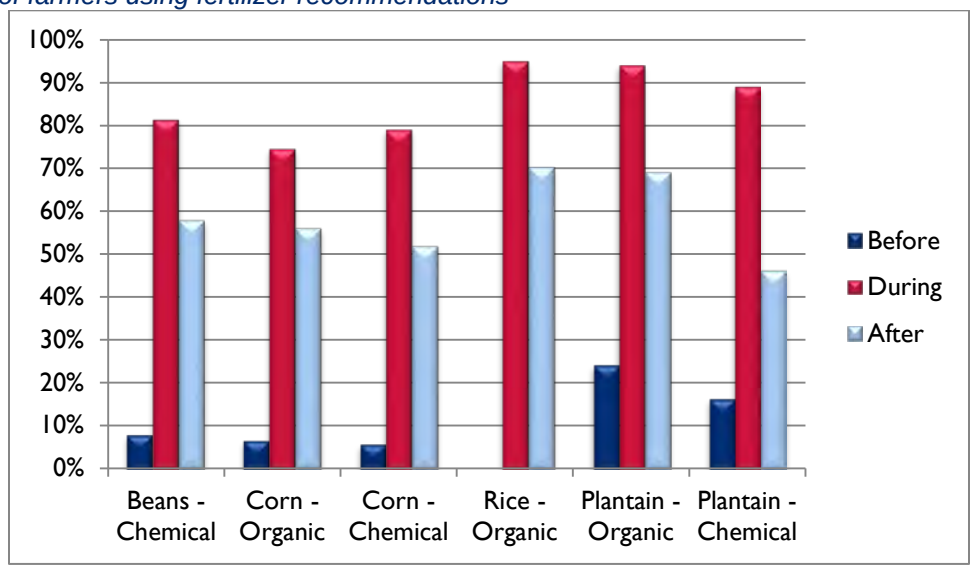
Farmers used much less traditional seed during their participation in WINNER, while WINNER varieties came to make up 51% of the total seed use (Chart 5). While farmers in FGDs spoke at length of their positive experiences using the WINNER seed, use of hybrid seed was not reported by surveyed farmers for any crop during their participation in WINNER. This is surprising for corn, since WINNER promoted a Pioneer hybrid variety that attracted considerable attention from farmers and other stakeholders. This finding suggests that farmers may have misunderstood the survey options or were not always able to distinguish between WINNER-promoted varieties, including hybrid corn and other improved varieties, particularly since all WINNER-supplied seed was heavily subsidized.

Chart 5: Seed types used before and during WINNER (% of plots)



It is not surprising that the use of these inputs declined with the termination of WINNER subsidies and technical support, as well as the limited availability of fertilizer and improved seed in local private markets. However, the survey data show that significant shares of farmers had been able to continue WINNER practices at the time of the evaluation survey, as illustrated for fertilizer in Chart 6. The use of organic fertilizer has remained higher as compared to chemical fertilizer given the hiatus in Haiti's chemical fertilizer supply. However, it is possible that farmers are using the most readily available organic material, and not exactly what WINNER prescribed.

Chart 6: % of farmers using fertilizer recommendations[a]



[a] The figures for corn are averages of 3 separate recommended chemical fertilizer applications and 2 organic fertilizer applications.

Finally, when the provision was timely, the use of mechanized land preparation is clearly associated with crop productivity (Table 11). Essentially all rice farmers (43 out of 44) were able to use mechanical methods, with rice yields being particularly high for farmers using motor tillers.

Table 11: Crop yields by land preparation method [a]

	Beans	Corn	Rice	Plantain
Tractor	439	562	1,824	1,271
Motor tiller	--	--	5,195	--
Manual labor	377	443	--	775
Overall	418	539	2,829	1,225

[a] Kg or regimes/ha, Sample sizes of <5 are omitted.

Beans. While WINNER bean campaigns were concentrated primarily in the Cul de Sac plains, WINNER supported both upland and lowland bean farmers in the Matheux and Cul de Sac Corridors, as reflected in the survey sample. The project facilitated access to quality local bean seeds through the BIAs, in addition to training farmers in advanced bean cultivation practices. Besides plowing, harrowing, and ridging methods, WINNER encouraged farmers to spread 10-15 metric tons of organic fertilizer before plowing and plant one grain per pocket, 10 cm apart in staggered rows on each side of the ridge. Plowing was done by tractors in the lowlands, whereas in the uplands, plowing remained manual. For most of the crops, there appears to have been a synergistic impact of the duration and types of WINNER support. This can be illustrated most clearly in the case of beans, where the levels and changes in bean yields are positively associated with the duration and intensity of WINNER assistance that farmers received (Table 12).

Table 12: Bean yields (kg/hectare) before and during farmer participation in WINNER by the duration of winner assistance, total forms of assistance, and number of bean trainings

	Number of Years of WINNER Assistance			Number of Forms of WINNER Assistance[1]			Number of WINNER Bean Trainings		
Number	**Before WINNER**	**During WINNER**	**Change**	**Before WINNER**	**During WINNER**	**Change**	**Before WINNER**	**During WINNER**	**Change**
0	--	--	--	--	--	--	243	224	-8%
1	272	173	-36%	426	306	-28%	324	283	-12%
2	362	333	-8%	300	283	-6%	433	396	-9%
3	379	492	30%	409	470	15%	327	424	30%
4	452	588	30%	356	461	29%	452	587	30%
5	558	633	14%	469	654	39%	435	549	26%
Overall	**379**	**418**	**10%**	**379**	**418**	**10%**	**379**	**418**	**10%**

[1] WINNER assistance included some or all of (1) training and demo plots, (2) irrigation, (3) access to tractors and improved farm equipment, (4) access to improved inputs (seed, fertilizer, pesticides), and (5) others (mainly silos).

Overall, farmers responded positively to the planting technique for beans that WINNER promoted, stating, "We planted less, and harvested more." High-quality bean seeds were hailed by farmers in the plains as having positively affected their productivity, with many farmers lamenting the absence of high-quality WINNER seeds after the project.

Corn. To promote increased productivity of corn, WINNER introduced improved corn varieties and new agronomic practices for land preparation, weeding, fertilizer, and pesticide.[8] A general finding for all crops is that while most of the recommended practices were adopted by farmers during their participation in WINNER, they were often modified to suit the farmer's specific conditions. In the case of corn, for example, the recommended plant spacing and ridging were generally followed but the measurements varied from specific WINNER recommendations. For all crops, the methods of plowing and weeding, and the use of agrochemicals, depended upon the reliability of mechanization and input supplies to the farmer.[9]

Farmers in FGDs corroborated the increase in corn productivity found in the quantitative data. Part of this increase was likely due to the improved corn seeds supplied during the project. Farmers lamented the fact that the corn varieties promoted by the project are no longer found in Haiti. In the case of hybrid corn, interviews with WINNER project staff confirmed that WINNER facilitated the supply of the hybrid corn seed, negotiated with the U.S supplier, shipped the seeds and delivered them to the BIAs, which distributed them to farmers at a subsidized price. The farmers' associations and their BIAs were not involved in the process and did not establish any links with suppliers. According to a key informant WINNER staff, the project unsuccessfully attempted to involve the agrodealers. Agrodealers interviewed confirmed wariness to invest in importing hybrid corn from the US without project benefits such as customs assistance.

***Rice*.** To increase rice production, WINNER introduced SRI[10] along with a variety of complementary, modern techniques. WINNER taught farmers to transplant seedlings between 8-12 days and to plant each 25 cm apart in muddy paddy in horizontal and vertical straight rows for easy weeding. In addition, WINNER promoted frequent weeding, with the first weeding 15 days after transplanting and then every 10-15 days thereafter. Finally, WINNER promoted new water management practices, ensuring that the plants are kept under 2-3 cm of water permanently for the first two weeks, then drained and irrigated alternately depending on the type of soil and weather. These techniques were used in addition to plowing and fertilization.

When asked about their experiences with SRI, farmers responded positively about the increased yields thanks to the rice planting techniques and varieties introduced by WINNER. However, despite WINNER's promotion of conical weeders as a means of reducing time and labor for weeding, farmers reported that conical weeders were largely unavailable to them and were used primarily on project demonstration plots. Farmers are eager to continue to apply SRI practices, but are constrained by labor availability.

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[8] Overall, because of small samples, it is difficult to assess the relationship between crop yields and the use of specific WINNER inputs (irrigation, seed, fertilizer, farm machinery) and agronomic practices. Because of the large number of introduced inputs and agronomic practices, cell sizes become very small when disaggregated by crop and technology.

[9] Specific WINNER practices for the cultivation and post-harvest handling of each crop are shown in the crop-specific modules of the survey questionnaire (Annex VI).

[10] SRI can both raise rice yields and conserve water, which makes it particularly well suited for situations like Haiti where rainfall and irrigation water are unreliable. Compared with normal rice cultivation, SRI involves planting single seedlings instead of multiple seedlings in a clump, and not flooding irrigated paddy fields during the vegetative growth stage. Planting uses a wider spacing, followed by more intensive weed control. Higher yield is achieved with 80–90% reductions in seed requirements and 25–50% less irrigation water. Chemical fertilizers and pesticides can be used, but proponents of SRI – including WINNER – believe that good results do not require the use of purchased inputs. Despite its promise, a frequent concern of farmers in Haiti and many other countries is that the labor requirements of SRI are excessive, particularly in weeding.

Plantain. To increase the productivity of plantain, WINNER introduced and promoted new techniques in planting and growing in the lowland regions, particularly in the areas of Arcahaie and Cabaret. The

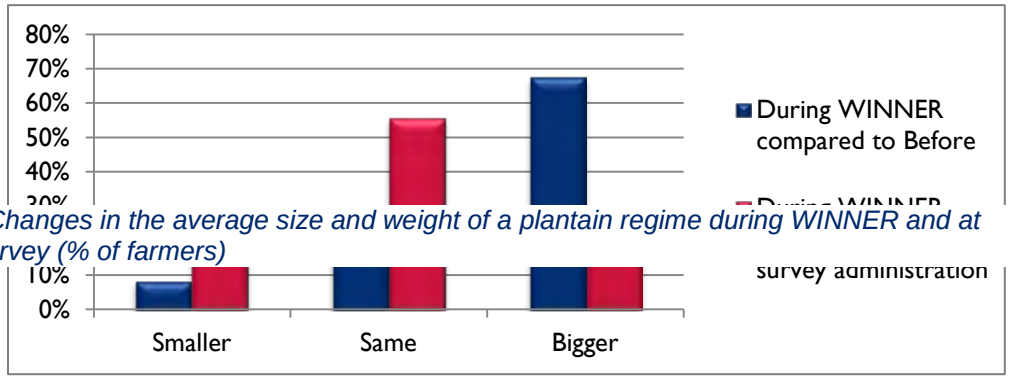


Chart 7: Changes in the average size and weight of a plantain regime during WINNER and at time of survey (% of farmers)

WINNER technique focused primarily on planting in staggered double rows with wider meter spacing between the double rows, in which the farmers can intercrop short cycle crops (2-3 months) such as tomato, okra, peppers, beans, and peas. Farmers reported general confusion due to the fact that MARDNR promotes a different spacing configuration for plantains. WINNER also promoted additional techniques such as the thinning-out of the plantain leaves.

At 3%, the survey's estimate of the increase in plantain yield was the smallest of the four focus crops. However, the measurement of plantain yields is complicated because the output unit used by essentially all farmers is the regime, or bunch, which has no fixed weight or volume. Key informants reported that the weight of a regime can vary from 8-15 kg. During their participation in WINNER as compared to before, farmers obtained 3% more regimes per ha, but 68% of the farmers also reported that the average size and weight per bunch/regime had increased (Chart 7). Higher size/weight should translate into higher market value per regime. At the time of the survey, the great majority of farmers (74%) felt that regime size/weight was the same or even greater than during WINNER's implementation. Nonetheless, while Master Farmers and project staff reported increased plantain productivity, their responses in FGDs and KIIs also included skepticism or mixed feelings about the extent of the increase and WINNER's contribution. For example, some argued that plantain productivity depended more on soil quality than the application of any particular technique.

Overall, the evaluation team found that some of the modern techniques promoted by WINNER for plantain were not widely popular with farmers. Farmers reported concern that the close spacing of plantain trees promoted by WINNER placed parcels at risk of catching Sigatoka, a leaf spot disease that can spread easily when trees are in close proximity to one another. In addition, the wider (2.5 – 4.0 meters) spacing promoted by WINNER between double rows of plantain trees was largely considered to be a waste of land that could be used for additional plantain trees. During the FGDs, the evaluation team asked respondents if there were nearby farms where the team could observe the application of WINNER plantain techniques, but none could be identified by the groups.

The evaluation team found that farmer opinions on the viability of WINNER techniques were influenced by whether or not plantains were used for household consumption or for cash sales. WINNER plantain plots that promoted the four-meter distance between double rows appear to be more appropriate for subsistence farmers who intend to plant vegetables or other short-season crops between the young plantain trees.

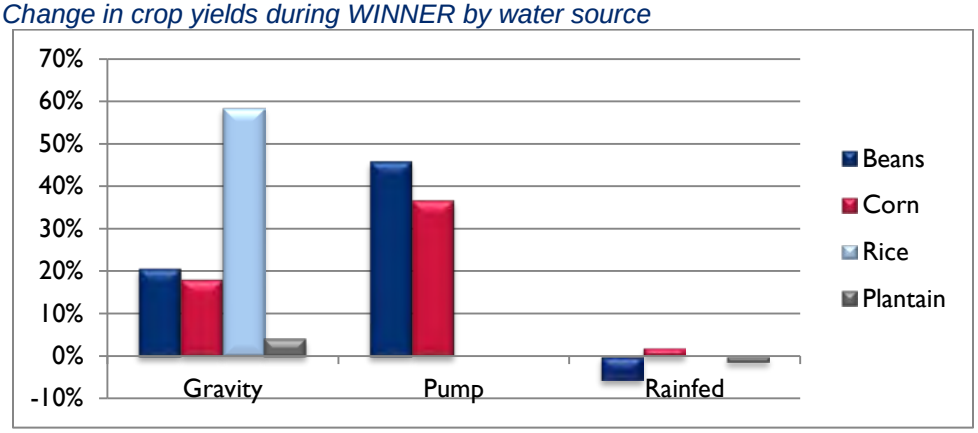
Irrigation

In the evaluation sample, 40% of the surveyed farmers (122 of 307) received assistance for irrigation improvement. Farmers benefitted from irrigation improvements on 55% of the total plots surveyed, 95%

of which were gravity-fed and essentially all of which were irrigated before WINNER. Thus, in the sample, WINNER had focused almost exclusively on improving existing irrigation rather than expanding the irrigated area. Of 571 plots for which farmers responded, 80% were irrigated by gravity or pump both before WINNER and during the last WINNER-assisted season, and 20% were rainfed in both periods. Very few plots were irrigated by pumps, but WINNER made improvements on 64% of these (16 of 25).

During fieldwork, the evaluation team observed irrigation systems renovated by WINNER, such as the systems of Cameau on Riviere Torcelle (Cabaret area) in Matheux. Overall, beneficiary farmers the evaluation team met in the field as well as in FGDs were very vocal about the benefits of the new system to their agricultural production and productivity. Thanks to WINNER irrigation improvements, farmers reported that they are more easily able to water their crops. The evaluation team observed both cemented and non-cemented irrigation canals constructed or rehabilitated by the project. For all crops except plantain, there is a clear relationship between the presence of irrigation (whether or not it was improved by WINNER) and the change in yields from the before-WINNER period to the last WINNER-assisted season (Chart 8). Yields were essentially stagnant on the rainfed plots, which comprised 20% of the total surveyed.

Chart 8: % Change in crop yields during WINNER by water source



Canal cleaning was widely seen as a success for increasing water flow with benefits lasting longer than other methods (people are still seeing the benefits of a cleaning 2-3 years ago). Canal cleanings were typically only done once and farmers requested increased frequency. Participants in several FGDs agreed that canals could be improved immensely by cementing, as traditional dirt canals reportedly filled with sediments faster than cemented canals. In one case in Matheux, a cemented canal was constructed directly alongside a steep hill, and the team observed sediment from the hill rolling into the canal. Another weakness respondents identified during FGDs was that water catchments for irrigation (such as construction in River Bretelle, Torcelle) were not supported by protective interventions on the hillsides.

WINNER had mixed results in its relationships with local water associations. WINNER staff reported during KIIs difficulties in working with some water user associations due to challenges related to water user association leadership and management gaps. WINNER provided water user associations with training in democratic governance and administration. Some water user associations, however, are unable to exercise authority over many water users who refuse to pay and those who block canals to build homes. While water user associations praised the renovation work WINNER did on the Cameau system, they raised concerns that they were not involved in the planning and implementation of the work as the structure legally recognized to manage the whole system in the area. Water user associations in both corridors reported being largely cut out of coordination with contractors working on irrigation, which created conflicts with farmers when water was cut off for renovation work without

notice. In some cases, crops such as beans, corn, okra, and sorghum were negatively affected by cutting off the water in the canals. In addition to limited collaboration with water user associations, government officials also raised concerns that WINNER strategies were not fully integrated into the plans and strategies of the MARNDR, such as the absence of coordination with existing MARNDR programs above the Riviere Grise rehabilitated system.

CONCLUSIONS

WINNER made great strides in building farmers' capacity in the corridors of Matheux and Cul de Sac to improve agricultural productivity. In particular, all stakeholders agree that the provision of improved inputs such as seeds and fertilizer, as well technology such as plowing, and training for farmers had tremendous effects on the agricultural productivity of farmers during the implementation of WINNER. To avoid confusion among project participants and stakeholders, however, a more coordinated approach is required. While an MOU was signed between MARNDR and WINNER, the project faced challenges in including the government and Ministry of Agriculture in the strategy and implementation of WINNER interventions such as the provision of inputs, extension services, and irrigation canals. As such, the evaluation team concludes that in order to ensure increased agricultural productivity for Haiti, additional work and a dedicated partnership with MARDNR is critical at each stage of implementation.

Inputs

The provision of subsidized pesticides and fertilizers, and the introduction of improved corn and bean seeds clearly had positive impacts on farmer productivity, and were a successful approach to improving farmer productivity during the WINNER period. BIAs were an effective mechanism for distributing subsidized inputs and can continue to be strengthened to effectively meet farmer needs. The lack of supply of these inputs in local markets following the end of the project, however, has been a disappointment for many farmers.

Technology dissemination

The evaluation findings confirm that the CRDDs were one of the WINNER project's greatest strengths, and an effective mechanism for technology dissemination. The most successful CRDDs are those CRDDs who were established earlier in the project, whose operational and management capacities were built up over a longer timeframe. Despite the operational and financial limitations, the provision of tractors under WINNER was a great relief for farmers who could raise or strengthen their agricultural income. Given the challenges reported by respondents related to timely provision of tractor services, repair needs, and tractor management, further training for associations receiving tractors will improve the quality of these services long-term.

Training of Master Farmers is a strong asset of the project, but more can be done to clarify the role of the Master Farmer in order to reach more farmers. There is an unfortunate lack of valorization of Master Farmers among associations and farmers, and an inconsistent understanding of the role of the Master Farmer. Without an organized plan for how to assist farmers, and without training in community sensitization and mobilization, Master Farmers will remain largely unable to secure the respect and buy-in of other farmers.

Despite the fact that the viability of WINNER techniques for plantain production was demonstrated by the CRDDs and verified by key informants from WINNER and MARDNR, many farmers expressed skepticism during FGDs, which suggests that more time is needed to sensitize farmers. In addition, recommended practices for all crops except rice need to reflect the traditional role of intercropping in ensuring food security for households that have very small land holdings (0.94 hectare on average in the survey).

When accompanied with the appropriate labor saving devices, the SRI methodology is an effective approach to improving farmer rice productivity and one that farmers are excited about. Without continued access to important equipment and organic/chemical fertilizers, however, the application of the SRI will remain difficult for farmers. Farmers were eager to use the modern rice equipment, but without the economic means to access to equipment such as rice transplanters, conical weeders, roller markers to pinpoint plantation pockets, and deep urea placement devices, farmers will be unable to fully adopt SRI methods.

Irrigation

In providing farmers with increased access to water for agriculture, WINNER's support to irrigation improvement had a positive effect on agricultural productivity. The provision of cemented canals as well as canal cleaning is an effective approach to promoting long-term agricultural productivity but must be strengthened with closer collaboration and implementation with water user associations and the government from the beginning.

RECOMMENDATIONS

1. **Increase collaboration with GoH.** WINNER should collaborate and develop more formal interactions with MARNDR at all levels to leverage their experience and presence to ensure sustainability. Collaboration with MARNDR on farmer sensitization of planting techniques will reduce farmer confusion, address difficulties related to government promises of fertilizer subsidies, and promote a united front among stakeholders. To ensure MARNDR capacity to support the project, USAID should consider supporting MARDNR with in-kind logistical and operational support. Prior to implementation, WINNER should collaborate with MARDNR to determine their national extension needs, and then collaboratively design a strategy to support MARDNR to sustainably implement the Master Plan for Agricultural Extension in Haiti.

2. **Build local extension services.** It is recommend that the follow-on project build upon WINNER by formalizing the envisioned role of the Master Farmers (including remuneration, overhead support from the CRDDs or others, and making them accountable to the community), and providing them with further training on the skills needed to communicate effectively and convey extension messages to farmers. To build MARDNR capacity, WINNER may consider training BAC agents as Master Farmers. Recruitment of Master Farmers should be done in collaboration with MARDNR and farmer associations and should consider not only literate farmers, but respected farmers from associations. Training for Master Farmers should focus not only on theory, but also on practical dissemination techniques, including visual aids and teaching tools for low-literate populations.

3. **Encourage local seed production.** To ensure improved seeds promoted by the project are available long-term, WINNER should work with agrodealers to negotiate local production of hybrid corn seeds in Haiti. In addition, associations can be trained on production of improved bean seeds. WINNER should provide the first stock of basic bean seed sold by BIAs, which can then be multiplied by a group of trained seed multipliers through an in-kind credit system.

4. **Allow additional time for sustainable results.** Changing perceptions on agricultural practices takes time and requires adequate coaching and sensitization to complement technical support. Rather than a focus on immediate quantifiable results, USAID should build in sufficient time at the project outset for stakeholder relationship building and a longer timeframe should be dedicated to the implementation of the new techniques. To ensure the adoption of the WINNER agricultural planting techniques method, the project should consider complementing technical training with detailed sensitization campaigns, access to mechanized labor, timely agricultural inputs, water

irrigation, and technical support, as needed.

5. **Improve access to farm equipment for rice.** Given the high labor requirements of SRI, additional access to rice transplanting machines, conical weeders, and deep urea placement devices should be provided to farmers. For new agriculture projects, USAID should consider support to local manufacture of conical weeders and deep urea placement devices, coupled with a credit program to local businesses as an incentive.

6. **Collaborate systematically with water user associations and government.** WINNER irrigation works should be carried out in collaboration with water user associations and MARDNR from the beginning to avoid the challenges that arise when water user associations are uninvolved in the implementation process with regard to credibility issues and a lack of trust from water users, which have long-term consequences on associations' ability to effectively carry out their mandates.

7. **Focus on needs prior to introducing innovations.** In focusing heavily on innovations, WINNER may not have always been in tune with the needs of individual farmers. Keeping in mind that one size does not fit all, a targeted needs assessment for farmers should be conducted prior to implementation of USAID agriculture projects. Interventions should be based on a strengthened process to collect reported farmer needs, and should be developed in collaboration with MARDNR and farmers associations.

8. **Consider farmer financial constraints.** Farmers frequently cited a lack of finance as a barrier to adopting modern techniques, pointing out that WINNER demonstration plots did not accurately reflect the financial constraints of farmers. Future USAID agriculture projects should take into account the minimum package that the average farmer can afford, and work to make credit opportunities for farmers readily available in parallel with technical support.

EVALUATION QUESTION 2: To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?

WINNER APPROACH

Severe erosion exacerbated by years of deforestation presents one of the most serious threats to Haitian farmers due to the loss of upland soil and the increased likelihood of downstream flooding and subsequent destruction of crops. With unsustainable hillside farming as a major contributor to recent erosion, WINNER designed its programming to improve productivity around three key interventions: 1) ravine treatment and soil conservation in the lowlands, and in the highlands; 2) community-based and on-farm soil protection measures; and 3) agroforestry and greenhouses.

WINNER implemented ravine treatment and soil conservation activities in order to increase agricultural productivity and control flooding. This included the installation of vetiver grass strips, gabions, drywalls, and planting of trees along the ravines, prioritizing those ravines that presented the highest threat of damaging floods. The project also constructed water catchments to provide water to hillside farmers. Works were implemented by local farmer organizations, private subcontractors, and NGOs.

To reverse existing erosion, the project promoted agroforestry through the planting of tree seedlings in upper watershed areas. Through three agroforestry campaigns (2009-2010; 2011-2012; and 2012-2013), the project helped establish 334 nurseries with the participation of over 100 agroforestry associations. To discourage the unsustainable clearing of hillsides for crops, WINNER built 373 hillside greenhouses

to stabilize hillsides by promoting "vertical agriculture" with drip irrigation for high-value commercial crops. The greenhouses were intended to be more productive and remunerative than traditional hillside farming, thereby encouraging farmers to shift away from annual cultivation of steep hillside land.

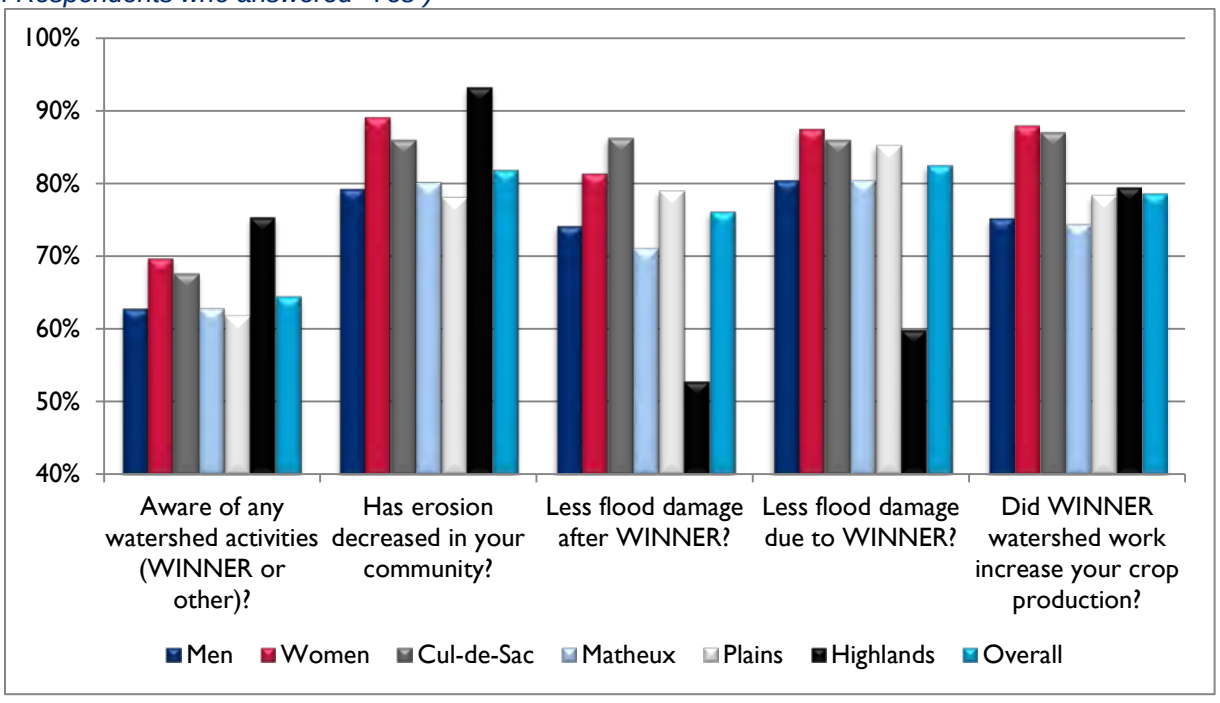
FINDINGS

Rainfall distribution, duration, and intensity are critical factors affecting flooding and subsequent damage in a watershed system. Despite establishing gauges in rivers Matheux to measure the height of the floods, without dedicated rainfall stations to track weather patterns, this information is insufficient to draw meaningful conclusions about the effect of interventions in reducing damages related to flooding. Consequently, this evaluation's assessment of the impact of watershed interventions is largely based on respondent opinions and the field observations of the evaluation team. Additional studies are needed to quantitatively assess WINNER impacts. Through the formal survey of beneficiary perceptions, FGDs, key informant interviews, and site visits in the uplands and lowlands, the evaluation team sought to assess the impact of WINNER work in reducing the perceived vulnerability of the population to flooding, assess the relevance and quality of WINNER work on watersheds, and identify the benefits and limitations of WINNER's technical and structural interventions.

The survey asked farmers about their perceptions concerning the types and impacts of watershed management activities both in their communities and in upland areas surrounding their communities. The survey data show that WINNER's watershed management activities were highly visible in and around the communities, and perceived as beneficial by a large majority of respondents.

Almost two-thirds of the respondents (198 out of 307) were aware of recent watershed improvement activity. Not surprisingly given the nature of the works, a far higher share of highland respondents was aware of this activity as compared to those in the plains (75% vs. 62%, Chart 9).

Chart 9: Perceptions about watershed management activities by gender, corridor, and farm elevation (% of Respondents who answered "Yes")



Slightly more than 80% knew that specific watershed management activities had been implemented by WINNER, including construction or improvement of dry walls and gabions, planting of grass hedge rows, reforestation, and ravine clearing. However, significant numbers of respondents (20-24%) stated that watershed management activity was underway before their participation in WINNER or after the project closed, so it is not possible to attribute all of the activities and perceived benefits to WINNER alone.

Awareness of recent watershed management activities and their impacts tended to be higher among women than men, and higher in Cul-de-Sac than Matheux. Perceptions are strongly related to farm elevation: farmers in the lowland plains are most aware of interventions that reduce flood risk, whereas soil erosion is the predominant concern in the sloping highlands. In the plains, 85% of the farmers believed that there is less flood damage because of WINNER, as compared to just 60% of highland respondents. In contrast, 93% of the highland respondents believed that erosion had declined, as compared to 78% of plains farmers. More than 80% of plains farmers and almost two-thirds of highland farmers believed that it is the upland work that has the main impact on flood damage. However, the perceptions about flood damage must be interpreted cautiously because there has been no major flood event in the survey area during the past several years.

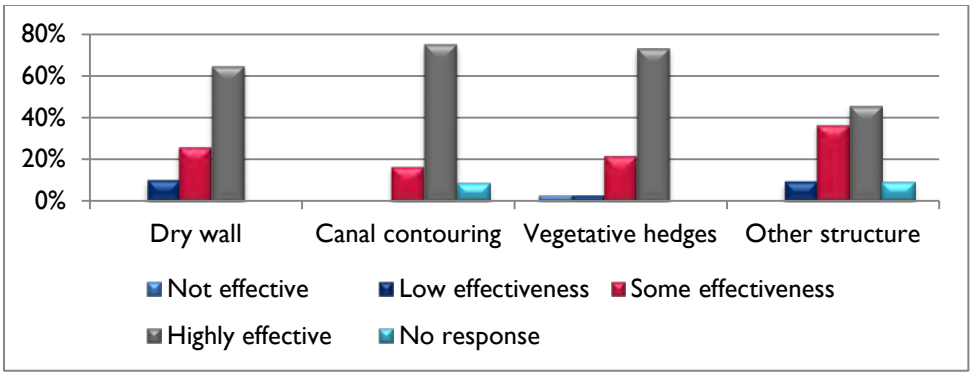
There were consistently high and positive perceptions about the benefits of WINNER for crop production. Four-fifths of all farmers (both highland and plains) believed that work by WINNER in their community or in the surrounding uplands helped to increase production in their plots. As shown in Table 13, the main impacts included reduced flooding risk and damage, reduced erosion risk, better soil protection and stability, and better crop growth or decreased crop loss.

Table 13: Distribution of responses on the impacts of WINNER watershed management activities on crop production (Plains and Highland Farmers)

Impact	Percent	Number of Respondents
Reduced flooding risk and damage	28%	52
Reduced erosion risk; better soil protection & stability	27%	51
Better soil irrigation	8%	15
Better crop growth or decreased crop loss	13%	25
Others	2%	3
No impact	13%	25
Don't know	10%	18
Overall	**100%**	**189**

Highland farmers on sloping land are especially vulnerable to soil degradation and productivity loss due to erosion. The sample contains 61 highland farmers who operate a total of 102 plots, four-fifths of which are moderately to steeply sloping (>15%). Slightly more than half of the highland plots received one or more anti-erosion treatments, most commonly protective dry walls and vegetative hedges. All of the treated plots were moderately to highly sloping. The highland farmers who benefitted from these measures rated them as highly effective on about 70% of the plots overall (Chart 10). Canal contouring and vegetative hedges were rated as particularly effective. All of the farmers operating steep land (slope >35%) perceived the dry wall and canal contour measures as being somewhat or highly effective.

Chart 10: Highland farmer ratings of anti-erosion measures[a]



[a] % of those receiving anti-erosion support, moderate and high-slope (land with slope >15%) plots only [N=53]

Almost all highland respondents believed that erosion had declined, and 77% of the farmers with moderately or steeply sloping land, including all of the farmers with steep land, felt that WINNER watershed activities had helped to improve crop productivity (Table 14).

Table 14: Perceptions of highland farmers by the slope of their land

Average Plot Slope[b]	Sample (Farmers)	Plots Covered	% Aware of Any Watershed Management Activities[c]	% Believing Erosion Had Decreased[c]	% Believing WINNER Work Helped Increase Their Crop Production
Low	13	21	62%	100%	88%
Moderate	42	73	79%	90%	73%
Steep	6	8	83%	100%	100%
Overall	**61**	**102**	**75%**	**93%**	**79%**

[a] Percentages omit non-responses by 22 of the 61 respondents.
[b] Slope classes are defined as low: 5-15%, moderate: 16-35%, and high: >35%.
[c] Refers to both WINNER and non-WINNER watershed activities.

Ravine Treatment and Soil Conservation. Farmer respondents felt that WINNER's efforts in ravine treatment had a potential impact in reducing damage from as a result of decreased flooding, mainly due to gabion and dry wall development. During FGDs, farmers and water association leaders in key locations such as Rivière Courjolle, Rivière Matheux, Bretelle, Torcelle, and Cameau believed the rehabilitation of gabions was strategic and successful, and felt they are less vulnerable than before. Respondents also reported that interventions carried out in the uplands of Gantier and Thomazeau led to an increased sense of protection of cities from floods. Respondents feel that the work was high quality because WINNER paid associations to carry out the ravine treatment projects and were grateful for this opportunity which encouraged them to earn income (text box 2). In addition, water user associations and farmers alike reported on the recruitment of women to carry out these works, resulting in increased temporary employment opportunities for women.
Stakeholders, however, were still skeptical about whether the interventions will be effective against major hurricanes. Because they have not experienced significant storms since the WINNER

"Before WINNER, flooding used to erode the river banks and the road nearby. WINNER built 200 meters of gabions 2 meters high during the first phase. Following the success of these gabions in holding up to passing water, the project raised the height of the gabions and has extended the number of linear meters of gabion as well. The implementation of these works [through local organizations] had an organizational impact since it granted local structures the opportunity to increase their technical ability, the management of funds, materials and workers, and enabled them to ensure their credibility with

Text Box 2: WINNER Ravine Treatments: reducing flood damage and building local capacity

interventions, key informants and FGD participants from all stakeholder groups were cautious to claim a reduction in flooding. Many farmers during FGD and key informant interviews seemed to agree that the volume of work completed was not enough to not protect the city from major flooding if similar hurricanes like Gustava, Hanna, and Ike (2007 - 2008) were to hit Haiti. Of the 351 farmers surveyed, 118 indicated they felt that WINNER interventions had resulted in less damage due to flooding, and less flooding in general.

The evaluation team did find some evidence of poorly rehabilitated structures (dry walls and gabions) during their site visits, but this was very rare. While the evaluation team generally observed impressive dry walls and gabions, however, the evaluation team did not find much evidence of biological interventions reinforcing the mechanical structures (usually there was only some vetiver planting).

Respondents in the lowlands raised concerns about how farming in the uplands affected the environment in the lowlands. Lowland farmers reported frustration that the project did not do more to work with communities living upstream to address the relationship between upstream and downstream communities.

Agroforestry and Greenhouses. Overall, the evaluation team encountered mixed reactions related to the success of agroforestry campaigns. Chanpyon associations reported having to plant trees as a requirement to receive WINNER assistance, but the evaluation team found that a system for verification of this component was lacking. Key informants and WINNER project staff noted that farmers preferred to use available land for agriculture which constituted their main livelihood activity, rather than increasing tree coverage.

Measuring the impact of reforestation efforts is difficult because the timeline for reporting impact is too short-term to capture outcomes. Depending upon the species, it takes 5-10 years for trees to grow and provide sufficient canopy cover and root penetration for measurable impacts. Because there is no system for long-term monitoring (i.e., up to 20 years after an intervention), project impact cannot be definitively assessed.

Overwhelmingly, beneficiaries in both corridors felt that the greenhouses required significant improvements, which negatively impacted their buy-in and use of these facilities. While difficulties were noted in both corridors, greenhouses in Cul-de-Sac were more positively received by farmers than in Matheux where they were introduced late in the project, which was also confirmed by USAID and Chemonics International representatives. Water tanks were the biggest issue for most farmers, as they are too small, but also wood was rotting and the structures got too hot. In Fonds Baptiste, it was reported that of twelve greenhouses nearby, only two were still in use. The evaluation team confirmed this during site visits to the Matheux (Fonds Baptiste) and Cul-de-Sac (Kenskoff), where most of the greenhouses visited were either empty or only partially used, with drip irrigation systems in most cases no longer functioning.

Farmers also remain unconvinced about the profitability of greenhouses. Some greenhouses were far away from markets and farmers lost profit if they were unable to sell their goods. Farmers were also discouraged due to lost profits from yield problems. These issues have led to a belief that greenhouses cannot replace gardens, so farmers would like to use both approaches in conjunction.

During FGDs, farmers in both corridors and in all focus groups in which greenhouses were discussed felt strongly that the project did not take the community's needs into consideration, because greenhouses benefit few households and not the entire community. One respondent stated, "If WINNER had asked us about our need, we would never have asked for a greenhouse. We would have

asked them for the improvement of the road, for additional support for the BIA in our community, and for traditional techniques to produce our own improved seeds."

Watershed Governance. Respondents had mixed perceptions about WINNER's collaboration with key stakeholders. On the one hand, some informants mentioned that the project did a good job engaging women and building the capacity of local organizations in the ravine treatment projects. On the other hand, WINNER struggled to meaningfully collaborate with and engage the local or regional agriculture bureaus (BACs). From the perspective of the BACs, the project invited BAC representatives to introduce visitors or increase project visibility, but did not involve BACs in decision-making. Project staff noted that collaboration was hindered by BAC staff not having the necessary means of transport or interest in participating. In addition, key informants and FGDs suggested that MARNDR is not playing an active role in the cleaning of the ravines and canals rehabilitated.

According to interviews with water user associations, government officials, and WINNER staff, the project faced challenges in successfully collaborating with government to improve watersheds. Some project staff suggested that the project's difficulty in coordinating with MARDNR may have been the result of increased and competing GOH priorities and opportunities to collaborate with other international governments and countries providing assistance following the earthquake. Regardless, government stakeholders and project staff agree that the project could have done more to support coordinated strategic planning, to engage governing entities and water user associations in the formulation and design of interventions. Moreover, under WINNER, preliminary diagnostic assessments were not conducted in the watersheds under consideration prior to initiating the interventions. The project developed a Watershed Management Plan for both corridors very late into implementation, only 3-months before the project closed. Government officials noted that collaboration between key stakeholders such as CNIGs, the Comité Interministériel d'Aménagement du Territoire (CIAT), and MARDNR was strained because of a lack of agreement on the project's vision, what should be accomplished, and the intervention strategy which did not always align with government strategy. As an example, one government official mentioned the absence of coordination with an existing MARNDR program in highlands above the rehabilitated Riviere Grise system. Key informants and FGDs in both corridors verified that following the project, neither the government nor water user associations are continuing to remove sediment and rubble from the WINNER-constructed or renovated dams, which provide irrigation water.

CONCLUSIONS

WINNER's watershed management activities are perceived as highly visible and beneficial by a large majority of the survey respondents.

Ravine Treatment and Soil Conservation. In general, the project's interventions for ravine treatment, riverbed enlargement, cleaning, and riverbanks protection appear to have successfully sheltered both the plains and cities from flooding. They also enhance agricultural productivity by draining water into irrigation canals. Interventions in the watershed area to catch the water for irrigation have led to increased access to water for communities.

Overall, the dry walls and gabions built to rehabilitate ravines were mechanically solid, although the project could have done more to reinforce the structures with complementary biological efforts. Women and local organizations were also well involved in the implementation of the work under the supervision of the WINNER technician. The team found evidence that participating local organizations were strengthened and would be able to participate in similar activities in the future.

Despite project achievements, vulnerabilities still exist. It is unknown whether these positive outcomes against flooding will be maintained during heavy rainfall, since communities have not experienced significantly turbulent weather since project completion. Communities have also noticed that the sediment currently being trapped by the gabions will, at some point, flow down into the ravines when the gabions become full. Although ravine treatment was effective, this is only true for ravines that were prioritized and completed. Many ravines upstream remain vulnerable due to incomplete work. In addition, the integrity of canals could be improved by cementing and more frequent cleaning.

Agroforestry and Greenhouses. The short life of the project and short-term monitoring system and did not allow WINNER to meaningfully evaluate the impact of its agroforestry campaigns on soil erosion and the change in biodiversity. The extent to which the project achieved its goals will likely continue to be difficult to determine unless a long-term monitoring system is put into place to capture impact seven or more years in the future when tree growth and its secondary effects are more prominent.

The project's approach to greenhouses was not built on sound prior assessment, nor customized to the communities' needs, which negatively affected beneficiary ownership and buy-in, satisfaction with the intervention, and did not result in behavior change. Greenhouses are very water intensive, yet were built in communities that were already struggling to meet their basic needs for household water. The introduction of greenhouses late in the project meant that beneficiaries did not receive adequate training and support to maintain and repair the greenhouses and drip irrigation systems. Thus, considering the context and the conditions under which the greenhouses were rolled out, it is difficult to definitively say that the greenhouses were successful in offering the alternative to hillside agriculture as envisioned by WINNER. In addition, the failure of early adopters to show that greenhouses would increase farm profitability failed to encourage new farmers from investing in this technology.

Watershed Governance. Governance issues are a real constraint to the sustainability of project activities, such for overburden removal around dams, maintenance of reforested areas, and the protection of vulnerable populations against deforestation and construction of anarchic structures. The continued struggle faced by water user associations and the government to clear sediment and rubble lead the evaluation team to conclude that WINNER has not promoted sufficient local, government, and stakeholder participation, commitment, and shared responsibility in maintaining and protecting watersheds.

WINNER faced many challenges in effectively collaborating with government to ensure sustainable implementation of watershed protection activities, including frequent turnover at government ministries, competing political priorities, and the pressure on WINNER staff to show quick results. The project's limited involvement with ministries, local government, and water user associations during implementation and follow-up after WINNER compromises the sustainability of some interventions and does not protect against future conflict between communities over water management issues.

RECOMMENDATIONS

1. **Continue watershed interventions.** Successful interventions, such as dry walls, gabions, and canal building and cleaning, should be continued, making sure to address the weaknesses identified by this evaluation (i.e., the need to increase the integrity of canals, complete all structures, ensure canals are cleaned regularly, and support mechanical interventions with reinforcing biological approaches).

2. **Conduct community assessments.** WINNER should conduct comprehensive assessments of community priorities and capabilities before introducing new technologies. For example, greenhouses should only be introduced in localities with sufficient access to water, or else the

project may consider increasing the water storage capacity of farmers in areas where there is no permanent access of water. If greenhouses are truly to be used as a means of reducing erosion, further assessment on its effectiveness for this purpose is required, taking into consideration the fact that many farmers in Haiti are limited to steeply sloped land that does not allow for greenhouse construction.

3. **Establish long-term agroforestry monitoring plan.** WINNER and USAID should consider establishing a plan for long-term monitoring of agroforestry interventions where outcomes are not expected for many years after project completion.

4. **Collaborate with government for sustainability.** For ownership and sustainability of completed interventions, future projects should effectively collaborate with government institutions, including the Direction of Civil Protection, the CIAT, the MDE, Bureau Agricole Communal (BAC), the CASEC, and the ASEC. For example, WINNER could work in close partnership with the CIAT[11] to help to increase protected areas in Haiti through agroforestry. These actors should be integrated from the stage of conceptualizing project activities, through their implementation and transfer to the communities – including the watershed management bodies mentioned by WINNER in the Performance Management Plan (PMP).

EVALUATION QUESTION 3: What is the impact of market information in guiding farmer production and marketing decisions?

WINNER APPROACH

WINNER activities aimed to strengthen access to agricultural markets through an ambitious set of investments in road and market infrastructure, cooperative development, product branding, the promotion of private sector development, and improved access to timely, relevant market information.[12] WINNER rehabilitated the Fonds Baptiste road in the Matheux corridor to improve market access. The project established the nationally recognized "Asosyasyon Chanpyon" brand, working with certified associations and establishing regional cooperatives in the Cul-de-Sac and Matheux corridors. Through these associations, farmers were able to improve their access to markets, learn about improved cultivation and post-harvest techniques, and benefit from more efficient transportation of produce to markets, including hotels, supermarkets, and resorts. While these investments were highly visible and strongly appreciated by participants in all FGDs, the present evaluation question focuses specifically on WINNER's system for market information dissemination through mobile phones (via SMS), REAs and CRDDs.

According to WINNER's final report, the project sent regular SMS messages in Creole to some 8,000 farmers through the "Koze Payzan" program. The intent was that through SMS messaging, farmers could access timely information on farming techniques, the availability and prices of inputs, and prices of major crops in different locations and output forms. Market information was collected at the regional level

[11] CIAT missions cover the different areas of regional planning: urban planning, land use, water management and watershed management, regional development. Six government ministries are represented inside CIAT: the Ministry of Planning (MPCE), the Ministry of Interior and Territorial Collectivity (MICT), the Ministry of Public Transport (MTPTC), the Ministry of Agriculture (MARNDR), the Ministry of Environment (MDE), and the Ministry of Economics and Finance (MEF).

[12] Market information can be defined as data collected, assessed, tabulated, and disseminated about a firm's market environment, particularly factors affecting the demand for specific outputs and supply of inputs. Such data can be supplemented by information on production technologies and other issues relevant to decision making by market participants.

through the CRDDs and was shared with WINNER staff responsible for sending the SMS messages. In addition to the SMS system, WINNER disseminated market information through the WINNER technicians (REAs) and the CRDDs.

The three information sources have different implications for accessibility. SMS messages are available anytime/anywhere to anyone with a cell phone. The evaluation survey found that 84% of respondents (257 of 307) had mobile phones. WINNER's feasibility study for the SMS system conducted a separate survey which found that 90 percent of respondents owned mobile phones, and 75 percent of those who did not own a phone had access to or shared one.[13] As such, SMS messages could reach essentially all WINNER participants. In contrast, gaining information from the REAs and CRDDs requires more face-to-face interaction, and associated travel time and costs.

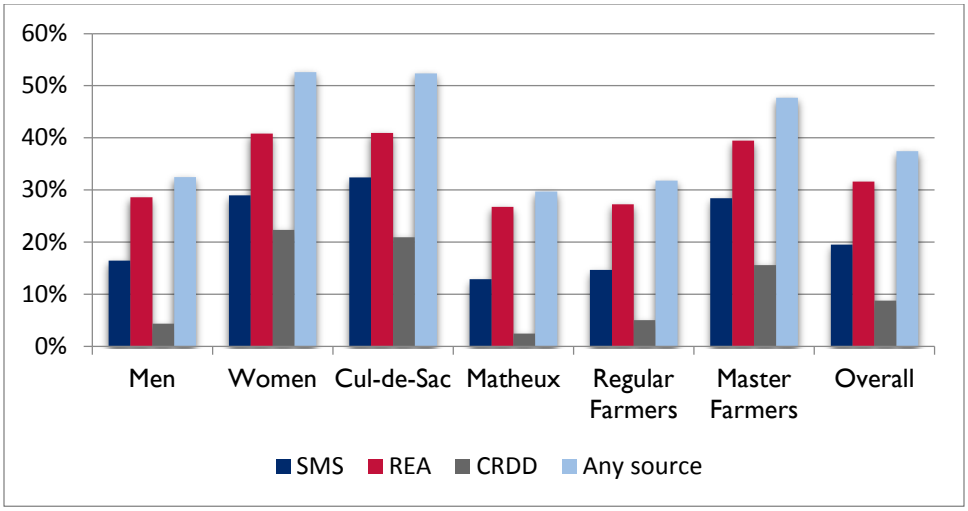
FINDINGS

The farmer survey asked whether or not farmers accessed the three WINNER market information sources, and whether or not the information was used for making marketing decisions (time, location, price, and type of crop to sell). The survey also asked for farmer perceptions about the usefulness of WINNER information in increasing sales and guiding planting decisions. The analysis examines three dimensions of the system's effectiveness: (1) outreach, i.e., the percentage of people who accessed the system; (2) relevance of the information received; and (3) impact of the information on decision making.

Only a small share of respondents reported receiving market information from WINNER. This is the case for respondents in the evaluation's quantitative survey as well as the qualitative interviews. In the survey sample as a whole, only 37% of respondents received market information from any WINNER source (Chart 11). Twenty percent of respondents were reached by the SMS system. The REAs were the most commonly accessed source, followed by SMS and the CRDDs. Women received WINNER information far more often than men (53% vs. 32%), which likely reflects their greater role in daily market transactions. Outreach was much wider in Cul de Sac as compared to Matheux, and wider among Master Farmers as compared to regular farmers. Although not shown in the chart, farmers in the highlands received WINNER information far less often than plains farmers. For information from the REAs and CRDDs, this reflects the relative isolation of the highlands, but even the SMS system was accessed by only 11% of the highland farmers.

Chart 11: Outreach: percent of total sample receiving WINNER market information (N=307)

[13] USAID-WINNER, "SMS Agriculture Extension and Market Information Service Feasibility Study, Business Model, and Implementation Options," Final Report, March-April 2010.



Among the minority of respondents who accessed WINNER information, almost all (about 90%) rated the information as useful or very useful, and said they used the information to make decisions on crop sales and planting (Table 15). Thus, overall, the system appears to have limited outreach, but performed much better in terms of its relevance and impact for WINNER beneficiaries who could access it.

Table 15: Reach and impact of WINNER information

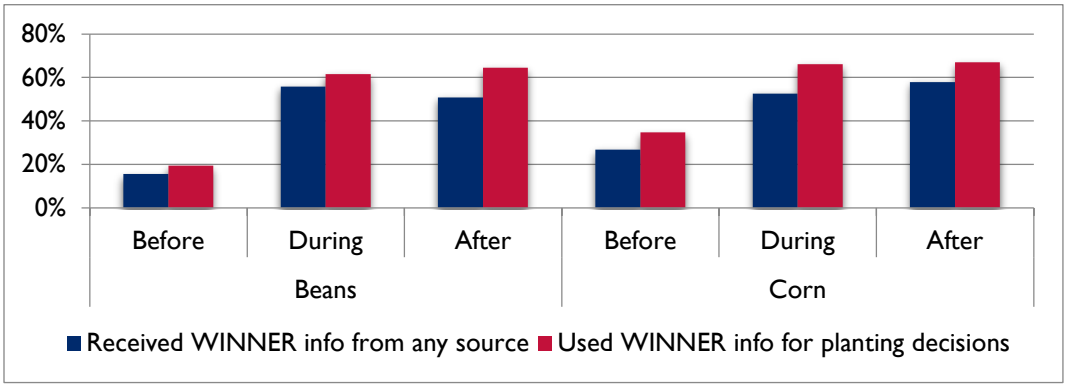
		Of respondents who received WINNER market information:						
		% Rating information useful or very useful		**% Using the information for decisions on:**				
	% of total sample reached	Overall	For increasing sales	Crop selling price	Timing of crop sale	Location of crop sale	Form of crop to sell	What crop or how to plant
SMS	20%	87%	90%	95%	95%	95%	93%	93%
REA	32%	92%	86%	85%	85%	82%	82%	81%
CRDD	9%	85%	93%	93%	93%	93%	93%	89%

REAs had greatest outreach (32%) and were rated highest for the overall usefulness of the information provided, but had the lowest impact on decision making and crop sales. Only 9% of the respondents obtained market information through the CRDDs, with women and Master Farmers being relatively frequent users. However, when accessed, all sources were influential in farmer decision making. Respondents tended to respond uniformly to individual questions about decisions on selling price, timing, location, and on their decisions about which crops to plant. In other words, if the information was used, it was used for all major marketing decisions, as well as decisions on crop planting.

Access to and use of WINNER market information in planting decisions is associated with differences in crop yields, although it is not possible to establish any cause-effect relationship given the confluence of factors that affect productivity. The differences are clearest for beans and corn (Chart 12). Bean and corn farmers who accessed and used WINNER information had somewhat higher yields before their participation in WINNER, and achieved much larger yield increases while participating in WINNER as compared to farmers who did not access or use the information system. Moreover, it appears that their higher productivity was sustained after their participation in WINNER ended. For rice, the yield differences are less consistent, reflecting smaller sample sizes and greater regional variation in rice productivity. However, rice farmers who accessed/used WINNER market information had larger yield

increases during their participation in WINNER. Differences in plantain yields by information access and use are similar but smaller. Detailed tables on all crops, including sample sizes, are in Annex VI.

Chart 12: % difference in yields of (1) farmers who received WINNER information from any source & (2) farmers who used WINNER information for planting decisions, as compared to farmers who did not receive or use WINNER information[a]



[a] Before, during and after refer to the periods of farmer participation in WINNER activities.

The FGDs allowed for an open-ended exchange of participant views, and thus provided a broad perspective on the system's impact and benefits. In discussing market access, FGD respondents tended to focus on WINNER's larger and more visible investments – road improvement, the Mache Peyizan farmer's market, and the creation of the Asosyasyon Chanpyon brand – rather than on market information per se.[14] Similar to the formal survey, the FGDs revealed that market information was not widely received by farmers. Master Farmers and association leaders were more likely to know about the SMS system, whereas the majority of regular farmers in FGDs had never heard of it. WINNER project staff acknowledged that the system as a whole was not adequately supported by project resources, especially dedicated staff.

The FGDs with farmers suggest that technical information disseminated through the SMS system, REAs, and CRDDs was generally relevant, reflecting the agricultural calendar with messages tailored to the season. For example, during the planting season, messages focused primarily on planting techniques, and the prices and sources of agricultural inputs. During the harvest season, the SMS system covered harvest techniques, marketing tips, and crop prices in local markets. Key informants from the project as well as cooperatives also reported that the sharing of the national prices of fertilizers and other inputs at BIAs promoted transparency by letting farmers know the correct prices and thus encouraging the BIAs to standardize them. At the same time, the discussions indicated that the SMS information, while generally relevant, could have been better targeted to growers of specific crops. Some key informants (WINNER staff) familiar with the SMS system felt that the system was used excessively for alerting farmers about meetings, upcoming training opportunities, and services at the CRDDs, which distracted them from the main focus on market prices and input availability. Thus some FGD participants complained about receiving too many SMS messages that were often not targeted at their specific needs. In addition,

[14] Over and above the challenges of implementing the market information system, the FGDs showed consistently that WINNER's financing of road improvement and establishment of the Chanpyon brand were highly effective in increasing access to markets, especially the Mache Peyizan farmers market, but also hotels, restaurants, and supermarkets. This Chanpyon brand is widely recognized as a seal of quality. Future expansion of Chanpyon associations and cooperatives, coupled with increased management and business training, will serve Haitian farmers well.

WINNER staff reported that the SMS system was somewhat short-staffed, which made scale up difficult to implement.

When they learned of the benefits of the SMS system from their peers in the FGDs, farmers who were previously unaware of the system expressed frustration because they felt excluded from the program. They indicated they would have benefited from knowing the prices in nearby markets in order to make the best decisions on the timing and form of crop sales. While the evaluation team found that REAs and CRDDs were a useful source of market information for farmers and REAs, CRDDs were never reported as having promoted the SMS system.

WINNER project staff explained that the registration system relied on association leaders to submit farmer contact information to WINNER, and there was no way for farmers to register themselves directly. WINNER staff reported that the registration system was not set up to send specific messages catering to the specific crop needs of each farmer; as such, information was sent out on a regional level, with farmers sometimes receiving up to 15 messages in a day. The SMS system did not record the gender or location of farmers, which could have been used to target messages and track usage of the system by different participants. Instead, monitoring of usage of SMS information was carried out via in-person surveys and assessments in the field.

At the time of fieldwork for the evaluation, the SMS system was no longer operating and the dissemination of market information was limited. The evaluation team interviewed one key informant from an Asosyasyon Chanpyon cooperative in Kenskoff that has continued to collect and distribute market information on its own initiative. After the close of WINNER, cooperative leaders set up a system to collect information on crop prices which is printed and shared with members.

CONCLUSIONS

Taking into account the results of the quantitative survey as well responses from informants during FGDs, overall access to WINNER market information was quite low. The fact that almost two-thirds (63%) of farmers did not receive any sort of market information from WINNER explains the high rates of non-response to the survey's questions about the use and value of this information. Nonetheless, the apparent value of the information to those who accessed it indicates strongly that more could be done to strengthen and institutionalize the system, particularly SMS messaging.

At 20% outreach, use of the SMS system is surprisingly low given that almost all respondents had cell phones. The SMS system thus potentially had much wider outreach at little incremental cost. The FGDs suggest that the SMS system was not adequately publicized, a missed opportunity for WINNER. Regular REA visits to farmer communities and associations depend upon budget availability, while accessing information from the CRDDs required travel time for farmers, which was particularly difficult for highland and other remote farmers. However, the SMS system could have been be accessed by almost all farmers, even those who did not participate in other WINNER activities.

A well-designed SMS system could have significant impact on farmers, but the evaluation team concludes that, given the wide scope of the WINNER project, the implementation of a market information system was not among the highest priorities for the project. It is evident that the SMS messaging system was only a small component of WINNER's larger financing of activities to strengthen agricultural markets. The information system was lightly staffed due to competing project priorities. Even among key informants employed by WINNER, there was confusion around the extent to which the project systematically collected and disseminated prices of crops in local markets.

The fact that the responsibility of collecting the information fell largely to CRDD staff who passed the information to the WINNER project for dissemination to farmers suggests that the strength and quality of regional market information reaching farmers may be affected by the management and organizational challenges at the regional level, including varying levels of management ability and high REA turnover reported by project beneficiaries.

The evaluation team concludes that the registration system for SMS market information had significant gaps which kept it from reaching many potential beneficiaries. Reliance on association leaders to register farmers in the system is not an effective mechanism to ensure that all farmers are reached.

Despite high ratings on usefulness by those who accessed the market information, the absence of a built-in system to monitor usage and gather farmer feedback leads the evaluation team to conclude that improvements are possible to better target the system to meeting specific farmer needs by crop, region and gender. Women are responsible for the majority of marketing activities. Targeting of messages by gender was a potential opportunity to address women's needs. WINNER staff were correct to limit the frequency of messages, recognizing that too many messages in one day would lead to fatigue. Nonetheless, some farmers suggested that the number of messages received for various purposes, often irrelevant to them, was at times distracting and unmanageable. Tailoring and streamlining messages could greatly enhance the relevance and impact of the system.

Since so many farmers who were able to receive messages reported that they used the information to make marketing decisions, the evaluation team concludes that, when coupled with more efficient transportation to markets and better methods for storing farm produce (see *Evaluation Question 4: Post-Harvest Losses*), market information is an important tool for promoting agricultural growth. This is also evidenced by the association between the use of market information and crop productivity. Timely information on market conditions and prices, combined with information on agricultural technology, weather forecasts, and other relevant topics promotes transparency and empowers farmers to make better decisions. Greater targeting of messages to the geographic, crop, and gender-specific needs of farmers would further enhance the system's relevance and effectiveness. Associations, cooperatives and other participants need specific, dynamic training on the collection and dissemination of market information for an SMS system to be sustainable.

RECOMMENDATIONS

1. **Allocate adequate resources.** If a market information system is truly a priority and if it is to be effective and sustainable, it must be adequately staffed and managed, and funded accordingly to ensure the rollout, piloting, testing, monitoring, and management of the system.

2. **Publicize and target the SMS system.** The market information system would have benefited from an initial publicity campaign on the availability and benefits of the system, and how farmers could register. Registration should be as easy as possible, e.g., through a toll-free number or missed call system rather than manually through farmer associations. Registration should include options for specifying the crops and types of messages to receive.

3. **Monitor use of the system.** To improve quality and relevance, there should be consideration of building in automated monitoring technology such as call-back surveys to determine how and when farmers use the system and to get feedback on their level of satisfaction.

4. **Establish a permanent home.** Future efforts should find an institutional home that does not rely on continuing external resources. In the case of WINNER, the successes of the Chanpyon brand,

Mache Peyizan, and the network of WINNER cooperatives present potential entry points. One possible exit strategy would view the market information system as a business venture to be financed by modest user fees. For this to be achievable, the system would need to have much wider participation, offer better targeted information, and be supported by training and business planning for effective management.

5. **Collaborate with other agencies to ensure efficiency.** CNSA (Coordination Nationale de la Securite Alimentaire) and the MARNDR statistics department are government entities responsible for collecting and disseminating market information. In addition, some NGOs and other externally financed projects disseminate market information. To ensure efficient development, greater collaboration is encouraged with all of the relevant stakeholders.

EVALUATION QUESTION 4: To what extent have project interventions actually reduced post-harvest losses?

WINNER APPROACH

Post-harvest losses occur due to inadequate drying, processing and storage of crops between harvest and sale or final consumption. According to the WINNER results framework, post-harvest loss falls under the third objective, "Agricultural Markets Strengthened," with the theory of change being that lower post-harvest losses raise farmer income and enhance food security. The WINNER post-harvest techniques for the focus crops fall into two main categories: grains and plantains. In addition, WINNER promoted post-harvest loss techniques for cash crops such as mangoes and vegetables, which are not assessed in this evaluation.

Grains. Traditional storage practices give rise to significant stock losses due to mold and pest infestation. To address this issue, WINNER provided farmer associations with equipment and tools such as silos, humidity gauges, tarps and jute bags, threshers, and mills to reduce post-harvest losses of grains. The silos distributed were small enough that they could, in principle, be easily transported to associations and had an average capacity of 1.5 tons to support long-term community grain storage. Humidity gauges were used to monitor humidity conditions inside the silos to ensure appropriate storage conditions. Additionally, threshers reduce grain losses and reduce the time and labor required to process the harvest. Lastly, jute or sisal bags facilitate effective storage and transportation of the grains, while the mills add value to the crops harvested.

Plantain. Poor handling and transportation practices contribute to post-harvest plantain loss in Haiti. Farmers typically carry the product from their villages to the market either by donkey or moto taxi, which affects the appearance, freshness and value of the products and leaves them vulnerable to spoilage. In addition, traditional methods of cutting are not ideal and reduce the duration of storability. WINNER assisted farmers by introducing better practices for the cutting, packaging and transporting the crop through the use of mobile collection centers, and sorting and packaging in crates. Contrary to the traditional methods of cutting and loading plantain, the post-harvest techniques promoted by WINNER built the capacity of farmers to improve the packaging and appearance of their product, allowing them to establish partnerships with hotels and resorts, as well as to sell in the Mache Peyizan farmer's market established by the project.

FINDINGS

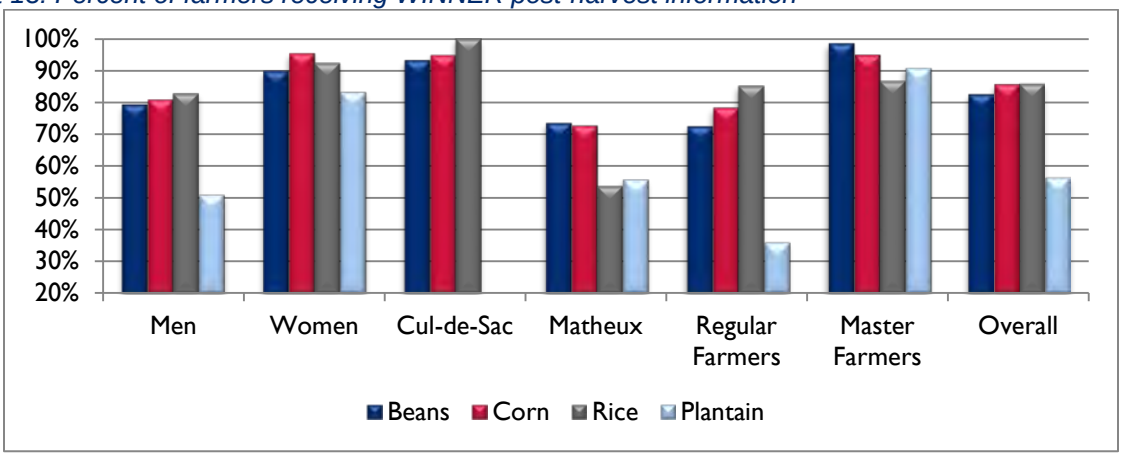
Farmer Survey

The survey asked farmers to estimate post-harvest losses by crop before, during, and at the time of the survey - after their participation in WINNER. The questionnaire also asked about the farmers' exposure to and application of information that WINNER provided on post-harvest handling techniques, including the use of equipment that WINNER provided, such as humidity gauges, tarps, hullers, silos, and mobile collection units.

The analysis addresses a sequence of questions: First, how many farmers received information from WINNER on post-harvest handling? Second, of those who received post-harvest information, how many actually used the recommended methods, and for which crops? Third, what impact did the recommended methods have on post-harvest losses? The charts below highlight the principal findings, and are drawn from the detailed tables contained in Annex VI.

In general, WINNER was effective in reaching farmers with post-harvest information and in supporting their use of one or more recommended methods. There are important variations, however, in outreach and adoption by crop, region, and farmer status. As shown in Chart 13, more than 80% of the bean, corn, and rice farmers received post-harvest information. Meanwhile, only 56% of the plantain farmers received this information, even though plantain is the most perishable of the four crops.

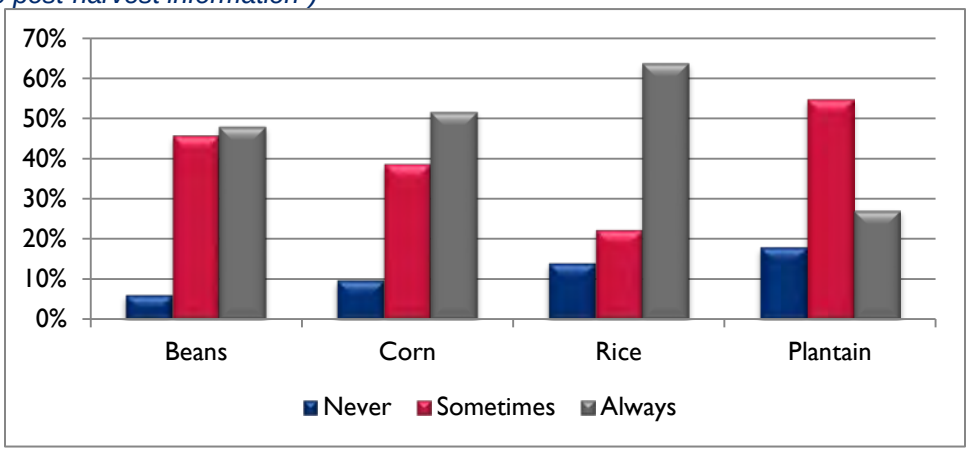
Chart 13: Percent of farmers receiving WINNER post-harvest information[a]



[a] Percentages calculated over the farmers who planted each crop.

Of those receiving the information, the great majority used at least one WINNER-recommended post-harvest method during WINNER's implementation (Chart 14). Women received post-harvest information more frequently than men for all crops. As shown in the appendix tables, women also used the information more frequently than men to apply one or more WINNER post-harvest method for all crops except plantain. As was the case with agronomic techniques and market information, gender differences in access to post-harvest information reflect task specialization by gender, with women being relatively more involved in post-harvest and marketing activities as compared to men.

Chart 14: Percent of farmers applying one or more recommended post-harvest methods (of those who received the post-harvest information[a])



[a] Percentages calculated over the farmers who planted each crop. The questionnaire did not ask about the time period when the technique was used (e.g., before or during the respondent's participation in WINNER).

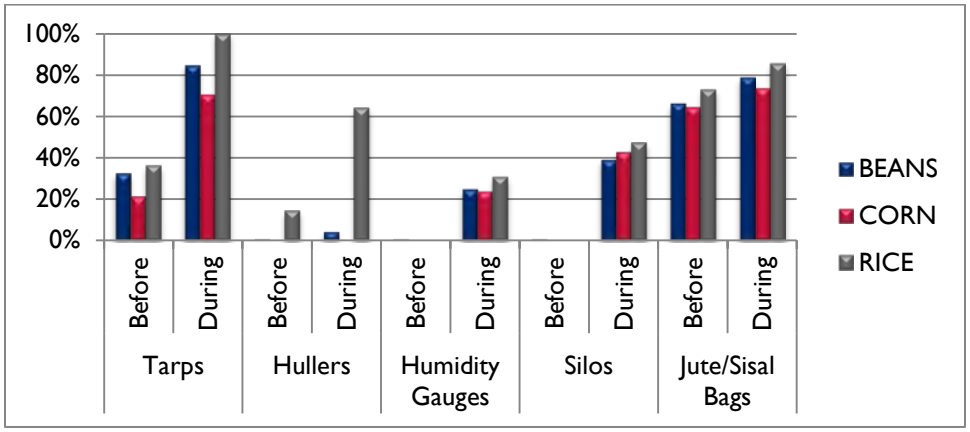
Farmers in Cul-de-Sac received post-harvest information far more frequently than those in Matheux and were far more frequent users. Master Farmers received post-harvest information more frequently than regular farmers, with the difference being especially large for plantain, and they were much more likely to be regular users of this information across all crops. Overall, farmers in the plains received and applied post-harvest information more frequently than those in the highlands.

The quantitative data indicate that WINNER appropriately targeted the distribution of the larger and more sophisticated post-harvest equipment (rice hullers and plantain mobile collection units) to focus on the major production centers, e.g., the Thomazeau plains for rice hullers and Matheux for plantain.

However, the survey provides no clear evidence on the geographical targeting of silos and humidity gauges. Except for tarps and jute bags, most of this equipment was to be owned and managed by the cooperatives and associations. The FGD data, presented below, provides findings on the challenges of community-level management.

The post-harvest techniques promoted by WINNER differed in usage and popularity (Chart 15). Silos, humidity gauges, and, with the exception of a few rice farmers, hullers were entirely new technologies introduced with WINNER support. In contrast, significant numbers of farmers were already using jute or sisal bags and tarps for drying and storage even before they participated in WINNER. The hullers proved popular with rice farmers during WINNER, but were not widely used for beans. Humidity gauges, a relatively low-cost investment ($100 or less), were used by less than a third of the farmers. Silos were used by about 40-50% of farmers depending on the crop. As noted above, the hullers, silos, and humidity gauges were managed at the community level, but tarps and bags had traditionally been and continued to be used at the household level.

Chart 15: Percent of farmers using post-harvest techniques before and during their participation in WINNER[a]



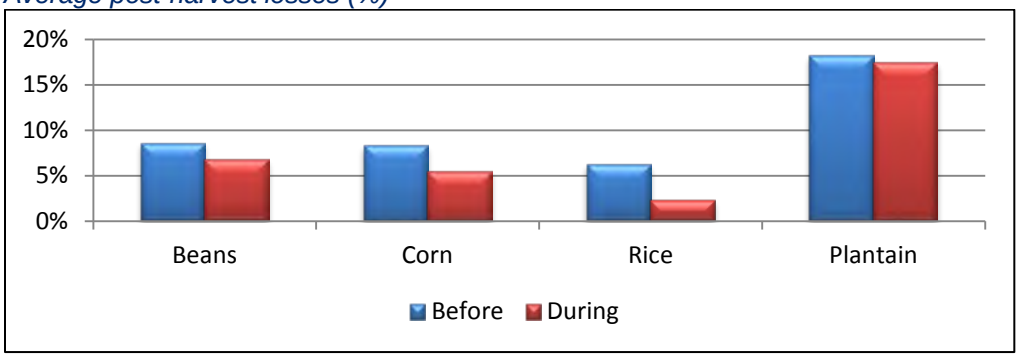
[a] Samples include farmers who planted the crop and reported post-harvest losses. Hullers were not used for corn.

In the case of plantain, the three introduced techniques (packing frames, packing crates, and mobile collection units) were also essentially new to farmers when they joined WINNER. They were not widely applied during WINNER, when 19% of the plantain farmers reported using packing frames, 31% used packing crates, and only 3% were able to access the mobile collection units. Detailed tables on all crops, including sample sizes, are in Annex VI.

As shown in Chart 16 and Table 16, post-harvest losses declined for all crops during the period when respondents received WINNER support, including beans (21% lower), corn (34%), rice (63%), and plantain (4%). However, the declines are smaller than reported by Chemonics International,[15] due most likely to variation in respondent recall and/or differences in types of data points. Women farmers did significantly better than men in reducing losses across all crops. For beans and corn, the average reduction in losses was much higher in Cul de Sac as compared to Matheux. Master Farmers did better than regular farmers for beans and rice. There was no notable change in plantain losses for regular farmers.

[15] USAID-Haiti, "Assessment of Post-Harvest Loss Reduction due to Project Interventions," report prepared by Chemonics International International Inc. under WINNER contract No. EPP-I-0404-000200-00, March 2014.

Chart 16: Average post-harvest losses (%)[a]



[a] Changes are measured from the time before farmers participated in WINNER to the period during which they participated.

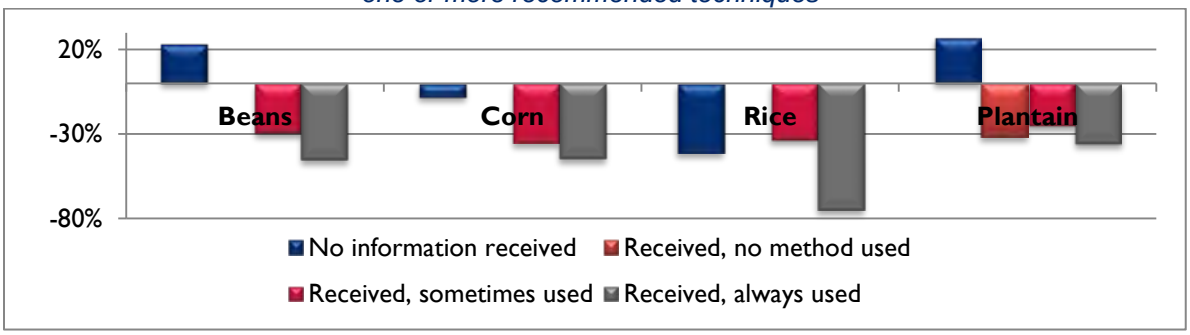
Table 16: Change in Post-harvest Losses

	Beans	Corn	Rice	Plantain
Men	-13%	-25%	-58%	2%
Women	-35%	-51%	-73%	-32%
Cul-de-Sac	-60%	-61%	-64%	--
Matheux	-1%	-9%	-55%	-3%
Regular Farmers	-16%	-37%	-56%	0%
Master Farmers	-28%	-31%	-72%	-12%
Overall	-21%	-34%	-63%	-4%

[a] Changes are measured from the time before farmers participated in WINNER to the period of their participation. The small Cul-de-Sac plantain sample (2 farmers) is omitted.

Farmers who received WINNER post-harvest information and regularly used one or more recommended techniques were generally able to achieve higher reductions in post-harvest losses (Chart 17), with the largest reduction (73%) being for rice. Average losses rose by about 25% for bean and plantain farmers who did not receive or apply WINNER post-harvest information. Because the more sophisticated, community-based techniques such as silos and humidity gauges were almost entirely new to the communities under WINNER, it is not possible to make before-after comparisons of their effectiveness.

Chart 17: % Change in post-harvest losses by receipt of WINNER post-harvest information and use of one or more recommended techniques[a]



[a] Changes are measured from the period before farmer participation in WINNER to the period of their participation. Samples with less than 5 observations are omitted. Due to small samples and data outliers, some results are omitted for beans, corn and rice. Annex VI contains complete tabulations of all data.

For beans, corn, and rice, average losses increased slightly after farmer participation in WINNER ended, but were still lower than before their support from the project. Similar to the findings on agronomic practices and crop yields, the slight rise in losses reflects the end of support provided to farmers after they left the WINNER program. In the case of plantain, however, losses continued to fall even after farmer participation ended, which may reflect better knowledge of the introduced techniques and possibly seasonal or year-to-year variations in temperature, humidity, and other factors that affect storability. Detailed tables on all crops, including sample sizes, are in Annex VI.

Qualitative Findings

Grains. Association leaders who received mills from the project confirmed the usefulness of the threshers as well as the mills, which greatly reduced the time and cost associated with milling grains by hand. The mills and threshers provided by WINNER are still in good use and help farmers associations minimize grain loss and add value to their products. Tarps and jute bags, which were more widely distributed through associations, were also recognized in farmer FGDs as being very useful for post-harvest management.

The evaluation team found that the humidity gauges were used to a lesser degree due to a general lack of training and understanding of how they worked. Several Master Farmers and beneficiaries from the associations reported not using the humidity gauges because of a lack of interest or mastery of the instrument. However, the farmers who received training on humidity gauges responded favorably, stating, "We use this to control the humidity rate of the grain; it helps us to know how to store the harvest. Before, we did not know how humid it was, we did not know how to store the grain. The humidity meter is owned by the association. Each person goes to the association's house for this service."

A major finding in our interviews and field observations is that the majority of silos visited were empty or had been underused for a significant period of time. Many respondents worried about the silos' grain storage security, as there were no locks and the release receptacles were not sturdy. Some silos are not well installed or protected from the sun, which can cause the temperature inside to rise above 47 degrees Celsius, negatively affecting the grain quality. It is important to note that since the silos were managed by communities and associations, farmers in the survey were responding about their use of a community-managed facility. As such, the survey findings on silos and crop losses reflect the quality of community rather than individual management.[16]

Many farmers said that their harvests were small, so they had no need to store produce for long periods as they quickly sold or consumed most of the harvest. In lowland areas, many farmers reported they do not follow the practice of storing their grains for use as seed for the next campaign, because they only have one main season. Farmers in Kenskoff indicated that they followed drying and storage practices depending on the type of beans, indicating that it is more profitable for them to sell wet beans rather than to dry and store them. Most significantly, farmers claimed they did not use the silos because it is not traditional for farmers to use group storage. Some even complained that the silos were too big as a group storage unit, inconvenient, and possibly insecure since they were located away from their homes.

The evaluation team found that the limited number of farmers who were using silos and humidity gauges tended to be from cooperatives or high-functioning associations managing contracts that commit them

[16] The same applies to other WINNER post-harvest techniques managed at the community level, i.e., grain hullers, threshers and humidity gauges.

to deliver a certain quantity for sale. For example, Group Fanm Vanyan Bethel (GFVB, a women's association in Cabaret) reported benefitting from the silos since they buy grain maize, beans, and sorghum from the farmers to store and sell. Those women also reported that they regularly used their humidity gauges to check the moisture content of grain at the time of purchase. Similar findings came in the team's discussions with other associations, such as Groupe des Femmes Vaillantes de Cotin-Thomazeau, Lamardelle en Action, and Association des travailleurs pour le Developpement de Merceron. Trade cooperatives also reported benefiting from the WINNER post-harvest materials in their daily operations.

Plantain. Interviews with farmers and associations confirm the survey findings that the post-harvest plantain techniques taught by WINNER were not widely adopted, and usually only by farmers belonging to Chanpyon associations and cooperatives. Farmers reported that the packaging and presentation techniques they learned from WINNER were useful as long as WINNER was there to help them maintain a connection with hotels, resorts, or the WINNER-established Mache Peyizan farmers market in Port-au-Prince, which caters to upper-middle class Haitians and expatriates. Without connections to these higher-end buyers, many farmers no longer see the point of using the WINNER methods, stating that it's a waste of time and labor if they are only going to sell in local markets.

CONCLUSIONS

Post-harvest losses for all focus crops declined during WINNER. Among bean, corn, and rice farmers, there was generally much more frequent use of relatively simple, on-farm techniques (tarps and jute or sisal bags) as compared to more sophisticated, community managed equipment (silos and humidity gauges). Few plantain farmers were able to use the techniques recommended by WINNER. The quantitative and qualitative findings both suggest that the community-based interventions (silos, humidity gauges, and everything tried for plantain) were not as widely accepted as the simpler household technologies that were still widely used at the time of the survey.

The fact that the post-harvest equipment offered by WINNER is being most commonly used by cooperatives and high-functioning Chanpyon associations suggests that focusing on high-performing and well managed cooperatives and associations will have a larger impact on reduction of post-harvest loss. When working with farmers from weaker groups, further sensitization and operational training are required if they are to sustain the practices and maintain contracts with high-end clients that demand products of a higher quality.

Selected WINNER approaches, such as the distribution of tarps, jute bags, threshers, and mills are appropriate and badly needed, so farmers and associations have continued to use them. For threshers however, their effectiveness is somewhat conditional upon continued availability of tractor services (discussed in Evaluation Question 1). When considering post-harvest loss equipment, deeper assessment is required of farmer needs and the suitability of new equipment such as silos. Given the conditions of the WINNER intervention areas, silos can be a viable initiative only for well-organized associations with high capacity and commercial orientation. Even when silos appear to be a viable option, greater training is need on installing and managing these structures in order to ensure sustained use.

The fact that plantain post-harvest methods have been largely abandoned leads the evaluation team to conclude that farmers did not perceive sufficient economic benefit from the WINNER practices. The socioeconomic impact of the post-harvest methods for plantain was not assessed sufficiently. Post-harvest techniques for plantain promoted by WINNER continue to be seen as costly for planters of the region, suggesting that farmers are unable to maintain access to higher-end markets. The limited adoption of WINNER methods thus suggests the need for deeper analysis of farmer linkages to markets.

RECOMMENDATIONS

1. **Strengthen targeting of innovative solutions.** WINNER should consider conducting a targeted needs assessment in partnership with the associations. Rather than promote a "one-size-fits-all" approach, the follow-on Feed the Future project should consider the specific post-harvest needs and capacities of farmer associations, collaborating with these groups to define the technical solutions required, evaluate their use, and readjust if needed. The needs assessment for both grains and plantain should take into consideration how products are marketed, and use a cost-benefit analysis to assess the appropriateness of alternative technologies.

2. **Strengthen assessment of capacity.** The project should work with high-capacity cooperatives and associations and provide targeted management and sensitization training for weaker organizations. To improve success rates for changing post-harvest practices, the new project should be more selective about the groups it supports, tailoring approaches based on association and community capacity for collective effort, as well as market opportunities.

3. **Introduce appropriate and innovative technology.** Since grain production from individual farms is very low, silos are community-level investments. Simpler forms of storage such as jute bags and tarps should generally be the default option, since most farmers are capable of using these methods on their own. In addition, there are other approaches to crop loss management worthy of exploration. The new project could collaborate with the USAID Support to Agricultural Research and Development Program (SARDP) to explore the use of natural forms of methods to preserve grain and keep seed safe. Such innovative technologies are worth exploring since they are environmentally safe and could present potential advantages to farmers who would not need to depend on outside suppliers for materials and chemical pesticides.

4. **Strengthen silo management training.** If silos are to be promoted under the new project, there should be better training of farmers and associations to sensitize them to the uses and benefits of silos, how they are to be constructed (including protection from the sun) and maintained, and establish a transparent system for community management. In addition, the new project should provide silos with locking mechanisms to deter theft and to encourage farmer confidence about security.

5. **Continue to focus on women**. Women are more likely to be involved in activities geared toward marketing and sales. WINNER should ensure that post-harvest activities and campaigns be largely targeted towards women, taking into consideration their household responsibilities and availability for training and sensitization campaigns.

ANNEXES

ANNEX I: EVALUATION STATEMENT OF WORK

I. Objective and General Description of the Contract

The purpose of this Statement of Work is to guide a final performance evaluation of USAID/Haiti's Watershed Initiative for National Natural Environmental Resources (WINNER/Feed-the-Future-West) Project. WINNER is a five-year multifaceted project designed to comprehensively build Haiti's agricultural infrastructure, capacity, and productivity by providing concentrated and transformative support. The long-term vision of the program is: People living within targeted corridors will have improved livelihoods, reduced threat from flooding, and have invested in sustainable agricultural development in the selected corridors.

The project, as amended in March 2011 is focused on building and strengthening Haiti's agricultural foundation, particularly in the Cul-de-Sac and Matheux Corridors, and the mango chain in the area around Mirebalais. WINNER is being implemented over a five year period June 2009- May 20 14) with total funding of $127 million to increase farmer productivity and reduce Haiti's environmental, infrastructural, and economic vulnerability.

This evaluation will determine the impact of WINNER's strategy and activities. As a result, the evaluation is expected to help guide and optimize the effectiveness of successfully implementing activities and provide lessons learned for future similarly focused USAID/Haiti projects such as Feed the Future-North. The primary stakeholders for this evaluation and consumers of information resulting from this evaluation include USAID, the Government of Haiti, Chemonics International and its subcontractors, and various Haitian agricultural institutions. The evaluation team conducting the evaluation is expected to comply with the USAID Evaluation Policy.

II. Background

Basic Project Data

- Project Name: Watershed Initiative for National Natural Environmental Natural Environmental Resources (WINNER)
- Award Number: AID-EPP-I-00-04-00020
- Award Date: 01/06/2009
- Implementing Partner: Chemonics International
- Project Manager: James Woolley

WINNER implements an approach centered on farmers and aimed at reversing the course of economic and environmental decline. The project is assisting farmers to acquire the resources and capacities to become more productive and generate higher incomes in a sustainable manner that protects the environment.

WINNER's approach rests on five principles to facilitate a common vision and behavior that instills a sense of ownership in farmers living in targeted watersheds. The principles are:

- Speed and focus. Intervene rapidly and generate tangible results, but remain focused on the WINNER purpose and maintain continuous support to stakeholders in the project's zones of intervention.

- Impact. Concentrate our efforts and resources in areas where we can clearly maximize our impact in terms of risk reduction and improved livelihoods.
- Hope and empowerment. To stop the spiral of increasing environmental degradation and expanding poverty, work closely with farmers and provide them with enough resources and training to give them hope and a chance to improve their lives.
- Support for good governance. Working partnership with the government; make sure activities are consistent with, and advance, government plans and approaches
- Sustainability. Set up the structures and mechanisms that will continue to operate after WINNER ends.

WINNER's geographic focus was initially on the western sections of the Cul-de-Sac Watershed, Cabaret Watershed, Gonaives (La Quinte), and other watershed(s)/sub-watershed(s) to be identified during project implementation. In March 2011 WINNER was modified in response to the new Feed-the-Future Initiative strategies. The project was modified to focus on selected value chains and watershed activities that protect the productive plains in the Cul-de-Sac and the Saint Marc (Cabaret, Arcahaie, and Montrouis) corridors. WINNER has maintained selected activities in Gonaives to protect USG investments, e.g. Centre Rural de Developpment Durable centers (CRDDs), Boutique d'Intrants Agricoles (BIAs, agricultural supply stores) and Public Private Agreements (PPAs). The project also supports mango value chains in the Mirebalais and Saut-d'Eau regions. Note that this performance evaluation will include all of the WINNER's zones of intervention since the beginning of the project.

In order for sustainable and large-scale improvements to occur in economic corridors, WINNER strongly emphasizes the following aspects that constitute the project intervention pillars:

- Promote productive investments through sound policy measure
- Improve commercialization of agriculture products
- Ensure greater access to capital and inputs
- Provide more effective extension and technical support services
- Introduce innovative production systems that increase incomes and reduce degradation
- Rebuild and maintain critical infrastructure
- Strengthen local governance structures
- Reverse farmer "dependency" on subsides

Per the March 2011 modification, WINNER's four initial key results (Livelihoods of people living in the watershed improved through increased agricultural productivity and alternative income generation sources; critical infrastructure improved and the threat of flooding reduced; Watershed governance strengthened; and Public-private partnerships established) were replaced with three key results. These are shown below with some illustrative targets through the end of the project, May 2014:

1. Agricultural productivity increase
    - Agricultural productivity increase
    - Corn yield increase from 800 to 4,074kg/ha with 3,530 kg/ha as of September 2012
    - Bean yields from 600 to 1, 386 kg/ha with 1,200kg/ha as of September 20 12
    - Rice yields from 2,200 to 5,500 kg/ha with 5,030 Kg/ha as of Sept. 2012
    - Value of agricultural business sales as a result of USG interventions increase from 0$ to 418,578 as of March 2013
    - Banana (plantain) yields from 24,300 to 35,000 kg/ha
    - Number of agricultural-related firms benefiting from USG interventions from 0 to 215 with 11 up to September 20 12
    - Kilometer of irrigation systems repaired 0 to 277.9kms with 157.9 up to September 2012

- Number of public/private partnerships formed from 0 to 15 with 14 up to March 2013
- Number of rural households who have increased farm income thanks to USG Assistance from 0 to 45,000 with 35,277 up to Sept. 2012

2. Watershed stability improved
   - Watershed stability improved Hectares of hillside protected as a result of USG assistance from 9,327ha in the initial year to 17,240ha during life of project (LOP) with 15,050 ha as of March 2013
   - Number of sub-watershed management bodies formed and strengthened from 0 to 8 with 11 as of September 2012.
3. Agricultural markets strengthened
   - Agricultural markets strengthened Value of agriculture and rural loans from $0 to $1,500,000 with $650,000 as of March 2013
   - Value of new private sector investments in the agricultural sector and food chain from $767,500 in the initial year to $2,000,000 with $3,003,614 as of March 20 13
   - Number of farmers using market information through project assistance from 0 to 5,765 with the 3,765 as of September 2012
   - Number of farmers using new technologies from 20,826 in the initial year to 33,826 with 25,890 as of September 2012
   - Incremental sales from 771,462 in the initial year to 16,865,488 with 7,585,594 excluding plantain as of September 2012.

In addition to the a bone objectives, USAID and the WINNER project from the start of project implementation placed a significant emphasis on the substantial participation and involvement of a high percentage (roughly 40%) of women in project activities. Gender was integrated into the initial project design in numerous ways as tracked through disaggregated indicators that include:

- Number of people receiving USG-supported training in natural resource management (NRM)/or biodiversity conservation; number of people with increased economic benefits derived from sustainable, USG-supported NRM and conservation activities; Number of people receiving USG-supported short-term agricultural sector productivity training; number of farmers and others who have applied new technologies or management practices; number of individual receiving improved transport services; and number of jobs (FTE) attributed to project interventions. Finally, lessons learned from this evaluation can help the new Feed-the-Future- North project (FTF/N) which was awarded in April 2013.

III. Evaluation Questions

1. To what extent, has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West corridor?
2. To what extent, have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West corridor?
3. What is the impact of market information in guiding farmer production and marketing decisions?
4. To what extent have project interventions actually red used post-harvest losses?

IV. Suggested Methodology

The methodological approach will include a combination of qualitative and quantitative methods, with data collection from both primary and secondary sources. Among suggested data collection methods include:

1. Review of literature and an analysis of relevant documents;

2. In-depth interviews with key informants;
3. Focus group discussions (FGD); and
4. Survey of targeted population

The evaluation Team Leader will propose for USAID's review, a detailed methodological approach to be used to address the evaluation questions. This methodology will specify the research design, as well as methods and procedures for sampling, data collection and data analysis. Efforts should be made to use multiple data collection methods and data sources, interviews, discussions and surveys (above), to allow for triangulation of data and cross-validation of results.

Some data sources are available through the WINNER project. Baseline data exists for certain indicators including yields and gross margins per hectares for focus crops (corn, beans, rice, and plantains). No other baseline data exists for other indicators. The national statistics office will have additional relevant information for this evaluation.

V. Evaluation Team Composition

Composition of the Evaluation Team shall mirror the diverse technical areas of the WINNER program. It shall be composed of a total of three (3) Key Personnel consultants, two (2) international consultants and one (1) local consultant. The complexity of the program also requires that the team members have broad experience not only in their relevant fields but also be able to apply their expertise in a multi-disciplinary environment. The evaluation team is expected to have expertise in the following areas:

- Evaluation
- Quantitative and qualitative data collection and analysis
- Agriculture, livelihoods, food security and Natural Resource Management
- Post-harvest

Key Personnel:

Team Leader: The Team Leader shall have significant knowledge in agricultural economics and natural resource management. In addition, the Team Leader shall demonstrate experience in monitoring and evaluating food security and watershed management projects. The Team Leader shall have at least I 0 years of rural development experience as well as at least 7 years evaluation experience (using both quantitative and qualitative methods) with agriculture or food security programs. He/she must be fluent in both English and French and have team management experience. He/she will be responsible for planning the evaluation, coordinating the implementation of the evaluation, assigning evaluation responsibilities and tasks, and authoring the report, in particular findings, conclusions and recommendations.

Technical Expert: The other international consultant shall have combined expertise that will best complete the team's leader profile to ensure that all areas of expertise required for the evaluation are effectively covered. He/she shall have at least I0 year's rural development/food security experience, preferably in Latin America/Caribbean. All team members should be fluent in French and English.

Assistant Team Leader: The assistant team leader shall be a Haitian national with experience in implementing mix-methods (quantitative and qualitative) surveys. He/she must have a Master of Science in statistics and/or in any related social science field (agronomy, economy or sociology). He/she should have prior experience in implementing large scale quantitative survey, preferably

agriculture survey. He/she should have the ability to plan the routes for the data collection, form and schedule the fieldwork teams, which are generally composed of supervisors and interviewers.

The local consultant and data collectors must be independent consultants, not hired through intermediary entities such as sub-contracting firms through which there exists a financial relationship between the consultants and the firms.

Note that the entire evaluation team must be external so that the evaluation is not subject to the perception or reality of biased measurement or reporting due to conflict of interest or other factors.

VI. Schedule and Logistics

It is estimated that the Evaluation Team will spend a total of 80 days to plan and implement the evaluation and to write the report. USAID/Haiti will provide basic logistics (clearances in liaisons with the GOH and USAID partners, lodging recommendations, etc.) and some administrative support for the team, to be discussed at the outset. The Evaluation Team's primary contact person with USAID/Haiti will be the Mission Monitoring and Evaluation Point of Contact, which will be the COR for this evaluation

Proposed Schedule:

Task	Number of working days
Documents review & Evaluation Plan (including detailed methodology, analysis plan, data collection instruments). Hiring of enumerators and supervisors.	10
Evaluation Plan submitted to USAID for comments and approval.	1
Data collection tools finalized	5
Enumerator & Supervisors training and field pilot/ Field preparation	10
Data collection and Data Analysis	36
Briefing on preliminary findings	1
First draft report	10
Finalizing report	7
Total	80

VII. Deliverables

1. Work Plan and Evaluation Plan - A Work Plan and Evaluation Plan shall be completed by the Tear Leader within two weeks of the award of the contract and submitted to the COR. The work plan will include the anticipated schedule and logistical arrangements and delineate the roles and responsibilities of members of the evaluation team. The evaluation plan will include a background section describing the project, a methodology section, an implementation plan, an analysis plan and a detailed evaluation design matrix (including the key questions, the methods and data sources used to address each question), draft questionnaires and other data collection instruments, and known limitations to the evaluation design. The final evaluation plan requires COR approval.
2. Draft field manual, data entry training manual due before the beginning of the field work
3. Preliminary findings to be presented during a briefing to USAID/Haiti Mission staff.

4. Draft Report - The evaluation team will present a draft report in English of its findings and recommendations to the USAID Mission M&E point of contact. USAID will provide written comments on the draft report within 5 working days.
5. Final Report.- The Final Report will be provided to the USAID/Haiti Mission M&E Point of Contact in electronic form within 12 days following receipt of comments from USAID. The report shall include an executive summary and not exceed 50 pages (excluding appendices). The executive summary should be 3-5 pages in length and summarize the purpose, background of the project being evaluated, main evaluation questions, methods, findings, conclusions, and recommendations and lessons learned (if applicable). Needs to be accepted by the COR. The report shall follow USAID branding procedures.

The annexes to the report shall include

- The Evaluation Statement of Work
- Any "statements of differences" regarding significant unresolved difference of opinion by funders, implementers, and/or members of the evaluation team
- All tools used in conducting the evaluation, such as questionnaires, checklists, sampling methodologies and sample frames, survey instruments, and discussion guides. Sources of information, properly identified and listed, list of key interviews and focus group discussions
- Disclosure of conflicts of interest forms for all evaluation team members, either attesting to a lack of conflict of interest or describing existing conflict of interest
- All data and records in an organized electronic format that could be used for future analyses, if needed.
- An acceptable report will meet the following requirements as per USAID policy (http://www.usaid.gov/evaluation)
- The evaluation report should represent a thoughtful, well-researched and well organized effort to objectively evaluate what worked in the project, what did not, and why.
- The evaluation report should address all evaluation questions included in the statement of work.
- The evaluation report should include the Scope of Work as an Annex. All modifications to the scope of work, whether in technical requirements, evaluation questions, evaluation team composition, methodology or timeline shall be agreed upon in writing by the USAID Mission Contracting Officer. Evaluation methodology shall be explained in detail and all tools used in conducting the evaluation such as sample frames, questionnaires, checklists and discussion guides will be included in an Annex to the final report.
- Evaluation findings will assess outcomes and impacts using gender disaggregated data.
- Limitations to the evaluation shall be disclosed in the report, with particular attention to the limitations associated with the evaluation methodology (selection bias, recall bias, unobservable differences between comparator groups, etc.).
- Evaluation findings should be presented as analyzed facts, evidence and data and not based on anecdotes, hearsay or the compilation of people's opinions.
- Findings should be specific, concise and supported by strong quantitative and/or qualitative evidence, or both.
- Sources of information need to be properly identified and listed in an Annex, including a list of all individuals interviewed.
- Recommendations need to be supported by a specific set of findings.
- Recommendations should be action-oriented, practical and specific, with defined responsibility for each action.

ANNEX II: EVALUATION METHODS AND LIMITATIONS

Evaluation Methods

This summative, performance evaluation employed both qualitative and quantitative methods to answer USAID's evaluation questions. The mixed-methods approach combined a desk review with key informant interviews (KIIs), focus group discussions (FGDs), site visits, and an in-depth quantitative survey. This section of the report describes each method the team applied to understand the performance of the WINNER Project based on both existing, secondary data and empirical, primary data.

Data Collection Methods.

Table 17 below summarizes categories of respondents and data collection methods by key evaluation question.

Table 17: Haiti WINNER Evaluation Questions and Associated Methods

Evaluation Question	Data Collection Methods	Type Of Data/Respondent
1) To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West Corridor?	Literature review	WINNER project documentation & reports, agricultural survey standards, technical reports on production levels for focus crops, technical reports on promoted technologies to list benefits
	Secondary data review	WINNER project monitoring data, CRDD reporting data to Chemonics International, MANDNR agricultural productivity data, FEWSnet data, FAOstat data
	Farmer survey	Sample of farmers from WINNER productive zones who participated in WINNER agricultural crop campaigns
	Focus group discussions with Master farmers	Master farmers who were trained by WINNER in the technical package for beans, maize, rice, and/or plantains
	Focus group discussions with farmer representatives	Farmers from participating associations who grew beans, maize, rice, and/or plantains
	Key informant interviews with stakeholders	- DDA - USAID/Haiti - BIAs - CRDD directors
	Key informant interviews with project staff	- Technical specialists - Project management
	Observation	Site Visits: irrigation canals
2) To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?	Literature review	WINNER project documentation & reports, agricultural survey standards, technical reports on production levels for focus crops, technical reports on watershed management
	Secondary data review	WINNER project monitoring data, CRDD reporting data to Chemonics International, MANDNR agricultural productivity data, FEWSnet data, FAOstat data
	Farmer survey	Sample of farmers from WINNER productive zones who participated in WINNER agricultural crop campaigns and benefited from WINNER watershed improvements

Table 17: Haiti WINNER Evaluation Questions and Associated Methods

Evaluation Question	Data Collection Methods	Type Of Data/Respondent
	Key informant interviews with association leadership	Association members who led infrastructure projects
	Focus group discussions with upper and lower watershed residents	Farmers' association members who benefited from irrigation or river bank stabilization
	Key informant interviews with project staff	- Technical specialists - Project management
	Key informant interviews with stakeholders	- USAID/Haiti - DDA - CRDD directors
	Observation	- Site visits: ravines, riverbanks, greenhouses
3) What is the impact of market information in guiding farmer production and marketing decisions?	Literature review	WINNER project documentation & reports
	Farmer survey	Sample of farmers from WINNER productive zones who participated in WINNER agricultural crop campaigns
	Key informant interviews with lead farmers & association leadership	Lead farmers who were trained by WINNER in the technical package for beans, maize, rice, and/or plantains
	Focus group discussions with farmer representatives	Farmers from participating associations who grew beans, maize, rice, and/or plantains
	Key informant interviews with project staff	- Technical specialists - Project management
	Key informant interviews with stakeholders	- USAID/Haiti
4) To what extent have project interventions actually reduced post-harvest losses?	Literature review	WINNER project documentation & reports
	Secondary data review	Reports from other post-harvest loss projects
	Farmer survey	Sample of farmers from WINNER productive zones who participated in WINNER agricultural crop campaigns
	Key informant interviews with lead farmers & association leadership	Lead farmers who were trained by WINNER in the technical package for beans, maize, rice, and/or plantains
	Focus group discussions with farmer representatives	Farmers from participating associations who grew beans, maize, rice, and/or plantains
	Key informant interviews with project staff	- Technical specialists - Project management
	Key informant interviews with stakeholders	- USAID/Haiti - CRDD directors
	Observation	Site visits: BIAs, associations

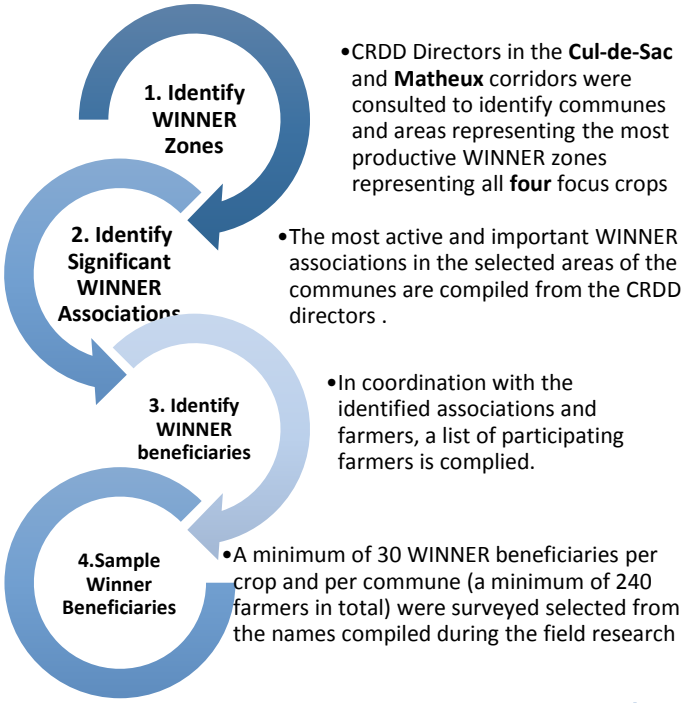
Quantitative Methods

Social Impact (SI) sub-contracted Centre d'Appui en Suivi et Evaluation (CASE) to conduct the quantitative survey implementation. CASE recruited and trained enumerators for one week, including field testing the data collection tool. Subsequently, SI revised the tool and then CASE enumerators and their corresponding supervisors implemented the survey in the field during a period of 3 weeks. CASE was responsible for cleaning, entering, and verifying the quantitative survey data. The bulk of the survey questions were used to answer the first evaluation question regarding the yields of the four focus crops. For those crops with multiple growing seasons, the evaluation team asked farmers to report on their plot size and the quantity harvested for the last growing season with WINNER assistance.

Quantitative Sampling

Initially, SI sought to construct a representative sample of the population of WINNER beneficiary corn, bean, rice, and plantain farmers using simple random sampling based on the Probability Proportional to Size (PPS) method. To do this, SI requested that Chemonics International provide a list of beneficiary farmers from each crop campaign (corn, bean, rice, and plantains) for each year and each corridor (Cul-de-Sac & Matheux). This list was to serve as the sample frame from which a representative sample would be drawn. While initially Chemonics International communicated that it would be possible to provide this list to the evaluation team, after sustained efforts the evaluation team did not receive the list. Without this list, random sampling of farmers was not possible, nor was it possible to draw a statistically representative sample of WINNER farmers.

In the absence of a beneficiary database from which a statistically representative sample could be drawn, SI used a productive zonal approach to identify beneficiaries. As shown in Figure 1, the quantitative sampling approach used a four-step process to identify and sample WINNER beneficiaries to participate in the survey. SI's evaluation team – including its local experts familiar with WINNER and the Haitian context – opted to use this process, which relied on referrals from CRDD directors and association leaders, as it was the most reliable method of identifying beneficiaries in the absence of a beneficiary database.



1. Identification of specific WINNER sub-zones in the communes. Under this approach, WINNER productive zones and communes in both the Cul-de-Sac and Matheux Corridors were identified in consultation with CRDD directors. In the lowlands, productive zones are defined as irrigated plains where WINNER provided a substantive package of assistance in terms of training, coaching, agricultural inputs, and water access improvement. In addition, for comparison purposes, the WINNER evaluation also sampled beneficiary farmers from one selected commune per corridor to represent bean farmers in the highlands. The productive zones targeted by the evaluation are presented in Figure 1.

Figure 1: WINNER Sampling Process

2. Identification of significant WINNER associations. As part of the consultations with CRDD directors, SI collected a list of the most active WINNER associations and contact information for the respective associations in each of the main areas.

3. Identification of WINNER beneficiaries. With the assistance of CASE, SI contacted or visited each of the selected associations to compile a list of farmers who participated in any WINNER agricultural campaign. All efforts were made to construct as complete a list as possible. As such, it was possible that the compilation of WINNER beneficiaries identified both association and non-association members. Given the challenges in contacting association leaders within Haiti, the process of identifying the beneficiaries within the selected communes and areas took several weeks. The list created through the associations, and BIA documents comprised of 1890 famers. See Table 18.

Table 18: WINNER beneficiaries and associations identified through mapping

Corridor	Communes	Crops supported by WINNER	Area of action of the Association	Association[17]	Total Beneficiaries Identified
Cul-de-Sac	Croix-des - Bouquets	Beans, Corn	Pierroux	APD*	230
			Roche Blanche	OPADEK*	84
			Boen	ADEBABO*	99
	Thomazeau	Rice, Beans	Merceron	ATRADEM	103
			Koten	GFVCT*	117
			Hatte Cadette	OPVH*	120
	Kenscoff	Beans	Kenscoff	ANC	N/A
			Lefevre	COAGEL	60
			Furcy	CODECOF	67
			Kenscoff	ODEMAR	88
			Kenscoff	SOHADERK	102
Matheux	Cabaret	Beans, Corn, Plantain	Bersy	AIPA	N/A
			Garisher	ACAPKAB	10
			Deshapelle	GFVB*	266
			Deschappelle	APC	162
	Arcahaie	Beans, Corn, Plantain	Bethel	FEVODECA	16
			Dubuisson	PVADAC	66
			Robert	JMA	29
	Saint-Marc	Rice	Fevrius Mie-Tamare	OTAA	43
			Pierre Wilfond	IPDA	N/A
			Corail	RACADAMA*	89
			Saintard	CODCOA	N/A
			Bois Neuf	ATAIB *	63
			Deluge (Rice)	AIPD	76
				Total	**1890**

4. Sampling of WINNER beneficiaries. Despite the target of 30 farmers per commune per crop in the evaluation design, a total of 40 farmers per commune, per crop was pulled for the sample to account for possible challenges that the team could fact in trying to surveying specific beneficiaries and to ensure the minimum of 30 farmers per commune, per crop. In addition, 40 replacement farmers, five famers per commune, and per crop, were pulled in the event that a farmer from the original sample could not be located. The total number of farmers ultimately surveyed per commune is found in Table 19.

[17] BIA indicated by *

To locate the WINNER beneficiaries in the selected sample, CASE hired local association members as guides to take them to respondents. In cases where CASE was unable to locate the beneficiaries listed on the sample or the backup list, CASE carried out a snowball sampling approach, asking to meet with other WINNER farmers in the area.

Table 19: WINNER survey sample by location

Corridor	Selected Commune	Specific Areas	# farmers surveyed
Cul-de-Sac	Croix-des-Bouquets	Dume, Roche Blanche, Pierou, Digneron, Campeche	34
	Thomazeau	Merceron, Source Matela, Koten, Hatte Cadette	42
	Kenskoff	Duvier, Duval, Lefevre, Furcy	29
Matheux	Archaie	Fond Baptiste Robert, Corail, Saintard, Bois neuf, Barbancourt	82
	Cabaret	Garisher, Deshapelle, Bethel, Dubiusson	75
	St. Marc	Deluge, Bois-Neuf	45
		TOTAL	**307**

SI has made every attempt to design a sampling approach that would produce a statistical probability sample, given the absence of a reliable list of beneficiaries or associations. Given that the sample ultimately had some element of bias resulting from an incomplete sample frame, SI has used caution when interpreting the findings and has indicated where biases are present. The generalizability of the evaluation findings are limited to the beneficiaries as identified from each of the productive zones.

Qualitative Methods

Desk Review. The evaluation team conducted a thorough desk review to inform the evaluation design as well as to supplement qualitative and quantitative data collected in the field. The review included WINNER planning and project documents such as work plans, quarterly and annual reports, special reports prepared by WINNER targeted to WINNER interventions, as well as government policy documents, data from the *Rural Center of Sustainable Development* (CRDD), Haiti's Ministry of Agriculture (MARDNR) agricultural data, FEWSnet data, FAOstat data, and evaluation reports of similar projects. The complete bibliography of the literature and data reviewed is referenced in Annex V: Sources of Information Bibliography.

Qualitative Sampling. Qualitative respondents were selected based on their experiential relationship with the project. Respondents fell under five categories:

1. **National government officials** (Government of Haiti & USAID). National government officials were selected as key informants because of their familiarity with the project. These officials acted in an oversight capacity and did not have regular contact with the project participants.
2. **Community leaders** who are more intimately familiar with the project as a manager and have regular contact with the project participants.
3. **Prime project contractor (Chemonics International)** who planned, implemented and managed project activities.
4. **Service delivery partners** such as Rural Centers of Sustainable Development (CRDD), farmers' cooperatives, and agricultural input shops (BIA) who were sub-contracted by Chemonics International to perform discrete tasks.

5. **Participating farmers** who grew food and repaired watershed infrastructure under the tutelage of the prime and sub-contractors.

Key Informant Interviews. The team conducted a total of 49 KIIs, of which 35 were with men and 14 were with women. A map showing the KII locations can be found in Annex V. Qualitative interview guides were designed to inform USAID's overarching evaluation questions, with several sub-questions constructed in an open-ended format to elicit undirected responses rich with detail. KIIs included specific questions about women's participation in project activities, including their major interests in the project and ways in which the project affected them in terms of capacity building, self-esteem, and income generation. The qualitative interview guide can be found in Annex IV.

Focus Group Discussions. The team conducted a total of 24 focus group discussions (FGDs) with Master Farmers, association leaders, water user associations, and farmers of each of the WINNER focus crops (plantains, beans, rice, and corn). The FGDs included a total of 249 individuals, with 187 men and 62 women. A minimum of two associations per commune were targeted for FGDs. A list of associations participating in FGDs and a map showing the FGD locations can be found in Annex V. FGDs explored the topic of women's participation in project activities, including their major interests in the project and ways in which the project affected them in terms of capacity building, self-esteem, and income generation.

Site Visits. The team carried out a series of site visits Table 20 with the dual purpose of verifying the existence and proper functioning of structures erected with program funding as well as providing the team with an opportunity to see structures and resources in use. Site visits were predominantly conducted to support the team's response to evaluation question 2 regarding the effect of watershed management on crop damage and agricultural production. These site visits included dams, irrigation canals, rehabilitated river banks and support structures, and gabions (large cages made of riprap filled with rocks). To a lesser extent, site visits focused on other aspects of the WINNER project such as green houses, roads, and farms.

Table 20: Evaluation site vists

Commune, Corridor	Structures Visited	Types of structure
Cabaret, Matheux	Ravine Bretelle	River Banks, Dams rehabilitated
Cabaret, Matheux	Ravine Torcelle	Dams rehabilitated, River Banks rehabilitated
Arcahaie, Matheux	Ravine Courjolle	Gabions
Arcahaie, Matheux	Road, green houses, and farms at Fonds Baptiste	Green houses, road, farms
Kenscoff, Cul de Sac Petion-Ville, Cul de Sac	Ravine Duvier, Ravine Matheux, Ravine Figaro, Ravine Millet, Ravine Mata, Ravine Malik	Gabions and dry walls
Thomazeau, Cul de Sac	Irrigation Canals Farms	Irrigation Canals
Croix des Bouquets, Cul de Sac	Irrigation Canals	Irrigation Canals

Qualitative Sampling

The team conducted 24 FGDs with farmers' associations and 49 KIIs with project participants and stakeholders. Project stakeholders and key informants were selected from each of the WINNER productive zones to participate in the KIIs and FGDs. The team selected a minimum of two associations per commune for FGDs. The team did not visit all associations in each commune as new responses decreased after a few interviews with the same respondent type. Following best practices in ethnographic research, it is standard to discontinue interviewing respondents of the same type when answers become redundant.

Qualitative respondents were selected based on their experiential relationship with the project. Respondents fall under five categories:

a) **National government officials** (Government of Haiti & USAID). National government officials were selected as key informants because of their familiarity with the project. The evaluation team understands that these officials acted in an oversight capacity and did not have regular contact with the project participants.
b) **Community leaders** who are more intimately familiar with the project as a manager and have regular contact with the project participants.
c) **Prime project contractor** (Chemonics International) who planned, implemented and managed all project activities.
d) **Service delivery partners** such as Rural Centers of Sustainable Development (CRDD), farmers' cooperatives, and agricultural input shops (BIA) who were sub-contracted by Chemonics International to perform discrete tasks.
e) **Participating farmers** who grew food and repaired watershed infrastructure under the tutelage of the prime and sub-contractors.

DATA MANAGEMENT & ANALYSIS

Quantitative Data Management

Pilot Testing and Enumerator Training. The survey was piloted twice by CASE, first in January 2015 and then again prior enumerator training in May 2015. The May pilot testing was completed by CASE, the Team Leader and the Assistant Team Leader. A total of 31 surveys were piloted in Arcahaie, Thomazaeu, and Kenskoff. The survey questions were adjusted accordingly, and lessons learned from the pilot testing were incorporated into the enumerator training. Enumerator training facilitated jointly by SI and CASE occurred over the course of three days. Mixed teaching methods were used to provide an introduction to the project, and the expected norms and ethics of the enumerators.

Enumerator training occurred over the course of three days from May 20, 2015 to May 22, 2015. The training was facilitated by CASE's Field Coordinator, CASE's M&E /Research Specialist, the SI Team Leader and the SI Deputy Team Leader. Participants in the training included 12 enumerators, two supervisors, and the Data-Entry Supervisor. Mixed teaching methods were used to provide an introduction to the project, and the expected norms and ethics of the enumerators. A participatory approach was also used to emphasize roles and responsibilities and a practice interview was completed to stimulate interview situations.

Following the enumerator training, CASE divided into two teams. Fieldwork occurred from June 3, 2015 to June 10, 2015. Each team consisted of 6 enumerators, and one supervisor. While it was originally planned that that list would be verified by association leaders prior to fieldwork, verification occurred in concurrence with fieldwork due to timing constraints. Enumerators captured data on paper forms and checked their questionnaires for completeness before submitting them to supervisors. Supervisors spot-checked questionnaires for errors. Where errors were found, enumerators were revisited respondents to correct problems. Each supervisor managed a list of farmers their team was responsible for interviewing. Surveys were recorded by the supervisors against the original list of farmer respondents.

Data Entry. Social Impact and CASE carried out a comprehensive double data entry system. The double data entry template and instruction guide was designed by Social Impact and included the creation of additional codes to take into account non-responses for circumstances in which the question would not have been answered, and non-responses due to a skipped question not stated in previous instructions, an invalid answer, or any other unknown reason. Social Impact provided regular oversight

to the data entry process through in-person visits to the CASE office in addition to daily progress reports and phone check-ins.

Qualitative Data Management

Qualitative data management began at the same time as data collection. Qualitative research was iterative; with learning from initial interviews built into subsequent interviews. The team used the rolling debrief approach to managing data, where team members assembled on a nightly basis to review key highlights and findings from the days' KIIs, FGDs, and site visits. Qualitative notes were organized in evaluation matrices by evaluation question and analyzed by the evaluation team with a focus on recurrent themes, findings, conclusions, and recommendations.

DATA ANALYSIS

All data was analyzed by the evaluation Team Leader, Deputy Team Leader, Subject Matter Expert, and Qualitative Specialist in response to the four key evaluation questions. Analyses were mindful of the intended data use. Quantitative results were explored alongside qualitative responses to fully interpret the numbers and their relevance to each key finding.

Detailed Data Assessment and Processing

Usable Sample. The sample contained 307 usable farmer observations on crop yields and harvest losses covering about 590 individual farm plots. The original Excel file covered a total of 351 farmers. In 32 cases, the farmers did not plant any crops with WINNER assistance, although they did receive some form of WINNER support (most commonly "training, TA or demo plots"). Since all other data was missing for these 32 observations, they have been dropped from the analysis, reducing the sample to 319 farmers. As the data analysis proceeded, 12 additional observations were dropped because of unclear crop codes, missing plot sizes, or missing yield codes. Although the remaining 307 observations are fairly complete on these variables, there nonetheless remain numerous variables for which data was coded as "don't know" or "not applicable." The most important of these is data on crop output and post-harvest losses.

Table 21: Data issue by area of WINNER assistance

Issue	Cul-de-Sac	Matheux	Total
No crops planted with WINNER assistance	18	14	32
Missing yield codes	1	4	5
Various problems (unclear crop codes, missing plot sizes, and/or missing yield codes)	7	0	7
Total	**26**	**18**	**44**

Data Organization. The data set and analysis used Excel. Since crop yields and harvest losses were crucial for the subsequent analysis, great care was taken in assessing the consistency of the data. As the data were organized, iterative consistency checks were undertaken by comparing basic results obtained from excel pivots (down Rows) and conditional statements (across Columns).

Data Processing. Examination of the data on plot size and other variables revealed observations that had been incorrectly entered in text format, leading to errors when these observations are used in calculations.[18] Whenever found, these data were highlighted and converted to numeric format if this

[18] Excel ignores text data in formulas and mathematical calculations.

correction was clear and unambiguous. Otherwise, the text data were highlighted but not changed. In a data set of this size (1,506 columns), it is likely that some text data could not be detected.

Data on the planting season (spring, summer or winter) were missing for 11 plot observations (10 plots for plantain and 1 for corn). However, other than the planting season, the data are fairly complete. Deleting these observations would have reduced the size of the plantain sample by about 5%, which is non-trivial. To avoid this, to data were coded as spring planting, which is the most likely planting season based on what a given farmer's "neighbors" (in the survey) were doing and also on the seasonality of planting in the overall sample. Across the entire sample, more than two-thirds of all plantain and corn were planted in the spring. This varied little across communes.
As the analysis proceeded, other data transcription errors were found that were not detected during the initial data cleaning. One instance worth noting is that yields of zero (0) were recorded for about 25 plots, mainly in the after-WINNER period, but no crop had been planted, so output should have been entered as 888 or 999,[19] not 0. Inclusion of erroneous 0 values would lead to a downward bias in estimating WINNER impacts. In all cases where output was recorded as 0, the data on amount planted and % harvest loss were both checked to determine whether re-coding of output as 999 was needed.

Calculation of Crop Yields and Post-Harvest Losses

For both harvest quantities and post-harvest losses, the data were first rearranged in order to clearly identify and link crop types and plots. Crop yields per ha were then calculated for each plot by linking the crop output to its corresponding yield unit and plot size. For each farmer, the number of yield observations depends on the number of plots and crops that he or she planted. For every farmer, there are 12 possible data points for crop yields and 12 for crop losses.

Plot sizes were converted from the common local unit of *carreau* to hectares (ha) using the conversion factor of 1 carreau = 1.29 ha. Output for each crop and plot was converted to kilograms (kg) to the extent possible. Almost all bean, corn and rice data were recorded in either large or small *marmite*s, which have accepted kg equivalents. However, yield units for plantain and some observations for other crops were problematic. In the great majority of cases, plantain output was recorded in *regimes,* or bunches, which may weigh between 8 to 15 kg. Since there is no clear conversion factor, plantain yields are simply calculated as regimes/ha.[20] For 22 plots, mostly plantain, output was recorded in "units (by one)," dozens, or "loads." No per hectare yields were calculated for these plots since there is no clear conversion factor. In two plots, output was recorded in kg, but upon inspection it was apparent that these had been miscoded, so yields were not calculated.

Two estimates of average yields were made. The first averaged yields over all plots (n= about 580), which in about 70 cases included two or more observations per crop per farmer. These averages will be used in presenting the overall impacts of WINNER in the sample as a whole. The second yield estimate is the farm level weighted average yield for each crop, weighting by plot size. This estimate is used in cross-tabulations of yields against farmer characteristics (gender, region, irrigation status, etc). Calculating averages across plots was time-consuming due to the complexity of the Excel file. Since most

[19] The WINNER code book defines 888 = No response because the question should not have been answered following previous survey instructions, or not applicable, and 999 = No response due to a skipped question, an invalid answer, or any other unknown reason.
[20] One could convert regimes to kilograms by using an "average" weight of 11.5 kg/regime. This allows comparison with other data sources, especially the Chemonics International reports, but it may give a mistaken impression of precision to the estimates of plantain yields.

farmers planted a given crop on only one plot, the plot yield is the overall average for the farmer. For the cases where farmers planted a given crop on more than one plot, weighted averages were calculated individually across plots.

Post-harvest losses by crop and plot were weighted by plot size to calculate the average loss by farm and period (before, during and after WINNER). All farmers in the sample received some form of WINNER assistance, which might include irrigation improvement, crop inputs and land plowing, in addition to crop management and post-harvest training. A few farmers received training and information on post-harvest handling for a specific crop, but never planted the crop. In a few other cases, observations had to be deleted due to bad or missing data (e.g., nothing was planted but output was recorded as 0 (zero) rather than being left blank). As a result, the subtotals of farmers who did or did not receive and use post-harvest handling information differed from the numbers who actually planted a crop.

Because numerous observations on crop output and losses were missing, the numbers of farmers who gave responses on the use of WINNER technology are larger than the numbers who also gave responses on crop output and losses, particularly in the "after-WINNER" period when missing observations increased sharply, reflecting the significant number of farmers who had dropped out of WINNER support or switched to other crops.

Plot and Crop Counts

Because a given record (i.e., farmer) often contains mostly missing data, and because of the sequential way in which the data were processed and cleaned, with data deletions as issues were detected, sample counts may at times appear inconsistent, e.g., the count of observations for crop losses may differ from the count for yields. This is because some observations were set to blank or ignored in the calculations. One simple example is Farmer number 295, who planted plantain on a single plot and reported output in "dozens." "Dozens" was used infrequently and has no clear conversion to kg, so the observations had to be omitted from the yield calculations. However, this farmer's % crop losses can still be used because they are independent of the output unit. Hence, counts over yield and crop loss observations will differ because this farmer is omitted from the yield data but included in the loss data.

Missing Observations "After WINNER"

Sample counts at times appear inconsistent because of the large number of drop-outs at the administration of the survey in the after-WINNER period, e.g., the number of bean plots before or during WINNER is higher than the number after WINNER. Thus, there were a large number of "999" responses for crop losses and crop output in the after-WINNER period, as shown in the tabulation below.

Table 22: Number of "999" responses to questions 2.10 and 2.10a

	How Much of each WINNER-assisted Crop Was:	
	Planted	Harvested
Before WINNER	15	17
During WINNER	1	4
At the time of the survey administration	106	123

The conclusion – concurred with by technical staff in the field and by the data collection firm – is that the increase in non-responses reflects a rapid drop-off in the application of WINNER crop recommendations after WINNER closed.

Evaluation Limitations

Incomplete Beneficiary Monitoring Data

Due to the lack of a coherent, project-derived list of individual WINNER farmer beneficiaries, any resulting sample cannot be statistically generalizable to the experience of all WINNER farmers. Despite various written and verbal requests for a detailed beneficiary database by crop and by year, SI was unable to secure this information from the implementing partner.

In addition to the lack of monitoring data on project beneficiaries, the team was also unable to secure access to productivity monitoring data. Ideally, the evaluation team would have been provided with productivity data collected at baseline and after each agricultural campaign, for a pre- and post- program comparison of agricultural yields for each corridor. Productivity trends would have provided the evaluation with a richer picture of changes over the duration of the project, allowing the evaluation to link productivity of the focus crops with corridor-specific meteorological data that WINNER collected.

Selection bias

As an alternative to drawing a sampling plan from a complete beneficiary list, the evaluation team developed a sampling plan based on productive zones and by relying on the recall of CRDD directors and association leaders to identify WINNER associations and farmer beneficiaries. Selection bias is an inherent risk when implementers or project participants help to facilitate contact with project beneficiaries, as they may select the most active, responsive, or engaged beneficiaries—meaning that the evaluation team may only hear from key informants who report positive experiences. Through this approach, SI focused only on major associations, and thus smaller associations were underrepresented in the sampling. In addition, to complete the survey implementation, CASE identified 45 WINNER beneficiaries through snowball sampling. During the mapping process, non-association beneficiaries (21 out of 45) were identified in the sampling and were replaced through snowball sampling of WINNER beneficiaries. In addition, the snowball sampling allowed SI to replace eleven (11) beneficiaries who had migrated outside of Haiti, six (6) who died, one (1) who refused to participate, and the remaining (5) who migrated outside of the region.

SI points of contact for several associations were unable provide the team with a complete list of members who participated in WINNER. Furthermore, many beneficiaries were members of more than one association. Consequently, beneficiaries in multiple associations had a greater chance of being selected, thereby biasing the sample towards farmers who are members of two or more associations. To address this issue, the evaluation team ensured that selected farmers were not interviewed more than once by eliminating names listed twice in sample.

Positive response bias

With the anticipated follow-on project in motion, survey respondents and key informants may have been motivated to provide responses that would be considered influential in obtaining donor support. Throughout the evaluation, the evaluation team was regularly asked by beneficiary farmer respondents when the new WINNER project was starting and whether or it would come back to work with their associations. An analysis of the quantitative data shows great uniformity of individual farmer responses when it came to identifying WINNER agricultural or post-harvest practices adopted, which could suggest farmer survey fatigue, or the desire to give positive responses across the board.

Recall bias and end of WINNER implementation

Given that WINNER activities largely concluded a year prior to fieldwork, some key informants may have provided inaccurate or incomplete recollections about past experiences. Another significant challenge was that some project beneficiaries were not in contact with the WINNER project since 2010. This multi-year gap between the original intervention date and the June 2015 survey measurement of yields, increased the likelihood that differences seen in yields (positive or negative) resulted from causes other than the intervention. For example, other projects may have worked with the beneficiaries surveyed and contributed to increases in yields. The evaluation team addressed this constraint through qualitative interviews, asking farmers to discuss other projects they may have been involved in that sought to improve agricultural productivity.

Another significant challenge was that some project beneficiaries were not in contact with the WINNER project since 2010. This multi-year gap between the original intervention date and the June 2015 survey measurement of yields, increased the likelihood that differences seen in yields (positive or negative) resulted from causes other than the intervention. For example, other projects may have worked with the beneficiaries surveyed and contributed to increases in yields. The evaluation team addressed this constraint through qualitative interviews, asking farmers to discuss other projects they may have been involved in that sought to improve agricultural productivity. In addition, the quantitative survey asked questions regarding farmers' participation in other agricultural projects.

A second challenge related to this limitation was the difficulty in identifying and locating project beneficiaries from previous years. The sample could be biased to include more beneficiaries from more recent years and fewer beneficiaries from earlier years of the project. Moreover, the evaluation faced limitations in assessing the intensity of treatment for each beneficiary. Given the wide array of interventions during a considerably long period of time, it was challenging to accurately capture what interventions the beneficiaries had access to, which interventions they may have benefitted from, and to what degree. The team endeavored to understand the complexities of these limitations during qualitative interviews with farmers, Chemonics International staff, and other key stakeholders.

The first evaluation question was answered by reporting the average farmer productivity for each of the focus crops. USAID Haiti has expressed concerns that only focusing on the last harvest, and not harvests from all three of Haiti's agricultural cycles may not account for farmer preferences to utilize the inputs due to the current growing season. The average yields for rice, beans, maize, and plantains included data from multiple harvests. The evaluation team expected the last harvest for each crop to be different for each farmer. This means that some farmers, for instance had grown rice during the winter season and others during the spring or summer seasons. CASE trained enumerators to gather production data for each of the crops to encompass the entire last season that was fully harvested with WINNER assistance. By focusing on the last season of WINNER assistance, survey and focus group respondents were more likely to remember details of the program and the extent of benefits, which increases the reliability of the data gathered for this evaluation.

A related limitation was the fact that farmers often don't know the size of their plot. Farmers sometimes plant based on the quantity of seeds they have access to, and not based on the size of their plots. As such, farmers may be familiar with the quantity of seeds they sow, but may not be familiar with the size of the plot. To address this, SI trained enumerators during the on how to estimate plot size based on number of seeds. Furthermore, farmers may also use different units for measuring yields. To address this, SI made sure to specify commonly used units for productivity in the quantitative survey and trained enumerators to clearly explain to respondents what each of those units represent.

Local Measurement Conversion

During the survey design phase, local measurements were included as survey response options to allow for the farmers to give them most accurate response to questions using their preferred method of measurement. These local measurements, including regimes, bunches, unites, dozens, and loads, do not have an industry standard to be able to convert to the metric weight system. During data analysis the team faced challenges in calculating yields based on these local measurements. In particular, farmers reported plantain yields in the common local measurement of regimes, or bunches. To avoid misrepresentation, the yields for plantains were calculated as regimes/ha, instead of kg/ha, as this was the most common method of measurements. There were additional 20 plots for other crops, that responded to yield outputs in unties, dozen, or loads. The evaluation team decided that these responses would not be considered, since there is no set conversation for these measurements, and the any estimates would jeopardize the validity of the rest of the data.

Contextual Factors

Context and timing are also important limitations to consider. For example, during the WINNER implementation period and after, farmers experienced a drought as well as plantain pest infestations which would have affected productivity. Factors such as these are outside of the project's control and have been taken into consideration by the evaluation team.

Evaluation question 1 asks whether program activities have led to increased agricultural productivity. In the absence of a counterfactual, the evaluation team cannot definitively conclude whether or not the WINNER program has led to (is directly and solely responsible for) increased agricultural productivity. While the evaluation team has gathered extensive qualitative and quantitative data to lend insight into this important question, findings will be interpreted to inform correlation rather than causation. At the same time, the multi-year gap between the Project's original intervention date and the June 2015 survey measurement of yields, increases the likelihood that differences seen in yields (positive or negative) resulted from causes other than the intervention.

The team was limited in its ability to fully answer evaluation question 2, which seeks to understand the effect of watershed improvements on crop damage and agricultural production, for two primary reasons. First, following the conclusion of the WINNER Project and all activities targeting watershed improvements in June 2015, there has yet to be a major storm to test the integrity of such improvements and their effectiveness in mitigating crop damage. Second, agroforestry-related watershed improvements require as many as 20 years to take effect in combatting erosion. Consequently, the team was largely limited to collecting data on individuals' perceptions of their safety and the prospect of effectiveness of WINNER interventions.

Qualitative Data Collection with WINNER Staff

The evaluation team was limited in its ability to effectively access key WINNER staff members for KIIs due to the timing of the evaluation coinciding with the launch of the new WINNER follow-on project. Staff members were occupied with project planning and a team retreat during the time the evaluation team set aside to meet with and interview them. Additionally, the team found that several staff members from the original WINNER project who are now slated to work on the follow-on project were reluctant to speak openly with the team about successes and weaknesses of the WINNER project. Finally, due to the summative nature of the evaluation, in which the original WINNER project was largely completed at the time of the evaluation, several key staff members were no longer employed by the project and thus difficult to reach.

ANNEX III: QUANTITATIVE SURVEY

HAITI WINNER EVALUATION QUANTITATIVE FARMER SURVEY

1. Enumerator name

2. Interview date
day/month/year

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I: RESPONDENT INFORMATION

1.1. Respondent's Name	a. Family name:	b. First given name:	c. Second given name:	
1.2. Nickname		1.3.Respondent's age	1.4. Sex: (M or F)	01 =M; 02=F
1.5. Location				
a. Locality:	b. Corridor: (write number in box) *Cul-de-Sac……..01* *Matheux…….02*	c. Commune (write number in box) *Croix des Bouquets….01* *Thomazeau…..02* *Kenskoff…03* *Archaie…..04* *Carbaret…05* *St. Marc….06*	d. Highlands (uplands) or Plains (write number in box) *Plains……01* *Highlands (uplands)……..02*	
1.6 Respondent's phone number		1.7 Name of Association		

1.8. Years of assistance from the WINNER project

2010	2011	2012	2013	2014

1.8.a. What type of assistance did you receive from WINNER?

01= Training, Technical assistance, Demo plots
02= Access or Better access to irrigation (canal, pump)
03= Access or *Better access to land plowing equipment/ tools for land maintenance*
04= Access or Better access to inputs (improved seeds, fertilizers, pesticides)
05= Other (precise):

1.9. Did you receive assistance from another program during WINNER? [ ]
0 = No →Q 1.10
1 = Yes →Q1.9a

1.9a Name of Other Assistance Program(s) - Non-WINNER program (s) [ ]

1.9b What did you benefit from other, non-WINNER program(s)? [ ]

01= Training, Technical assistance, Demo plots
02= Better access to irrigation (canal pump)
03=Better access to land plowing equipment/tools for land maintenance
04=Better access to inputs (improved seeds, fertilizers, pesticides)
05= Other (Precise)

1.10 Are you a Master farmer? [ ]
0=No
1= Yes

1.11 Have you planed CORN, BEAN, RICE or PLANTAINS with assistant from WINNER? [ ]
If 0 (no) → end survey
0 = No
1=Yes

Plantation that received assistance from WINNER		**Last growing season per crop with WINNER assistance** *Campaigns (01=Spring 02=Summer 03=Winter)*
1.11.1. Did you receive WINNER assistance for growing BEANS?	(Write Number in box) No = 0 Yes = 1 Don't Know = 88 No Response =99 [ ]	1.12.1. Last season for which you harvested BEANS with WINNER assistance? Year: __ __ __ __ Campaign:__ __
1.11.2. Did you receive WINNER assistance for growing CORN?	(Write Number in box) No = 0 Yes = 1 Don't Know = 88 No Response =99 [ ]	1.12.2. Last season for which you harvested CORN with WINNER assistance? Year: __ __ __ __ Campaign: __ __
1.11.3. Did you receive WINNER assistance for growing RICE?	(Write Number in box) No = 0 Yes = 1 Don't Know = 88 No Response =99 [ ]	1.12.3. Last season for which you harvested RICE with WINNER assistance? Year: __ __ __ __ Campaigns: __ __
1.11.4. Did you receive WINNER assistance for growing PLANTAINS?	(Write Number in box) No = 0 Yes = 1 Don't Know = 88 No Response =99 [ ]	1.12.4. Last season for which you harvested PLANTAINS with WINNER assistance? Year: __ __ __ __

II: PLOT INFORMATION

Only include plots that were planted with WINNER assistance.

2.0. How many plots did you plant with WINNER assistance?

Plot number	2.1. List all plots planted with WINNER assistance by name (last growing season assisted by WINNER).	2.2. What is the tenure of this plot?	2.3. What is the total size of this plot?	2.4. Describe the slope of the land.	2.5. Did you install any of the following anti-erosion structures? *0 = No 1= Yes* 2.6 How effective were the anti-erosion structures? *00= Not effective 01 = Low effectiveness 02 = Some effectiveness 03 = Highly effective*							
	List all plots by name then answer Q 2.2 – 2.6 for each plot.	*1 = Own 2 = Rent (annual) 3 = Lease (3-5 yrs) 4 = Share Crop 5 = Enjoyment 6 = Usufruct 7 = Other*	*Surface Area (One Carreau = 1.29 hectares ~100 pace per side or 3.18 acres of land)*	*01 = Low (5-15%) → Go to Q 2.7 02 = Moderate (16-35%) → Go to Q 2.5 03 = High (>35% → Go to Q 2.5*	2.5a. Dry wall?	2.6a Effectiveness	2.5b. Canal contour ?	2.6b Effectiveness	2.5c. Vegetative hedges?	2.6c Effectiveness	2.5d. Other structure?	2.6d Effectiveness of the other structure
1												
2												
3												
4												
5												

Only include plots that were planted with WINNER assistance. Production must be measured in its dried form. Harvest = Household consumption +sale on foot +storage + sale in markets + donations + landlord shares.

A. CROP PRODUCTIVITY

Plot Number		2.7. What crops did you grow in this plot during the last WINNER assisted growing season?		2.7a Growing Season	2.8. For crops in association, what is the most important or dominant crop for each plot?	2.9. What unit do you use to measure this crop?	2.10. How much of each WINNER assisted crop did you plant before, during, and after WINNER assistance? *(use same code as in question 2.9 . Except for plantain, we know that the number in 2.10 relates to the amount of suckers while the number in 2.9 relates to the number of bunches* 2.10.a How much of each WINNER assisted crop did you harvest before, during, and after WINNER assistance? 2.11. What percentage of each harvest did you use to lose before, during and post-harvest,								
							a. Before WINNER			b. During WINNER			c. After WINNER		
		01 = beans *02 = corn* *03 = rice* *04=plantains* *00 = other*		01=Spring 02=Summer 03=Winter	*01=beans* *02=corn* *03=rice* *04=plantain* *00=other*	*01 = Small Marmite (0.45kg)* *02 = Large Marmite (2.7kg)* *03 = Regime (for plantain)* *04= Kg* *05= unit (By one)* *06=Dozen* *07=Load*	2.10 (#)	2.10a (%)	2.11 (%)	2.10’ (#)	2.10 a’ (%)	2.11’ (%)	2.10 ” (#)	2.10 a” (%)	2.11” (%)
1	A														
	B														
	C														
2	A														
	B														
	C														
3	A														
	B														
	C														
4	A														
	B														
	C														
5	A														
	B														
	C														

A1 –FURTHER DETAILS ON PLANTAIN PRODUCTIVITY

Note for the enumerator: if the famer grows plantain, use only the information on plantain found in the first 3 columns of the table above and keep them at the same spot and complete this table with the respondent.

Plot Number		2.7. What crops did you grow in this plot during the last WINNER assisted growing season?		2.7a. Growing Season	2.7 b How do you compare the size and weight of a plantain bunch you harvest under WINNER's assistance to the one before?	2.7c How do you compare the size and weight of a plantain bunch you harvest under WINNER's assistance to the one after?
		01 = Bean *02 = Corn* *03 = Rice* *04 =Plantain* *00 = Other*		*01=Spring* *02= Summer* *03=Winter*	**Before WINNER** 01 = Smaller 02 = Same 03= Bigger 04= N/A	**After WINNER?** 01 = Smaller 02 = Same 03= Bigger 04= N/A
1		A				
		B				
		C				
		A				
		B				
		C				
3		A				
		B				
		C				
4		A				
		B				
		C				
5		A				
		B				
		C				

A. ACCESS TO & USE OF AGRICULTURAL INPUTS, TECHNOLOGY, & EQUIPMENT

The X, Y, and Z columns refer to the periods before WINNER (X), last growing season with WINNER assistance (Y), and after WINNER assistance (Z)

X = before WINNER Y = last growing season with WINNER Z = after WINNER	*01 = gravity →Q 2.13 SKIP 2.14* *02 = pump →Q 2.14* *03 = rain fed →Q 2.15*		*0 = no* *1 = yes*	*0 = no* *1 = yes*
Plot Number	2.12. What was the primary source of irrigation used?		2.13. Were the irrigation canals constructed or rehabilitated by the WINNER project? (if 2.12 =1)	2.14. Was there any irrigation pump installed, replaced or repaired by the WINNER project? (if 2.12 =2)
	X	**Y**		
1				
2				
3				
4				
5				

X = before WINNER Y = last growing season with WINNER Z = after WINNER	*01 = WINNER variety* *02 = other improved variety* *03= hybrid variety* *04 = traditional* *00 = other (describe any other response)*			*01 =local market / private sector* *02 = non-WINNER association* *03 = BIA* *04 = government* *05 = WINNER association* *06 = previous harvest* *00 = other*			*01 = purchased @ 100% of price* *02 = WINNER voucher / subvention* *03 = WINNER gift* *04 = government subsidy* *05 = government gift* *06 = myself* *00 = other*		
Plot Number	2.15. What was the primary type of <u>seed</u> used?			2.16. Where did you acquire the seed?			2.17. How did you acquire the seed?		
	X	**Y**	**Z**	**X**	**Y**	**Z**	**X**	**Y**	**Z**
1									
2									
3									
4									
5									

Only include plots that were planted with WINNER assistance.

X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no → Q2.21* *1 = yes*	*01 = private sector / local market* *02 = non-WINNER association* *03 = CRDD* *04 = government* *05 = WINNER association* *06 = BIA* *00 = other*	*01 = purchased @ 100% of price* *02 = rented @ 100% of price* *03 = WINNER rental voucher* *04 = other rental subsidy* *05 = other gift* *00 = other*
Plot Number	2.18. Was a <u>sprayer</u> used?	2.19. Where did you acquire the sprayer?	2.20. How did you acquire the sprayer?

	X	Y	Z	X	Y	Z	X	Y	Z
1									
2									
3									
4									
5									

X = before WINNER Y = last growing season with WINNER Z = after WINNER	*01 = tractor* *02 = cultivator* *03= animal-drawn plow* *04=Traditional tools (hoe, pickaxe, sickle, etc.)* *00 = other*	*Use KEY Above*	*Use KEY Above*
Plot Number	2.21. What was the primary type of <u>equipment</u> used for land preparation?	2.22. Where did you acquire the equipment?	2.23. How did you acquire the equipment?

	X	Y	Z	X	Y	Z	X	Y	Z
1									
2									
3									
4									
5									

Only include plots that were planted with WINNER assistance.

X = before WINNER Y = last growing season with WINNER Z = after WINNER	*01=Sickle* *02 = Conical weeder* *03 =Traditional tools (hoe, pickaxe, sickle..)* *00 =other*	*01 = private sector/local market* *02 = non-WINNER association* *03 = CRDD* *04 = government* *05 = WINNER association* *06 = BIA* *00 = other*	*01 = purchased @ 100% of price* *02 = rented @ 100% of price* *03 = WINNER rental voucher* *04 = other rental subsidy* *05 = other gift* *00 = other*
Plot Number	2.24 What was the primary type of equipment used for land maintenance?	2.25 Where did you acquire the equipment?	2.26. How did you acquire the equipment?

	X	Y	Z	X	Y	Z	X	Y	Z
1									
2									
3									
4									
5									

III. CROP-SPECIFIC MODULES

A. **BEAN MODULE** **These questions should only be addressed to farmers that planted beans within the last growing season.**

BEAN WINNER TECHNIQUES & TECHNOLOGIES

A3.0.a: Who provided you with WINNER BEAN training? (Write number in box) *00= no one* *01 = REA/Agronomist/WNNER Technicians* *02 = CRDD* *03 = Master farmer* *04= Association Leader* *05 = Other (specify)* *99 = no response*	A3.0.b: How many BEAN trainings did you receive? (Write number in box)

SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes* *99 = never → next ACT*			*0 = no* *1 = yes*			*01 = useless* *02 = useful* *03 = very useful* *99 = no response*	*0 = no* *1 = yes*				
WINNER Agricultural Techniques [ACT]	A3.1. Did you learn about [ACT] for BEANS before (X), from (Y), or after (Z) WINNER?			A3.2. Did you use [ACT] for BEANS?			A3.3. Rate the usefulness of [ACT].	A3.4. To which plots of BEANS did you apply [ACT]?				
Agricultural techniques that WINNER promoted	**X**	**Y**	**Z**	**X**	**Y**	**Z**		**1**	**2**	**3**	**4**	**5**
A. Land Preparation: spread well decomposed manure, dose 15T/Ha before plowing if the land ready or before harrowing												
B. Planting Technique: harrow land 10 – 15 days after land preparation												
C. Planting Technique: create ridges 10m long and 60 cm wide												
D. Planting Technique: plant 1 seed per hole. Plant on both sides of the ridges in conjunction												
E. Water Management: 2-4 days after germination												
F. Soil analysis to determine need for fertilizers												
G. Using Pesticides: apply anti-cricket formula after planting seeds (*Grillidae*) Ingredients: 1 pot of corn stalks, 1 L of water, ½ bottle of sugar cane syrup, 15cc d'actellic insecticide; Preparation: pour pesticide into containers placed throughout the plot												
H. Using Pesticides: 10 days after germination, when the leaves are completely open, apply the insecticide *Actara* (13g/5 gallons of water) or *Dimethoate* (10cc/1 gallon of water) against aphides, *aleyrodoidea* (mouche blanche) and *metcalfa pruinosa* (cicadelle)												
I. First Weeding: 15 days after germination												
J. Second Weeding: before plant blooms												

SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes* *99 = never → next ACT*	*0 = no* *1 = yes*	*01 = useless* *02 = useful* *03 = very useful* *99 = no response*	*0 = no* *1 = yes*
WINNER Agricultural Techniques [ACT]	A3.1. Did you learn about [ACT] for BEANS before (X), from (Y), or after (Z) WINNER?	A3.2. Did you use [ACT] for BEANS?	A3.3. Rate the usefulness of [ACT].	A3.4. To which plots of BEANS did you apply [ACT]?
Agricultural techniques that WINNER promoted	**X** **Y** **Z**	**X** **Y** **Z**		**1** **2** **3** **4** **5**
K. Chemical Fertilizers: spread nitrogen fertilizer when plant blooms and after second weeding and based on soil analysis.				

BEAN POST-HARVEST HANDLING

A.3.5: Did you receive post-harvest handling/management information for BEANS from WINNER? If 0 → *Go to A3.7* (Write number in box) *0 = no* *1 = yes*	A3.6: Did you apply any of the techniques for BEANS presented by WINNER? i.e. (dry 3-5 days in sun on tarp or drying bash, use huller and winnow, store in silos or sacs when beans are cleaned and at 12% humidity) (Write number in box) *0 = never* *1 =sometimes* *2= always*

SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes*	*01 = private sector / local market* *02 = non-WINNER association* *03 = CRDD* *04 = government* *05 = WINNER association* *00 = other*	*01 = purchased @ 100% of price in cash* *02 = rented @ 100% of price in cash* *03 = WINNER rental voucher* *04 = other rental subsidy* *05 = other gift* *00 = other*
WINNER POST-HARVEST HANDLING MATERIALS [PH]	A3.7 What [PH] did you use for BEANS?	A3.8. Where did you acquire the [PH]?	A3.9 How did you acquire the [PH]?
	X **Y** **Z**	**X** **Y** **Z**	**X** **Y** **Z**
A. Tarps / drying bashes			
B. Huller			

C. Humidity gauge											
D. Silos											
E. Jute or sisal bags											
F. Other											

CORN MODULE **These questions should only be addressed to farmers that planted corn within the last growing season.**

B3.0.a: Who provided you with WINNER CORN training? (Write number in box)	B3.0.b: How many CORN trainings did you receive? (Write number in box)
00= no one/ no institition *01 = REA / Agronomist / WINNER Technician* *02 = CRDD* *03 = Association Leader* *04 = Other (specify)* *99 = no response*	

CORN WINNER TECHNIQUES & TECHNOLOGIES SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes* *99 = never → next ACT*			*0 = no* *1 = yes*			*01 = useless* *02 = useful* *03 = very useful* *99 = no response*	*0 = no* *1 = yes*				
WINNER Agricultural Techniques [ACT]	B3.1. Did you learn about [ACT] for CORN before (X), from (Y), or after (Z) WINNER?			B3.2. Did you use [ACT] for CORN?			B3.3. Rate the usefulness of [ACT].	B3.4. To which plots of corn did you apply [ACT]?				
Agricultural techniques that WINNER promoted	**X**	**Y**	**Z**	**X**	**Y**	**Z**		**1**	**2**	**3**	**4**	**5**
A. Land Preparation: soil analysis												
B. Take soil samples for analysis												

CORN WINNER TECHNIQUES & TECHNOLOGIES SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes* *99 = never → next ACT*			*0 = no* *1 = yes*			*01 = useless* *02 = useful* *03 = very useful* *99 = no response*	*0 = no* *1 = yes*				
WINNER Agricultural Techniques [ACT]	B3.1. Did you learn about [ACT] for CORN before (X), from (Y), or after (Z) WINNER?			B3.2. Did you use [ACT] for CORN?			B3.3. Rate the usefulness of [ACT].	B3.4. To which plots of corn did you apply [ACT]?				
Agricultural techniques that WINNER promoted	**X**	**Y**	**Z**	**X**	**Y**	**Z**		**1**	**2**	**3**	**4**	**5**
C. Land Preparation: spread organic fertilizer (manure / compost) based on recommendations following the soil analysis												
D. Land Preparation: dosage of organic fertilizer based on recommendations following the soil analysis: For poor soil use 15T/Ha or 450-500 bags of compost or manure /ha, For rich soil use 200 bags of compost or manure /ha) before harrowing												
E. Land Preparation: spread complete formula of chemical fertilizer before harrowing based on recommendations following the soil analysis												
F. Land Preparation: plow field set at 25 cm with mechanical cultivator												
G. Harrow 10-15 days after plowing												
H. Create ridges with a distance of 80 cm between ridge												
I. Land Preparation: weed field 10-15 days after applying fertilizer												
J. Planting Technique: make holes in the middle of the ridge, 15 cm apart and 4 cm deep												
K. Planting Technique: plant 1 seed per hole unless germination rates fall below 85%, then plant 2 seeds per hole												
L. Water Management: water 2-3 days after planting seeds												
M. Water Management: water after germination and every 8 days thereafter												
N. Weeding: 1st weed 15-22 days after planting or when plants have 3-4 leaves												

CORN WINNER TECHNIQUES & TECHNOLOGIES SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes* *99 = never → next ACT*			*0 = no* *1 = yes*			*01 = useless* *02 = useful* *03 = very useful* *99 = no response*	*0 = no* *1 = yes*				
WINNER Agricultural Techniques [ACT]	B3.1. Did you learn about [ACT] for CORN before (X), from (Y), or after (Z) WINNER?			B3.2. Did you use [ACT] for CORN?			B3.3. Rate the usefulness of [ACT].	B3.4. To which plots of corn did you apply [ACT]?				
Agricultural techniques that WINNER promoted	**X**	**Y**	**Z**	**X**	**Y**	**Z**		**1**	**2**	**3**	**4**	**5**
O. Thinning seedlings during 1st weeding if 2 seeds were planted per hole. Plant Thinning: ensure only one plant per hole, remove additional plants												
P. Weeding: 2nd weed 22 days after first weeding or when plants have 6-8 leaves												
Q. Chemical Fertilizers: 1st application of urea (46-0-0) immediately after the first weeding (3-4 visible leaves) as recommended by soil analysis												
R. Chemical Fertilizers: 2nd application of urea (46-0-0) after the second weeding (6-8 visible leaves) as recommended by soil analysis												
S. Using Pesticides: apply insecticide formula after blossoming; Sevin (7 g/1 gal of water)												
T. Using Pesticides: apply anti-cricket formula after planting seeds (*Grillidae*) Ingredients: 1 pot of corn stalks, 1 L of water, ½ bottle of sugar cane syrup, 15cc d'actellic insecticide.												
U. Using Pesticides: apply insecticide, anti-rust and anti-mildew formula after germination if 5% of plants have caterpillars; Ingredients: Sevin (7 g/1 gal of water) or Dipel (6 g/1 gal. of water) mixed with Dithane.												
V. Using Pesticides: apply Sevin powder to corn silk against corn earworms (*Heliothis zeae*)												

CORN POST-HARVEST HANDLING

B.3.5: Did you receive post-harvest handling information for CORN from WINNER? If 0 → *Go to B3.7* (Write number in box) *0 = no* *1 = yes*	B3.6: Did you apply any of the techniques for CORN presented by WINNER? i.e. (dry in sun on drying bashes 2-3 days, dekernel using machine, sort and grade, continue drying in the sun until the humidity reaches 12%, bag kernels) (Write number in box)

	0 = never *1 =sometimes* *2= always*

SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes*			*01 = private sector / Local market* *02 = non-WINNER association* *03 = CRDD* *04 = government* *05 = WINNER association* *00 = other*			*01 = purchased cash @ 100% of price* *02 = rented @ 100% of price* *03 = WINNER rental voucher* *04 = other rental subsidy* *05 = other gift* *00 = other*		
WINNER POST-HARVEST HANDLING MATERIALS [PH]	B3.7 What [PH] did you use for CORN?			B3.8. Where did you acquire the [PH]?			B3.9 How did you acquire the [PH]?		
	X	**Y**	**Z**	**X**	**Y**	**Z**	**X**	**Y**	**Z**
A. Tarps/ drying bashes									
D. Humidity gauge									
E. Silos									
F. Jute or sisal bags									
G. Other									

B. RICE MODULE These questions should only be addressed to farmers that planted rice within the last growing season.

C3.0.a: Who provided you with WINNER RICE training? (Write number in box) *00= no one / no institution* *01 = REA/Agronomists, WINNER Technicians* *02 = CRDD* *03 = Association Leader* *04 = Other (specify)* *99 = no response*	C3.0.b: How many RICE training sessions did you receive? (Write number in box)

RICE WINNER TECHNIQUES & TECHNOLOGIES

SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes* *99 = never → next ACT*			*0 = no* *1 = yes*			*01 = useless* *02 = useful* *03 = very useful* *99 = no response*	*0 = no* *1 = yes*				
WINNER Agricultural Techniques [ACT]	C3.1. Did you learn about [ACT] for RICE before (X), from (Y), or after (Z) WINNER?			C3.2. Did you use [ACT] for RICE?			C3.3. Rate the usefulness of [ACT].	C3.4.To which plots of RICE did you apply [ACT]?				
Agricultural techniques that WINNER promoted	**X**	**Y**	**Z**	**X**	**Y**	**Z**		**1**	**2**	**3**	**4**	**5**
A. Land Preparation: organic fertilizer (compost or manure well decomposed) 10 -15T/Ha) Info: On tone of manure is equivalent to 15 bags of rice of 100 kg each.												
B. Land Preparation: use tractor to plow land deeper												
C. Land Preparation: level the plot												
D. Seed Preparation: winnow the seeds, put seeds in water to sort out, keep seeds humid for germination test												
E. Seedling Preparation: cover the seeds with a layer of soil and dry hay, water each morning and evening, between 2 & 5 days remove the hay												
F. Transplanting Seedlings: water seedlings and remove seedling in 10-12 cm of mud with shovel as they are ready to be transplanted												
G. Transporting Seedlings from nursery to parcel: transplant seedlings with two leaves, aged 8-12 days, with an only 30 minute delay to planting												
H. Transplanting Seedlings: transplant seedlings 25 cm apart in muddy paddy in horizontal and vertical straight rows for easy weeding												
I. 1st Weeding: weed 15 days after transplanting using concical weeder												
J. Regular weeding: Weed every 10-15 days after the 1st weeding for the duration of the season												
K. Water Management: Keep seedlings under water for 2 weeks after transplanting, alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked												
L. Alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked												

SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes* *99 = never → next ACT*			*0 = no* *1 = yes*			*01 = useless* *02 = useful* *03 = very useful* *99 = no response*	*0 = no* *1 = yes*				
WINNER Agricultural Techniques [ACT]	C3.1. Did you learn about [ACT] for RICE before (X), from (Y), or after (Z) WINNER?			C3.2. Did you use [ACT] for RICE?			C3.3. Rate the usefulness of [ACT].	C3.4.To which plots of RICE did you apply [ACT]?				
Agricultural techniques that WINNER promoted	**X**	**Y**	**Z**	**X**	**Y**	**Z**		**1**	**2**	**3**	**4**	**5**
M. Water Management: during fast growing period keep plants under 2-3 cm of water permanently.												
M. Water Management: drain the paddy 3 weeks before harvesting and do not water												

RICE POST-HARVEST HANDLING

C.3.5: Did you receive post-harvest handling information for RICE from WINNER? If 0 → *Go to C3.7* (Write number in box) *0 = no* *1 = yes*	C3.6: Did you apply any of the techniques for RICE presented by WINNER? i.e. (dry, use huller and winnow, store in silos) (Write number in box) *0 = never* *1 = sometimes* *2= always*

SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes*			*01 = private sector/ Local market* *02 = non-WINNER association* *03 = CRDD* *04 = government* *05 = WINNER association* *00 = other*			*01 = purchased @ 100% of price* *02 = rented @ 100% of price* *03 = WINNER rental voucher* *04 = other rental subsidy* *05 = other gift* *00 = other*		
WINNER POST-HARVEST HANDLING MATERIALS [PH]	C3.7What [PH] did you use for RICE?			C3.8. Where did you acquire the [PH]?			C3.9. How did you acquire the [PH]?		
	X	**Y**	**Z**	**X**	**Y**	**Z**	**X**	**Y**	**Z**
A. Tarps/ drying bashes									
B. Huller									
C. Humidity gauge									

D. Silos									
E. Jute or sisal bags									
F. O6ther									

C. PLANTAIN MODULE <u>These questions should only be addressed to farmers that planted plantains within the last growing season.</u>

D3.0.a: Who provided you with WINNER PLANTAIN training? (Write number in box)	D3.0.b: How many PLANTAIN trainings did you receive? (Write number in box)
00= no one / no institution *01 = REA/Agronomists/WINNER Technicians* *02 = CRDD* *03 = Association Leader* *04 = Other (specify)* *99 = no response*	

PLANTAIN WINNER TECHNIQUES & TECHNOLOGIES <u>SUB-QUESTIONS</u> X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes* *99 = never → next ACT*			*0 = no* *1 = yes*			*01 = useless* *02 = useful* *03 = very useful* *99 = no response*	*0 = no* *1 = yes*				
WINNER Agricultural Techniques [ACT]	D3.1. Did you learn about [ACT] for PLANTAINS before (X), from (Y), or after (Z) WINNER?			D3.2. Did you use [ACT] for PLANTAINS?			D3.3 Rate the usefulness of [ACT].	D3.4. To which plots of RICE did you apply [ACT]?				
Agricultural techniques that WINNER promoted	**X**	**Y**	**Z**	**X**	**Y**	**Z**		**1**	**2**	**3**	**4**	**5**
A. Land Preparation: spread organic fertilizer one month prior to planting and plow the land with all the weeds												
B: Pointing out holes: Mark the plot for the holes location												
C: Planting distance: double row technique (2.5m apart on all sides): 2300 plants /Ha *Info for enumerator: traditional farming 1600 /Ha, WINNER techniques: allow farmers to plan more plantains per hectare.*												

PLANTAIN WINNER TECHNIQUES & TECHNOLOGIES

SUB-QUESTIONS
X = before WINNER
Y = last growing season with WINNER
Z = after WINNER

WINNER Agricultural Techniques [ACT]	*0 = no* *1 = yes* *99 = never → next ACT* D3.1. Did you learn about [ACT] for PLANTAINS before (X), from (Y), or after (Z) WINNER?			*0 = no* *1 = yes* D3.2. Did you use [ACT] for PLANTAINS?			*01 = useless* *02 = useful* *03 = very useful* *99 = no response* D3.3 Rate the usefulness of [ACT].	*0 = no* *1 = yes* D3.4. To which plots of RICE did you apply [ACT]?				
Agricultural techniques that WINNER promoted	**X**	**Y**	**Z**	**X**	**Y**	**Z**		**1**	**2**	**3**	**4**	**5**
D. Seedling preparation: for local plantain varieties, clean up the roots												
E. Seedling preparation: for local plantain varieties, after the clean up, cut off the infected parts (paraj) and soak in insecticide (pralinaj)												
F. Water Management: irrigate every 8 days in dry and windy areas and every 15 days in wet areas												
G. Weeding: weeding each time fertilizer is to be applied												
H. Chemical Fertilizers: apply fertilizer (10-15 g per tree) 45 days and 90 days after planting, apply again after six months												
I. Plant Management: cut off the remaining flowers at tip of every banana fruit 5-8 days after the bunch appears to prevent infection from sigatoka disease.												
J. Plant Management: Cut off flowers at the bunch 15-20 days after it appears for stronger and bigger plantains.												

PLANTAIN POST-HARVEST HANDLING

D.3.5: Did you receive post-harvest handling information for PLANTAINS from WINNER*? If 0 → Go to D3.7* (Write number in box) *0 = no* *1 = yes*	D3.6: Did you apply any of the techniques for PLANTAINS presented by WINNER? (Write number in box) *0 = never* *1 =sometimes* *2= always*

SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes*			*01 = private sector* *02 = non-WINNER association* *03 = CRDD* *04 = government* *05 = WINNER association* *00 = other*			*01 = purchased @ 100% of price* *02 = rented @ 100% of price* *03 = WINNER rental voucher* *04 = other rental subsidy* *05 = other gift* *00 = other*		
WINNER POST-HARVEST HANDLING MATERIALS [PH]	D3.7. What [PH] did you use for PLANTAINS?			D3.8. Where did you acquire the [PH]?			D3.9. How did you acquire the [PH]?		
	X	**Y**	**Z**	**X**	**Y**	**Z**	**X**	**Y**	**Z**
A. Packing frames									
B. Packing crates									
C. Mobile collection units									
D. Other									

VIII. MARKETING INFORMATION

	0 = no *1 = yes*	*0 = no* *1 = yes*	*01 = useless* *02 = useful* *03 = very useful* *99 = no response*	*0 = no* *1 = yes*					*01 = useless* *02 = useful* *03 = very useful* *99 = no response*		*0 = no* *1 = yes*
WINNER MARKET INFORMATION [MI]	4.1 Did you receive market information via [MI] from WINNER?	4.2 Was information received via [MI] new?	4.3 Rank the usefulness of the WINNER [MI] information?	4.4 Did you use the [MI] to make decisions on [A – E]?					4.5 To what extent was this [MI] information useful to increase your sales?		4.6 Did you use the [MI] to decide what or how to plant?
	If 0 for all → Q5.1			*a. sale price of crops*	*b. timing of crop sales*	*c. location of crop sales*	*d. type of crop to sell*	*e: other If 1 answer Q4.6*			
A. SMS											
B. REA / Agricultural											

technicians										
C. CRDD										
D. Other										

IV. WATERSHED MANAGEMENT

0 = no *1 = yes*	
5.1 Are you aware of any activities in your community, which would improve watershed management (i.e. hillside erosion control, riverbed sediment control, controlling waterways)? *If 0 → End of Survey* (Use the survey guide to give more information)	

SUB-QUESTIONS X = before WINNER Y = last growing season with WINNER Z = after WINNER	*0 = no* *1 = yes*			*0 = no* *1 = yes*
WINNER WATERSHED MANAGEMENT ACTIVITIES	**5.2 Which WINNER activities were implemented in your community?**			**5.2.a. Were those activities implemented by WINNER?**
	X	**Y**	**Z**	
A. Dry wall installation or repair				
B. Gabion installation or repair				
C. Grass planting, leaving hedge rows to protect land				
D. Ravine cleaning				
E. Reforestation				
Other (precise)				

5.3 Has erosion decreased in your community after WINNER? (Valid for upland plots)
(Write number in box)
0 = no
1 = yes

5.4 Do you usually have flooding in your community?
(Write number in box)
0 = no
1 = yes
2 = I don't know

5.5 If yes, do you think that flooding make less damage in your community after WINNER?
(Write number in box)
0 = no
1 = yes2 =
2 = I don't know

5.6 If yes, do you think that the flooding that make less damage in your community happened because of the work completed by WINNER in your community?
(Write number in box)
0 = no
1 = yes2 =
2 = I don't know

5.7 If yes, do you think that the flooding that make less damage in your community happened because of the work completed by WINNER in the uplands away from your community?
(Write number in box)
0 = no
1 = yes
2 = I don't know

5.8 Do you thing the work completed by WINNER in the community or uplands help increase the level of production of your plots?
(Write number in box)
0 = no
1 = yes
2 = I don't know

5.9 If yes, explain why?

ANNEX IV: QUALITATIVE DISCUSSION GUIDE

CONSENT/INTRODUCTION

Thank you for meeting with us. My name is [name]. [Introductions.] I am part of an independent evaluation team, collecting data for an evaluation of Haiti WINNER project. I am working for Social Impact, who is conducting the evaluation on behalf of USAID. You have been asked to meet with us because we want to understand the perspectives/opinions of key stakeholders on this program. I would like to ask you some questions and take notes on your responses. This interview is confidential and voluntary. You should feel safe and comfortable to respond in this conversation. What you tell me will only be used to better understand effectiveness of the Haiti WINNER project, and to improve future similar projects. We will be summarizing our findings in a report, but no names will be connected with any of the information in the report. Your name will not be linked to any of your answers. Being mindful of the importance of time we will try to complete this interview in less than an hour but will appreciate your patience if we take a little longer. You can end the interview at any time and have no obligation to answer any questions asked. You should feel comfortable asking any questions at any time during the conversation. If you feel that any of the questions are too difficult to answer or you are not comfortable with a question, this is not a problem. We will just skip to the next question.

Do you have questions on the evaluation or this meeting before we begin?

AGRODEALERS/ BIAS

Questions

1. Describe your participation with the WINNER project.
2. What were the benefits of participating in the project for your company?
3. Please describe the types of farmers who frequent your business. Type of farmer? Age? Sex? Socioeconomic status?
4. Did you notice a change in type of farmers following WINNER? Did you notice a change in the number of clients? Please describe.
5. For which products did you record an increase in demand as a result of WINNER intervention?
6. For which products did you record a decrease in demand as a result of WINNER intervention?
7. In your opinion, what have been the most productive agricultural seasons in recent years? Why?
8. How were farmers linked to your business?
9. What, if any, market information did you observe the WINNER project disseminated to farmers? How did this affect your business?
10. What kind of changes did you observe in the farmers' supply and practices as a result of WINNER intervention?
11. Are you able to meet demand for products introduced under WINNER? Why or why not?
12. Now that the project has ended, what kind of continuing effects do you still observe as a result of this project?
13. Which lessons learned from the project will you continue applying or teaching others?
14. What activities do you feel would be helpful to adopt for the new WINNER project?
15. Do you have any advice for the new WINNER follow on project?

GOVERNMENT OFFICIALS & USAID

Questions

1. Describe your participation or your experience with the WINNER project.
2. In your opinion, which were the WINNER activities (watershed management, promotion of farming technologies and inputs, linkages with buyers) that helped the target population (your community or department) the most. Why?
3. In your opinion, what are the WINNER project's successful results?
4. What WINNER activities have continued in your area since the project ended last year? Why have they been successful, or why weren't activities continued?
5. To what extent did WINNER work to build women's participation in agricultural production and decision making?
6. Describe how WINNER has contributed to poverty reduction in the targeted area of intervention.
7. How has WINNER influenced policy papers and government planning, globally or in the corridors?
8. Which activities do you feel should have been focused on more? Why?
    a. Probe: What gaps or failings do you see in the WINNER approach or activities, in regards to productivity / reducing flooding / post-harvest losses?
9. How sustainable do you feel the activities were? Explain.

    a. Probe: What activities that you did with WINNER will you stop/continue to do after the project finishes? Why?
10. The follow-on WINNER project will also focus on watershed management and increasing farmer productivity. What recommendations would you provide to this new project?

WINNER PROJECT STAFF

Questions

1. Describe your job/role with and contribution to the WINNER project.
2. How would you answer the evaluation questions, "I) To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West Corridor?"
3. How would you answer the evaluation questions, "2) To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?"
4. How would you answer the evaluation questions, "3) What is the impact of market information in guiding farmer production and marketing decisions?"
5. How would you answer the evaluation questions, "4) To what extent have project interventions actually reduced post-harvest losses?"

Cross-Cutting Probes

1. What worked in the implementation of the WINNER project? Why?
2. What didn't work in the implementation of the WINNER Project ? Why ?
3. What new approaches have farmers adopted from WINNER? Why did they adopt these new practices? How so?
4. Are there any teachings from WINNER that have not been largely adopted?
5. What were the project beneficiaries' barriers to adopting the new ideas?
6. To what extent did WINNER work to build women's participation in agricultural production and decision making?
7. Challenges to involving female farmers and workers. Please describe the division of labor for agricultural activities by men, women and children. (Land preparation, planting, fertilizer application, weeding, harvesting, etc)
8. Challenges to maintaining watershed structure, model farmers, CRDDs, REAs, post-harvest handling, information transfer, farmer adoption.
9. How do you think the activities will be sustained?
10. What are the challenges to sustaining activities?
11. What would you recommend to the follow-on project?

WINNER CRDD STAFF

Questions

1. Describe the work you did while a part of the WINNER project.
2. What were the strengths and weaknesses of the CRDD element of the WINNER project?
    a. What worked? Why?
    b. What did not work? Why?
3. Which WINNER activities had the strongest impact in increasing agricultural productivity?
4. Please describe any differences observed on farmer plots that incorporated WINNER teachings and inputs vs. plots did not.
5. To what extent did WINNER work to build women's participation in agricultural production and decision making?

6. Please describe the division of labor for agricultural activities by men, women and children. (Land preparation, planting, fertilizer application, weeding, harvesting, etc)
7. Now that the project has ended, are the BIAs meeting farmer needs for agricultural inputs?
8. What changes, if any, have you observed regarding flooding in the West Corridor as a result of WINNER interventions?
9. What improvements could be made to reduce flooding in these areas?
10. Please describe how market information was shared with local farmers through WINNER.
11. What were the strengths of the market information share with farmers? What could have been improved?
12. How did farmers use this information?
13. Before WINNER, how would you describe post-harvest losses for local farmers? What crops suffer most from post-harvest losses?
14. After WINNER, how would you describe post-harvest losses for local farmers?
15. What are the current activities of the CRDD? What are the services offered to the farmers?
    a. What are the changes made after the hand over from WINNER?
16. Are you facing any difficulties in terms of management? How will you address them?
17. What new approaches have farmers adopted from WINNER? Why did they adopt these new practices?
18. Are there any teachings from WINNER that have not been largely adopted? Why not?
19. Where do you see the CRDD in five years?
    a. How can CRDD best continue to operate and serve farmers? What needs to be done in order to ensure this happens?
20. What advice would you give to the new WINNER project when thinking about sustainability?

FARMER ASSOCIATIONS

Questions

1. Describe how the WINNER project worked in your community.
    a. Probe: What has WINNER introduced to the area? (crop varieties, inputs, practices, environmental measures, watershed management)
    b. Probe: How has your association participated in the project?
2. Describe the participation of different types of community members such as of women, the poor, the food insecure, and other marginalized groups during the project.
    a. Probe: How did farmer associations change their approach to working with women as a result of the WINNER project?
    b. Who are the primary decision makers in the agricultural sector?
    c. To what extent did WINNER work to build women's participation in agricultural production and decision making?
    d. Please describe the division of labor for agricultural activities by men, women and children. (Land preparation, planting, fertilizer application, weeding, harvesting, etc)
3. What did you like about the WINNER project?
    a. Probe: What were the benefits to you and your community from participating?
    b. Probe: Have you noticed an increase in yields with WINNER? For which crops?
    c. Probe: Did farmers make more money with WINNER? Do farmers continue to make more money after WINNER?
    d. Probe: Has the increase in productivity been accompanied with an increase in income?
4. Did WINNER interventions reduce flooding?
    a. Which specific interventions reduced flooding?
    b. How do you know that flooding has been reduced?
5. Did WINNER interventions improve marketing?

   a. Please describe how market information was shared with local farmers through WINNER.
   b. What were the strengths of the market information share with farmers? What could have been improved?
   c. How did farmers use this information?
6. Did WINNER interventions reduce post-harvest losses?
   a. Before WINNER, how would you describe post-harvest losses for local farmers? What crops suffer most from post-harvest losses?
   b. After WINNER, how would you describe post-harvest losses for local farmers?
7. What WINNER advice will you continue to apply now that the project has ended?
   a. Probe: What kind of technical advice related to agriculture & watershed will you continue to apply?
   b. Probe: What kind of mechanisms has the association put into place to replicate WINNER training/techniques for maximum impact?
8. What were the weaknesses of the WINNER project?
   a. Probe: What did you think the project did wrong? How would you fix these problems?
   b. What kind of innovative and/or corrected measure, would you propose?
9. How is your life different now as compared to before the WINNER project?

WINNER PROJECT STAFF

Questions

1. Describe your job/role with and contribution to the WINNER project.
2. How would you answer the evaluation questions, "I) To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West Corridor?"
3. How would you answer the evaluation questions, "2) To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?"
4. How would you answer the evaluation questions, "3) What is the impact of market information in guiding farmer production and marketing decisions?"
5. How would you answer the evaluation questions, "4) To what extent have project interventions actually reduced post-harvest losses?"

Cross-Cutting Probes

1. What worked in the implementation of the WINNER Project? Why?
2. What didn't work in the implementation of the WINNER project? Why
3. What new approaches have farmers adopted from WINNER? Why did they adopt these new practices? How so?
4. What kind of constraints did you use to face in your jobs to assist the farmers?
5. What gaps, weaknesses did you see in the techniques promoted by WINNER?
6. Are there any teachings from WINNER that have not been largely adopted?
7. What were the project beneficiaries' barriers to adopting the new ideas?
8. To what extent did WINNER work to build women's participation in agricultural production and decision making?
9. Challenges to involving female farmers and workers. Please describe the division of labor for agricultural activities by men, women and children. (Land preparation, planting, fertilizer application, weeding, harvesting, etc)

10. Challenges to maintaining watershed structure, model farmers, CRDDs, REAs, post-harvest handling, information transfer, farmer adoption.
11. How do you think the activities will be sustained?
12. What are the challenges to sustaining activities?
13. What would you recommend to the follow-on project?

MASTER FARMERS

Questions

1. Describe your job/role with and contribution to the WINNER project.
2. How would you answer the evaluation questions, "I) To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West Corridor?"
3. How would you answer the evaluation questions, "2) To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?"
4. How would you answer the evaluation questions, "3) What is the impact of market information in guiding farmer production and marketing decisions?"
5. How would you answer the evaluation questions, "4) To what extent have project interventions actually reduced post-harvest losses?"

Cross-Cutting Probes

1. What worked in the implementation of the WINNER Project? Why?
2. What didn't work in the implementation of the WINNER project? Why
3. What new approaches have farmers adopted from WINNER? Why did they adopt these new practices? How so?
4. What kind of constraints did you use to face in your jobs to assist the farmers?
5. What gaps, weaknesses did you see in the techniques promoted by WINNER?
6. Are there any teachings from WINNER that have not been largely adopted?
    a. What were the project beneficiaries' barriers to adopting the new ideas?
7. To what extent did WINNER work to build women's participation in agricultural production and decision making?
8. Challenges to involving female farmers and workers. Please describe the division of labor for agricultural activities by men, women and children. (Land preparation, planting, fertilizer application, weeding, harvesting, etc)
9. Challenges to maintaining watershed structure, model farmers, CRDDs, REAs, post-harvest handling, information transfer, farmer adoption.
10. How do you think the activities will be sustained?
11. What are the challenges to sustaining activities?
12. What would you recommend to the follow-on project?

BAC

Questions

1. Describe your job/role with and contribution to the WINNER project.
2. How would you answer the evaluation questions, "I) To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West Corridor?"

3. How would you answer the evaluation questions, "2) To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?"
4. How would you answer the evaluation questions, "3) What is the impact of market information in guiding farmer production and marketing decisions?"
5. How would you answer the evaluation questions, "4) To what extent have project interventions actually reduced post-harvest losses?"

Cross-Cutting Probes

1. What worked in the implementation of the WINNER Project? Why?
2. What didn't work in the implementation of the WINNER project? Why
3. What new approaches have farmers adopted from WINNER? Why did they adopt these new practices? How so?
4. What gaps, weaknesses did you see in the techniques promoted by WINNER?
5. Are there any teachings from WINNER that have not been largely adopted?
    a. What were the project beneficiaries' barriers to adopting the new ideas?
6. To what extent did WINNER work to build women's participation in agricultural production and decision making?
7. Challenges to maintaining watershed structure, model farmers, CRDDs, REAs, post-harvest handling, information transfer, farmer adoption.
8. How do you think the activities will be sustained?
9. What are the challenges to sustaining activities?
10. What would you recommend to the follow-on project?

WATER USER ASSOCIATIONS

Questions

1. Describe your job/role with and contribution to the WINNER project.
2. Describe the type of irrigation system used :
    a. Canal (gravity only)
    b. Pomp
3. How would you answer the evaluation questions, "I) To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West Corridor?"

Cross-Cutting Probes

1. What worked in the implementation of the WINNER Project on your irrigation system ? Why?
2. What didn't work in the implementation of the WINNER project on your irrigation system ? Why?
3. What new approaches have farmers adopted from WINNER? Why did they adopt these new practices? How so?
4. What new approaches have farmers not adopted from WINNER? Why didn't they adopt these new practices? How so?
5. What gaps, weaknesses did you see in the works done or rehabilitated by WINNER
6. Challenges to maintaining irrigation system?
7. Challenge to capitalizing on the irrigation system ?
8. How do you think the activities will be sustained?
9. What are the challenges to sustaining activities?
10. What would you recommend to the follow-on project?

WINNER FARMERS

Questions

Project Context & Description

1. Describe how the WINNER project worked in your community.
2. How many years did farmers in your community work with WINNER?
3. What was the role of your association in the project?
4. Describe the participation of different types of community members such as of women, the poor, the food insecure, and other marginalized groups during the project
5. What other similar projects have also worked in your community. Describe when they were here and what they did.
6. What has WINNER introduced to the area? (crop varieties, inputs, practices, environmental measures, watershed management)

Agricultural Productivity

7. How did WINNER help your farm better?
8. What kind of technical advice related to agriculture did you learn? What will you continue to apply?
9. What mechanisms has the association put into place to replicate WINNER training/techniques for maximum impact?
10. Did you notice an increase in yields with WINNER? For which crops? To what do you attribute the increased yields?
11. How did access to agricultural inputs (fertilizer formulas, pesticides, seeds, tools) change from before the WINNER project to during the WINNER project to now that the WINNER project has closed? Talk about access in terms of location, timing and price of inputs or bean, corn, rice and plantains.
12. Were those inputs donated or subsidized by WINNER? Which ones?
13. What seeds has WINNER introduced to your community? (hybrid varieties, especially hybrid corn)
14. Describe your experiences with those varieties over the seasons?
15. Do you have access to those hybrid varieties now that the project has ended?
16. Do you continue to buy those inputs after the project ended? Which ones? Why or why not?

Flooding

17. How can you describe WINNER interventions related to watershed management in your area? (types of interventions).
18. Did you use to have flooding in your area ?
19. Did WINNER interventions reduce flooding?
20. Which specific interventions reduced flooding?
21. How do you know that flooding has been reduced?
22. What kind of technical advices related to watershed management and flood reduction did you receive from WINNER?
23. Which ones will you continue to apply? and why?

Market Information

1. Please describe how market information was shared with local farmers through WINNER.
2. How did farmers use this information?
3. What were the strengths of the market information share with farmers? What could have been improved?
4. Did WINNER interventions improve marketing?

Post-Harvest Losses

1. What crops suffer most from post-harvest losses?
2. Did WINNER interventions reduce post-harvest losses?
3. Compare post-harvest losses for beans, corn, rice and plantains before the WINNER project, during the WINNER project, and today.
4. What conservation activities have changed and what are different?
5. What WINNER post-harvest advice will you continue to apply now that the project has ended?

Results

1. What did you like about the WINNER project? What were the benefits to you and your community from participating?
2. What were the weaknesses of the WINNER project? What did you think the project did wrong? How would you fix these problems? What kind of innovative and/or corrected measure, would you propose?
3. Has the increase in productivity been accompanied with an increase in income? Did farmers make more money when the WINNER project was active than before the WINNER project? Do farmers continue to make more money after WINNER?
4. How is your life different now as compared to before the WINNER project?

Recommendations

1. If you could go back to the start of the WINNER, what advice would you give them, if any?

Comments

1. Is there anything we did not discuss that you think I should know?

CROP SPECIFIC QUALITATIVE DISCUSSION GUIDE

Rice Growers

1. Considering the (SRI) technical package promoted by WINNER, see:
    a. Land Preparation: organic fertilizer (compost or manure 10 (15 bags)-15T/Ha)
    b. Land Preparation: use tractor to plow land
    c. Land Preparation: level the plot
    d. Seed Preparation: winnow the seeds, put seeds in water to sort out, keep seeds humid for germination test
    e. Seedling Preparation: cover the seeds with a layer of soil and dry hay, water each morning and evening, between 2 & 5 days remove some hay daily
    f. Transplanting Seedlings: water seedlings and remove seedling in 10-12 cm of mud with shovel as they are ready to be transplanted
    g. Transplanting Seedlings: transplant seedlings with two leaves, aged 8-12 days, with an only 12 minute delay to planting
    h. Transplanting Seedlings: transplant plant seedlings, 25 cm apart in muddy paddy in horizontal and vertical straight rows for easy weeding
    i. Weeding: weed 15 days after transplanting using concical weeder
    j. Weed every 10-15 days after the 1st weeding for the duration of the season
    k. Water Management: Keep seedlings under water for 2 weeks after transplanting, alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked
    l. Water Management: during fast growing period keep plants under 2-3 cm of water permanently.
    m. Water Management: drain the paddy 3 weeks before harvesting and do not water
2. What constitutes the package (print techniques on separate sheet for guidance as presented in the quantitative survey)?

3. How it was introduced to the farmers?
4. How the farmers receive it and apply the package (in their plots)?
5. Is it adopted by the farmers?
6. What were the constraints or barriers to the application and adoption of the techniques?
7. What do farmers propose as solutions and strategies to overcome those barriers?

Plantains Growers

1. Considering the technical package promoted by WINNER, see:
    a. Land Preparation: spread organic fertilizer one month prior to planting and plow the land with all the weeds
    b. Pointing out holes: Mark the plot for the holes location
    c. Planting distance: double row technique (2.5m apart on all sides): 2300 plants /Ha
    d. Info for enumerator: traditional farming 1600 /Ha, WINNER techniques: 2300/Ha
    e. Seedling preparation: for local plantain varieties, clean up the roots, cut off the infected parts and soak in insecticide
    f. Water Management: irrigate every 8 days in dry and windy areas and every 15 days in wet areas
    g. Weeding: hoe each time fertilizer is to be applied
    h. Chemical Fertilizers: apply fertilizer (10-15 g per tree) 45 days and 90 days after planting, apply again after six months
    i. Plant Management: cut off the remaining flowers at tip of every banana fruit 5-8 days after the bunch appears to prevent infection from sigatoka disease.
    j. Plant Management: Cut off flowers at the bunch 15-20 days after it appears for stranger and bigger fruits.
2. What constitutes the package (print techniques on separate sheet for guidance as presented in the quantitative survey)?
3. How it was introduced to the farmers?
4. How the farmers receive it and apply the package (in their plots)?
5. Is it adopted by the farmers?
6. What were the constraints or barriers to the application and adoption of the techniques?
7. What do farmers propose as solutions and strategies to overcome those barriers?

Corn Growers

1. Considering the (SRI) technical package promoted by WINNER, see:
    a. Land Preparation: soil analysis: take soil samples for analysis
    b. Land Preparation: spread organic fertilizer based on recommendations following the analysis (for poor soil use 15T/Ha or 450-500 bags of compost or manure /ha, for medium soil use 200 bags of compost or manure /ha) before harrowing
    c. Land Preparation: spread complete formula of chemical fertilizer before harrowing, after planting, or after germination
    d. Land Preparation: plow field set at 25 cm, Harrow 10-15 days after plowing, make ridges 80 cm apart from each other
    e. Land Preparation: weed field 10-15 days after applying fertilizer
    f. Planting Technique: make holes in the middle of the ridge, 15 cm apart and 4 cm deep
    g. Planting Technique: plant 1 seed per hole unless germination rates fall below 85%, then plant 2 seeds per hole
    h. Water Management: water 2-3 days after planting seeds
    i. Water Management: water after germination and every 8 days thereafter
    j. Weeding: 1st weed 15-22 days after planting or when plants have 3-4 leaves, thining

seedlings during 1st weeding if 2 seeds were planted per hole

k. Weeding: 2nd weed 22 days after first weeding or when plants have 6-8 leaves
l. Plant Thinning: ensure only one plant per hole, remove additional plants
m. Chemical Fertilizers: 1st application of urea (46-0-0) immediately after the first weeding (3-4 visible leaves) as recommended by soil analysis, 2nd application of urea (46-0-0) after the second weeding (6-8 visible leaves) as recommended by soil analysis,
n. Using Pesticides: apply anti-cricket formula after planting seeds (Grillidae) Ingredients: 1 pot of corn stalks, 1 L of water, ½ bottle of sugar cane syrup, 15cc d'actellic insecticide; Preparation: Preparation: pour pesticide into containers placed throughout the plot
o. Using Pesticides: apply insecticide, anti-rust and anti-mildew formula after germination if 5% of plants have caterpillars; Ingredients: Sevin (7 g/1 gal of water) or Dipel (6 g/1 gal. of water) mixed with Dithane. Repeat application if attacks persist.
p. Using Pesticides: apply insecticide formula after blossoming; Sevin (7 g/1 gal of water)
q. Using Pesticides: apply Sevin powder to corn silk against corn earworms (Heliothis zeae)

2. What constitutes the package (print techniques on separate sheet for guidance as presented in the quantitative survey)?
3. How it was introduced to the farmers?
4. How the farmers receive it and apply the package (in their plots)?
5. Is it adopted by the farmers?
6. What were the constraints or barriers to the application and adoption of the techniques?
7. What do farmers propose as solutions and strategies to overcome those barriers?

Bean Growers

1. Considering the technical package promoted by WINNER, see:
    a. Land Preparation: soil analysis
    b. Land Preparation: organic fertilizer (compost or manure 15T/Ha) before plowing if land ready or before harrowing
    c. Planting Technique: harrow land 10 – 15 days after land preparation
    d. Planting Technique: create ridges 10m long and 60 cm wide
    e. Planting Technique: make staggered holes for seeds 10 cm apart on each side of the ridge
    f. Planting Technique: plant 1 seed per hole
    g. Water Management: 2-4 days after planting & germination and every 8 days thereafter
    h. Using Pesticides: apply anti-cricket formula after planting seeds (Grillidae) Ingredients: 1 pot of corn stalks, 1 L of water, ½ bottle of sugar cane syrup, 15cc d'actellic insecticide; Preparation: pour pesticide into containers placed throughout the plot
    i. Using Pesticides: 10 days after germination, when the leaves are completely open, apply the insecticide Actara (13g/5 gallons of water) or Dimethoate (10cc/1 gallon of water) against aphides, aleyrodoidea (mouche blanche) and metcalfa pruinosa (cicadelle)
    j. Weeding: 15 days after germination & before blooming
    k. Chemical Fertilizers: spread nitrogen fertilizer when plant blooms and after second weeding and based on soil analysis.
2. What constitutes the package (print techniques on separate sheet for guidance as presented in the quantitative survey)?
3. How it was introduced to the farmers?
4. How the farmers receive it and apply the package (in their plots)?
5. Is it adopted by the farmers?
6. What were the constraints or barriers to the application and adoption of the techniques?
7. What do farmers propose as solutions and strategies to overcome those barriers?

ANNEX V: SOURCES OF INFORMATION

A. Key Informants Interviewed

Key Informants Interviewed

Name	Sex	Position	Affiliation	City
Ahns Roody Samy Sainte Juste	M	Engineer - Agronomist	Commerce Agricole s.a. (ComAg) (Agrodealer)	Port au Prince, Haiti
Arnoux Severin	M	Directeur	MARNDR - Services Protection de Vegetaux	Port au Prince, Haiti
Beatrice Pierre	F	EGE M&E Officer	USAID/Haiti	USAID Haiti
Blanc Jean Erius	M	Member	Association des Travailleurs pour le Developpment de Bois Cotin	Port au Prince, Haiti
Bobby Emmanuel Piard	M	Director	Centre Nationale de l'Information Géo-Spatiale	Port au Prince, Haiti
Emilio Exil	M	Guard	Municipality of Thomazeau	Port au Prince, Haiti
Emmanuel Prophet	M	Director	MARNDR - Services Nationale Semencier	Port au Prince, Haiti
Gregory Fritz Cadet	M	Directeur	CRDD Montrouis	Port au Prince, Haiti
Guito Laurore	M	Directeur	Direccion Departementale Agricole (DDA) de l'Ouest	Port au Prince, Haiti
Guito Regis	M	Soil Conservation specialist	WINNER staff	Montrious, Haiti
James Woolley	M	WINNER COR	USAID/Haiti	USAID/Haiti
Jean Gedeon Celestin	M	Member	Association des Jeunes Patriotes de Drouillard	Port au Prince, Haiti
Jean Mario Sylvain	M	Member	Association des Irriguants de la Plaine de l'Arcahaie (AIPA)	Archaie, Haiti
Jean Robert Estime	M	COP	WINNER Project	Montrious, Haiti
Jehan-Henri Dartigue	M	President- Director General	Darbouco s.a. (Agrodealer)	Port au Prince, Haiti

Key Informants Interviewed

Name	Sex	Position	Affiliation	City
Jn Gilles Luc Alina	F	Reponsable Technique (Volontaire)	Direction Protection Civile	Port au Prince, Haiti
John Atis	M	Directeur	CRDD Kenscoff	Montrious, Haiti
Jose Ruth Fevrius	F	Member	COPACMA COPAC Matheux	Port au Prince, Haiti
Joseph Usnick Dorcelus	M	WINNER Infrastructure Engineer	Independent	Bethel, Haiti
Karl Littlejohn	M	WIF Officer	WINNER Project	Montroius, Haiti
Kenel Cadet	M	Directeur	CRDD Bas Boen	CDS
Kenel Cadet	M	Directeur	CRDD Bas Boen	Port au Prince, Haiti
Lidwine Hyppolite	F	ME&R officer	WINNER Project	Montroius, Haiti
Louis Marquise	F	Member	ASIDEC	Port au Prince, Haiti
Ludner Remarais	M	Directeur général du BME Ex-Directeur du Département de l'Ouest du MDE	Bureau des Mines et de l'Energie (BME) Ministère de l'Environnement (MDE)	Port au Prince, Haiti
Marie C.Vorbes	F	Training manager	WINNER Project	Montrious, Haiti
Marie Pascale Francois	F	CRDD Montrious	Former WINNER Staff	Port au Prince, Haiti
Mario Kerby	M	Deputy COP	Chemonics International	Washington, DC
Me Clairmond	M	Clerk	Tribunal of Peace of Thomazeau	Port au Prince, Haiti
Miracle Fritzner Belliard	M	President	Cooperative des Paysans Chanpyon de Kenscoff - Petion-Ville (COPACK-PV)	Kenskoff, Haiti
Mme Jean desilia	F	Member	Association des Amis de la Societe	Port au Prince, Haiti
Moise Jean	M	Mayor	Municipality of Thomazeau	Port au Prince, Haiti
Myrlene Chrysostome	F	WINNER AOR	USAID/Haiti	Port au Prince, Haiti
Nadège Beauvil	F	PPPP officer	WINNER staff	Port au Prince, Haiti

Key Informants Interviewed

Name	Sex	Position	Affiliation	City
Pascale Toyo	F	Regional training officers	WINNER staff	Port au Prince, Haiti
Phillipe Bellerive	M	Market information officer	WINNER Project	Port au Prince, Haiti
Pierre Guerrier	M	Member	Association des Irriguants de la Plaine de l'Arcahaie (AIPA)	Archaie, Haiti
Pierre Louis Ricardy	M	Responsable Encadrement Agricole (REA)	WINNER Project	Archaie, Haiti
Pierre Marcelus	M	Infrastructure officer	WINNER staff	
Pierre Moreau	M	President	Association des Irriguants de la Plaine de l'Arcahaie (AIPA)	Archaie, Haiti
Pierre Noel Elie	M	Public Relations Officer	Organization pour le developpment pour la commune d'Archaie (ODCA)	Coujolle, Haiti
Rene Marie Ania	F	Member	Association des Jeunes Patriotes de Drouillard	Port au Prince, Haiti
Roosvelt Decimus	M	Livelihoods coordinator	WINNER Project	Port au Prince, Haiti
Rose L. Desir	F	Vice President	Commerce Agricole s.a. (ComAg) (Agrodealer)	Port au Prince, Haiti
Rose-May Guignard	F	Senior Urban Planner	Inter-Ministerial Committee for Territorial Planning	Port au Prince, Haiti
Thomas Jean	M	Member	ACIDEC	Port au Prince, Haiti
WIlken Destravil	M	Responsable des Bassin Versants	CIAT	Port au Prince, Haiti
Y.A. Wainright	M	Environmental officer	WINNER staff	Port au Prince, Haiti
Yvon Francois	M	Director BAC	Bureau Agricole Thomazeau (BAC)	Port au Prince, Haiti

B. Focus Group Respondents

Cul de Sac Corridor Focus Group Discussion

Area	Description of Group			Subtotal
Bas Boen	BIAs Thomaszeau	Males	0	0
		Females	0	
Bas Boen	Master Farmers	Males	14	22
		Females	8	
Bas Boen	Association Leaders Thomazeau	Males	7	13
		Females	6	
Bas Boen	Bean/Corn FGD Croix des Bouquets	Males	4	8
		Females	4	
Bas Boen	Croix des Bouquets Master Farmers	Males	6	8
		Females	2	
Bas Boen	Water Associations Cul de Sac Source Zabette	Males	0	0
		Females	0	
Thomaszeau	Rice Cul de Sac FGD Thomaszeau	Males	9	9
		Females	0	
Kenscoff	Bean Farmers	Males	4	4
		Females	0	
Kenscoff	Master Farmers	Males	12	16
		Females	4	
Kenscoff	Association Leaders	Males	5	5
		Females	0	
Kenscoff	BIAs	Males	4	7
		Females	3	
Total		**Males**	**65**	**92**
		Females	**27**	

Matheux Corridor Focus Group Discussion

Area	Description of Group			Subtotal
Archaie	Corn/Beans	Males	10	15
		Females	5	
Archaie	Plantain Farmers	Males	14	19
		Females	5	
Cabaret	Plantain Farmers	Males	14	21
		Females	7	
Cabaret	Bean/Corn Cabaret	Males	4	9
		Females	5	
Cabaret	Master Farmers Cabaret	Males	3	5
		Females	2	
Cabaret	Association Leaders Cabaret	Males	14	19
		Females	5	
Cabaret	BIAS Cabaret	Males	3	4
		Females	1	
Fonds Baptiste	Beans FGD	Males	12	16
		Females	4	
Fonds Baptiste	BIA FGD	Males	1	2
		Females	1	
St. Marc	Rice Farmers	Males	22	22
		Females	0	
St. Marc	Water Associations St. Marc/Montrious	Males	12	12
		Females	0	
Montrious	Cooperative Members	Males	7	7
		Females	0	
Montrious	Water Associations Matheux (AIPA)	Males	6	6
		Females	0	
Total		**Males**	**122**	**157**
		Females	**35**	

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D. Map of Data Collection Sites

Key Informant Interviews

Cul de Sac
Kenskoff
Port-au-Prince
Thomazeau

Matheux
Arcahaie
Cabaret
Fonds Baptiste
Saint Marc
Montrouis

Washington, D.C (not pictured)

Quantitative Surveys

Cul de Sac
Croix des Bouquets
Thomazeau
Kenscoff

Matheux
Arcahaie
Cabaret
Saint Marc

Focus Group Discussions

Cul de Sac
Croix des Bouquets
Thomazeau
Bas Boen
Kenscoff

Matheux
Arcahaie
Cabaret
Fonds Baptiste
Montrouis
St. Marc

Structural Site Visits

Cul de Sac
Croix des Bouquets
Thomazeau
Kenscoff
Petion-Ville

Matheux
Arcahaie
Cabaret

A. WINNER Associations

WINNER Associations represented in Focus Group Discussions

Full Name of Association	Acronym	Corridor	Area/Commune
Asosyasyon Irigants Riviere Gris	AIRG	Cul de Sac	
Association des Amis de la Société	AAS	Cul de Sac	Thomazeau
Association des Artisans pour le Développement de Kenscoff	ASSOADEK	Cul de Sac	Corail / Kenscoff
Association des Irrigants et des Planteurs du Périmètre Despuzeau	AIPD	Cul de Sac	Bassin Général, Despuzeau, Zabeth
Association des Jeunes Patriotes de Drouillard	AJPD	Cul de Sac	Croix des Bouquets
Association des Paysans pour le Développement de la Croix-des-Bouquets	APD	Cul de Sac	Pierroux
Association des Planteurs et Eleveurs de la Production Agricole Commune de Thomazeau	APEAPACT	Cul de Sac	Merceron
Association des Planteurs Organisés de Duval pour le Développement Intégré	APODDI	Cul de Sac	Duval / Kenscoff
Association des Travailleurs de Merceron	ATRADEM	Cul de Sac	Merceron - Thomazeau
Association pour le Développement de Bas Boen	ADEBABO	Cul de Sac	Bas Boen
Conseil de Développement Communautaire de Furcy	CODECOF	Cul de Sac	Furcy / Kenscoff
Coopérative Agricole pour le Développement de Lefèvre	COAGEL	Cul de Sac	Lefèvre / Kenscoff
Fédération de Développement de la Production Agricole de Thomazeau	FEDEPAT	Cul de Sac	Thomazeau
Groupe des Femmes Vaillantes de Cotin-Thomazeau	GFVCT	Cul de Sac	Thomazeau
Mouvement des Femmes Haitiennes pour le Developpement Rurale	MOFHADER	Cul de Sac	Kenscoff
Organisation des Paysans pour le Développement de Merceron/Ouest	OPDM/O	Cul de Sac	Merceron
Organisation des Paysans pour le Développement et l'Avancement de la Croix-des-Bouquets	OPADEC	Cul de Sac	3e Petit Bois
Organisation des Paysans Vaillants Hatte Cadette	OPVH	Cul de Sac	Thomazeau
Organisation Mouvement Planteurs Progressistes de Latremblay	OMPPL	Cul de Sac	Thomazeau
Organisation Paysanne des Travailleurs pour le Développement de Cotin	OPTDC	Cul de Sac	Cotin - Thomazeau
Organisation pour le Développement des Enfants des Masses Rurales	ODEMAR	Cul de Sac	Kenscoff
Organisation des Travailleurs pour le Développement de Bois Cotin	OTPBC	Cul de Sac	Thomazeau
Regroupement des Paysans et des Planteurs de Duval	REPPLAD	Cul de Sac	Duval II / Kenscoff

WINNER Associations represented in Focus Group Discussions

Solidarité Haïtienne pour le Développement Rural de Kenscoff	SOHADERK	Cul de Sac	Robin/ Kenscoff
Union Communautaire Intégré pour le Développement de la Famille	ISIDEV	Cul de Sac	Croix des Bouquets
Action Communautaire pour le Progrès et l'Avancement de Cabaret	AKAPCAB	Matheux	Cabaret
Asosyasyon Irigan Dipen Maya Boujwa	AIDMB	Matheux	Mayard, St Marc
Asosyasyon Irigan Perimè Monwi	AIPM	Matheux	Montrouis
Asosyasyon Tèt Ansanm Izaje Bwa Nèf	ATAIB	Matheux	Bois-neuf
Association des Irrigant du Périmètre Delugé	AIPD	Matheux	Delugé
Association des Irrigants de la Côte des Arcadins	AICA	Matheux	Lanzac
Association des Irrigants de Pierre Payen	AIPP	Matheux	Pierre Payen
Association des Irrigants du Perimetre de Lanzac	AIPL	Matheux	Lanzac
Association des Irriguants de la Plaine de l'Arcahaie	AIPA	Matheux	
Association des Planteurs de Cabaret	APC	Matheux	Cabaret
Association pour le Développement des Jeunes de Bancos	ADJB	Matheux	Bancos
Coopérative l'Union Paysans Calouis	CUPEC	Matheux	Fond Baptiste
Femmes en Voie de Développement de Cabaret	FEVODECA	Matheux	Cabaret
Gwoup Fanm Vanyan Betèl	GFVB	Matheux	Betèl
Jeunesse en Marche pour l'Avenir	JMA	Matheux	Arcahaie
Kòdinasyon Fanm Kabarè pou Lavi Miyò	KOFAM	Matheux	Cabaret
Koperativ Agrikòl Modèl Andwo	KAMA	Matheux	Dibou
Koperativ Agrikòl pou Devlopman Bèsi	KADB	Matheux	Bercy
Mouvement Paysans Vulgarisateurs pour le Développement Agricole	MPVDA	Matheux	Delugé
Organisation des Jeunes pour le Développement de la 1ère Section de Delugé	OJD1	Matheux	Lanzac
Organisation des Jeunes pour le Développement de Sous Fort	OJDS	Matheux	Sous Fort
Organisation des Techniciens Agricoles pour le Développement de L'Arcahaie	OTAA	Matheux	Arcahaie
Organisation pour le Developpement de la Commune de L'Arcahaie	OCDA	Matheux	Archaie
Paysans Vulgarisateurs en Action pour le Développement de l'Arcahaie et de Cabaret	PVADAC	Matheux	Arcahaie
Rassemblement des Comités d'Action pour le Développement Agricole Matheux Arcahaie	RACADAMA	Matheux	Arcahaie
Société Coopérative pour le Développement Economique de Fond Baptiste	SOCODEF	Matheux	Fond Baptiste

ANNEX VI: DATA TABLES

METHODS AND LIMITATIONS

Table 23: Number of respondents per crop, per time period, per zone

		Before WINNER				During WINNER				At the time of the survey			
		Beans	*Rice*	*Corn*	*Plantains*	*Beans*	*Rice*	*Corn*	*Plantains*	*Beans*	*Rice*	*Corn*	*Plantains*
Cul-de-Sac	Croix des Bouquets	25	2	20	0	27	2	23	1	18	2	12	0
	Plains	*25*	*2*	*20*	*0*	*27*	*2*	*23*	*1*	*18*	*2*	*12*	*0*
	Upland	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Thomazeau	36	27	28	0	36	27	30	0	33	24	23	0
	Plains	*36*	*27*	*28*	*0*	*36*	*27*	*30*	*0*	*33*	*24*	*23*	*0*
	Upland	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Kenskoff	25	0	20	1	24	0	20	1	20	0	15	1
	Plains	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Upland	*25*	*0*	*20*	*1*	*24*	*0*	*20*	*1*	*20*	*0*	*15*	*1*
Matheux	Archaie	53	0	16	39	54	0	17	40	36	0	10	14
	Plains	*25*	*0*	*9*	*38*	*27*	*0*	*10*	*39*	*16*	*0*	*5*	*14*
	Upland	*28*	*0*	*7*	*1*	*27*	*0*	*7*	*1*	*20*	*0*	*5*	*0*
	Carbaret	32	0	21	52	32	0	26	49	25	0	16	21
	Plains	*32*	*0*	*21*	*51*	*32*	*0*	*26*	*48*	*25*	*0*	*16*	*21*
	Upland	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*0*
	St. Marc	12	11	6	34	14	12	7	35	9	6	4	15
	Plains	*12*	*10*	*6*	*32*	*14*	*11*	*7*	*33*	*9*	*5*	*4*	*14*
	Upland	*0*	*1*	*0*	*2*	*0*	*1*	*0*	*2*	*0*	*1*	*0*	*1*
	Overall	**183**	**40**	**111**	**126**	**187**	**41**	**123**	**126**	**141**	**32**	**80**	**51**

The above numbers allowed for farmers to respond for all the crops they grew at a given timeperiod. Therefore, one farmer who could be recorded a maximum of 4 times per time period.

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

EVALUATION QUESTION 1

Crop Productivity Tables

Table 24: Crop yields by gender, region, and farmer status (plot level)

	Beans (Yields In Kg) Before WINNER	Sample	During WINNER	Sample	At the time of the Survey	Sample
Men	389	146	407	148	402	117
Women	358	69	441	74	416	56
Cul-de-Sac	400	91	538	93	437	77
Matheux	363	124	332	129	382	96
Plains	344	145	418	153	374	118
Highlands	451	70	418	69	476	55
Regular Farmers	402	133	448	137	424	106
Master Farmers	342	82	371	85	378	67
Overall	379	215	418	222	406	173

	Corn (Yields In Kg) Before WINNER	Sample	During WINNER	Sample	After WINNER	Sample
Men	465	77	522	88	487	56
Women	487	42	568	49	529	31
Cul-de-Sac	507	69	637	74	571	51
Matheux	425	50	423	63	404	36
Plains	460	85	554	99	490	61
Highlands	505	34	497	38	528	26
Regular Farmers	469	74	554	79	526	54
Master Farmers	479	45	518	58	462	33
Overall	473	119	539	137	502	87

	Rice (Yields In Kg) Before WINNER	Sample	During WINNER	Sample	After WINNER	Sample
Men	2,197	30	3,579	31	2,170	24

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Women	835	13	1,040	13	962	10
Cul-de-Sac	1,108	29	1,677	29	1,459	26
Matheux	3,187	14	5,055	15	2,973	8
Plains	1,813	42	2,871	43	1,851	33
Highlands	628	1	1,005	1	628	1
Regular Farmers	1,886	25	2,558	26	1,673	19
Master Farmers	1,645	18	3,220	18	1,994	15
Overall	1,785	43	2,829	44	1,815	34

Plantain (Yields Regimes/Ha)						
	Before WINNER	**Sample**	**During WINNER**	**Sample**	**After WINNER**	**Sample**
Men	1,228	156	1,253	158	1,099	67
Women	869	21	1,015	21	1,002	9
Cul-de-Sac	388	1	468	2	291	1
Matheux	1,190	176	1,234	177	1,098	75
Plains	1,197	172	1,233	174	1,099	74
Highlands	817	5	960	5	669	2
Regular Farmers	1,275	121	1,268	123	1,151	46
Master Farmers	993	56	1,131	56	992	30
Overall	1,186	177	1,225	179	1,088	76

WINNER Assistance

Table 25: WINNER assistance : crop yields by duration of winner assistance (kg or regimes/ha)

	Years of WINNER assistance	**Before WINNER**	**Sample**	**During WINNER**	**Sample**	**At the time of the Survey**	**Sample**
Beans (Kg/Ha)	1	272	30	173	31	286	18
	2	362	74	333	74	373	57
	3	379	63	492	66	388	55
	4	452	40	588	43	492	37
	5	558	8	633	8	719	6
	Overall	379	215	418	222	406	173
Corn (Kg/Ha)	1	219	13	268	18	367	6
	2	609	41	687	47	710	29

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	3	453	39	522	45	399	30
	4	321	21	384	21	305	17
	5	804	5	852	6	744	5
	Overall	473	119	539	137	502	87
Rice (Kg/Ha)	1	2,840	8	3,591	8	1,448	2
	2	2,228	11	4,770	11	2,599	11
	3	1,330	17	1,826	17	1,606	14
	4	989	7	1,498	7	1,106	7
	5	--	0	1,744	1	--	0
	Overall	1,785	43	2,829	44	1,815	34
Plantain (Regimes/Ha)	1	1,121	23	1,051	24	749	4
	2	1,155	84	1,214	84	1,095	41
	3	1,334	42	1,369	43	1,172	22
	4	1,101	22	1,163	22	921	7
	5	1,145	6	1,262	6	1,279	2
	Overall	1,186	177	1,225	179	1,088	76

Table 26: WINNER assistance: crop yields by the number of forms of winner assistance (kg or regimes/ha)

	Years of WINNER assistance	Before WINNER	Sample	During WINNER	Sample	At the time of the Survey	Sample
Beans (Kg/ha)	1	426	37	306	35	479	24
	2	300	33	283	32	333	23
	3	409	67	470	74	396	58
	4	356	73	461	76	390	64
	5	469	5	654	5	806	4
	Overall	**379**	**215**	**418**	**222**	**406**	**173**
Corn (Kg/ha)	1	496	25	449	30	556	17
	2	353	13	367	18	314	9
	3	466	25	554	28	441	17
	4	432	51	573	56	489	42
	5	1,120	5	1,221	5	1,674	2
	Overall	**473**	**119**	**539**	**137**	**502**	**87**
Rice	1	6,977	1	7,558	1	--	0

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

(Kg/ha)	2	1,741	4	1,361	4	105	1
	3	1,418	7	2,379	7	622	3
	4	1,705	30	2,959	31	1,939	29
	5	1,758	1	3,077	1	3,516	1
	Overall	**1,785**	**43**	**2,829**	**44**	**1,815**	**34**
Plantain (Regimes/ha)	1	1,232	38	1,232	38	1,059	17
	2	1,261	38	1,225	37	1,240	18
	3	1,160	57	1,186	59	953	22
	4	1,115	44	1,270	45	1,126	19
	5	--	0	--	0	--	0
	Overall	**1,186**	**177**	**1,225**	**179**	**1,088**	**76**

WINNER assistance included (i) training and demo plots, (ii) irrigation, (iii) land plowing and tools, (iv) crop inputs (seed, fertilizer), and (v) silos.

Table 27: WINNER assistance: crop yields by the number of winner training sessions attended (kg or regimes/ha)

	Number of Crop trainings	Before WINNER	Sample	During WINNER	Sample	At the time of the Survey	Sample
Beans	0	243	12	224	12	325	6
	1	324	21	283	24	363	17
	2	433	42	396	40	402	34
	3	327	51	424	54	369	43
	4	452	30	587	31	510	29
	5	435	17	549	18	437	15
	6	376	13	485	13	367	11
	10	291	12	338	12	345	8
	15	916	1	1,177	1	916	1
	888	437	15	306	16	397	9
	999	59	1	109	1	--	0
	Overall	**379**	**215**	**418**	**222**	**406**	**173**
Corn	0	314	1	314	1	314	1
	1	407	10	418	14	436	5
	2	542	23	566	24	432	17
	3	470	35	612	40	496	29
	4	452	16	642	20	651	13
	5	633	6	833	6	743	4

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	6	811	4	324	3	84	2
	8	419	1	502	1	--	0
	10	243	4	257	4	180	2
	888	383	19	385	24	534	14
	Overall	**473**	**119**	**539**	**137**	**502**	**87**
Rice	1	1,870	6	2,020	6	1,534	3
	2	2,761	6	6,052	6	3,370	5
	3	1,137	12	1,893	13	1,153	12
	4	1,210	7	2,072	7	1,884	5
	5	2,235	5	3,264	5	3,183	5
	6	908	3	770	3	321	2
	888	3,614	2	3,884	2	105	1
	999	2,867	2	5,259	2	335	1
	Overall	**1,785**	**43**	**2,829**	**44**	**1,815**	**34**
Plantain	0	1,390	10	1,481	10	1,173	3
	1	1,325	24	1,284	24	1,302	4
	2	1,028	45	998	47	862	22
	3	1,045	30	1,286	30	1,187	16
	4	1,230	22	1,421	22	972	11
	5	1,043	6	1,100	6	1,321	3
	6	1,008	2	1,318	2	1,163	2
	7	--	0	1,473	1	--	0
	8	1,163	1	1,705	1	1,163	1
	10	863	3	1,057	3	1,318	2
	888	1,397	34	1,253	33	1,269	12
	Overall	**1,186**	**177**	**1,225**	**179**	**1,088**	**76**

Yields are per Plot, kg/ha for beans, corn and rice; regimes/ha for plantain

The questionnaire does not distinguish the type of training, e.g., visits to demo plots versus classroom (Master Farmers).

Responses coded as "*888*" indicates that the question was not applicable to the farmer.

Responses coded as '*999*" indicates that the response is missing.

All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Irrigation and Machinery

Table 28: Irrigation and machinery: crops yields by water source (kg or regimes/ha)

Irrigation Status	Before WINNER								Last WINNER-Assisted Season							
	Beans	Sample	Corn	Sample	Rice	Sample	Plantain	Sample	Beans	Sample	Corn	Sample	Rice	Sample	Plantain	Sample
Gravity	354	131	478	75	1,785	43	1,186	170	428	137	564	88	2,829	44	1,235	172
Pump	296	4	424	5		0		0	432	6	579	7		0	646	1
Rainfed	424	79	472	37		0	1,031	5	400	78	481	40		0	1,018	5
888	279	1	349	1		0		0	419	1	349	1		0		0
999		0	502	1		0	1,550	2		0	502	1		0	1,163	1
Overall	379	215	473	119	1,785	43	1,186	177	418	222	539	137	2,829	44	1,225	179

Yields are per Plot, kg/ha for beans, corn and rice; regimes/ha for plantain

	% Yield change			
	Beans	**Corn**	**Rice**	**Plantain**
Gravity	21%	18%	58%	4%
Pump	46%	37%	--	--
Rainfed	-6%	2%	--	-1%
Overall	10%	14%	58%	3%

Table 29: Crop yields by land preparation method (kg or regimes/ha)

Land prep. method	Before WINNER								During WINNER								At the time of the Survey							
	Beans	Sample	Corn	Sample	Rice	Sample	Plantain	Sample	Beans	Sample	Corn	Sample	Rice	Sample	Plantain	Sample	Beans	Sample	Corn	Sample	Rice	Sample	Plantain	Sample
Other	105	1	335	1		0	1,292	1		0		0		0		0		0		0		0		0
Tractor	351	52	543	22	2,637	5	1,265	120	439	119	562	84	1,824	31	1,271	155	349	60	498	31	2,287	15	1,196	60
Motor tiller		0		0	4,026	6		0	2,512	1	2,145	2	5,195	12	1,189	3		0		0	2,680	7	1,260	2
Animal plow	335	1		0		0	881	3	288	3	112	1		0	1,150	3	335	1		0		0	930	1
Manual labor	390	161	458	96	1,232	32	1,009	51	377	99	443	50		0	775	17	451	104	518	54	720	12	572	13

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

888	--	0	--	0	--	0	--	0	--	0	--	0	5,581	1	--	0	--	0		0		0		0
999	--	0	--	0	--	0	1,333	2	--	0	--	0	--	0	2,140	1	266	8	119	2		0		0
Overall	379	215	473	119	1,785	43	1,186	177	418	222	539	137	2,829	44	1,225	179	406	173	502	87	1,815	34	1,088	76

Intercropping

Table 30: Crop yields by cropping system (kg or regimes/ha)

		Before WINNER	Sample	During WINNER	Sample	At the time of the Survey	Sample
Beans	Pure stand	394	161	445	170	417	129
	Intercropped	334	54	332	52	374	44
	Overall	379	215	418	222	406	173
Corn	Pure stand	516	89	575	101	524	63
	Intercropped	345	30	437	36	445	24
	Overall	473	119	539	137	502	87
Rice	Pure stand	1,875	39	3,056	39	1,950	31
	Intercropped	914	4	1,058	5	416	3
	Overall	1,785	43	2,829	44	1,815	34
Plantain	Pure stand	1,150	134	1,210	135	1,119	67
	Intercropped	1,299	43	1,272	44	857	9
	Overall	1,186	177	1,225	179	1,088	76

Irrigation Improvement

Table 31: Irrigation improvement (sample sizes by plot)

Were irrigation canals constructed or rehabilitated by WINNER?	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Total
No	74	39	17	3	1	134
Yes	160	105	42	6	3	316
888	68	159	248	298	303	1,076
999	5	4	0	0	0	9
Total	307	307	307	307	307	1,535

Of 450 plots for which farmers responded, WINNER improved gravity irrigation on 70% (316).

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Was any irrigation pump installed, replaced or repaired by WINNER?						
	Plot 1	**Plot 2**	**Plot 3**	**Plot 4**	**Plot 5**	**Total**
No	4	3	2	0	0	9
Yes	9	7	0	0	0	16
888	292	295	305	307	307	1,506
999	2	2	0	0	0	4
Total	307	307	307	307	307	1,535

Irrigation Source Before WINNER						
	Plot 1	**Plot 2**	**Plot 3**	**Plot 4**	**Plot 5**	**Total**
Gravity	233	141	58	11	3	446
Pump	5	5	0	0	0	10
Rainfed	67	35	6	3	1	112
888	0	123	242	293	303	961
999	2	3	1	0	0	6
Total	307	307	307	307	307	1,535

Of 568 plots for which farmers responded, 80% were irrigated by gravity or pump before WINNER, and 20% were rainfed

Irrigation Source Last WINNER-Assisted Season						
	Plot 1	**Plot 2**	**Plot 3**	**Plot 4**	**Plot 5**	**Total**
Gravity	232	139	59	10	3	443
Pump	8	8	0	0	0	16
Rainfed	67	35	6	3	1	112
888	0	123	242	294	303	962
999	0	2	0	0	0	2
Total	307	307	307	307	307	1,535

Seed

Table 32: Seed use by plot (sample sizes)

	Plot 1			**Plot 2**			**Plot 3**			**Plot 4**			**Plot 5**			**Totals**			
	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After	**Totals**
Other seed types	1	2	9	0	0	2	0	42	1	0	0	0	0	0	0	1	44	12	**57**

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

WINNER variety	11	174	16	9	113	10	7	0	9	0	7	0	0	1	0	27	295	35	**357**
Other improved variety	19	10	31	11	3	19	6	0	11	1	0	3	0	0	0	37	13	64	**114**
Hybrid	1	0	1	2		1	1	0	1	1	0	0	0	0	0	5	0	3	**8**
Traditional	266	121	165	156	67	111	53	24	37	13	7	10	4	3	4	492	222	327	**1,041**
888	1	0	1	122	122	123	239	240	240	292	293	293	303	303	303	957	958	960	**2,875**
999	8	0	84	7	2	41	1	1	8	0	0	1	0	0	0	16	3	134	**153**
Total	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307				

	Percentages of all reported plots		
	Before WINNER	**During WINNER**	**At the time of the Survey**
Other	0%	8%	3%
WINNER variety	5%	51%	8%
Other improved variety	7%	2%	15%
Hybrid	1%	0%	1%
Traditional	88%	39%	74%
Total	100%	100%	100%

Plantain Data

Table 33: How do you compare the size and weight of plantain bunches?

	During WINNER assistance compared to Before																
	Plot 1			**Plot 2**			**Plot 3**			**Plot 4**			**Plot 5**			**Overall**	
	Crop A	Crop B	Crop C	Crop A	Crop B	Crop C	Crop A	Crop B	Crop C	Crop A	Crop B	Crop C	Crop A	Crop B	Crop C	Total	%
Smaller	12	0	0	4	0	0	0	0	0	1	0	0	0	0	0	17	8%
Same	26	1	1	12	0	0	5	0	0	2	0	0	1	0	0	48	24%
Bigger	59	4	1	36	3	1	23	0	0	5	1	0	2	0	0	135	67%
N/A	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0%
Total	**97**	**5**	**2**	**52**	**4**	**1**	**28**	**0**	**0**	**8**	**1**	**0**	**3**	**0**	**0**	**201**	**100 %**

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

During WINNER assistance compared to at the time of the Survey																	
	Plot 1			Plot 2			Plot 3			Plot 4			Plot 5			Overall	
	Crop A	Crop B	Crop C	Crop A	Crop B	Crop C	Crop A	Crop B	Crop C	Crop A	Crop B	Crop C	Crop A	Crop B	Crop C	Total	%
Smaller	12	0	0	8	0	0	4	0	0	1	0	0	1	0	0	26	15%
Same	18	1	1	21	0	0	9	0	0	4	0	0	1	0	0	55	31%
Bigger	12	0	0	3	0	0	3	0	0	0	0	0	0	0	0	18	10%
N/A	43	3	1	18	3	0	8	0	0	2	1	0	0	0	0	79	44%
Total	**85**	**4**	**2**	**50**	**3**	**0**	**24**	**0**	**0**	**7**	**1**	**0**	**2**	**0**	**0**	**178**	**100 %**

Regime Size

Table 34: How do you compare the size and weight of a plantain bunch? (Including non-responses)

	During WINNER compared to Before		During WINNER compared to at the time of the Survey	
	Percentage	Responses	Percentage	Responses
Smaller	8%	17	15%	26
Same	24%	48	31%	55
Bigger	67%	135	10%	18
No response	0%	1	44%	79
Total	100%	201	100%	178

Table 35: How do you compare the size and weight of a plantain bunch? (Excluding non-responses)

	During WINNER compared to Before		During WINNER compared to at the time of the Survey	
	Percentage	Responses	Percentage	Responses
Smaller	9%	17	26%	26
Same	24%	48	56%	55

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Bigger	68%	135	18%	18
Total	100%	200	100%	99

ACT Use and Rating - Bean

Table 36: ACT use and rating by bean farmers before winner

		Bean Technique										
		A. Land Preparation: spread well decomposed manure, dose 15T/Ha before plowing if the land ready or before harrowing	B. Planting Technique: harrow land 10 – 15 days after land preparation	C. Planting Technique: create ridges 10m long and 60 cm wide	D. Planting Technique: plant 1 seed per hole. Plant on both sides of the ridges in conjunction	E. Water Management: 2-4 days after germination	F. Soil analysis to determine need for fertilizers	G. Using Pesticides: apply anti-cricket formula after planting seeds (Grillidae) Ingredients: 1 pot of corn stalks, 1 L of water, ½ bottle of sugar cane syrup, 15cc d'actellic insecticide; Preparation: pour pesticide into containers placed throughout the plot	H. Using Pesticides: 10 days after germination, when the leaves are completely open, apply the insecticide Actara (13g/5 gallons of water) or Dimethoate (10cc/1 gallon of water) against aphides, aleyrodoidea (mouche blanche) and metcalfa pruinosa (cicadelle)	I. First Weeding: 15 days after germination	J. Second Weeding: before plant blooms	K. Chemical Fertilizers: spread nitrogen fertilizer when plant blooms and after second weeding and based on soil analysis.
Farmers using during WINNER	No	135	133	150	152	130	133	128	122	135	127	115
	Yes	10	15	8	5	11	5	5	6	20	15	10
	888	117	116	116	116	119	118	119	119	116	117	117
	999	45	43	33	34	47	51	55	60	36	48	65
	Total	307	307	307	307	307	307	307	307	307	307	307
% of responders using:	No	93%	90%	95%	97%	92%	96%	96%	95%	87%	89%	92%
	Yes	7%	10%	5%	3%	8%	4%	4%	5%	13%	11%	8%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 37: ACT use and rating by bean farmers during WINNER

		Bean Technique										
		A. Land Preparation: soil analysis	B. Take soil samples for analysis	C. Land Preparation: spread organic fertilizer (manure / compost) based on recommendations following the soil analysis	D. Land Preparation: dosage of organic fertilizer based on recommendations following the soil analysis:	E. Land Preparation: spread complete formula of chemical fertilizer before harrowing based on recommendations following the soil analysis	F. Land Preparation: plow field set at 25 cm with mechanical cultivator	G. Harrow 10-15 days after plowing	H. Create ridges with a distance of 80 cm between ridge	I. Land Preparation: weed field 10-15 days after applying fertilizer	J. Planting Technique: make holes in the middle of the ridge, 15 cm apart and 4 cm deep	K. Planting Technique: plant 1 seed per hole unless germination rates fall below 85%, then plant 2 seeds per hole
Farmers using during WINNER	No	15	9	20	18	30	43	21	12	10	24	25
	Yes	141	147	147	149	120	102	119	123	155	128	109
	888	117	115	115	115	118	118	119	119	115	116	117
	999	34	36	25	25	39	44	48	53	27	39	56
	Total	307	307	307	307	307	307	307	307	307	307	307
Farmer ratings of Usefulness	Useless	12	6	18	17	11	25	15	9	5	19	13
	Useful	60	76	55	52	55	42	43	51	68	43	42
	Very useful	80	71	82	90	66	54	72	68	85	79	62
	888	152	149	149	146	170	179	171	171	145	160	182
	999	3	5	3	2	5	7	6	8	4	6	8
	Total	307	307	307	307	307	307	307	307	307	307	307
% of responders using:	No	10%	6%	12%	11%	20%	30%	15%	9%	6%	16%	19%
	Yes	90%	94%	88%	89%	80%	70%	85%	91%	94%	84%	81%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% of	Useless	8%	4%	12%	11%	8%	21%	12%	7%	3%	13%	11%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

responders rating:	Useful	39%	50%	35%	33%	42%	35%	33%	40%	43%	30%	36%
	Very useful	53%	46%	53%	57%	50%	45%	55%	53%	54%	56%	53%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 38: ACT use and rating by bean farmers after WINNER

		Bean Technique										
		A. Land Preparation: spread well decomposed manure, dose 15T/Ha before plowing if the land ready or before harrowing	B. Planting Technique: harrow land 10 – 15 days after land preparation	C. Planting Technique: create ridges 10m long and 60 cm wide	D. Planting Technique: plant 1 seed per hole. Plant on both sides of the ridges in conjunction	E. Water Management: 2-4 days after germination	F. Soil analysis to determine need for fertilizers	G. Using Pesticides: apply anti-cricket formula after planting seeds (Grillidae) Ingredients: 1 pot of corn stalks, 1 L of water, ½ bottle of sugar cane syrup, 15cc d'actellic insecticide; Preparation: pour pesticide into containers placed throughout the plot	H. Using Pesticides: 10 days after germination, when the leaves are completely open, apply the insecticide Actara (13g/5 gallons of water) or Dimethoate (10cc/1 gallon of water) against aphides, aleyrodoidea (mouche blanche) and metcalfa pruinosa (cicadelle)	I. First Weeding: 15 days after germination	J. Second Weeding: before plant blooms	K. Chemical Fertilizers: spread nitrogen fertilizer when plant blooms and after second weeding and based on soil analysis.
Farmers using during WINNER	No	49	34	57	56	51	87	57	47	33	46	51
	Yes	94	109	96	97	85	44	72	75	115	92	70
	888	117	115	115	115	118	118	119	119	115	116	117
	999	47	49	39	39	53	58	59	66	44	53	69
	Total	307	307	307	307	307	307	307	307	307	307	307
% of responders using:	No	34%	24%	37%	37%	38%	66%	44%	39%	22%	33%	42%
	Yes	66%	76%	63%	63%	63%	34%	56%	61%	78%	67%	58%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

ACT Use and Rating – Corn

Table 39: ACT use and rating by corn farmers before WINNER (A-K)

		Corn ACT Technique										
		A. Land Preparation: soil analysis	B. Take soil samples for analysis	C. Land Preparation: spread organic fertilizer (manure / compost) based on recommendations following the soil analysis	D. Land Preparation: dosage of organic fertilizer based on recommendations following the soil analysis:	E. Land Preparation: spread complete formula of chemical fertilizer before harrowing based on recommendations following the soil analysis	F. Land Preparation: plow field set at 25 cm with mechanical cultivator	G. Harrow 10-15 days after plowing	H. Create ridges with a distance of 80 cm between ridge	I. Land Preparation: weed field 10-15 days after applying fertilizer	J. Planting Technique: make holes in the middle of the ridge, 15 cm apart and 4 cm deep	K. Planting Technique: plant 1 seed per hole unless germination rates fall below 85%, then plant 2 seeds per hole
Farmers using during WINNER	No	95	95	91	91	92	95	94	100	98	101	102
	Yes	3	2	8	5	5	6	7	7	7	4	4
	888	180	181	180	181	180	179	179	179	179	179	179
	999	29	29	28	30	30	27	27	21	23	23	22
	Total	307	307	307	307	307	307	307	307	307	307	307
% of responders using:	No	97%	98%	92%	95%	95%	94%	93%	93%	93%	96%	96%
	Yes	3%	2%	8%	5%	5%	6%	7%	7%	7%	4%	4%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 40: ACT use and rating by corn farmers before WINNER (L – V))

		Corn ACT Technique										
		L. Water Management: water 2-3 days after planting seeds	M. Water Management: water after germination and every 8 days thereafter	N. Weeding: 1st weed 15-22 days after planting or when plants have 3-4 leaves	O. Thinning seedlings during 1st weeding if 2 seeds were planted per hole. Plant Thinning: ensure only one plant per hole, remove additional plants	P. Weeding: 2nd weed 22 days after first weeding or when plants have 6-8 leaves	Q. Chemical Fertilizers: 1st application of urea (46-0-0) immediately after the first weeding (3-4 visible leaves) as recommended by soil analysis	R. Chemical Fertilizers: 2nd application of urea (46-0-0) after the second weeding (6-8 visible leaves) as recommended by soil analysis	S. Using Pesticides: apply insecticide formula after blossoming; Sevin (7 g/1 gal of water)	T. Using Pesticides: apply anti-cricket formula after planting seeds (Grillidae)	U. Using Pesticides: apply insecticide, anti-rust and anti-mildew formula after germination if 5% of plants have caterpillars;	V. Using Pesticides: apply Sevin powder to corn silk against corn earworms (Heliothis zeae)
Farmers using during WINNER	No	95	95	101	98	97	91	93	95	92	94	96
	Yes	7	7	10	5	9	7	5	7	3	5	7
	888	178	178	177	178	178	180	180	180	181	180	178
	999	27	27	19	26	23	29	29	25	31	28	26
	Total	307	307	307	307	307	307	307	307	307	307	307
% of responders using:	No	93%	93%	91%	95%	92%	93%	95%	93%	97%	95%	93%
	Yes	7%	7%	9%	5%	8%	7%	5%	7%	3%	5%	7%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 41: ACT use and rating by corn farmers during WINNER (A-K)

		Corn ACT Technique										
		A. Land Preparation: soil analysis	B. Take soil samples for analysis	C. Land Preparation: spread organic fertilizer (manure / compost) based on recommendations following the soil analysis	D. Land Preparation: dosage of organic fertilizer based on recommendations following the soil analysis:	E. Land Preparation: spread complete formula of chemical fertilizer before harrowing based on recommendations following the soil analysis	F. Land Preparation: plow field set at 25 cm with mechanical cultivator	G. Harrow 10-15 days after plowing	H. Create ridges with a distance of 80 cm between ridge	I. Land Preparation: weed field 10-15 days after applying fertilizer	J. Planting Technique: make holes in the middle of the ridge, 15 cm apart and 4 cm deep	K. Planting Technique: plant 1 seed per hole unless germination rates fall below 85%, then plant 2 seeds per hole
Farmers using during WINNER	No	30	31	24	29	27	20	4	11	7	10	3
	Yes	75	73	81	74	77	91	109	107	109	108	117
	888	202	203	202	180	179	178	178	178	178	178	178
	999	0	0	0	24	24	18	16	11	13	11	9
	Total	307	307	307	307	307	307	307	307	307	307	307
Farmer ratings of Usefulness	Useless	17	19	13	15	15	10	4	5	5	6	5
	Useful	35	32	28	28	33	39	58	44	54	42	41
	Very useful	38	38	51	42	38	48	52	63	53	63	73
	888	217	218	215	222	221	210	193	195	195	196	188
	999	0	0	0	0	0	0	0	0	0	0	0
	Total	307	307	307	307	307	307	307	307	307	307	307
% of responders using:	No	29%	30%	23%	28%	26%	18%	4%	9%	6%	8%	3%
	Yes	71%	70%	77%	72%	74%	82%	96%	91%	94%	92%	98%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% of responders rating:	Useless	19%	21%	14%	18%	17%	10%	4%	4%	4%	5%	4%
	Useful	39%	36%	30%	33%	38%	40%	51%	39%	48%	38%	34%
	Very useful	42%	43%	55%	49%	44%	49%	46%	56%	47%	57%	61%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 42: ACT use and rating by corn farmers during WINNER (L-V)

		Corn ACT Technique										
		L. Water Management: water 2-3 days after planting seeds	M. Water Management: water after germination and every 8 days thereafter	N. Weeding: 1st weed 15-22 days after planting or when plants have 3-4 leaves	O. Thinning seedlings during 1st weeding if 2 seeds were planted per hole. Plant Thinning: ensure only one plant per hole, remove additional plants	P. Weeding: 2nd weed 22 days after first weeding or when plants have 6-8 leaves	Q. Chemical Fertilizers: 1st application of urea (46-0-0) immediately after the first weeding (3-4 visible leaves) as recommended by soil analysis	R. Chemical Fertilizers: 2nd application of urea (46-0-0) after the second weeding (6-8 visible leaves) as recommended by soil analysis	S. Using Pesticides: apply insecticide formula after blossoming; Sevin (7 g/1 gal of water)	T. Using Pesticides: apply anti-cricket formula after planting seeds (Grillidae)	U. Using Pesticides: apply insecticide, anti-rust and anti-mildew formula after germination if 5% of plants have caterpillars	V. Using Pesticides: apply Sevin powder to corn silk against corn earworms (Heliothis zeae)
Farmers using during WINNER	No	12	15	5	9	22	20	19	8	9	7	8
	Yes	102	100	117	105	96	85	86	102	93	101	107
	888	177	177	176	177	177	202	179	179	180	179	177
	999	16	15	9	16	12		23	18	25	20	15
	Total	307	307	307	307	307	307	307	307	307	307	307
Farmer ratings of Usefulness	Useless	0	2	5	11	12	8	7	8	11	6	9
	Useful	44	48	56	43	40	38	38	50	38	51	41
	Very useful	61	57	60	60	54	47	43	50	51	49	63
	888	202	200	185	193	200	212	217	197	205	199	192
	999	0	0	1	0	1	2	2	2	2	2	2
	Total	307	307	307	307	307	307	307	307	307	307	307
% of responders using:	No	11%	13%	4%	8%	19%	19%	18%	7%	9%	6%	7%
	Yes	89%	87%	96%	92%	81%	81%	82%	93%	91%	94%	93%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% of responders rating:	Useless	0%	2%	4%	10%	11%	9%	8%	7%	11%	6%	8%
	Useful	42%	45%	46%	38%	38%	41%	43%	46%	38%	48%	36%
	Very useful	58%	53%	50%	53%	51%	51%	49%	46%	51%	46%	56%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 43: ACT use and rating by corn farmers after WINNER (A-K)

		Corn ACT Technique										
		A. Land Preparation: soil analysis	B. Take soil samples for analysis	C. Land Preparation: spread organic fertilizer (manure / compost) based on recommendations following the soil analysis	D. Land Preparation: dosage of organic fertilizer based on recommendations following the soil analysis:	E. Land Preparation: spread complete formula of chemical fertilizer before harrowing based on recommendations following the soil analysis	F. Land Preparation: plow field set at 25 cm with mechanical cultivator	G. Harrow 10-15 days after plowing	H. Create ridges with a distance of 80 cm between ridge	I. Land Preparation: weed field 10-15 days after applying fertilizer	J. Planting Technique: make holes in the middle of the ridge, 15 cm apart and 4 cm deep	K. Planting Technique: plant 1 seed per hole unless germination rates fall below 85%, then plant 2 seeds per hole
Farmers using during WINNER	No	69	70	40	40	49	45	20	32	25	29	23
	Yes	21	19	50	50	41	48	77	65	73	69	76
	888	180	180	180	180	179	178	178	178	177	178	178
	999	37	38	37	37	38	36	32	32	32	31	30
	Total	307	307	307	307	307	307	307	307	307	307	307
% of responders using:	No	77%	79%	44%	44%	54%	48%	21%	33%	26%	30%	23%
	Yes	23%	21%	56%	56%	46%	52%	79%	67%	74%	70%	77%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 44: ACT use and rating by corn farmers after WINNER (L-V)

		Corn Technique										
		L. Water Management: water 2-3 days after planting seeds	M. Water Management: water after germination and every 8 days thereafter	N. Weeding: 1st weed 15-22 days after planting or when plants have 3-4 leaves	O. Thinning seedlings during 1st weeding if 2 seeds were planted per hole. Plant Thinning: ensure only one plant per hole, remove additional plants	P. Weeding: 2nd weed 22 days after first weeding or when plants have 6-8 leaves	Q. Chemical Fertilizers: 1st application of urea (46-0-0) immediately after the first weeding (3-4 visible leaves) as recommended by soil analysis	R. Chemical Fertilizers: 2nd application of urea (46-0-0) after the second weeding (6-8 visible leaves) as recommended by soil analysis	S. Using Pesticides: apply insecticide formula after blossoming; Sevin (7 g/1 gal of water)	T. Using Pesticides: apply anti-cricket formula after planting seeds (Grillidae)	U. Using Pesticides: apply insecticide, anti-rust and anti-mildew formula after germination if 5% of plants have caterpillars;	V. Using Pesticides: apply Sevin powder to corn silk against corn earworms (Heliothis zeae)
Farmers using during WINNER	No	28	28	17	28	34	40	42	31	31	32	31
	Yes	66	66	83	66	64	51	49	63	61	60	65
	888	177	177	177	177	177	179	179	179	180	179	178
	999	36	36	30	36	32	37	37	34	35	36	33
	Total	307	307	307	307	307	307	307	307	307	307	307
% of responders using:	No	30%	30%	17%	30%	35%	44%	46%	33%	34%	35%	32%
	Yes	70%	70%	83%	70%	65%	56%	54%	67%	66%	65%	68%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

ACT Use and Rating – Rice

Table 45: ACT use and rating by rice farmers before WINNER (A-G)

Rice Techniques								
		A. Land Preparation: organic fertilizer (compost or manure well decomposed) 10 - 15T/Ha)	B. Land Preparation: use tractor to plow land deeper	C. Land Preparation: level the plot	D. Seed Preparation: winnow the seeds, put seeds in water to sort out, keep seeds humid for germination test	E. Seedling Preparation: cover the seeds with a layer of soil and dry hay, water each morning and evening, between 2 & 5 days remove the hay	F. Transplanting Seedlings: water seedlings and remove seedling in 10-12 cm of mud with shovel as they are ready to be transplanted	G. Transporting Seedlings from nursery to parcel: transplant seedlings with two leaves, aged 8-12 days, with an only 30 minute delay to planting
Farmers using during WINNER	No	34	30	33	30	33	35	33
	Yes	0	5	3	4	1	0	0
	888	265	265	265	265	265	265	265
	999	8	7	6	8	8	7	9
	Total	307	307	307	307	307	307	307
% of responders using:	No	100%	86%	92%	88%	97%	100%	100%
	Yes	0%	14%	8%	12%	3%	0%	0%
	Total	100%	100%	100%	100%	100%	100%	100%

Table 46: ACT use and rating by rice farmers before WINNER (H-N)

Rice Techniques								
		H. Transplanting Seedlings: transplant seedlings 25 cm apart in muddy paddy in horizontal and vertical straight rows for easy weeding	I. 1st Weeding: weed 15 days after transplanting using concical weeder	J. Regular weeding: Weed every 10-15 days after the 1st weeding for the duration of the season	K. Water Management: Keep seedlings under water for 2 weeks after transplanting, alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked	L. Alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked	M. Water Management: during fast growing period keep plants under 2-3 cm of water permanently.	N. Water Management: drain the paddy 3 weeks before harvesting and do not water

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Farmers using during WINNER	No	35	34	34	35	34	31	30
	Yes	0	0	0	1	0	0	4
	888	265	265	265	265	265	265	265
	999	7	8	8	6	8	11	8
	Total	307	307	307	307	307	307	307
% of responders using:	No	100%	100%	100%	97%	100%	100%	88%
	Yes	0%	0%	0%	3%	0%	0%	12%
	Total	100%	100%	100%	100%	100%	100%	100%

Table 47: ACT use and rating by rice farmers during WINNER (A-G)

		Rice Techniques						
		A. Land Preparation: organic fertilizer (compost or manure well decomposed) 10 -15T/Ha)	B. Land Preparation: use tractor to plow land deeper	C. Land Preparation: level the plot	D. Seed Preparation: winnow the seeds, put seeds in water to sort out, keep seeds humid for germination test	E. Seedling Preparation: cover the seeds with a layer of soil and dry hay, water each morning and evening, between 2 & 5 days remove the hay	F. Transplanting Seedlings: water seedlings and remove seedling in 10-12 cm of mud with shovel as they are ready to be transplanted	G. Transporting Seedlings from nursery to parcel: transplant seedlings with two leaves, aged 8-12 days, with an only 30 minute delay to planting
Farmers using during WINNER	No	12	15	5	9	22	20	19
	Yes	102	100	117	105	96	85	86
	888	177	177	176	177	177	202	179
	999	16	15	9	16	12		23
	Total	307	307	307	307	307	307	307
Farmer ratings of Usefulness	Useless	0	2	5	11	12	8	7
	Useful	44	48	56	43	40	38	38
	Very useful	61	57	60	60	54	47	43

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	888	202	200	185	193	200	212	217
	999	0	0	1	0	1	2	2
	Total	307	307	307	307	307	307	307
% of responders using:	No	11%	13%	4%	8%	19%	19%	18%
	Yes	89%	87%	96%	92%	81%	81%	82%
	Total	100%	100%	100%	100%	100%	100%	100%
% of responders rating:	Useless	0%	2%	4%	10%	11%	9%	8%
	Useful	42%	45%	46%	38%	38%	41%	43%
	Very useful	58%	53%	50%	53%	51%	51%	49%
	Total	100%	100%	100%	100%	100%	100%	100%

Table 48: ACT use and rating by rice farmers during WINNER (H-N)

		Rice Techniques						
		H. Transplanting Seedlings: transplant seedlings 25 cm apart in muddy paddy in horizontal and vertical straight rows for easy weeding	I. 1st Weeding: weed 15 days after transplanting using concical weeder	J. Regular weeding: Weed every 10-15 days after the 1st weeding for the duration of the season	K. Water Management: Keep seedlings under water for 2 weeks after transplanting, alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked	L. Alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked	M. Water Management: during fast growing period keep plants under 2-3 cm of water permanently.	N. Water Management: drain the paddy 3 weeks before harvesting and do not water
Farmers using during WINNER	No	0	2	3	1	0	2	1
	Yes	41	38	37	40	40	35	38
	888	265	265	265	265	265	265	265
	999	1	2	2	1	2	5	3
	Total	307	307	307	307	307	307	307
Farmer ratings of Usefulness	Useless	1	0	0	0	1	3	0
	Useful	17	11	12	13	16	9	10
	Very useful	23	27	25	28	23	24	29

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	888	266	268	269	266	266	269	268
	999	0	1	1	0	1	2	0
	Total	307	307	307	307	307	307	307
% of responders using:	No	0%	5%	8%	2%	0%	5%	3%
	Yes	100%	95%	93%	98%	100%	95%	97%
	Total	100%	100%	100%	100%	100%	100%	100%
% of responders rating:	Useless	2%	0%	0%	0%	3%	8%	0%
	Useful	41%	29%	32%	32%	40%	25%	26%
	Very useful	56%	71%	68%	68%	58%	67%	74%
	Total	100%	100%	100%	100%	100%	100%	100%

Table 49: ACT use and rating by rice farmers after WINNER (A-G)

Rice Techniques								
		H. Transplanting Seedlings: transplant seedlings 25 cm apart in muddy paddy in horizontal and vertical straight rows for easy weeding	I. 1st Weeding: weed 15 days after transplanting using concical weeder	J. Regular weeding: Weed every 10-15 days after the 1st weeding for the duration of the season	K. Water Management: Keep seedlings under water for 2 weeks after transplanting, alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked	L. Alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked	M. Water Management: during fast growing period keep plants under 2-3 cm of water permanently.	N. Water Management: drain the paddy 3 weeks before harvesting and do not water
Farmers using during WINNER	No	11	8	8	7	9	9	11
	Yes	26	29	30	30	27	28	25
	888	265	265	265	265	265	265	265
	999	5	5	4	5	6	5	6
	Total	307	307	307	307	307	307	307
% of responders using:	No	30%	22%	21%	19%	25%	24%	31%
	Yes	70%	78%	79%	81%	75%	76%	69%
	Total	100%	100%	100%	100%	100%	100%	100%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 50: ACT use and rating by rice farmers after WINNER (H-N)

Rice Techniques								
		H. Transplanting Seedlings: transplant seedlings 25 cm apart in muddy paddy in horizontal and vertical straight rows for easy weeding	I. 1st Weeding: weed 15 days after transplanting using concical weeder	J. Regular weeding: Weed every 10-15 days after the 1st weeding for the duration of the season	K. Water Management: Keep seedlings under water for 2 weeks after transplanting, alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked	L. Alternate irrigation and drying, put 1-2 cm of water in paddy each time the soil appears cracked	M. Water Management: during fast growing period keep plants under 2-3 cm of water permanently.	N. Water Management: drain the paddy 3 weeks before harvesting and do not water
Farmers using during WINNER	No	10	9	12	8	9	9	3
	Yes	28	28	25	30	28	25	33
	888	265	265	265	265	265	265	265
	999	4	5	5	4	5	8	6
	Total	307	307	307	307	307	307	307
% of responders using:	No	26%	24%	32%	21%	24%	26%	8%
	Yes	74%	76%	68%	79%	76%	74%	92%
	Total	100%	100%	100%	100%	100%	100%	100%

ACT Use and Rating – Plantain

Table 51: ACT use and rating by plantain farmers before WINNER (A-E)

Plantain Techniques						
		A. Land Preparation: spread organic fertilizer one month prior to planting and plow the land with all the weeds	B: Pointing out holes: Mark the plot for the holes location	C: Planting distance: double row technique (2.5m apart on all sides): 2300 plants/Ha	D. Seedling preparation: for local plantain varieties, clean up the roots	E. Seedling preparation: for local plantain varieties, after the clean up, cut off the infected parts (paraj) and soak in insecticide (pralinaj)
Farmers using during WINNER	No	73	91	98	85	81
	Yes	23	23	5	30	21

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	888	161	158	157	159	160
	999	50	35	47	33	45
	Total	307	307	307	307	307
% of responders using:	No	76%	80%	95%	74%	79%
	Yes	24%	20%	5%	26%	21%
	Total	100%	100%	100%	100%	100%

Table 52: ACT use and rating by plantain farmers before WINNER (F - J)

Plantain Techniques						
		F. Water Management: irrigate every 8 days in dry and windy areas and every 15 days in wet areas	G. Weeding: weeding each time fertilizer is to be applied	H. Chemical Fertilizers: apply fertilizer (10-15 g per tree) 45 days and 90 days after planting, apply again after six months	I. Plant Management: cut off the remaining flowers at tip of every banana fruit 5-8 days after the bunch appears to prevent infection from sigatoka disease.	J. Plant Management: Cut off flowers at the bunch 15-20 days after it appears for stronger and bigger plantains.
Farmers using during WINNER	No	78	73	83	82	84
	Yes	22	35	16	11	28
	888	161	161	161	161	160
	999	46	38	47	53	35
	Total	307	307	307	307	307
% of responders using:	No	78%	68%	84%	88%	75%
	Yes	22%	32%	16%	12%	25%
	Total	100%	100%	100%	100%	100%

Table 53: ACT use and rating by plantain farmers during WINNER (A-E)

		Plantain Techniques				
		A. Land Preparation: spread organic fertilizer one month prior to planting and plow the land with all the weeds	B: Pointing out holes: Mark the plot for the holes location	C: Planting distance: double row technique (2.5m apart on all sides): 2300 plants/Ha	D. Seedling preparation: for local plantain varieties, clean up the roots	E. Seedling preparation: for local plantain varieties, after the clean up, cut off the infected parts (paraj)

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

						and soak in insecticide (pralinaj)
Farmers using during WINNER	No	6	9	16	7	10
	Yes	93	108	91	112	95
	888	161	158	157	159	160
	999	47	32	43	29	42
	Total	307	307	307	307	307
Farmer ratings of Usefulness	Useless	1	13	28	7	10
	Useful	49	52	47	57	51
	Very useful	44	50	27	52	41
	888	209	192	203	190	205
	999	4	0	2	1	0
	Total	307	307	307	307	307
% of responders using:	No	6%	8%	15%	6%	10%
	Yes	94%	92%	85%	94%	90%
	Total	100%	100%	100%	100%	100%
% of responders rating:	Useless	6%	8%	15%	6%	10%
	Useful	94%	92%	85%	94%	90%
	Very useful	100%	100%	100%	100%	100%
	Total	6%	8%	15%	6%	10%

Table 54: ACT use and rating by plantain farmers during WINNER (F-J)

		Plantain Techniques				
		F. Water Management: irrigate every 8 days in dry and windy areas and every 15 days in wet areas	G. Weeding: weeding each time fertilizer is to be applied	H. Chemical Fertilizers: apply fertilizer (10-15 g per tree) 45 days and 90 days after planting, apply again after six months	I. Plant Management: cut off the remaining flowers at tip of every banana fruit 5-8 days after the bunch appears to prevent infection from sigatoka disease.	J. Plant Management: Cut off flowers at the bunch 15-20 days after it appears for stronger and bigger plantains.

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Farmers using during WINNER	No	13	8	11	14	8
	Yes	91	103	91	82	107
	888	161	161	161	163	160
	999	42	35	44	48	32
	Total	307	307	307	307	307
Farmer ratings of Usefulness	Useless	9	5	13	10	6
	Useful	55	47	56	48	47
	Very useful	35	54	27	31	57
	888	205	201	209	215	196
	999	3	0	2	3	1
	Total	307	307	307	307	307
% of responders using:	No	13%	7%	11%	15%	7%
	Yes	88%	93%	89%	85%	93%
	Total	100%	100%	100%	100%	100%
% of responders rating:	Useless	9%	5%	14%	11%	5%
	Useful	56%	44%	58%	54%	43%
	Very useful	35%	51%	28%	35%	52%
	Total	100%	100%	100%	100%	100%

Table 55: ACT use and rating by plantain farmers after WINNER (A-E)

Plantain Techniques						
		A. Land Preparation: spread organic fertilizer one month prior to planting and plow the land with all the weeds	B: Pointing out holes: Mark the plot for the holes location	C: Planting distance: double row technique (2.5m apart on all sides): 2300 plants/Ha	D. Seedling preparation: for local plantain varieties, clean up the roots	E. Seedling preparation: for local plantain varieties, after the clean up, cut off the infected parts (paraj) and soak in insecticide (pralinaj)
Farmers using during WINNER	No	26	28	46	21	30
	Yes	58	58	33	66	48
	888	161	158	157	159	160

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	999	62	63	71	61	69
	Total	307	307	307	307	307
% of responders using:	No	31%	33%	58%	24%	38%
	Yes	69%	67%	42%	76%	62%
	Total	100%	100%	100%	100%	100%

Table 56: ACT use and rating by plantain farmers after WINNER (F- J)

Plantain Techniques						
		F. Water Management: irrigate every 8 days in dry and windy areas and every 15 days in wet areas	G. Weeding: weeding each time fertilizer is to be applied	H. Chemical Fertilizers: apply fertilizer (10-15 g per tree) 45 days and 90 days after planting, apply again after six months	I. Plant Management: cut off the remaining flowers at tip of every banana fruit 5-8 days after the bunch appears to prevent infection from sigatoka disease.	J. Plant Management: Cut off flowers at the bunch 15-20 days after it appears for stronger and bigger plantains.
Farmers using during WINNER	No	28	23	42	39	18
	Yes	50	64	36	37	69
	888	160	159	160	161	160
	999	69	61	69	70	60
	Total	307	307	307	307	307
% of responders using:	No	36%	26%	54%	51%	21%
	Yes	64%	74%	46%	49%	79%
	Total	100%	100%	100%	100%	100%

Fertilizer

Table 57: Fertilizer use and rating during WINNER

		Respondents using during WINNER	**Respondent ratings during WINNER**

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

		No	Yes	Sample	Useless	Useful	Very Useful	Sample
Beans	Chemical Fertilizers: spread nitrogen fertilizer when plant blooms and after second weeding and based on soil analysis.	19%	81%	134	11%	36%	53%	117
Corn 1	Land Preparation: spread complete formula of chemical fertilizer before harrowing based on soil analysis	26%	74%	104	17%	38%	44%	86
Corn 2	Chemical Fertilizers: 1st application of urea (46-0-0) immediately after the first weeding based on soil analysis	19%	81%	105	9%	41%	51%	93
Corn 3	Chemical Fertilizers: 2nd application of urea (46-0-0) after the second weeding based on soil analysis	18%	82%	105	8%	43%	49%	88
Rice	Land Preparation: apply organic fertilizer (10-15 T/Ha)	--	--	--	--	--	--	---
Plantain 1	Land Preparation: spread organic fertilizer one month prior to planting	6%	94%	99	1%	52%	47%	94
Plantain 2	Apply chemical fertilizer 45 days and 90 days after planting, apply again after six months	11%	89%	102	14%	58%	28%	96

Note: Percentages may not sum to 100% due to rounding.

EVALUATION QUESTION 2

Table 58: General awareness of watershed management activities

	Number of Respondents			Percentage of Surveyed	
	No	Yes	Total	No	Yes
Are you aware of any activities in your community, which would improve watershed management (i.e. hillside erosion control, riverbed sediment control, and controlling waterways)?	109	198	307	36%	64%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 59: Awareness of specific watershed management activities

	5.2 Which activities were implemented in your community?									5.2a Were those activities implemented by WINNER?					
	Before WINNER			During WINNER			After WINNER			Respondents			Percentages		
	No	Yes	*888/999*	No	Yes	*888/999*	No	Yes	*888/999*	No	Yes	*888/999*	No	Yes	*888/999*
Dry wall installation or repair	145	52	110	50	148	109	131	53	123	39	117	151	25%	75%	-n/a-
Gabion installation or repair	158	37	112	77	122	108	155	29	123	27	103	177	21%	79%	-n/a-
Grass planting of hedge rows	166	30	111	63	135	109	137	45	125	21	118	168	15%	85%	-n/a-
Ravine cleaning	169	26	112	75	123	109	149	35	123	25	103	179	20%	80%	-n/a-
Reforestation	146	50	111	40	158	109	123	60	124	34	125	148	21%	79%	-n/a-

n/a- = not applicable

Note: Blank responses were coded as *888* or *999* due to specific technical reasons. They do not mean "Don't Know," and therefore are excluded in the calculation of percentages.

Responses coded as "*888*" indicates that the question was not applicable to the farmer.

Responses coded as '*999*" indicates that the response is missing.

All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 60: Perceptions about erosion and flooding by gender, corridor and location

5.1 Are you aware of any activities in your community, which would improve watershed management (i.e. hillside erosion control, riverbed sediment control, controlling waterways)?	Respondents			%		
	No	Yes	*888/999*	No	Yes	*888/999*
Men	86	145	0	37%	63%	-na-
Women	23	53	0	30%	70%	-na-
Cul-de-Sac	34	71	0	32%	68%	-na-
Matheux	75	127	0	37%	63%	-na-
Plains	94	152	0	38%	62%	-na-
Highlands	15	46	0	25%	75%	-na-
Overall	109	198	0	36%	64%	-na-

5.3 Has erosion decreased in your community (Valid for upland plots)? [1]	Respondents			%		
	No	Yes	*888/999*	No	Yes	*888/999*
Men	27	103	101	21%	79%	-na-
Women	5	41	30	11%	89%	-na-
Cul-de-Sac	7	43	55	14%	86%	-na-
Matheux	25	101	76	20%	80%	-na-
Plains	29	103	114	22%	78%	-na-
Highlands	3	41	17	7%	93%	-na-
Overall	32	144	131	18%	82%	-na-

5.4 Do you have recurring flooding in your community?	Respondents			%		
	No	Yes	*888/999*	No	Yes	*888/999*
Men	40	106	85	27%	73%	-na-
Women	12	41	23	27%	73%	-na-
Cul-de-Sac	26	45	34	37%	63%	-na-
Matheux	25	101	76	20%	80%	-na-
Plains	17	136	93	11%	89%	-na-
Highlands	35	11	15	76%	24%	-na-
Overall	52	147	108	26%	74%	-na-

5.5 If yes, does flooding cause less damage in your community after WINNER?	Respondents			%		
	No	Yes	Don't Know	No	Yes	Don't Know
Men	15	83	14	13%	74%	13%
Women	4	35	4	9%	81%	9%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Cul-de-Sac	6	44	1	12%	86%	2%
Matheux	13	74	17	13%	71%	16%
Plains	13	109	16	9%	79%	12%
Highlands	6	9	2	35%	53%	12%
Overall	19	118	18	12%	76%	12%

5.6 If yes, is there less flood damage in your community because of work by WINNER?	Respondents			%		
	No	Yes	Don't Know	No	Yes	Don't Know
Men	11	78	8	11%	80%	8%
Women	3	35	2	8%	88%	5%
Cul-de-Sac	6	43	1	12%	86%	2%
Matheux	8	70	9	9%	80%	10%
Plains	8	104	10	7%	85%	8%
Highlands	6	9	0	40%	60%	0%
Overall	14	113	10	10%	82%	7%

5.7 If yes, is there less damage in your community because of work by WINNER in the uplands away from your community?	Respondents			%		
	No	Yes	Don't Know	No	Yes	Don't Know
Men	7	74	12	8%	80%	13%
Women	2	33	4	5%	85%	10%
Cul-de-Sac	4	39	3	9%	85%	7%
Matheux	5	68	13	6%	79%	15%
Plains	4	98	16	3%	83%	14%
Highlands	5	9	0	36%	64%	0%
Overall	9	107	16	7%	81%	12%

5.8 Did the work by WINNER in the community or uplands help increase the level of production of your plots?	Respondents			%		
	No	Yes	Don't Know	No	Yes	Don't Know
Men	19	103	15	14%	75%	11%
Women	3	44	3	6%	88%	6%
Cul-de-Sac	3	54	5	5%	87%	8%
Matheux	19	93	13	15%	74%	10%
Plains	17	116	15	11%	78%	10%
Highlands	5	31	3	13%	79%	8%
Overall	22	147	18	12%	79%	10%

Note: Blank responses were coded as *888* or *999* due to specific technical reasons. They do not mean "Don't Know," and therefore are excluded in the calculation of percentages

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 61: Perceived impacts of WINNER watershed management activities on crop production

Impact	%	Sample
Reduced flooding risk and damage	28%	52
Reduced erosion risk; better soil protection & stability	27%	51
Better soil irrigation	8%	15
Better crop growth or decreased crop loss	13%	25
Others	2%	3
No impact	13%	25
Don't know	10%	18
Total	**100%**	**189**

Table 62: Perceptions of highland farmers

		5.1 Are you aware of any activities in your community to improve watershed management?		5.3 Has erosion decreased in your community?		5.8 Did the work by WINNER in the community or uplands help increase the level of production of your plots?		
Plot slope[1]	**Sample**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**Don't Know**
Low	13	38%	62%	0%	100%	13%	88%	0%
Moderate	42	21%	79%	10%	90%	15%	73%	12%
Steep	6	17%	83%	0%	100%	0%	100%	0%
Total	61	25%	75%	7%	93%	13%	79%	8%

[1]The questionnaire (2.4) defines slope as: low: 5-15%, moderate: 16-35%, and high: >35%.

Table 63: Perceived effectiveness of on-farm anti-erosion structures

	Dry wall	Canal contouring	Vegetative hedges
Received?			
No	49	67	43
Yes	31	12	37
No response	22	23	22
Total	**102**	**102**	**102**
Of those receiving (N):			
Not effective	0	0	1
Low effectiveness	3	0	1
Some effectiveness	8	2	8
Highly effective	20	9	27
No response	0	1	0
Total	**31**	**12**	**37**
Of those receiving (%):			

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Not effective	0%	0%	3%
Low effectiveness	10%	0%	3%
Some effectiveness	26%	17%	22%
Highly effective	65%	75%	73%
No response	0%	8%	0%
Total	**100%**	**100%**	**100%**
Slope			
Moderate (16-35%)			
No or low effectiveness	11%	9%	3%
Some or high effectiveness	89%	91%	97%
Total	100%	100%	100%
High (>35%)			
No or low effectiveness	0%	0%	0%
Some or high effectiveness	100%	100%	80%
Total	100%	100%	80%

The sample contains 61 highland farmers operating a total of 102 plots. Of these, 53 plots were covered with some form of anti-erosion structure.

EVALUATION QUESTION 3

Table 64: Reach and impact of WINNER market information sources

		Of those accessing WINNER information:						
	% of sample reached	% rating useful or very useful	% rating useful or very useful for increasing sales	% Using to decide on crop price	% Using to decide on timing of crop sale	% Using to decide on location of crop sale	% Using to decide on type of crop to sell	% Using to decide what crop or how to plant
SMS	20%	87%	90%	95%	95%	95%	93%	93%
REA	32%	92%	86%	85%	85%	82%	82%	81%
CRDD	9%	85%	93%	93%	93%	93%	93%	89%

Table 65: Percent receiving WINNER market info

	SMS	REA	CRDD
Men	16%	29%	4%
Women	29%	41%	22%
Cul-de-Sac	32%	41%	21%
Matheux	13%	27%	2%
Plains	22%	35%	11%
Highlands	11%	20%	2%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Regular Farmers	15%	27%	5%
Master Farmers	28%	39%	16%
Overall	**20%**	**32%**	**9%**

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 66: Percent of sample using any WINNER source to make decisions on the following

	Sales price	Sales timing	Sales location	Which crop to sell	Which crop to Plant
Men	26%	26%	26%	25%	25%
Women	49%	50%	49%	50%	47%
Cul-de-Sac	48%	50%	49%	48%	49%
Matheux	24%	23%	23%	22%	21%
Plains	35%	35%	35%	34%	33%
Highlands	20%	20%	20%	20%	20%
Regular Farmers	23%	24%	23%	22%	25%
Master Farmers	48%	48%	48%	47%	41%
Overall	**32%**	**32%**	**32%**	**31%**	**31%**

Table 67: Breakdown by gender, region and farmer status among respondents who accessed WINNER information

	% rating info useful or very useful			% using info to decide on sales price or timing			% using info to decide on sales location			% using info to decide on which crops to plant			% rating info useful or very useful for increasing sales		
	SMS	REA	CRDD	SMS	REA	CRDD	SMS	REA	CRDD	SMS	REA	CRDD	SMS	REA	CRDD
Men	97%	94%	90%	95%	82%	90%	95%	80%	90%	95%	77%	90%	95%	85%	90%
Women	73%	87%	82%	95%	94%	94%	95%	87%	94%	91%	90%	88%	82%	87%	94%
Cul-de-Sac	100%	98%	86%	97%	95%	95%	97%	93%	95%	94%	95%	91%	97%	98%	91%
Matheux	69%	87%	80%	92%	78%	80%	92%	74%	80%	92%	70%	80%	81%	76%	80%
Plains	89%	92%	85%	96%	85%	92%	96%	81%	92%	94%	80%	88%	92%	85%	92%
Highlands	71%	92%	100%	86%	92%	100%	86%	92%	100%	86%	92%	100%	71%	92%	100%
Regular Farmers	83%	89%	80%	90%	76%	90%	90%	72%	90%	93%	78%	90%	86%	81%	90%
Master	90%	98%	88%	100%	98%	94%	100%	95%	94%	94%	86%	88%	94%	91%	94%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Farmers																
Overall	**87%**	**92%**	**85%**	**95%**	**86%**	**93%**	**95%**	**82%**	**93%**	**93%**	**81%**	**89%**	**90%**	**86%**	**93%**	

Table 68: Crop yields disaggregated by access to WINNER market information from any source

Received WINNER information	**Beans (Kg/ha)**				**Corn (Kg/ha)**				**Rice (Kg/ha)**				**Plantain (Regimes/ha)**			
	Before	During	After	Sample[1]	Before	During	After	Sample[1]	Before	During	After	Sample[1]	Before	During	After	Sample[1]
No	344	328	313	98	408	429	374	59	2,374	3,299	1,725	16	1,172	1,197	1,086	78
Cul-de-Sac	373	446	354	41	448	516	412	33	1,144	1,549	1,053	7	--	--	--	2
Plains	336	387	240	21	346	476	390	16	1,144	1,549	1,053	7	--	--	--	1
Highland	412	507	467	20	538	553	436	17	--	--	--	0	--	--	--	1
Matheux	322	243	274	57	347	320	304	26	3,331	4,661	2,732	9	1,182	1,216	1,116	76
Plains	285	233	237	36	296	270	155	20	3,331	4,661	2,732	9	1,193	1,221	1,116	73
Highland	377	261	333	21	472	485	714	6	--	--	--	0	--	--	--	3
Yes	398	511	471	89	517	655	590	64	1,241	1,957	1,693	25	1,131	1,273	1,077	48
Cul-de-Sac	436	642	559	46	556	733	743	40	1,097	1,718	1,580	22	--	--	--	0
Plains	438	631	574	42	578	759	798	37	1,097	1,718	1,580	22	--	--	--	0
Highland	--	--	--	4	--	--	--	3	--	--	--	0	--	--	--	0
Matheux	357	370	376	43	454	526	354	24	--	--	--	3	1,131	1,273	1,077	48
Plains	345	391	363	37	463	538	366	23	--	--	--	2	1,134	1,275	1,079	47
Highland	437	238	435	6	--	--	--	1	--	--	--	1	--	--	--	1
Overall	**370**	**415**	**393**	**187**	**465**	**547**	**476**	**123**	**1,694**	**2,481**	**1,703**	**41**	**1,156**	**1,226**	**1,082**	**126**

[1] Sample during WINNER implementation. Samples of 5 farmers or fewer are omitted.

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 69: Crop yields disaggregated by use of WINNER market information from any source for planting decisions

Used WINNER information	Beans (Kg/ha)				Corn (Kg/ha)				Rice (Kg/ha)				Plantain (Regimes/ha)			
	Before	During	After	Sample[1]	Before	During	After	Sample[1]	Before	During	After	Sample[1]	Before	During	After	Sample[1]
No	343	332	309	111	403	422	373	68	2,169	2,954	1,517	19	1,216	1,255	1,113	93
Cul-de-Sac	378	456	352	45	432	498	404	37	1,053	1,428	951	8	--	--	--	2
Plains	350	415	259	25	337	452	375	20	1,053	1,428	951	8	--	--	--	1
Highland	412	507	467	20	538	553	436	17	--	--	--	0	--	--	--	1
Matheux	318	247	272	66	364	332	328	31	3,061	4,063	2,311	11	1,225	1,272	1,137	91
Plains	288	246	248	44	335	297	228	24	3,331	4,369	2,732	10	1,239	1,279	1,139	87
Highland	369	250	319	22	443	451	608	7	--	--	--	1	--	--	--	4
Yes	409	536	509	76	543	701	623	55	1,306	2,072	1,814	22	989	1,144	1,016	33
Cul-de-Sac	437	650	586	42	588	775	770	36	1,129	1,772	1,646	21	--	--	--	0
Plains	439	639	606	38	617	809	829	33	1,129	1,772	1,646	21	--	--	--	0
Highland	--	--	--	4	--	--	--	3	--	--	--	0	--	--	--	0
Matheux	376	395	411	34	459	561	330	19	--	--	--	1	989	1,144	1,016	33
Plains	357	415	390	29	459	561	330	19	--	--	--	1	989	1,144	1,016	33
Highland	--	--	--	5	--	--	--	0	--	--	--	0	--	--	--	0
Overall	370	415	393	187	465	547	476	123	1,694	2,481	1,703	41	1,156	1,226	1,082	126

[1] Sample during WINNER implementation. Samples of 5 farmers or fewer are omitted.

Table 70: % of Entire Sample using any WINNER information source to decide

	Sales Price	Sales Timing	Sales Location	Crop form to sell	Which crops to plant
Men	26%	26%	26%	25%	25%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Women	49%	50%	49%	50%	47%
Cul-de-Sac	48%	50%	49%	48%	49%
Matheux	24%	23%	23%	22%	21%
Plains	35%	35%	35%	34%	33%
Highlands	20%	20%	20%	20%	20%
Regular Farmers	23%	24%	23%	22%	25%
Master Farmers	48%	48%	48%	47%	41%
Overall	32%	32%	32%	31%	31%

EVALUATION QUESTION 4

Table 71: Number of farmers receiving crop-specific PH information from WINNER

	Beans		Corn		Rice		Plantain	
	No	Yes	No	Yes	No	Yes	No	Yes
Men	28	108	17	72	5	24	61	64
Women	6	54	2	42	1	12	4	20
Subtotal	34	162	19	114	6	36	65	84
Cul-de-Sac	6	84	4	74	0	29	0	2
Matheux	28	78	15	40	6	7	65	82
Subtotal	34	162	19	114	6	36	65	84
Plains	19	123	15	94	6	34	63	81
Highlands	15	39	4	20	0	2	2	3
Subtotal	34	162	19	114	6	36	65	84
Regular Farmers	33	87	16	58	4	23	60	34
Master Farmers	1	75	3	56	2	13	5	50
Subtotal	34	162	19	114	6	36	65	84

Table 72: Percentage of farmers receiving crop-specific PH information [1]

	Beans	Corn	Rice	Plantain

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

	No	Yes	No	Yes	No	Yes	No	Yes
Men	21%	79%	19%	81%	17%	83%	49%	51%
Women	10%	90%	5%	95%	8%	92%	17%	83%
Subtotal	17%	83%	14%	86%	14%	86%	44%	56%
Cul-de-Sac	7%	93%	5%	95%	0%	100%	--	--
Matheux	26%	74%	27%	73%	46%	54%	44%	56%
Subtotal	17%	83%	14%	86%	14%	86%	44%	56%
Plains	13%	87%	14%	86%	15%	85%	44%	56%
Highlands	28%	72%	17%	83%	--	--	--	--
Subtotal	17%	83%	14%	86%	14%	86%	44%	56%
Regular Farmers	28%	73%	22%	78%	15%	85%	64%	36%
Master Farmers	1%	99%	5%	95%	13%	87%	9%	91%
Subtotal	17%	83%	14%	86%	14%	86%	44%	56%

[1] Samples of 5 farmers or fewer are omitted.
The above percentages were calculated based on the respondents in Table 21

Table 73: Of farmers who received PH information, (n) using any WINNER crop-specific PH method

	Beans				Corn				Rice				Plantain			
	Never	Sometimes	Always	Total	Never	Sometimes	Always	Total	Never	Sometimes	Always	Total	Never	Sometimes	Always	Total
Men	9	47	52	108	10	27	35	72	5	5	14	24	11	36	17	64
Women	1	27	26	54	1	17	24	42	0	3	9	12	4	10	6	20
Subtotal	10	74	78	162	11	44	59	114	5	8	23	36	15	46	23	84
Cul-de-Sac	6	34	44	84	3	31	40	74	1	7	21	29	1	0	1	2
Matheux	4	40	34	78	8	13	19	40	4	1	2	7	14	46	22	82
Subtotal	10	74	78	162	11	44	59	114	5	8	23	36	15	46	23	84
Plains	5	52	66	123	9	31	54	94	5	7	22	34	15	44	22	81
Highlands	5	22	12	39	2	13	5	20	0	1	1	2	0	2	1	3
Subtotal	10	74	78	162	11	44	59	114	5	8	23	36	15	46	23	84

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Regular Farmers	8	41	38	87	5	27	26	58	3	6	14	23	11	18	5	34
Master Farmers	2	33	40	75	6	17	33	56	2	2	9	13	4	28	18	50
Subtotal	10	74	78	162	11	44	59	114	5	8	23	36	15	46	23	84

Table 74: Of farmers who received PH information, % using any WINNER crop-specific PH method

	Beans				Corn				Rice				Plantain			
	Never	Sometimes	Always	Total	Never	Sometimes	Always	Total	Never	Sometimes	Always	Total	Never	Sometimes	Always	Total
Men	8%	44%	48%	100%	14%	38%	49%	100%	21%	21%	58%	100%	17%	56%	27%	100%
Women	2%	50%	48%	100%	2%	40%	57%	100%	0%	25%	75%	100%	20%	50%	30%	100%
Subtotal	**6%**	**46%**	**48%**	**100%**	**10%**	**39%**	**52%**	**100%**	**14%**	**22%**	**64%**	**100%**	**18%**	**55%**	**27%**	**100%**
Cul-de-Sac	7%	40%	52%	100%	4%	42%	54%	100%	3%	24%	72%	100%	--	--	--	--
Matheux	5%	51%	44%	100%	20%	33%	48%	100%	57%	14%	29%	100%	17%	56%	27%	100%
Subtotal	**6%**	**46%**	**48%**	**100%**	**10%**	**39%**	**52%**	**100%**	**14%**	**22%**	**64%**	**100%**	**18%**	**55%**	**27%**	**100%**
Plains	4%	42%	54%	100%	10%	33%	57%	100%	15%	21%	65%	100%	19%	54%	27%	100%
Highlands	13%	56%	31%	100%	10%	65%	25%	100%	--	--	--	--	--	--	--	--
Subtotal	**6%**	**46%**	**48%**	**100%**	**10%**	**39%**	**52%**	**100%**	**14%**	**22%**	**64%**	**100%**	**18%**	**55%**	**27%**	**100%**
Regular Farmers	9%	47%	44%	100%	9%	47%	45%	100%	13%	26%	61%	100%	32%	53%	15%	100%
Master Farmers	3%	44%	53%	100%	11%	30%	59%	100%	15%	15%	69%	100%	8%	56%	36%	100%
Subtotal	**6%**	**46%**	**48%**	**100%**	**10%**	**39%**	**52%**	**100%**	**14%**	**22%**	**64%**	**100%**	**18%**	**55%**	**27%**	**100%**

[1] Samples of 5 farmers or fewer are omitted.
The above percentages were calculated based on the respondents in Table 23

Table 75: Percentage post-harvest losses by receipt of WINNER P-H information and use of one or more recommended P-H methods

	Beans				Corn				Rice				Plantain			
	Before	During	After	Sample[1]	Before	During	After	Sample	Before	During	After	Sample	Before	During	After	Sample
Not received	8.7%	10.8%	5.9%	**30**	9.3%	8.5%	2.7%	**19**	3.4	2.0	0.0	**6**	19.5	24.8	22.2	**65**

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Received, no method used[2]	0.6%	10.4%	2.5%	**10**	1.4%	2.8%	3.5%	**9**	--	--	--	**--**	19.0	13.1	15.0	**14**
Received, sometimes used	10.5%	7.4%	9.2%	**72**	9.3%	6.0%	10.1%	**42**	6.4	4.3	4.4	**8**	16.5	12.4	14.4	**45**
Received, always used	7.6%	4.2%	5.9%	**76**	8.1%	4.5%	6.3%	**56**	7.9	2.0	5.2	**23**	16.5	10.6	11.1	**23**
Overall	**8.6%**	**6.8%**	**7.1%**	**188**	**8.3%**	**5.5%**	**7.2%**	**126**	**6.2**	**2.3**	**4.4**	**37**	**18.2**	**17.5**	**15.8**	**147**

[1]Sample size during WINNER. Sample sizes of 5 farmers or fewer are omitted.
[2]Due to small samples, the averages were affected by a few extreme observations.

Table 76: Percentage post-harvest losses by gender, region and farmer status

	Beans				**Corn**				**Rice**				**Plantain**			
	Before	During	After	Sample[1]	Before	During	After	Sample	Before	During	After	Sample	Before	During	After	Sample
Men	7.8%	6.8%	7.0%	130	8.0%	6.0%	8.6	85	5.9	2.5	4.2	29	18.1	18.5	16.0	119
Women	10.4%	6.8%	7.3%	58	9.0%	4.4%	4.7	41	6.9	1.8	4.8	13	18.7	12.7	15.2	25
Cul-de-Sac	6.4%	2.5%	4.5%	87	6.7%	2.6%	5.7	76	7.6	2.7	5.0	29	--	--	--	2
Matheux	10.5%	10.5%	9.8%	101	10.9%	9.9%	10.3	50	3.1	1.4	2.1	13	18.3	17.7	16.1	142
Plains	8.6%	6.7%	6.4%	138	8.2%	5.6%	6.4	103	6.6	2.4	4.7	40	18.3	17.4	16.1	139
Highlands	8.5%	7.2%	8.9%	50	8.8%	4.8%	10.1	23	--	--	--	2	--	--	--	5
Regular Farmers	8.0%	6.8%	5.6%	115	7.6%	4.8	6.4	74	5.4	2.4	4.8	27	19.3	19.3	15.0	89
Master Farmers	9.4%	6.8%	9.7%	73	9.4%	6.5	8.5	52	7.7	2.2	3.8	15	16.5	14.5	16.6	55
Overall	**8.6%**	**6.8%**	**7.1%**	**188**	**8.3%**	**5.5**	**7.2**	**126**	**6.2**	**2.3**	**4.4**	**42**	**18.2**	**17.5**	**15.8**	**144**

[1]Sample size during WINNER. Percentages not calculated for samples of 5 farmers or fewer.

Table 77: Percentage post-harvest losses and use of WINNER P-H technology

	Tarps			Huller			Humidity Gauge			Silos			Jute/Sisal Bags		
BEANS	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

No	8.8	9.1	7.3	9.8	8.5	8.0	8.8	7.7	6.9	8.8	8.5	7.4	6.8	4.5	5.7
Yes	8.4	6.4	6.9	--	7.4	--	--	4.8	8.9	--	4.5	6.5	9.7	7.5	7.4
888/999	--	--	--	6.1	3.5	5.7	3.1	2.9	8.0	3.2	3.3	7.8	2.7	3.3	--
Average	8.6	6.8	7.1	8.6	6.8	7.1	8.6	6.8	7.1	8.6	6.8	7.1	8.6	6.8	7.1

	Tarps			Huller[2]			Humidity Gauge			Silos			Jute/Sisal Bags		
CORN	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After
No	8.8	5.2	5.8	--	--	--	8.5	6.5	7.7	8.4	5.8	8.3	7.6	7.1	4.8
Yes	6.2	5.7	7.9	--	--	--	--	3.4	6.0	--	5.2	5.3	8.8	5.2	8.2
888/999	--	--	--	--	--	--	6.0	3.0	4.0	--	--	--	--	--	--
Average	8.3	5.5	7.2	--	--	--	8.3	5.5	7.2	8.4	5.5	7.2	8.3	5.5	7.2

	Tarps			Huller			Humidity Gauge			Silos			Jute/Sisal Bags		
RICE	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After
No	7.5	--	--	7.3	2.1	5.2	6.4	2.5	4.2	6.2	2.6	2.8	2.0	0.0	0.0
Yes	4.1	2.3	4.5	0.0	2.4	3.4	--	2.0	5.2	--	2.0	5.9	7.8	2.7	5.6
888/999	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Average	6.2	2.3	4.4	6.2	2.3	4.4	6.4	2.3	4.4	6.2	2.3	4.4	6.2	2.3	4.4

	Packing Frames			Packing Crates			Mobile Collection Units		
PLANTAIN	Before	During	After	Before	During	After	Before	During	After
No	18.3	19.5	16.4	18.4	21.5	16.7	18.5	18.4	16.4
Yes	--	11.0	11.5	--	10.4	12.1	--	--	--
888/999	--	14.2	--	--	13.4	--	--	12.6	13.2
Average	18.3	17.5	15.8	18.4	17.5	15.8	18.5	17.5	15.8

[1] Samples with 5 farmers or fewer are omitted. For simplicity, sample sizes are not presented since they differ for each time period, but they are shown in Table 78 below.
[2] Hullers are not used for corn.

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

Table 78: Sample sizes by use of WINNER P-H technology (only farmers reporting loss data)

	Tarps			Huller			Humidity Gauge			Silos			Jute/Sisal Bags		
BEANS	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After
No	121	26	32	123	118	83	178	134	119	179	108	92	56	34	25
Yes	61	159	105	1	8	1	1	47	15	1	74	42	123	148	110
888/999	4	3	3	62	62	56	7	7	6	6	6	6	7	6	5
Total	186	188	140	186	188	140	186	188	140	186	188	140	186	188	140

	Tarps			Huller[1]			Humidity Gauge			Silos			Jute/Sisal Bags		
CORN	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After
No	89	36	27	--	--	--	106	87	62	115	71	48	39	30	18
Yes	25	89	51	--	--	--	0	30	9	0	54	30	75	93	58
888/999	2	1	0	--	--	--	10	9	7	1	1	0	2	3	2
Total	116	126	78	--	--	--	116	126	78	116	126	78	116	126	78

	Tarps			Huller			Humidity Gauge			Silos			Jute/Sisal Bags		
RICE	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After
No	26	0	1	35	15	17	40	27	20	41	22	16	11	6	7
Yes	15	42	32	6	27	15	0	13	11	0	20	17	30	36	26
888/999	0	0	0	0	0	1	1	2	2	0	0	0	0	0	0
Total	41	42	33	41	42	33	41	42	33	41	42	33	41	42	33

	Packing Frames			Packing Crates			Mobile Collection Units		
PLANTAIN	Before	During	After	Before	During	After	Before	During	After
No	135	106	55	134	89	53	132	126	59
Yes	1	28	9	2	44	10	1	5	2
888/999	2	10	3	2	11	4	5	13	6
Total	138	144	67	138	144	67	138	144	67

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

[1] Hullers are not used for corn.
"After" refers to at the time of the survey administration

Table 79:Sample percentages, use of WINNER P-H technology (only farmers reporting loss data)

	Tarps			Huller			Humidity Gauge			Silos			Jute/Sisal Bags		
BEANS	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After
No	65%	14%	23%	66%	63%	59%	96%	71%	85%	96%	57%	66%	30%	18%	18%
Yes	33%	85%	75%	1%	4%	1%	1%	25%	11%	1%	39%	30%	66%	79%	79%
888/999	2%	2%	2%	33%	33%	40%	4%	4%	4%	3%	3%	4%	4%	3%	4%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

	Tarps			Huller[1]			Humidity Gauge			Silos			Jute/Sisal Bags		
CORN	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After
No	77%	29%	35%	--	--	--	91%	69%	79%	99%	56%	62%	34%	24%	23%
Yes	22%	71%	65%	--	--	--	0%	24%	12%	0%	43%	38%	65%	74%	74%
888/999	2%	1%	0%	--	--	--	9%	7%	9%	1%	1%	0%	2%	2%	3%
Total	100%	100%	100%	--	--	--	100%	100%	100%	100%	100%	100%	100%	100%	100%

	Tarps			Huller			Humidity Gauge			Silos			Jute/Sisal Bags		
RICE	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After
No	63%	0%	3%	85%	36%	52%	98%	64%	61%	100%	52%	48%	27%	14%	21%
Yes	37%	100%	97%	15%	64%	45%	0%	31%	33%	0%	48%	52%	73%	86%	79%
888/999	0%	0%	0%	0%	0%	3%	2%	5%	6%	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

PLANTAIN	Packing Frames			Packing Crates			Mobile Collection Units		
	Before	During	After	Before	During	After	Before	During	After
No	98%	74%	82%	97%	62%	79%	96%	88%	88%
Yes	1%	19%	13%	1%	31%	15%	1%	3%	3%
888/999	1%	7%	4%	1%	8%	6%	4%	9%	9%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

[1] Hullers are not used for corn.
The above percentages were calculated based on the responses calculated from the farmer survey not including *888* or *999* responses.
"After" refers to at the time of the survey administration

Responses coded as "*888*" indicates that the question was not applicable to the farmer.
Responses coded as '*999*" indicates that the response is missing.
All timeframe responses refer to the individual farmer's participation in WINNER activities. For example, "Before WINNER" refers to the period before the farmer became involved with WINNER, not before WINNER programing began. "After WINNER" refers to the most recent growing season when the farmer no longer received WINNER support.

ANNEX VII: EVALUATION TEAM BIOS & DISCLOSURE OF CONFLICTS OF INTEREST

ELIE LAFORTUNE, TEAM LEADER

Mr. Lafortune has more than fifteen years of professional experience in agricultural economics, natural resource management, and evaluation management. He is a leading technical expert in agribusiness, capacity building, and microfinance. He has previous experience with USAID in Haiti, most recently as the senior M&E Officer for the Haiti Recovery Initiative where he managed the project's M&E unit and designed the evaluation approach. In another project in Haiti with Mercy Corps, he utilized qualitative and quantitative methods to design an evaluation of a natural resource management project in Sibas and Arcahaie. He has 15 years of rural development experience and more than 7 years of evaluation experience, with particular expertise managing projects in Haiti. He specializes in M&E systems, program evaluations, and program design. The accumulation of his combined skills and experience makes him well-placed to plan and lead evaluations of agriculture programs and to author complex evaluation reports with reliable findings, conclusions, and recommendations. Mr. Lafortune holds an MPA from Harvard University and an MBA from the University of Rochester. He is a native French and Creole speaker and is fluent in English.

PAUL FEDNER ZAMY, DEPUTY TEAM LEADER

Mr. Paul Zamy has nearly 20 years of professional experience in the field of international development, working as a Monitoring and Evaluation Specialist and Evaluation Consultant for numerous international organizations in Haiti including USAID, DAI, the International Fund for Agricultural Development, the UNDP, the Pan American Development Foundation, CARE, CRS and World Vision. He has served as the main focal point for various USAID projects in Haiti including the Haiti Recovery Initiative – Emergency relief project (2010-2011), where he conducted final evaluations of more than one hundred project activities under the program components. An experienced surveyor and agronomist, Mr. Zamy's field of expertise includes Agricultural Value Chains, Post-Disaster program evaluation, Environmental Mitigation Planning, Conflict Management Market Chain Enhancement, and Early Warning Systems for Food Security. In addition Mr. Zamy has over nine years of experience supervising and conducting surveys for different purposes throughout Haiti (including conducting training sessions for survey teams). Mr. Zamy's technical expertise includes designing qualitative and quantitative survey tools; producing baseline studies, indicators, practical tools, and training modules; developing and implementing M&E plans; performing quantitative and qualitative data analysis and monitoring; and providing input for project evaluations. Proficient in French, English, Creole and Spanish, Mr. Zamy has specific evaluation training the Faculty of Economics of the Universidad Los Andes in Colombia, and in Agronomic Engineering from FAMV in Haiti.

MATHIEU LUCIUS, TECHNICAL EXPERT

An international development specialist with over 20 years of experience providing management and technical expertise on projects focused on development, emergency relief and recovery activities , agricultural development, food security including Mother Child Health and Nutrition, Early Warning System, and livelihoods development. Experience in project management, monitoring, evaluation, training, alliance building and capacity building. Experience in human resources management, and program operations. Demonstrated success working with a wide variety of stakeholders including State Agencies, local government, Municipal, Civil Society, Community-based Organizations and a wide range of partners including: International NGOs, donors (USAID, Canadian Agency for International Development (CIDA), European Union, UN (through FAO, WFP, OCHA), Inter-American Foundation (IAF), US Peace Corps. Experience with USAID Title II projects, procedures, policies and reporting requirements. Experience with Performance Audit of the Office of the Inspector General (USAID). Excellent cross-cultural interpersonal skills. Excellent leadership skills with a strong ability to build and manage effective teams. Fluent in English, French and Haitian Creole.

CECILA BANKS, PROGRAM MANAGER AND PERFORMANCE EVALUATION SPECIALIST

Ms. Banks is a Program Manager for Performance Evaluation at Social Impact. With 10 years of international development experience implementing, supporting, and evaluating programs in Latin America, the Caribbean, Africa, and the Middle East, Ms. Banks brings excellent leadership and management experience especially in the areas of at-risk youth and community development. During her time in Latin America, Ms. Banks implemented a wide variety of community development programs geared towards at-risk youth and families. In her management functions, Ms. Banks has provided technical and administrative support for community development and livelihoods

programs. A detail-oriented professional experienced in assessments and performance evaluation, Ms. Banks has proven experience leading research teams, conducting key informant interviews, facilitating focus group discussions, developing qualitative and quantitative monitoring and evaluation tools, and data analysis and report writing. Ms. Banks is fluent in English and Spanish and is proficient in French.

Name	**Elie Lafortune**
Title	Team Leader
Organization	**Social Impact, Inc.**
Evaluation Position?	■ Team Leader ☐ Team member
Evaluation Award Number *(contract or other instrument)*	Contract # AID-521-15-0001 Task Order #
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	USAID Haiti Feed the Future West/WINNER Implementer: Chemonics Award 3: EPP-I-0404-00200-00
I have real or potential conflicts of interest to disclose.	☐ Yes ■ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to:* 1. *Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.* 2. *Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* 3. *Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.* 4. *Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.* 5. *Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.* 6. *Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.*	

I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.

Signature	Elie Lafortune
Date	April 20, 2015

Name	Paul Fedner Zamy
Title	Deputy Team Leader
Organization	**Social Impact, Inc.**
Evaluation Position?	☐ Team Leader ☒ Team member
Evaluation Award Number *(contract or other instrument)*	Contract # AID-521-15-0001 Task Order #
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	USAID Haiti Feed the Future West/WINNER Implementer: Chemonics Award 3: EPP-I-0404-00200-00
I have real or potential conflicts of interest to disclose.	☐ Yes ☒ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to:* 1. *Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.* 2. *Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* 3. *Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.* 4. *Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.* 5. *Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.* 6. *Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.*	

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Signature	
Date	May 12, 2015

Name	Mathieu Lucius
Title	Technical Expert
Organization	Social Impact, Inc.
Evaluation Position?	☐ Team Leader ☑ Team member
Evaluation Award Number *(contract or other instrument)*	Contract # AID-521-15-0001 Task Order #
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	USAID Haiti Feed the Future West/WINNER Implementer: Chemonics Award 3: EPP-I-0404-00200-00
I have real or potential conflicts of interest to disclose.	☐ Yes ☑ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to:* 1. *Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.* 2. *Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* 3. *Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.* 4. *Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.* 5. *Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.* 6. *Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.*	

I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.

Signature	
Date	5/12/15

Name	**Cecilia Banks**
Title	**Evaluation Specialist**
Organization	**Social Impact, Inc.**
Evaluation Position?	☐ Team Leader ■ Team member
Evaluation Award Number *(contract or other instrument)*	Contract # AID-521-C-15-00001 Solicitation # SOL-521-14-000029
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	USAID Haiti Feed The Future West/WINNER Implementer: Chemonics Award #: EPP-I-0404-000200-00
I have real or potential conflicts of interest to disclose.	☐ Yes ■ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to:* 1. *Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.* 2. *Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* 3. *Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.* 4. *Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.* 5. *Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.* 6. *Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.*	

I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.

Signature	
Date	11.30.2014

ANNEX VIII: SI COMMENTS AND STATEMENT OF DIFFERENCE

SOCIAL IMPACT
2300 Clarendon Boulevard, Suite 1000
Arlington, Virginia 22201

Social Impact Comments to Chemonics International Statement of Differences
November 30, 2015

The Statement of Differences from Chemonics International (on the following pages) was received by Social Impact on November 30, 2015. Since the Statement of Differences was received after Social Impact's submission of the final report, Social Impact did not have the opportunity to address the comments in the following pages as part of its report revisions. In addition, since the comments from Chemonics International are from August 2015 and refer to the draft report, Social Impact finds some of the comments to no longer be as relevant to this final report. Social Impact had insufficient time to fully address the statement of differences, but offers a few clarifying responses below.

Database of farmer associations. Chemonics International indicates that a comprehensive database of farmer associations was shared with Social Impact. In an initial evaluation plan submitted to USAID on February 19, 2015, SI documented concerns regarding the extensiveness of the association list provided. The association list did not specify participation of associations by crop campaign, and was not confirmed as comprehensive by the implementer. In addition, Social Impact's proposal to use an association approach to sampling was not approved by USAID. Social Impact's WINNER Evaluation Plan, submitted to USAID on February 2, 2015 stated as follows:

> *The first stage of the sampling will involve randomly selecting associations from an association list provided by Chemonics. These associations will represent primary sampling units, or clusters. The list provided by Chemonics contains 149 farmer associations between Cul-de-Sac and Matheux corridors. Based on the document review and discussions with USAID/Haiti and Chemonics, the evaluation team anticipates that this list is not exhaustive. As a result, the sample frame as it stands contains an element of bias resulting from the incomplete list. The evaluation team has made every attempt to verify the completeness of the list of associations, supplementing the list with data collected from CRDDs. While the evaluation team recognizes that this list may not be exhaustive, this sampling plan represents the closest possible attempt at constructing a representative sample of farmers for each of the focus crops in the absence of the requested information.*

Measurement of yields. Noted. The updated evaluation report includes contextual factors such as drought which are limitations to the evaluation. In addition, the evaluation did not have the resources to measure farmer yields, so yields are based on farmer recall, a limitation discussed in the evaluation. Finally, since farmer yields for the various focus crops need to be measured at different periods in the year, the evaluation team would not have had sufficient time to measure yields for the different focus crops in real time.

Partnership with MARNDR. The shifting priorities of MARNDR are discussed in the updated report. The evaluation includes qualitative data from key informants in various government ministries as well as Chemonics implementing staff voicing challenges in partnering with MARNDR, many for reasons outside the project's control. It is unfortunate that further documentation of MARNDR collaboration was not shared with the SI team for the document review.

Watershed stabilization. Noted. The evaluation includes qualitative data from key informants in various government ministries as well as farmers and water user associations.

Agroforestry and greenhouses. While there were reportedly some examples of greenhouse success, but the greenhouses visited by the team were largely unutilized and key informants and focus group discussions in both corridors reported numerous challenges related to greenhouses.

Post-harvest losses: During kickoff and design discussions, the Social Impact team was advised by USAID to focus on the focus crops of beans, rice, corn, and plantain only.

CHEMONICS

August 5, 2015

Harry Francois
Mission Monitoring and
Evaluation Officer USAID-
Haiti
US Embassy
Port-au-Prince, Haiti

Reference: Statement of differences on the WINNER Final Evaluation by Social Impact

Dear Mr. Francois:

Chemonics thanks USAID for the opportunity to review the draft report of the final performance evaluation of the USAID/Haiti Feed the Future (FtF) West/Watershed Initiative for National Natural Environmental Resources (WINNER) project implemented by Chemonics International Inc. (Chemonics).

Chemonics also thanks Social Impact (SI) for its work and the draft evaluation report, which is comprehensive and well written and provides important recommendations that will be very useful to guide the implementation of the Feed the Future Chanje Lavi Plante project. However, we have noted a need for clarification and correction in certain areas of the report. Through this statement of differences, we highlight the most important inaccuracies noted in the report as well as present an overall response to the findings and conclusions of this draft report in regards to the project's background, the database of farmer associations, the measurement of yields, the challenges of access to inputs, the partnership of the project with the Ministry of Agriculture (MARNDR), the project's work in watershed stabilization, the viability of greenhouses, and post-harvest losses.

We hope these comments will both improve the quality and the usefulness of the report while also providing valuable lessons learned for the future. We would welcome the opportunity to discuss further these observations and response at your convenience.

Project Background
In the project background section, SI incorrectly indicated March 2010 as the time when the project

changed. In fact, after the January 12, 2010 devastating earthquake, the project remained the same, but a fifth key result was added: "Earthquake recovery enhanced through job creation in rural areas and assistance to small business." In September 2011, per a modification to our task order, WINNER became the Feed the Future West/WINNER Project and the initial result framework was changed to include only three key results, focusing on agricultural productivity increased, watersheds stabilized and markets strengthened. The project continued to work with the same farmer organizations but expanded their number to include new beneficiaries, especially in the Matheux corridor.

Data base of farmer associations

The report states repeatedly that SI was led to believe there was a comprehensive data base of farmers supported by WINNER. Such a data base would have required significant resources to develop and maintain that was never contemplated nor budgeted for in the project. As stated in the WINNER generated report on the increase in household income, which is cited in the SI report:

> *"In order to calculate the increase in income of rural households benefitting from the FtF West/WINNER project, we could not use a rigorous methodology. This is because the baseline studies that were conducted in 2009 and 2010 did not use random sampling or comprehensive survey methodologies. The objective at the start of the project is to have an idea of average or "typical" sources of income in rural households in the areas of intervention of the project. Therefore, what is being compared in this report is the evolution of average rural incomes in the three areas of intervention where the project was active for most of its lifetime (Cul-de-Sac, Matheux, and Mirebalais/Saut d'Eau).*
>
> *This gives us an idea of whether and how increases in agricultural productivity and other income generating activities impacted rural household incomes in a general way. Because we did not follow a cohort of specific rural families from the beginning to the end of the project, we cannot make more specific inferences. However, it is still useful to compare the average income data collected in 2009 and 2010 with the results of the household survey conducted in 2013."*

We indicated to SI there was a data base of farmer associations supported by WINNER and that the vast majority of project beneficiaries belonged to these associations. For yield data for specific crops, we relied on samples of farmers from the various areas and associations supported by the project and used direct quantitative measurement of yields at harvest time. Comparison of quantitative data with qualitative information based on farmers' recollection is not optimal.

Measurement of yields

2015 has been a year of severe drought in Haiti, as acknowledged by the Ministry of Agriculture and the CNSA. In that context, it is difficult and not statistically valid to make inferences about the post-WINNER decrease in yields for key crops such as corn, beans and rice.

Challenges in access to inputs

During its implementation, WINNER has repeatedly drawn attention to the challenges fad by farmers in obtaining quality inputs on a timely basis in Haiti. This is due to several factors including:

- Market distortions due to government subsidies (especially fertilizer)
- Lack of a seed law that certifies quality seeds (the project worked with the Ministry of Agriculture to prepare a draft seed law that has yet to be promulgated)
- Lack of access to credit by farmers (the project worked with the GOH on a draft law on the status of the agricultural enterprise that would allow farmer associations to have a legal status that will facilitate access to credit but this has not yet been promulgated).

- Few agricultural input importers, all of whom are risk averse and do not see incentives to import more quality seeds and fertilizer in the absence of signed contracts. The project worked diligently to link BIAs (agricultural input stores) with agro-input suppliers.

Indeed, WINNER tried to work closely with a large group of importers and dealers of agricultural inputs and organized many meetings with them, especially at the end of the project. Unfortunately, they did not show any interest in importing fertilizers, improved seeds and recommended pesticides because of government intervention through subsidies and imposed prices that skew the market and discourage businesses. Farmers have adopted modern practices in many cases, but they cannot find appropriate inputs to apply improved techniques. This will be a major challenge in the future.

In the WINNER final report, we stated the following:

There are four key conditions to build on our accomplishments and scale-up the good results of WINNER:

1. *Ensure ongoing transfer of modern technology to farmers and provide proximity technical support, in collaboration with the government*
2. *Give priority to rehabilitation and maintenance of rural infrastructures, especially irrigation systems*
3. *Support strict enforcement of laws and regulations in rural areas and strengthen state authority*
4. *Improve access to affordable credit and good-quality inputs*

Partnership with MARNDR

The WINNER team has always advocated for a strong partnership with the MARNDR. The project started by establishing a steering committee with MARNDR that initially met once a month. After the earthquake and the shifting priorities of the Ministry, this committee stopped meeting regularly. However, the project's leadership and technical teams continued to work closely with MARNDR staff throughout the project, albeit in a less structured way.

In addition, WINNER signed many MOUs with a wide range of governmental institutions and maintained excellent relationships with them since the beginning of the contract and post-earthquake.

It must be noted that it is very difficult to create a true sense of ownership of WINNER's activities and results among civil servants, especially at MARNDR. None of the 30 technical innovations introduced by the project was replicated at a larger scale by the government and none of the key infratructures built or rehabilitated, including the early warning system set up in collaboration with the DPC, were fully managed and maintained after the end of WINNER. There is a fundamental question of effective governance which is the single most important obstacle to sustainable development in the country. We are pleased to see that through a new program USAID is investing resources in enhancing MARNDR's ability to serve as a strong development partner.

Watershed stabilization

A baseline study was conducted at the start of the project. This baseline study helped to objectively assess the impacts of proposed project interventions. While some partners may have indicated WINNER "did not adequately work together ... in order to ensure the durability of project interventions," WINNER consistently sought the cooperation of MARNDR, the CNIGS, CIAT and all actors in the watershed in its intervention areas throughout the implementation of the project. WINNER also followed closely the policy defined by MARNDR for watershed management. The slopes and ravines that were treated were selected according to the priorities defined by MARNDR, including the protection of irrigation systems identified by MARNDR's leaders. WINNER has also contributed to the development of local structures such as the "Associations Champion" to maintain the watershed management works implemented by the project.

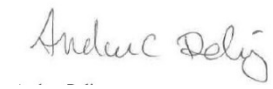
Agroforestry and greenhouses
The conclusions reached with respect to the viability of greenhouses does not tell the full story. There is evidence of very successful greenhouses in Kenscoff where farmers are continuing to make a sizeable profit. If managed properly, greenhouses can be a significant source of income for Haitian hillside farmers. In fact, partly based on the positive results achieved by the WINNER Project, MARNDR recently announced an ambitious national program to install one million square meters of greenhouses all over the country to boost agricultural production (see Minister Fresner Dorcin's presentation at the recent Harvest the Future Conference in Jamaica - http://www.harvestthefuture.org/wp-contentiu • loads/ 20 I 5/07/Strate • ic-Plan-to-Develop-Greenhouse-Tgclinology-in-1 laiti-FresnerDorcin.pdf). This initiative would not have happened if MARNDR was not convinced of the benefits and appropriateness of greenhouse technology for Haiti.

Post-harvest losses
The evaluation team did not consider the mango value chain in its evaluation of the reduction of post-harvest losses through WINNER supported activities. The report states: "WINNER promoted post-harvest loss techniques related to non-focus crops, such as mangoes and vegetables, which are not discussed in the evaluation." In fact, mangoes were very much a focus crop for WINNER and there were significant reductions in post-harvest losses in the mango value chain. This is an important oversight by the evaluation team.

As an Annex to this letter, we've included our detailed comments and feedback on different sections of the document.

Please let us know if you have any questions.

Best Regards,



Andrea Poling
Acting Senior Vice President
West Africa and Haiti
Chemonics International

Annex - Detailed Comments on the WINNER Final Evaluation Report

PROJECT BACKGROUND

The statement that the project was refocused in March 2010 is incorrect.

At the beginning, WINNER had four Key Results:

1. Livelihoods of people living in the watershed improved through increased agricultural productivity and alternative income generation sources.
2. Critical infrastructure improved and the threat of flooding reduced.
3. Watershed governance strengthened.
4. Public-private partnerships established. After the January 12, 2010, devastating earthquake, a fifth key result was added:
5. Earthquake recovery enhanced through job creation in rural areas and assistance to small business In September 2011, per modification to our task order, WINNER became the Feed the Future West/WINNER Project and the initial result framework was changed to include only three key results.

Overall WINNER focused much more on market linkages, branding and quality of products to help farmers expand sales and get higher prices.

METHODOLOGY

1. Social Impact (SI) attributes their use of a zonal approach to sampling to "the absence of an authoritative WINNER beneficiary list that might serve as a sampling frame." However, WINNER provided a comprehensive table of farmer associations that participated in our activities and the CRDDs gave a list of participants in specific agricultural campaigns for each year. - Those data could have been used for a crop-based and an activity-based sampling, which would have been statistically more meaningful. Indeed, the zonal approach does not reflect the WINNER approach. Farmers were not selected on a commune-base under WINNER. Participants to our activities were identified through a participatory approach, jointly with farmer associations in each watershed/region/corridor, regardless of their communes of residence.

   There is a fundamental flaw in the quantitative analysis of crop yields by SI/CASE: One cannot accurately assess crop yields through surveys that are based on farmers' declarations. Yields under WINNER were calculated in the fields, before harvests, using a well-known "square methodology" that is statistically meaningful.tatement of Differences on the WINNER Final Evaluation Report Page 7

2. For the desk review, unfortunately, some documents regarding the collaboration with governmental institutions (municipalities, CIAT, CNIGS, DPC, BME, Ministries of Agriculture, Environment, Interior, Public Works, etc.) as well as decree and draft laws, were not provided to SI, mainly because the files were in transit from Haiti to D.C. and therefore inaccessible.

3. Private enterprise are not mentioned as key partners and beneficiaries of WINNER in the qualitative sampling.

4. We do not believe that "Gabions" is the right wording for watershed stabilization activities as indicated in the paragraph on site visits. Indeed, "Ravine treatment" is a better description that includes a combination of interventions aimed at slowing gullies, reducing sedimentation in productive plains and protecting populations against flood threats. "Ravine Treatments" in these areas included gabion walls across selected gullies, anti-erosion vetiver hedge rows along the banks, agroforestry activities with fruit and forest trees, and agricultural intensification to increase yields and free up spaces for tree plantations.

EVALUATION QUESTION 1: To what extent has access to agricultural inputs, to agricultural technologies and to improving or expanding irrigation systems led to increased agricultural productivity for focus crops in the West corridor?

1. Over the past two years, we've seen great changes in the agricultural seasons in Haiti due to the effects of climate change. This has reduced agricultural activities overall and resulted in the reduction of the activities of the BIAs. Furthermore, after the closure of the project, the local providers did not respond to the demand from farmers for improved hybrid seeds. And finally, _____ BIAs no longer have access to approved pesticides as -the local suppliers have been importing unauthorized pesticides due to a lack of regulation by the MARNDR and the high profitability of these highly toxic pesticides.

2. SI reports that "various associations complained of WINNER technicians (REAs — Responsible d'Encadrement Agricole) recruiting their association members as Master Farmers without their knowledge... and that only some reported receiving stipends for their work." Please note that, in the training manual of Master Farmers, it is clearly mentioned that it is the association's responsibility to select the candidates supposed to receive training. The selected farmer is then evaluated before entering the program. In general a meeting was always, held with the association management to explain the mechanism of selection and recruitment of candidates. In most cases, the associations were the ones making the selection between their members of the candidates to receive the Master Farmer training. -This was done in writing by the association.

3. Furthermore, whether in the Master Farmers training curriculum or in WINNER's engagement with the associations, never was it stipulated that WINNER would compensate the farmers after they had followed the Master Farmer training program. However, in some cases, WINNER engaged some Master Farmers to work as trainee in the agricultural campaigns with the support of REA and in those specific cases these Master_Farmers received_stipends. -In other cases, some Master Farmers were hired by the private sector or NGO's, and were paid for their services.

4. SI also found that "Master Farmers reported they were not trained in how to sensitize other farmers and gain their buy-in, nor did they receive training tools for working with populations with low literacy levels." However, it was clearly established by WINNER that the Master Farmers were to return to their association to transmit the information received to other members. This was done through demonstration plots where on one side they used the traditional way of planting and on the other side the modern techniques thaught to the farmer by WINNER showing the differences and advantages in using modern techniques.

   In fact, the technical tool that was distributed to Master Farmers was the "aide memoire." It was originally in French and later, following our evaluation of the training program, was translated to Creole and transmitted to all Master Farmers. At the end of the training program, they all received a start-up kit for practical work.

5. SI reported only two varieties of hybrid corn introduced by WINNER. However, it must noted that WINNER introduced nine (9) hybrid corn varieties were introduced: P3862, 30F35, 3031, P3523, 3041, 30K73, 30F87, 30F80 and CESDA88, with three of them having had better result than the others: 3031, 30F35 and P3862.

EVALUATION* QUESTION 2*: To what extent have improved watersheds led to less damage due to flooding and to increased agricultural productivity in the West Corridor?

1. The statement that "preliminary diagnostics were not conducted...prior to conducting the interventions" is incorrect. -In fact, a baseline study was conducted at the start of the project in order to determine areas in most need of intervention and this baseline was used to objectively assess the impacts of project interventions.

EVALUATION QUESTIONS 3: To what extent have project interventions actually reduced post-harvest losses?

1. The mango value chain, although a WINNER focus crop, was not included in SI's report. In summary, for mangos and plantain, FtF West/WINNER provided farmers with mobile collection centers and crates. In addition, the project introduced innovative donkey pack frames to transport mangos from the production areas to aggregation points. For beans, corn, and rice, the project provided farmers with silos, tarps, humidity gauges, and packaging materials.

2. SI observed "that the majority of silos visited were found_ empty or underused for a significant period of time." The use of the silos is made on a seasonal basis. There will be some period of the year in between two seaons, where after the stored agricultural products have been sold, that the silos will be empty up until to the next harvest. Furthermore, the lack of improved seeds and agricultural inputs after the WINNER project has closed, combined with climate changes, has significantly reduced the production level. With a reduced supply and an increasing demand for many agricultural products, storage has diminished.

3. SI recommends that WINNER "conduct a targeted needs assessment in partnership with associations." Indeed, in depth studies were conducted by foreign and local consultants, in close cooperation with farmer organizations, before implementing activities to improve post-harvest operations. Unfortunately, SI did not consult those documents. SI recommends that WINNER consider "alternative storage mechanisms." However, silos resist better to climatic challenges and protect more effectively against pest and diseases than the other mechanisms proposed.

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