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# FEED THE FUTURE WEST / WINNER

**INCREASE IN YIELDS FOR TARGET CROPS IN THE CUL DE SAC AND MATHEUX (ST MARC) CORRIDORS**



**APRIL 2014**

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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.

## CONTEXT

The Feed the Future West/WINNER project contributes to pillar B of the USAID Haiti Mission's strategic objective: Food and Economic Security. The project seeks to improve livelihoods and food security in its areas of intervention in Haiti through three intermediate results:

1. Agricultural productivity increased
2. Watershed Stability Improved
3. Agricultural markets strengthened

In order to sustainably increase incomes for rural households in Haiti, specifically in Cul de Sac and Matheux corridors, the project has built the capacity of farmer associations and local institutions, including the CRDDs, promoted market-driven access to agricultural inputs by supporting and strengthening agro-supply agricultural campaigns with extension services to farmers, supported the local seed industry, improved overall land preparation, trained farmers and BIAs on the safe use of IPM and other pest control methods. All these activities intend not only to increase yields per hectare in the target crops of corn, beans, rice and plantain but also improve farmers' incomes.

This report presents the yield increases obtained by farmers growing target crops supported by FtF West/WINNER in the Cul de Sac and Matheux corridors.

## FTF WEST/WINNER ACTIVITIES TO INCREASE YIELDS

The improvement of agricultural productivity has been a cornerstone of the FtF West/WINNER project. Starting with the 2009-2010 winter bean season in the Cul-de-Sac plain, the project supported nine agricultural campaigns. Table 1 provides a summary of the agricultural campaigns supported by FtF West/WINNER.

**Table 1. Agricultural Campaigns Supported by FtF West/WINNER**

<b>Agricultural campaign</b>	<b>Target crops supported</b>	<b>Areas of intervention</b>
2009 winter bean campaign	Beans	Cul-de-Sac
2010 spring campaign	Corn, beans, rice	Cul-de-Sac, Gonaïves, Matheux
2010 winter bean campaign	Beans	Cul-de-Sac, Matheux
2011 spring/summer campaign	Corn, beans, rice	Cul-de-Sac, Matheux
2011 winter bean campaign	Beans	Cul-de-Sac, Matheux
2012 spring/summer campaign	Corn, beans, rice, plantain	Cul-de-Sac, Matheux
2012 winter bean campaign	Beans	Cul-de-Sac, Matheux
2013 spring/summer campaign	Corn, beans, rice, plantain	Cul-de-Sac, Matheux
2013 winter bean campaign	Beans	Cul-de-Sac, Matheux

The agricultural campaigns include three phases:

1. A planning phase

2. A mobilization phase
3. An execution phase

In the planning phase, the project works with farmer associations in its areas of intervention to determine the areas that will be planted with which crop.

In the mobilization phase, the project works with input supply stores to ensure that inputs are available in a timely manner for the agricultural campaigns; and with service providers for mechanized soil preparation. The project also engages extension agents to provide technical assistance to farmers on the application of the proper technical itineraries.

In the execution phase, the project works with farmers to ensure they apply the proper technical itineraries, have access to appropriate inputs, and have access to soil preparation services.

The technical assistance package provided by FtF West/WINNER to farmers to generate increase in yields includes:

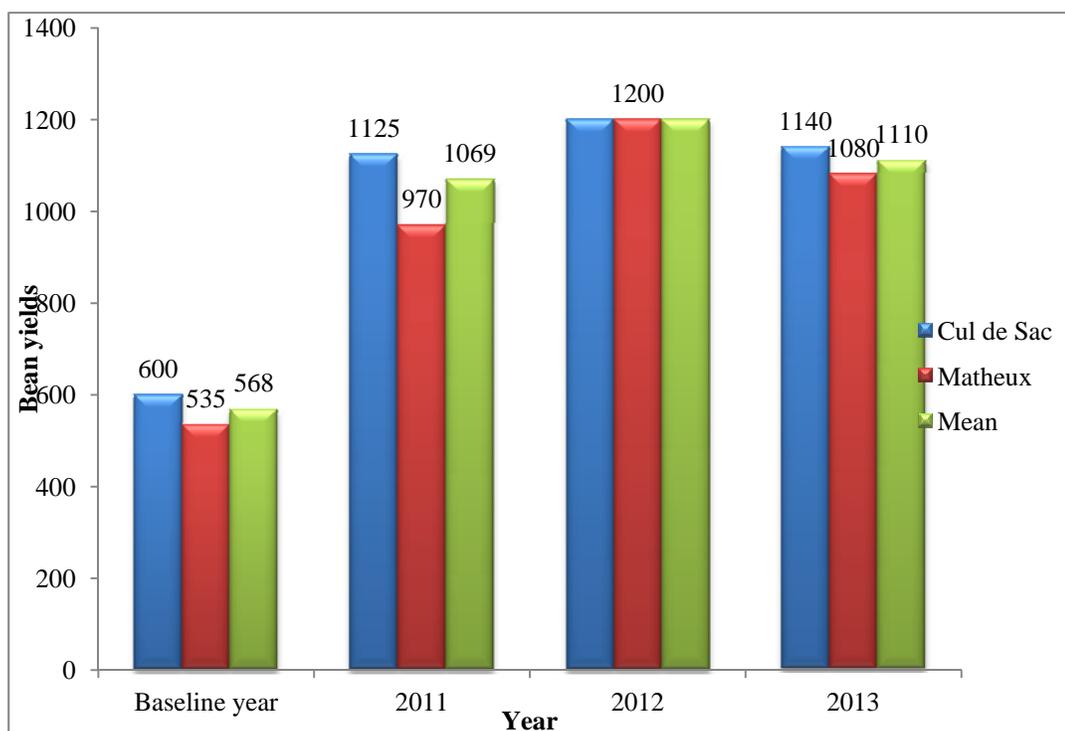
- Training of Master Farmers on modern agricultural techniques and technical itineraries;
- Access to improved and more productive seeds;
- Access to fertilizer and phyto-sanitary products and pest control techniques (e.g., IPM);
- Access to irrigation water through rehabilitated irrigation canals;
- Access to mechanized soil preparation;
- Transfer of improved management practices (eg., SRI of rice, double row planting for plantain);
- Technical assistance from extension agents (Responsables d'Encadrement Agricole) and Master Farmers;
- Implementation of demonstration plots where traditional practices shown side by side with prescribed technical itineraries;
- Access to the rural centers for sustainable development (CRDD) where there are demonstration plots and a proximity laboratory (Bas Boen for soil testing and plant disease diagnostics).

## YIELD INCREASES FOR TARGET CROPS

### *Beans*

For beans, the average yield calculated in the baseline study in 2009 was 0.6 tons per hectare in the Cul de Sac plain. Figure 1 below presents the average bean yields obtained by farmers that received assistance from the FtF West/WINNER project.

**Figure 1. Increase in bean yields (kg/ha)**



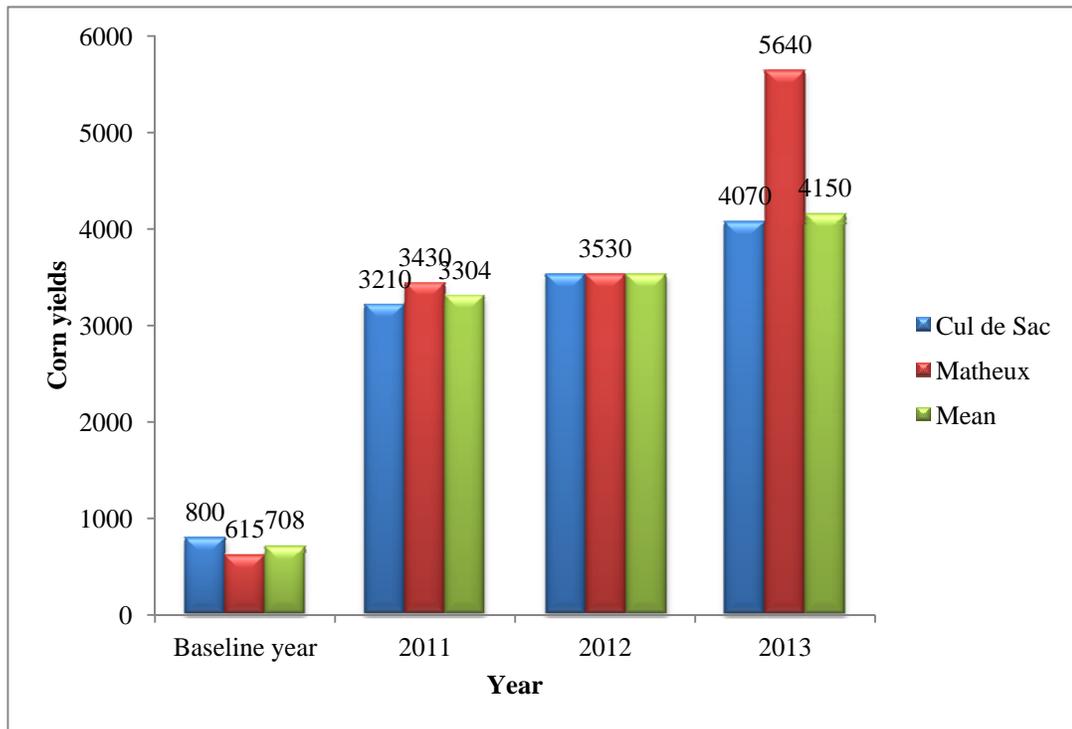
Overall, bean yields increased from an average of 568 kilograms per hectare in 2009 to 1200 kilograms per hectare in 2012. In 2013, yields dropped slightly to 1110 kilograms per hectare due to drought conditions. The average percentage increase in bean yields from the baseline to 2012 – 2013 is 95.4%.

The increase in bean yields is due primarily to the use of improved technical itineraries by farmers. This includes using local seeds with better germination rates, applying fertilizer, using mechanical soil preparation, having water available in irrigation canals, and applying better technical itineraries concerning field preparation, plantation spacing, and weed control.

### *Corn*

For corn, the average yield calculated in the baseline study in 2009 was 0.8 tons per hectare in the Cul de Sac plain. Figure 2 below presents the average corn yields obtained by farmers that received assistance from the FtF West/WINNER project.

**Figure 2. Increase in corn yields (kg/ha)**



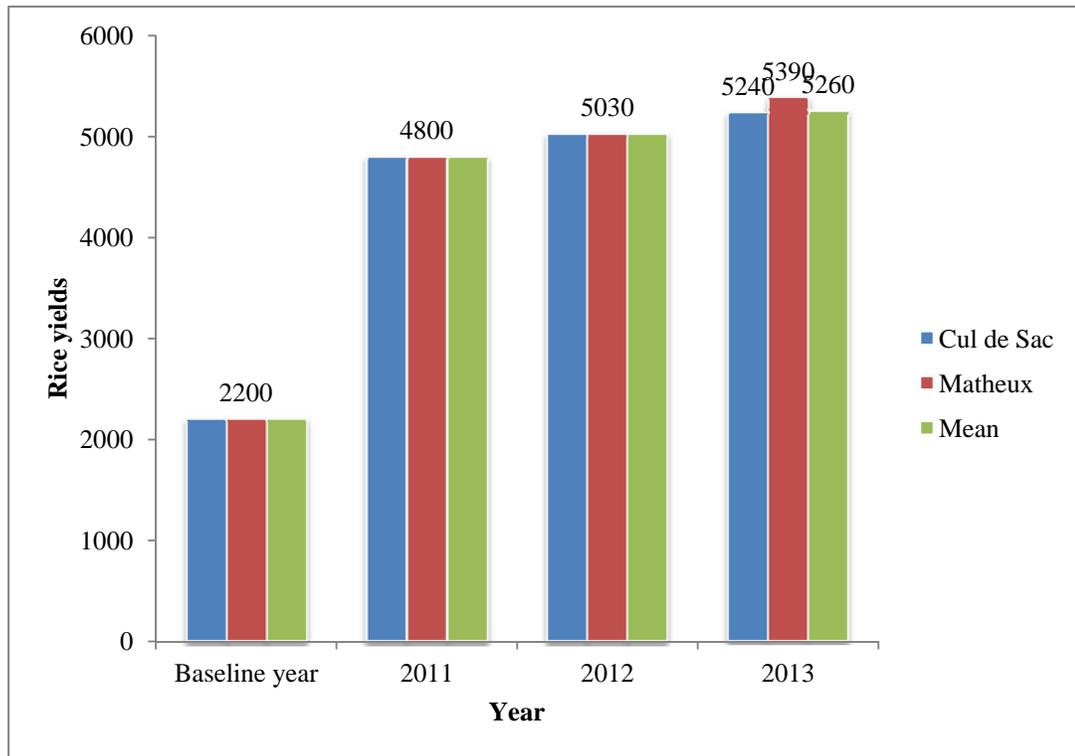
Overall, corn yields have increased from an average of 708 kilograms per hectare to 4,150 kilograms per hectare, an overall increase of 486%.

The increase in corn yields is due primarily to the use of much better hybrid corn seeds that are much more productive than the local varieties. These seeds are also less susceptible to disease and attacks by pests. The germination rate is much higher than with local grains that farmers traditionally use. Also, the planting protocols are more efficient with the new technical itineraries. Farmers also had increased access to mechanical soil preparation and to irrigation water.

### *Rice*

For rice, the average yield calculated in the baseline study in 2009 was 2.2 tons per hectare. Figure 3 below presents the average rice yields obtained by farmers that received assistance from the FtF West/WINNER project.

**Figure 3. Increase in rice yields (kg/ha)**

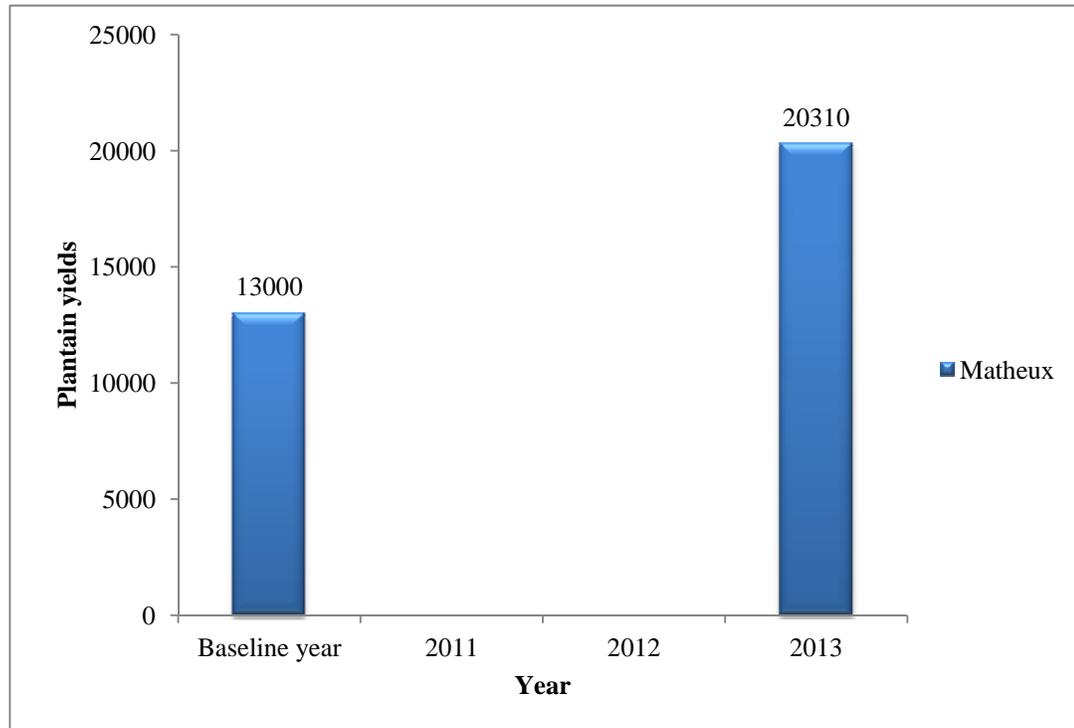


Overall, rice yields increased from 2,200 kilograms per hectare to 5,260 kilograms per hectare, an overall increase of 139%. The main reason for the increase in rice yields is the introduction of the system of rice intensification (SRI) by the FtF West/WINNER project. In 2010, the project brought a technical expert that introduced the SRI techniques in the project’s areas of interventions. After setting up several demonstration plots of SRI, farmers could appreciate first-hand the significant increase in yields obtained with this technique. The principles of SRI include good soil preparation, leaving adequate space between plants, using one seed per pocket, using intermittent irrigation, weeding between rows, and applying organic fertilizer. This results in strong roots and vigorous plants that engender high yields. From 2011 to 2013, SRI was adopted quickly by more and more farmers. For example, in the Thomazeau area of the Cul-de-Sac plain, the area cultivated in rice went from 200 hectares in 2010 to over 1,000 hectares in 2013.

### *Plantain*

For plantain, the average yield calculated in the baseline study in 2010 was 13 tons per hectare. Figure 4 below presents the average plantain yields obtained by farmers that received assistance from the FtF West/WINNER project.

**Figure 4. Increase in plantain yields (kg/ha)**



Overall, plantain yields increased from 13,000 kilograms per hectare to 20,310 kilograms per hectare, an increase of 56%. This increase is primarily due to the introduction of a new plantain planting technique by the FtF West/WINNER project. The technique of double row plantation, which increases the planting density and optimizes the spacing between banana trees was first introduced by the project in 2011. Several demonstration plots were set up and farmers started experiencing significant yield increases. This technique also reduces the incidence of the sykatoga disease that affects banana plants in the Matheux corridor.

### **SUSTAINABILITY OF YIELD INCREASES**

From the previous section, it is clear that the FtF West/WINNER project has resulted in significant increases in yields for target crops in its areas of intervention. As the project comes to a close, it is important to determine whether these productivity increases can be sustained. In the Fall of 2013, FtF West/WINNER organized a workshop with beneficiary farmers to determine which of the new practices introduced by the project were adopted by farmers and which were difficult to replicate. Farmers cited the lack of access to credit and reliable access to water as the key constraints to agricultural development. However, they all claimed to have adopted some key parts of the technical itineraries prescribed by FtF West/WINNER including soil preparation,

field preparation, planting spacing and density, fertilizer application, weed control, and better usage of water.

At the project's CRDDs and on demonstration plots where extension agents of the project controlled the application of the technical itineraries, the yields obtained were significantly higher than the average yields recorded by farmers. This is because, farmers that received the support of the project rarely applied the entire technical itineraries due to constraints in: procuring the best seeds in time, applying the optimal amount of fertilizer, applying pesticides and other pest-control methods in a timely manner, using tractor services in a timely manner.

Despite these constraints, farmers note that they have abandoned many old practices that were inefficient and they are now able to generate much higher yields and margins per hectare.



**Rice field using SRI**



**Master Farmer in a corn field planted using prescribed technical itineraries**