



Appui à la Recherche et au Développement Agricole (AREA) Project

Cooperative Agreement: AID-OAA-A-15-00039

Third Quarter Report | Fiscal Year 2020
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Prepared by the University of Florida for the U.S. Agency for International Development.
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Acronyms

APLOK	Association des Producteurs Organisés de Kenscoff
AREA	Appui à la Recherche et au Développement Agricole, also known as Support to Agricultural Research and Development
AUC	American University of the Caribbean
CAEPNET	Caribbean Agricultural Extension Providers Network
CHIBAS	A research laboratory associated with Quisqueya University's College of Agriculture
CRDD	Rural Center for Sustainable Development
DDL	Development Data Library
DEC	Development Experience Clearinghouse
FAMV	Faculté d'Agronomie et de Médecine Vétérinaire, also known as the State University of Haiti's College of Agriculture
FAO	U.S. Food and Agricultural Organization

FONHDAD	Haitian organization that operates the Bas Boën CRDD
LSU	Louisiana State University
IFAS	Institute of Food and Agricultural Sciences
MS	Master of Science
MARNDR	Ministère de l’Agriculture, des Ressources Naturelles et du Développement, also referred to as Haiti’s Ministry of Agriculture
M&E	Monitoring and Evaluation
PROMODEV	Promote Sustainable Development
SARD	Support to Agricultural Research and Development
UF	University of Florida
UHM	Haiti’s Unité Hydrométéorologique, or Haiti’s Hydrometeorological Unit
UI	University of Illinois
USAID	United States Agency for International Development
WMO	World Meteorological Organization

Disclaimer

The authors’ views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the U.S. Government.

Project Background

In May 2015, the University of Florida's Institute of Food and Agricultural Sciences (IFAS) and two other U.S. land grant institutions (the project consortium*) entered a five-year cooperative agreement with the U.S. Agency for International Development to support its Feed the Future initiative in Haiti.

The Appui à la Recherche et au Développement Agricole (AREA) project team's approach to address the long-standing challenges of food insecurity and under-nutrition in Haiti is to support public and private institutions that are working to improve agricultural productivity. These institutions include the Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural (MARNDR), Faculté d'Agronomie et de Médecine Vétérinaire (FAMV), and other higher education institutions. The project builds on the Haiti's National Agriculture Investment Plan, which outlines dozens of projects designed to revive and modernize its agricultural sector following a devastating earthquake in January 2010.

The project consortium is working to increase the availability of improved production technologies to farmers and the private sector through effective extension and development of an agricultural innovation system. The rapid scaling up of proven technologies is designed to increase adoption rates in the short term and propel the development of new technologies over the longer term. Developing functional and sustainable agricultural systems requires building on successful models and forging linkages to the national and international efforts already in place in Haiti.

Executive Summary

During the third quarter ended June 30, 2020, AREA worked to complete various remaining research programs and began the process of winding down the five-year project in a way that will ensure sustainability of project activities. Some activities were slowed or postponed during the quarter because of continuing safety issues and travel restrictions brought by the coronavirus pandemic.

Highlights:

- A Master of Science student specializing in plant pathology graduated from the University of Florida in May and returned to Haiti. She is the twentieth graduate of the program.
- Three Haitian researchers who received Pilot Project awards completed their experiments to examine important aspects of Haitian agriculture, including investigating the use of natural enemies to manage pests in sorghum and exploring how farmers use chemical fertilizers to grow vegetables in Kenscoff.
- Three research papers were either published or accepted for publication in peer-reviewed journals as team members continued to report on the results of project activities.

A. Climate Smart Solutions

Background

Consortium Members



* The AREA project consortium's members are: The University of Florida, Louisiana State University and the University of Illinois at Urbana-Champaign. The University of Florida's Institute of Food and Agricultural Science leads the team.

AREA and SARD: The AREA project is also known as Support to Agricultural Research and Development (SARD). For clarity, the authors use AREA in this document.

The goal of AREA's Climate Smart Solutions program is to support Haitian institutions and the agricultural sector in managing risks associated with climate variability by reducing losses during unfavorable years and maximizing harvests in favorable ones. AREA is researching how climate variability affects the livelihood of Haitian farmers and their ability to respond to these challenges. AREA also facilitates access to climate information, develops tools that farmers can use to improve seasonal planning and day-to-day decision-making, and builds capacity for outreach on climate risk management in agriculture.

Output 1: Data analysis and write up

In May, the Climate Smart Solutions team's manuscript "Coping with climatic shocks: Local perspectives from Haiti's rural mountain regions," was published in the peer-reviewed journal *Population and Environment*. The team also completed a second article "Farmers trained in Participatory Integrated Climate Services for Agriculture (PICSA) report improved farming practices in Haiti" that will be published in the peer-reviewed publication *Journal of Rural Studies*.

Output 2: Presentation of results to partners and participating farmer associations

Completed in the second quarter.

Output 3: Capacity building for PICSA master trainers

Completed in the second quarter.

Output 4: Supervise a second train-the-trainers led by expert trainers

Completed in the second quarter.

Output 5: Continued support to the Ministry of Agriculture (UHM)

In early June, the Unite Météorologique d'Haïti (UHM) coordinator informed AREA that the World Meteorological Organization (WMO) had recently started supporting UHM with the remote installation and implementation of a climate data management system called MCH (Meteorological, Climatological and Hydrological Database Management system). MCH is slightly different than Climsoft, another open-source climate data management software that AREA's Climate Smart team has used. As a result, UHM's coordinator agreed that there is no longer a need for AREA to train UHM in the use of Climsoft. Coordinating with WMO is important for UHM since WMO will provide continual support and increase the sustainability of this effort.

Output 6: Support to weather stations in Haiti

The AREA weather station technician performed a software and hardware upgrade to make the stations at Montrouis and Damien continuously functional. The upgrade allows these stations to be connected continuously and reconnect automatically without assistance. Currently, four of the six weather stations are reporting weather data to the internet portal Weather Underground. The upgraded stations' hardware (Particle Boron) was selected for the Bluetooth feature and its capacity to support SIM cards for a cellular connection instead of Wi-Fi. To ensure sustainability of the upgraded stations, AREA switched to a 3G cellular system, that has its own battery and solar photovoltaic system, allows for proximity data download, and uploads data to the cloud. To ensure sustainability, station owners will set up data plans with internet providers in Haiti (Natcom or Digicel) to enable connection to the cloud. AREA's weather station technician is testing new software at the Bas Boën CRDD with the Particle Boron micro-controller. Parts to complete

the upgrade of the stations, including the two stations that are not currently functional will be installed and tested in the fourth quarter.

B. Collaborative Capacity Building in Maize Seed Systems

Background

The Maize Seed Systems activities are designed to finalize the development of the maize variety testing system that connects on-station research activities at CRDDs with other research farms and on-farm evaluations conducted by participating farmer networks.

Output 1: Train researchers and agricultural professionals to compile and analyze maize variety data, and to use phenotyping technology and standard operating procedures to conduct maize experiments

Data analysis was completed, and the team is working on a research paper for publication in *Crop Science Journal*. Data is being prepared for upload to USAID's Development Data Library (DDL).

Output 2: Finalization of standard operating procedures (SOP) and maize seed system training materials

Materials are being finalized and translated. When complete, AREA will upload the information to the AREA website and USAID's Development Experience Clearinghouse (DEC). AREA began distributing the phenotype meters to partners along with the translated operations' manual.

Output 3: Presentation of results to partners

Completed in the second quarter.

C. Legume Research

Background

AREA's Legume Breeding Research program focuses on genetic improvement of common beans and peanuts. Legume crops such as common beans and peanuts are important for providing protein and nutrients necessary for adequate human nutrition. If managed optimally, legume species also can contribute significant levels of soil nitrogen through their symbiotic relationship with nitrogen-fixing bacteria.

Output 1: Field testing of the four bean lines developed by AREA

AREA is preparing to analyze harvest data for the second bean plots managed by CHIBAS at Cabaret. AREA facilitated a conversation between the owner and agronomists from Comag S.A., the bean breeders at the University of Puerto Rico, and the U.S. Department of Agriculture (USDA) to discuss a sustainable plan for them to increase certified seeds of improved bean lines in Idaho, USA and import them to Haiti to increase seeds before the fall bean season. If the model is successful it could be used to increase the seeds from the four promising improved lines of beans selected by the AREA project's legume breeders.

Output 2: Advanced peanut lines developed at UF

Nothing to report in the third quarter.

D. Plant Pathology

Background

A key focus of the AREA Plant Pathology program is to improve the capacity of the Bas Boën CRDD and the Ministry of Agriculture to operate and maintain a functional plant diagnosis laboratory. AREA will provide diagnostic-related activities and extension documents in Haitian Creole related to plant disease management. In Year 4, the Ministry of Agriculture requested and received training in risk assessment, which AREA has provided in Year 5.

Output 1: Provide pest and disease identification to farmers and develop management guidelines for dissemination to farmers and agricultural service (extension) providers

On-going surveillance of diseases was terminated in March due to COVID-19 pandemic. AREA will talk with the Bas Boën CRDD to determine its plans for sustaining the plant pathology surveillance work in the future.

The article entitled “Draft genome sequences of plant pathogenic *Klebsiella variicola* isolated from plantain in Haiti” was accepted for publication in the journal *Microbiology Resource Announcements*.

Output 2: Technical training and outreach activities for personnel at CRDDs, Ministry of Agriculture and universities

No additional trainings to report this quarter.

Output 3: Strategic initiatives with the Ministry of Agriculture to address new plant pathogens

AREA is completing a final report on pest risks in Haiti, which it will submit to a peer-review journal.

E. Soil Science Research

Background

The objectives of AREA’s soil fertility management program are to:

- Map the spatial distribution of key soil attributes to inform soil fertility management research and extension
- Establish and evaluate multiple approaches for soil restoration and its sustainable conservation
- Make recommendations to farmers and other land managers

Output 1: Fertilization practices based on different fertilizer formulas that best fit soil deficiencies and plant requirements

Completed in the second quarter.

Output 2: Bean response to phosphorus and potassium fertilization on alkaline soil

AREA completed the permit process and shipped soil samples to the UF/IFAS Extension Soil Testing Laboratory for analysis. Results are pending. The tissue samples follow a separate process, which requires more steps. AREA is waiting for the authorization from the Service of Quarantine from the Ministry of Agriculture in Haiti. Once the authorization is received, AREA will coordinate the shipment with the UF/IFAS Extension Soil Testing Laboratory.

Output 3: Management of salt affected water irrigation for crop growth and yield improvement

Completed in the second quarter.

Output 4: Dissemination of the results in Haiti

Completed in the second quarter.

Output 5: Improving the capacity of the soil labs at the Bas Boën CRDD, FAMV and the American University of the Caribbean (AUC)

Nothing new to report.

F. Nutrition Interventions

Background

Haiti continuously works to enhance its supply of affordable and nutritious foods. A faculty member of the LSU Ag Center's School of Nutrition and Food Science assessed the nutritional situation in Haiti and developed a nutritional-based extension intervention to encourage the consumption of leafy vegetables.

Output 1: Follow-up with participants of May 2019 nutrition education training and communication of results

Completed in the second quarter.

Output 2: Implement amaranth (greens)-centered nutrition education training program targeting women farmers associated with rural growers/farmers associations

AREA completed the Montrouis training in Q2. AREA plans to reschedule the training Kenscoff training when the COVID-19 restrictions are lifted.

Output 3: Follow up with participants of amaranth nutrition education training and communication of results

AREA is unable to complete this activity as part of the Year 5 work plan due to the impacts from COVID-19. AREA is following the protocols set by the University of Florida regarding research projects and limiting the travel of personnel during the pandemic.

G. Pilot Projects

Background

AREA launched the Pilot Projects program to support the development of agricultural research professionals, encourage collaboration among researchers and research institutions, and address agricultural research priorities. AREA issued calls for proposals for three types of awards: acquisition of supplies and other nonexpendable items for research and education (Category 1), support to individual Haitian researchers (Category 2), and support for collaborative research projects (Category 3).

Output I: Continue monitoring Pilot Projects

AREA distributed all the remaining equipment and nonexpendable items awarded to universities and researchers as part of the Pilot Projects program (Category 1). Three Haitian researchers completed their research projects (Categories 2 and 3) and have reported their results to AREA for review. AREA's communications manager interviewed the researchers and wrote a success story on the three projects:

- An investigation of the use of natural enemies to manage pests that are destroying sorghum fields in Haiti;
- How farmers can better use chemical fertilizers to grow vegetables in the mountainous Kenscoff region;
- An examination of the ways to increase the involvement of women in agroforestry and cultivating home gardens.

H. MS and Graduate Certificates

Background

Among AREA's primary goals is to support and inspire Haitian agricultural professionals by offering programs to build their research, education and extension skills. AREA is doing this through long-term capacity training of Haitian scholars in Master of Science degree programs at UF and LSU. In addition, AREA supports Haitian students in non-degree graduate certificate programs offered via distance learning.

Output I: Continued support of AREA-funded Master of Science students enrolled in graduate school at UF

One student graduated in May and returned to Haiti. The remaining five AREA-supported graduate students are all making adequate progress in their programs at UF. These students are expected to graduate with master's degrees from UF in December.

Output 2: Continued support for Haitian students working to earn graduate certificates through UF's online education program

One student has one remaining course left in her program, which she will take fall semester to complete the certificate program by December. AREA staff will continue to work closely with the student to help her succeed.

I. Farmers Associations, CRDDs and Ministry of Agriculture

Background

AREA identified strategic opportunities to work with Haiti's Ministry of Agriculture and rural centers for sustainable development (or CRDDs) to support their research and extension activities in Haiti. Using a "bottom up" process, AREA aims to strengthen the capacity of the Ministry and CRDDs to serve Haiti's agricultural sector. AREA is also working closely with farmers' associations to provide capacity-building trainings and to help farm advisers improve their services.

Output 1: Capacity-building trainings for farmer associations and CRDDs

While AREA completed trainings in the Kenscoff region in Q2, it is considering providing an additional training in the fourth quarter provided COVID-19 restrictions are lifted and it is safe to conduct the training.

Output 2: Disseminate findings of nonprofit management capacity building trainings

AREA completed six fact sheets and are translating them to Haitian Creole for posting on its website and for use by organizations in Haiti. The titles are: Developing a Business Plan for Farmer Associations, Developing and Maintaining Bylaws for Farmer Associations, Introduction to Nonprofit Evaluation for Farmer Associations, Marketing Strategies for Farmer Associations, Organizational Structure for Farmer Associations, and Introduction to Grant Writing for Farmer Associations.

Output 3: Collaborative research conference

Following the conference in March, AREA edited and uploaded videos of all the presentations and related materials to the project website and informed our partners that they were available for viewing.

Output 4: Establish the Haitian Forum for Agricultural Extension and Advisory Services (HFAAS)

FONHDAD held a preliminary meeting on June 24 via Zoom to introduce the forum for agricultural extension and advisory services, discuss ideas and decide on the necessary steps to establish the forum. Forty-three people attended the meeting, including the head of the Division of the Innovation of the Ministry of Agriculture, the chair of the Caribbean Agricultural Extension Providers Network (CAEPNET), representatives from the U.S. Food and Agricultural Organization (FAO) and Promote Sustainable Development (PROMODEV), a Haitian organization that promotes agricultural communications and extension. AREA's Director of Research and an Extension Agent from UF gave presentations to explain why a forum is important for Haiti and lessons learned from establishing a forum in other countries. The next step is to hold a stakeholder's workshop to decide the mission, the vision and the work plan of the forum.

J. Gender Assessments and Interventions

Background

AREA's strategic approach includes incorporating women in all project activities and work to achieve gender parity. The project is working to identify gender constraints in Haiti's agricultural sector, making recommendations, and developing gender-responsive interventions to agricultural projects' programming, particularly through extension and advisory services.

Output 1: Workshops on integrating gender in agricultural development programs

Completed Q2.

Output 2: Workshop: professional development for women on entrepreneurship and leadership

AREA designed a virtual series of four presentations to be held in the third quarter and invited 136 participants to attend via Zoom. Approximately 40 individuals expressed interest in attending the first workshop scheduled in early July.

K. Extension Experiment

Background

AREA's extension research team conducted a large-scale research study to compare the effectiveness of the three models of extension used in Haiti: 1) Master farmer, which centers on an expert who teaches farmers in a lecture-style setting; 2) Farmer field school, which primarily relies on the community of farmers to teach each other; and 3) Simple distribution, or input supply-driven, in which farmers come to a central location to receive the technologies and basic information on their use. The primary objectives of the experiment are to:

1. Evaluate the differences of three commonly used models of extension in Haiti.
2. Assess the interactions between extension models and farmer associations as predictors of farmers' willingness to test innovations on their own farms.
3. Determine whether there is a relationship between the gender of the farmer, the traits of the farmer associations and the efficacy of the extension model.

Output 1: Final analysis of comprehensive extension experiment data

Nothing to report this quarter.

Output 2: Dissemination of findings

The team continues to work on an article they will submit for publication in peer-reviewed journals.

L. Higher Education Research and Development

Background

The objective of the Higher Education program is to strengthen the capacity of Haiti's agricultural higher education institutions and help improve curriculum to better fulfill the needs of the country's agricultural sector.

Output 1: Data analysis of observational research

Nothing to report this quarter.

Output 2: Continued support to improve FAMV's diagnostic course for fourth-year agronomy students

Nothing to report this quarter.

Output 3. Supporting research laboratory and better classroom environment for improved learning experience at FAMV

Nothing to report this quarter.

Output 4. Training on access to free peer-reviewed scientific journals, books and databases and scholarly writing skills

As a follow up to our hands-on learning session in Haiti, AREA informed participants who attended the AREA conference about an opportunity to sign up for a Research4Life MOOC (massive open online course) being offered as a five-week course supported by the United Nations Technology Bank for Least Developed Countries and the Food and Agriculture Organization. The topics include scholarly communication, discovery, re-use of scholarly literature, important agricultural databases and bibliometric analysis tools. Four individuals contacted AREA to report that they enrolled in the course.

M. Postharvest Loss Management and Food Safety

Background

AREA's Postharvest Loss Management and Food Safety program aims to reduce postharvest losses, improve food safety and increase food security in the Feed the Future-West corridor.

Output 1: Produce communication materials on ways to reduce aflatoxin in foods

AREA completed French translation of a fact sheet on food and water safety during a hurricane and other natural disasters. This fact sheet is now posted on the project's website.

Output 2: The mycotoxin research unit at FAMV certified ISO 17025

Nothing to report this quarter.

Output 3: Produce safety training

Nothing to report this quarter.

Output 4: Broccoli cultivar evaluation and hydro cooling techniques training

The objective of this study was to evaluate the adaptability and the postharvest quality of different varieties of broccoli in Kenscoff region. Nine varieties were planted on the field at Terre Rouge, Kenscoff in collaboration with Association des Producteurs Organisés de Kenscoff (APLOK). Subjective quality was assessed when the broccoli heads reached maturity (10 to 13 cm). After evaluating the characteristics, such as head color, smoothness, uniformity and firmness, researchers found that the days of maturity varied from 60 to 90 days after transplanting. Using the rating chart described by Eastern Broccoli Project (EBP), all varieties were evaluated for overall uniformity and different quality parameters and assigned a score. For most of the head characteristics, the nine varieties of broccoli had similar ratings and fell within the average of the rating scale. Heavy rains in early May caused brown beading on the heads of the earlier maturing varieties and lowering quality. The overall yield for all varieties was low with a high level of variability present among the replicated blocks. Based on the field observations and the planting chart of each varieties, AREA recommends further seasonal evaluations for a better recommendation on the adaptability of each variety.

Hydrocooling

Nothing to report this quarter.

Output 5: Solar seed dryer training

Nothing to report this quarter.

Monitoring and Evaluation (M&E)

Summary of FY2020 Q3 Performance

The M&E section presents a short description of each indicator's performance in FY2020 Q3. Notably, the COVID-19 pandemic and health challenges resulted in a reduction in activities and no progress was made on many indicators.

Note: The number of participants in the M&E section may differ from the numbers elsewhere in this document. This reflects USAID's requirement to exclude in the final indicator totals those who have participated in prior AREA training activities in the same fiscal year.

Table I. Reduced Version of the IPT Table demonstrating the FY2020 performance of the II indicators

No.	Indicator Type (Unit of Measure)	Disaggregation	Annual Target (FY20)	Q1	Q2	Q3	Q4	Annual Performance Achieved to the End of Reporting Period (%)	On Target (Yes/No)	LOP Results ¹ / LOP Targets
1	Number of individuals who have received USG-supported degree-granting non-nutrition-related sector productivity or food security training (RAA)– EG.3.2-2 (FTF 4.5.2.6)	- Sex - Duration	9	9 9 C 4 F 5 M	6 6 C 4 F 2 M	6 C 4 F 2 M		100% 9 / 9 9 C 4 F 5 M	Y	25 / 25
2	Number of research and extension publications as a result of project assistance – custom	- Publication type - Language - Sex of primary author - Publication status - Partner organization	20	18	26	2		230% 46 / 20	Y	117 / 51
3	Number of individuals who have received U.S. government-supported short-term agricultural	- Sex - Corridor, commune	400	1	288 127 F	0		72% 289 / 400	N	1,611 / 1,254

¹ Life of project results are added across years and include duplicated individuals.

No.	Indicator Type (Unit of Measure)	Disaggregation	Annual Target (FY20)	Q1	Q2	Q3	Q4	Annual Performance Achieved to the End of Reporting Period (%)	On Target (Yes/No)	LOP Results ¹ / LOP Targets
	sector productivity or food security training (RAA) (WOG)– EG.3.2-1 (FTF 4.5.2.7)	- Type of individual								
4	Number of training events delivered – custom	- Corridor, commune - Nationality of primary presenter	12	0	9	0		75% 9 / 12	Y	57 / 52
5	Percentage of participants with an increase in knowledge related to research and extension – custom	- Sex - Program type	85%	NA	74%	-		-	N	86% / 84%
6	Percentage of female participants in U.S. government–assisted programs designed to increase access to productive economic resources– GNDR-2	- Program type	50%	40%	54%	54%		54% (196 / 363)	Y	46% / 50%
7	Number of new technologies or management practices introduced as a result of U.S. government assistance – custom	- Corridor, commune - Crop type - Technology type	4	0	3	0		75% 3 / 4	Y	46 / 48

No.	Indicator Type (Unit of Measure)	Disaggregation	Annual Target (FY20)	Q1	Q2	Q3	Q4	Annual Performance Achieved to the End of Reporting Period (%)	On Target (Yes/No)	LOP Results ¹ / LOP Targets
8	Number of grant-funded projects in Haiti as a result of project assistance – custom	- Sex - Source	4	0	0	2		50% 2 / 4	N	29 / 31
9	Number of curriculum changes at partner educational institutions – custom	- Institution	3	2	0	0		67% 2/3	N	25 / 24
10	Number of technologies, practices, and approaches under various phases of research, development, and uptake as a result of USG assistance - E.G.3.2-7	- Category of research - Phase of development - Corridor	25	4 under field testing	19 under field testing	15 under field testing		76% 19 / 25	Y	562 under research 62 under field testing 3 made available for uptake / 200
11	Number of individuals participating in U.S.G food security programs – EG.3.2	- Sex - Age - Type of individual	400	1 0 F 1 M	353 192 F 144 M	0		89% 354 / 400 192 F 145 M	Y	1,076 / 900

**Indicators that were dropped during FY2017 are omitted in this table.*

Indicator Performance Narratives

- Indicator No. 1 – Number of individuals who have received U.S. government-supported long-term agricultural sector productivity or food security training – *USAID indicator: (RAA) – EG.3.2-2 (FTF 4.5.2.6)*

In May, one female student successfully finished her program and graduated from UF. By the end of third quarter, five students (three women and two men) remain enrolled in graduate programs at UF. The life-of-project (LOP) target of 25 is currently being met.

- Indicator No. 2 – Number of research and extension publications as a result of project assistance – *custom USAID indicator for AREA project*

AREA reported two additional publications during the most recent quarter (Table 2). One article, derived from an AREA graduate student’s research, was accepted for publication in the *Journal of Plant Nutrition*. Note: AREA changed the status to “Published” for one previously reported journal article submitted in FY2019 Q3 by the Climate Smart Solutions program. The annual and LOP target for this indicator has been exceeded.

Table 2. Research and extension publications reported in Q3

No.	Program	Title of presentation/article	Status	Publication/event
1.	Graduate and Online Certificate Program	Black Bean (<i>Phaseolus Vulgaris</i> L.) Response To Potassium Fertilization In Two Different Soils In Haiti	Accepted	Journal of Plant Nutrition
2.	Climate Smart Solutions	Coping with climatic shocks: Local perspectives from Haiti's rural mountain regions	Published	Population and Environment
3.	Plant Pathology	Draft genome sequences of plant pathogenic <i>Klebsiella variicola</i> isolated from plantain in Haiti	Accepted	Microbiology Resource Announcements

- Indicator No. 3 – Number of individuals who have received U.S. government-supported short-term agricultural sector productivity or food security training – *custom USAID indicator for AREA project*

No training events were held in the third quarter. The Gender Intervention and Assessment program is organizing a virtual training composed of four sessions on Entrepreneurship and Leadership in July. So far, 43 female undergraduate students in agricultural sciences confirmed their intent to participate. Additional recruiting is currently in-progress. Final numbers will be presented in the Q4 report. The LOP target for this indicator has been met.

- Indicator No. 4 – Number of trainings events delivered – *custom USAID indicator for AREA project*

No training events were held in the third quarter.

- Indicator No. 5 – Percentage of participants with an increase in knowledge related to research and extension – *custom USAID indicator for AREA project*

Since no training events were conducted, no knowledge changes were recorded in Quarter 3.

- Indicator No. 6 – Number of curriculum changes at partner educational institutions – *custom USAID indicator for AREA project*

No curriculum changes were recorded in Quarter 3.

- Indicator No. 7 – Number of new technologies or management practices introduced as a result of U.S. government assistance – *custom USAID indicator for AREA project*

No new technologies or management practices introduced were recorded in Quarter 3.

- Indicator No. 8 – Number of grant-funded projects in Haiti as a result of project assistance – *custom USAID indicator for AREA project*

Two additional beneficiaries of Pilot Projects were recorded this quarter as the distribution of supplies previously awarded concluded in April. The recipients are both faculty members at the State University of Haiti.

- Indicator No. 9 – Number of technologies, practices and approaches under various phases of research, development, and uptake as a result of USG assistance – *USAID Indicator: E.G.3.2-7*

AREA was field testing 15 technologies and management practices (Phase II). See Table 3 for more details. Three AREA programs were finishing research projects with field experiments: the Soil Science Research program, the Legume Breeding program and the Postharvest and Food Safety Technology program.

Table 3. Number of technologies or improved practices under field testing

Program	No.	Technology or improved practice	Phase	Objective
Soil Science Research	2	Fertilizers (muriate of potassium and triple superphosphate)	Phase II – Under field testing	This experiment aims to increase black bean yield in the FTFWC through better soil fertility and nutrient management.
Legume Breeding	4	PR 1423-153 PR 1423-117 PR 1423-110 PR 1423- 99	Phase II – Under field testing	Field evaluations seek to produce improved varieties of black beans with higher yield, and good resistance to diseases and abiotic stresses (mainly drought).
Postharvest and Food Safety Technology	9	Broccoli varieties: Royal Favor II EMBR 934 Kinsman EMBR 9212 EMBR 972 Royal Max Green Magic FI Marathon FI Imperial FI	Phase II – Under field testing	In partnership with a farmer organization, these trials evaluate the adaptability and postharvest quality of the broccoli varieties in the Kenscoff region.

- Indicator No. 10 – Percentage of female participants in U.S. government–assisted programs designed to increase access to productive economic resources – *USAID Indicator: GNDR-2*

The proportion of female participants in project activities during this quarter was 54% (See Table 4). Special efforts continue to be made to reach the LOP target of 50%. The Gender Intervention and Assessment program is holding an all-female 4-session training, which will increase the performance of this indicator.

Table 4. Proportion of female participants by program type

Program Type	Q1	Q2	Q3
Short-term trainings	0%	54%	-
Degree-granting trainings	44%	67%	54%
Internship program	-	-	-
Overall	40%	54%	54%

- Indicator 11 - Number of individuals participating in U.S.G. food security programs – *USAID Indicator: EG.3.2*

FY2020 Q4 report will present results from the all-female participant training on Entrepreneurship and Leadership by the Gender Intervention and Assessment program. The LOP target has been met.



SUCCESS STORY

BACK HOME IN HAITI

GRADUATES WITH ADVANCED DEGREES FROM U.S. UNIVERSITIES RETURN TO IMPROVE HAITI'S AGRICULTURE SECTOR

The future looks bright for a crop of 20 Haitian scholars who recently earned advanced degrees in agriculture from U.S. universities and returned to Haiti with the support of the U.S. Agency for International Development (USAID).

Haiti desperately needs skilled agricultural professionals to tackle the complex agricultural challenges in a country that suffers chronic food insecurity.

Marie Darline Dorval returned to Haiti in the fall of 2019 with a master's degree in horticulture from UF's Institute of Food and Agricultural Sciences. She quickly began work as a research assistant at CHIBAS, a research laboratory associated with Quisqueya University's College of Agriculture in Port-au-Prince. She conducts field experiments on new varieties of sorghum and maize, two staple food crops in Haiti.



Haitian native and University of Florida Master of Science graduate Marie Darline Dorval surveys a field of sweet sorghum in Haiti's Cabaret region as part of a research project to improve the crop's yield and pest resistance. (AREA photo)

"In Haiti we need new varieties of crops that are not only better adapted to the changing climate, but to increase yields and to improve disease resistance and food processing," Dorval says.

High demand for young leaders

Other returning graduates are well on their way to becoming leaders in the agriculture sector. One graduate now manages a portfolio of agricultural, food security and environmental programs for the Swiss Embassy in Haiti; one is working as a crop-modeling consultant; and another works with women farmers to increase crop yields. Others work to as professionals in the field to maintain a network of weather stations, improve soil fertility and test high-yield beans.

"Haiti needs more agricultural professionals with advanced degrees due to the increasing complexity and challenges facing the agricultural sector," says Rose Koenig, principal investigator of the Feed the

Future Haiti Appui à la Recherche et au Développement Agricole (AREA) project. “We are training professionals in the most important areas in agriculture, including plant breeding, agricultural engineering, plant pathology, soil science, entomology, and empowering women.”

After graduating with a bachelor’s degree in agricultural sciences from Quisqueya University, Dorval was accepted in the highly competitive UF graduate school program in 2015. She is one of 13 women among the cadre of 25 master’s students supported by the program.

Brighter future

Dorval wants to advance her career by conducting agricultural research, training others and presenting her findings at scientific conferences. She now teaches courses in agronomy and the use of modern techniques to improve crop cultivation at Quisqueya University. Most recently, she was selected to lead a new project to improve and increase the variety of tubers, including potatoes and cassava.

“I’m excited because I am conducting research on new crops and I am learning about new and different plants.”

She is optimistic about the future for Haiti agriculture. In the years ahead, she hopes to use her new skills to start her own genetic-testing firm. “Haiti is a beautiful country, and it is up to the Haitians to develop it.”

