2012 Technical Report per Activity

Each Program Participant must provide a small remark against each activity/deliverable to indicate the status of the activity (2-4 sentences required per activity) using the form below. Updated data from the current partners is also required.

CCAFS Center Led Activities
CIAT - Centro Internacional de Agricultura Tropical

Activity No. 18

Activity title	On farm evaluation of bean elite lines to correlate physiological traits with farmer traits (Kenya, Malawi)	
CCAFS Objective *(select from drop list)*	1.1 Adapted farming systems	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)* — 1.1.2 2013 (1)
Activity objectives *(what the activity aims to achieve)* — **Objective 1**	To validate criteria of scientists for climate adaptation, especially drought, with feedback from farmers on useful traits	
Activity status	Partially completed	
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**Farmers in Kasinthula, Malawi could articulate several traits identified by physiologists, expressing these in their own terms. Traits include biomass accumulation, earliness, pod filling and grain filling. Other traits fall beyond visual appreciation and would not be evident to farmers.**	

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Data	Report on farmer views on key traits and potential role in breeding including socially differentiated preferences, data provided to agtrials.org	2012	Partially completed	Document (*.doc, *.odt, *.pdf)

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
NARES - National agricultural research and extension services	KARI	Kenya Agricultural Research Institute		
NARES - National agricultural research and extension services	DARS	Department of Agricultural Research Services		

Activity No. 19

Activity title	Quantify impact of climate change on maize and bean system in Nicaragua, Honduras, Guatemala and El Salvador.	
CCAFS Objective *(select from drop list)*	1.1 Adapted farming systems	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)* — 1.1.2 2013 (1)
Activity objectives *(what the activity aims to achieve)* — **Objective 1**	To assess climate change impacts through predictions of future climate conditions, crop production, and socio-economic impacts.	
Objective 2	To target f future interventions by identification of hot spots for different adaptation scenarios	
Activity status	Completed	
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**All activities related to the project are completed and final reports submitted to the donor. Results were presented through CRS/CIAT/CIMMYT in San Salvador accompanied by a press release led by CIAT and CRS. In the year 2013 scientific publication will be written in Collaboration between CIAT/CIMMYT**	

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Data	downscaled climate data, generated daily climate data by MarkSim (current, 2020 & 2050)	2011	Completed	GIS raster (ESRI Grids, GeoTiff, etc)
Data	Results of crop modelling by DSSAT (predicted yield change)	2011	Completed	GIS raster (ESRI Grids, GeoTiff, etc)
Data	identified Focus-Spot areas (Hot- Adaptation and Pressure-Spots)	2011	Completed	GIS vector (shapefiles)

	Reports, publications	Report and papers on impact of climate change on maize-bean system, farmers livelihoods and some gender components.	2012	Completed	Document (*.doc, *.odt, *.pdf)
	Reports, publications	1 journal article	2013	Partially completed	Document (*.doc, *.odt, *.pdf)

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
CG - CGIAR Center	CIMMYT	International Maize and Wheat Improvement Center	Kai Sonde	K.Sonder@cgiar.org
Donors - Donors	CRS	Catholic Relief Services	Paul Hicks	paul.hicks@crs.org

Activity No. 20

Activity title	Develop supply chain adaptation frame work, that outlines ways for supply chain to adapt jointly.		
CCAFS Objective *(select from drop list)*	1.1 Adapted farming systems	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	1.1.2 2013 (1)
Activity objectives *(what the activity aims to achieve)* — **Objective 1**	The objective of this activity is to support adaptation to climate change within food supply chains in the Latin America and Caribbean region.		
Activity status	Completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**The research has been concluded, the frame work is developed and shared with the private sector. A policy brief and a paper has been written.**		

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Workshops	Chain inclusive adaptation framework developed and discussed with industry partners.	2011	Completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	Frame work published	2012	Completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	Policy brief published	2012	Completed	Document (*.doc, *.odt, *.pdf)

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
Donors - Donors	OXFAM	OXFAM	Michele Bruni	MBruni@oxfam.org.uk
End_users - End users	SFL	Sustainable Food Lab	Don Seville	donseville@gmail.com

Activity No. 21

Activity title	Identifying crop wild relatives (CWR) collecting gaps for 80 genepools for climate change adaptation pre-breeding		
CCAFS Objective *(select from drop list)*	1.1 Adapted farming systems	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	1.1.3 2013 (1)
Activity objectives *(what the activity aims to achieve)* — **Objective 1**	To identify major gaps of wild species in ex situ collections		
Activity status	Partially completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**27 genepools of importance for food and agriculture were analysed and recommendations on where to collect this material were produced.**		

Type	Description	Year	Status	Format
Data	Webtool with lists of priority taxa that needs further collection, and a series of maps with suggestions to collect this plant material.	2013	Uncompleted	Select a format

Deliverables status *(You may add any unexpected deliverable)*	Data	Crop wild relatives database (circa 5 million records)	2012	Completed	Other
	Capacity	Training on Gap Analysis with other institutions	2012	Completed	Other
	Reports, publications	Progress reports, 1 Journal article (global gap analysis)	2013	Partially completed	Document (*.doc, *.odt, *.pdf)
	Reports, publications	Progress reports, 2 PhD Thesis	2014	Uncompleted	Document (*.doc, *.odt, *.pdf)

Current Partners		**Acronym**	**Name**	
	ARI - Advanced Research Institution		Global Crop Diversity Trust	
		Contact Point Full Name	**Contact Point Email**	
		Acronym	**Name**	
	AI - Academic Institution		University of Birmingham	
		Contact Point Full Name	**Contact Point Email**	
		Acronym	**Name**	
	ARI - Advanced Research Institution		Millenium Seed Bank (Royal Botanical Gardens, Kew)	
		Contact Point Full Name	**Contact Point Email**	

Activity No. 22

Activity title	Multi-site evaluation of Brachiaria grasses (germplasm accessions and hybrids) and tropical forage legumes (species and germplasm accessions) for drought and waterlogging to respond to increased vulnerability due to climate change		
CCAFS Objective *(select from drop list)*	1.1 Adapted farming systems	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	1.1.3 2014 (1)
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	To identify drought and/or waterlogging tolerant tropical forage options (brachiaria grasses and legumes) based on multi-site evaluation with farmers	
Activity status	Partially completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**A map developed on distribution of waterlogged soils in different countries in Latin America using with data at continental level on rainfall and climate derived from TRMM satellite. Results showed that there are more than 300 million hectares with waterlogged soils for more than 7 days during the year and Brachiaria grass genotypes selected with higher level of waterlogging tolerance can be targeted to areas with waterlogged soils up to 3 weeks. Six field sites in three countries (Colombia, Nicaragua, Panama) were selected to evaluate tolerance to waterlogging in Brachiaria grasses using farmer participatory approaches and higher level of waterlogging tolerance was observed with six Brachiaria humidicola accessions and one Brachiaria hybrid showed greater level of waterlogging tolerance than the commercial cultivar CIAT 26110 (cv. Toledo). Among the 22 germplasm accessions of tropical legumes tested for waterlogging tolerance one accession of Cannavalia brasiliensis (CIAT 905), three accessions of Stylosanthes guianensis (CIAT 11995, CIAT 178 and CIAT 146) and three accessions of Arachis pintoi (CIAT 22268, CIAT 22342 and CIAT 22233) were found to be superior.**		

	Type	**Description**	**Year**	**Status**	**Format**
Deliverables status *(You may add any unexpected deliverable)*	Data	Five Brachiaria grasses and two herbaceous legumes with greater tolerance to waterlogging and/or drought are avalaible for seed multiplication, data made available to agtrials.org	2014	Partially completed	Other
	Capacity	NARS researchers in Colombia, Nicaragua and Panama trained	2012	Partially completed	Document (*.doc, *.odt, *.pdf)
	Reports, publications	Progress report; PhD thesis on waterlogging tolerance in brachiariagrasses	2013	Partially completed	Document (*.doc, *.odt, *.pdf)
	Reports, publications	Progress report; 1 Journal article	2014	Partially completed	Document (*.doc, *.odt, *.pdf)

		Acronym	**Name**	
	NARES - National agricultural research and extension services	CORPOICA	Corporación Colombiana de Investigación Agropecuaria	
		Contact Point Full Name	**Contact Point Email**	
		Dr. Miguel Ayarza	mayarza@corpoica.org.co	

Current Partners		Acronym	Name	Contact Point Full Name	Contact Point Email
	NARES - National agricultural research and extension services	IDIAP	Instituto de Investigación Agropecuaria de Panamá	Luis Hertentains	lahertentains@gmail.com
	NARES - National agricultural research and extension services	INTA	Instituto Nacional de Tecnología Agropecuaria	Martin Mena	martinmurbina@yahoo.com

Activity No. 23			
Activity title	Comparative adaptation differences between tepary bean and common bean characterized		
CCAFS Objective *(select from drop list)*	1.1 Adapted farming systems	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	1.1.3 2014 (1)
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	To determine the acceptability of tepary bean ideotype with farmers	
Activity status	Partially completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**Tepary planted in lowland Malawi produced modest yields, while common bean produced nothing. Tepary planted under a plastic greenhouse shelter sustained 50 C temperatures and maintained leaf structure, while common bean tissue was destroyed. This may imply differences in lipid constitution of cell membranes.**		

Deliverables status *(You may add any unexpected deliverable)*	Type	Description	Year	Status	Format
	Other	Drought traits defined	2012	Completed	Document (*.doc, *.odt, *.pdf)
	Other	Farmer perspectives determined	2012	Partially completed	Document (*.doc, *.odt, *.pdf)

Current Partners		Acronym	Name	Contact Point Full Name	Contact Point Email
	NARES - National agricultural research and extension services	KARI	Kenya Agricultural Research Institute	David Macharia	
	CG - CGIAR Center	CIAT	Centro Internacional de agricultura Tropical	Rowland Chirwa	

Activity No. 31			
Activity title	Refine estimates of current and future climatic stress on bean yields using GCMs and DSSAT		
CCAFS Objective *(select from drop list)*	1.2 Breeding strategies	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	1.2.1 2013 (2)
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	To develop more specialized predictions of future adapation ranges, for each of the two major gene pools of common bean.	
Activity status	Partially completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**The previous analysis by EcoCrop was based on all current bean growing areas. In the analysis carried out in the course of 2012, we separated sites based on the principle gene pool cultivated. When the Andean gene pool of bean was considered, the negative effects of climate change were much more notorious and detremental.**		

Deliverables status *(You may add any unexpected deliverable)*	Type	Description	Year	Status	Format
	Other	Maps of current and future limiting climatic factors	2012	Partially completed	Presentation (*.ppt, *.odp)

Current Partners		Acronym	Name	Contact Point Full Name	Contact Point Email
	ARI - Advanced Research Institution		Global Crop Diversity Trust		

Activity No. 32

Activity title	Evaluation of cost-benefit of adaptation measures in at least four production systems initially in Colombia and in at least the rice and livestock sectors		
CCAFS Objective *(select from drop list)*	1.3 Policies and institutions for adaptation	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	1.3.2 2014
Activity objectives *(what the activity aims to achieve)* — **Objective 1**	To evaluate cost-benefit measures in production systemsn in Colombia.		
Activity status	Completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**1. A methodological framework to analyze the impacts of climate change to local level was developed. 2. Using local climate information climate change scenarios were adjusted. 3. Impact of climate change on soybean, rubber and livestocksuitability was calculated. 4. Participative adaptation measure for soybean, rubber and livestock were identified with local stakeholders.**		

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Report and papers on best-bet adaptation measures including distribution of benefits to different socially differentiated beneficary groups	2012	Completed	Document (*.doc, *.odt, *.pdf)
Other	Framework lo analyze climate change to local scale	2012	Completed	Presentation (*.ppt, *.odp)
Data	Local scenario adjusted with local climatologic information	2012	Completed	Database (*.sql, *.mdb, etc)
Reports, publications	Assessing potential impact of pest on soybean and rubber because CC	2012	Completed	Document (*.doc, *.odt, *.pdf)
Workshops	Identifying participative adaptation measure for soybean, rubber and livestock	2012	Completed	Other

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
GO - Government office/department		Ministry of Agriculture	Néstor Hernández	nestor.hernandez@minagricultura.gov.co
GO - Government office/department		Ministry of Environment	Felipe Gómez	fgomez@minambiente.gov.co
NARES - National agricultural research and extension services	CORPOICA	Corporación Colombiana de Investigación Agropecuaria	Miguel Ayarza	mayarza@corpoica.org.co
Donors - Donors	PNUD	United Nations Development Programme	Jimena Puyana	Jimena.Puyana@undp.org

Activity No. X => Benchmark project contracted in August 2012

Activity title	Playing out transformative adaptation in CCAFS benchmark sites in East Africa: When, where, how and with whom?		
CCAFS Objective *(select from drop list)*	1.1 Adapted farming systems	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	1.1.2 2013 (1)
Activity objectives *(what the activity aims to achieve)* — **Objective 1**	This project will develop, through integrated agricultural research, the adaptation process for four benchmark sites in East Africa where climate change will force a range of changes in farming systems and livelihoods. CIAT has strong and long-term presence working with smallholder farmers in East Africa where CIAT mandate crops and crop-livestock systems are predominant. We aim to deliver an end-to-end analysis for the benchmark sites which identifies: 1) transformative agricultural changes through robust suitability modeling; 2) options for adaptation; 3) constraints preventing adaptation (biological, biophysical, and socio-economic), with special emphasis on crop suitability, 4) impact of changes on both men and women farmers and 5) necessary actions of when, where, how and with whom to ensure that the adaptation occurs.		
Activity status	Partially completed		

Insert a small remark to indicate the status of the activity.
(2-4 sentences required per activity)

This project was funded in September 2012 through CCAFS. The funds have all been spent by the end of 2012 but the activities are ongoing until September 2013.

Deliverables status
(You may add any unexpected deliverable)

Type	Description	Year	Status	Format
Data	Household survey on socioeconomic characterics; biophysical data on constraints to crop production e.g. infertile soils, shallow soils, lack of irrigation and lack of fertilizers; household/farming activities by gender; data on production of beans, maize, cassava, sorghum, fodder including gender perspective	2012	partially completed	Document (*.doc, *.odt, *.pdf)
Select a data type	Analysis of data	2013	partially completed	Document (*.doc, *.odt, *.pdf)
Select a data type	Workshop to share methods, data and analysis in benchmark sites	2013	partially completed	Document (*.doc, *.odt, *.pdf)

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
CG - CGIAR Center	ICRAF	World Agroforestry Research Center	Joash Mango	j.mango@cgiar.org
NGO_DO - Non-governmental organization/Development organization	WN	World Neighbours	Jared Akuku	jakuku@wn.org
NGO_DO - Non-governmental organization/Development organization	VI	VI-Agroforestry	Samuel Oketch	ousamoke@yahoo.com
Select a partner type.	IITA	IITA	Piet van Asten	p.vanasten@cgiar.org

2012 Technical Report per Activity

Each Program Participant must provide a small remark against each activity/deliverable to indicate the status of the activity (2-4 sentences required per activity) using the form below. Updated data from the current partners is also required.

CCAFS Center Led Activities
CIAT - Centro Internacional de Agricultura Tropical

Activity No. 6

Activity title	Cost Effectivenes Analysis and Cost-benefit analysis of mitigation/adaptation options for pasture systems, rice, fruits, rubber and soybean in Colombia		
CCAFS Objective *(select from drop list)*	3.1 Inform decision makers about the impacts of alternative agricultural development pathways	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	3.1.1 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Contribute to calculating emissions abatement potential from Colombia's agricultural sector, help the Colombian government identify NAMA actions, and advise the government on priority mitigation measures from an efficiency perspective.	
Activity status	Completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**Mitigation** **1. Three national workshops were organized by CIAT for identifying regions with major potential to implement silvopstoral systems and improved pasture** **2. For rice N-Fertilizer doses-response curve were modeled and inefficient level of nitrogen fertilizer use quantified** **3. Local workshops were conducted with producers and local technicians to identify alternatives to improve efficient use of N-Fertilizer** **4. Modeling of mango and avocado was conducted to identify the most suitable growing areas.** **5. Economic information about costs and benefits were calculated for different areas** **6. A national level MAC Curve was built**		

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Report on low carbon policies for Colombia	2012	Completed	Document (*.doc, *.odt, *.pdf)
Communication products	Policy brief on MACCs	2012	Partially completed	Document (*.doc, *.odt, *.pdf)
Workshops	National Workshop about mitigation and adaptation measures for agriculture sector in Colombia	2012	Completed	Other
Workshops	National workshop on Silvopastoral system anb improve pasture in Colombia	2012	Completed	Other
Workshops	Local workshops on efficient use of N-Fertilizer in rice (Espinal and Villavicencio)	2012	Completed	Other
Workshops	Local workshops on livestock (Monteria and Villavicencio)	2012	Completed	Other
Data	Costs and benefit for four agriculture activities for different locations	2012	Completed	Spreadsheet (*.xls, *.ods)

	Acronym	Name	Contact Point Full Name	Contact Point Email
GO - Government office/department	MADR	Colombian Ministry of Agriculture	Néstor Hernández	nestor.hernandez@minagricultura.gov.co
GO - Government office/department	MADS	Colombian Ministry of Environment	Felipe Gómez	fgomez@minambiente.gov.co
NARES - National agricultural research and extension services	CORPOICA	Corporación Colombiana de Investigación Agropecuaria	Miguel Ayarza	mayarza@corpoica.org.co

Current Partners		Acronym	Name	Contact Point Full Name	Contact Point Email
	Donors - Donors	WB	World Bank	Todd Johnson	Tjohnson@worldbank.org
	GO - Government office/department	IDEAM	Instituto de Hidrología, Meteorología y Estudios Ambientales	Vicky Guerrero	vguerrero@ideam.gov.co
	Donors - Donors	DNP	Departamento Nacional de Planeación	Deissy Martinez	dmartinezb@dnp.gov.co
	GO - Government office/department	DNP	Departamento Nacional de Planeación		

Activity No. 7

Activity title	Assessing the potential of tropical forage options to mitigate climate change through reducing nitrous oxide emissions and enhancing carbon sequestration		
CCAFS Objective *(select from drop list)*	3.3 Test and identify desirable on-farm practices and their landscape-level implications	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	3.3.1 2012 (1)
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	To quantify differences among pasture grasses in their ability accumulate carbon in soil and to reduce nitrification and nitrous oxide emission from soil.	
Activity status	Partially completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**Genetic variability for the ability to inhibit soil nitrification was observed in a set of 118 Brachiaria humidicola hybrids. A total of 261 soil samples were collected from ten farms in the Llanos region, Colombia to quantify differences in carbon sequestration among native, introduced and degraded pastures and to identify the most suitable experimental site where the residual beneficial effect of BNI (biological nitrification inhibition) from Brachiaria humidicola can be assessed on a subsequent maize crop. Introduced Brachiaria humidicola pastures showed greater accumulation of carbon in soil than degraded and native pastures.**		

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Data	Nitrification inhibition and carbon sequestration potential of different pasture based systems (natural grassland, degraded pasture, improved pastures) identified; A book chapter and a review paper published	2012	Completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	Report on carbon accumulation differences among pastures	2012	Completed	Document (*.doc, *.odt, *.pdf)
Select a data type	Report on residual effect of biological nitrification inhibition	2013	Partially completed	Document (*.doc, *.odt, *.pdf)
Select a data type	Report on carbon accumulation differences among different tillage systems to build an arable layer	2014	Uncompleted	Document (*.doc, *.odt, *.pdf)

Current Partners		Acronym	Name	Contact Point Full Name	Contact Point Email
	NARES - National agricultural research and extension services	CORPOICA	Corporación Colombiana de Investigación Agropecuaria	Dr. Alvaro Rincon	arincon@corpoica.org.co
	ARI - Advanced Research Institution	JIRCAS	Japan international research center for agriculture	Dr. Guntur V. Subbarao	Dr. Guntur V. Subbarao

		Acronym	**Name**	
	CG - CGIAR Center	ILRI	International Livestock Research Institute	
		Contact Point Full Name	**Contact Point Email**	
		Dr. Klaus Butterbach-Bahl	klaus.butterbach-bahl@kit.edu	

Activity No. 13					
Activity title		Discuss usefulness and limitations of carbon footprints in coffee systems based on evidence data compiled across Latin America and quantify total carbon stock in Central American coffee systems.			
CCAFS Objective *(select from drop list)*		3.3 Test and identify desirable on-farm practices and their landscape-level implications	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	3.3.1 2012 (1)	
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	To quanitfy carbon stocks and footprints across coffee systems			
	Objective 2	To discuss usefulness and limitations of carbon footprint measurements in coffee systems			
Activity status		Completed			
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		**The catbon foot print across coffee systems in Latin America and the discussion of the usefulness have been concluded and two papers have been submitted. One on carbon insetting and another one on carbon foot print and carbon stock assesment across Latinamerica and across coffee agroforestry systems.**			
Deliverables status *(You may add any unexpected deliverable)*		**Type**	**Description**	**Year**	**Status** / **Format**
		Data	Foot print data compilation across Latin America	2011	Completed / Document (*.doc, *.odt, *.pdf)
		Reports, publications	Submitt publicatIon on results and discussion	2012	Completed / Document (*.doc, *.odt, *.pdf)
Current Partners		**Acronym**	**Name**		
	PRI - Private Research Institution	GMCR	Green Mountain Coffee Roasters		
		Contact Point Full Name	**Contact Point Email**		
		Rick Peyser	rick.peyser@gmcr.oorg		
		Acronym	**Name**		
	AI - Academic Institution		University of Para		
		Contact Point Full Name	**Contact Point Email**		
		Goetz Schroth	goetz.schroth@gmail.com		

Activity No. 17					
Activity title		Planning and initiation of assessments of farm practices affecting GHG emissions in extensive and intensive Fruit Production Systems			
CCAFS Objective *(select from drop list)*		3.3 Test and identify desirable on-farm practices and their landscape-level implications	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)*	3.3.1 2012 (1)	
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Understanding and quantifing activities that are known to have a significant carbon fooprint (fertilization, chemical control for pests and diseases)			
Activity status		Completed			
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		**The CIAT fruits programm has been closed in December 2012.**			
Deliverables status *(You may add any unexpected deliverable)*		**Type**	**Description**	**Year**	**Status** / **Format**
		Data	Report on evaluation of farm practices (cover crops, pruning, intercropping) farm practices most commonly used in fruit production systems and relation to GHG mitigation potential	2012	Completed / Document (*.doc, *.odt, *.pdf)
		Reports, publications	Donor report	2012	Completed / Document (*.doc, *.odt, *.pdf)

2012 Technical Report per Activity

Each Program Participant must provide a small remark against each activity/deliverable to indicate the status of the activity (2-4 sentences required per activity) using the form below. Updated data from the current partners is also required.

CCAFS Center Led Activities
CIAT - Centro Internacional de Agricultura Tropical

Activity No. 2

Activity title	Continued improvement of downscaled climate information for the globe, including testing of RCMs	
CCAFS Objective *(select from drop list)*	4.2 Assemble data and tools for analysis and planning	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)* — 4.2.1 2012 (2)
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Download, process, downscale [global] and assess [for specific regions] CMIP5 predictions
	Objective 2	Continue modelling regional climates using PRECIS and process the results
	Objective 3	Download and process [whenever available] finished CORDEX runs
	Objective 4	Perform ensemble-comparison and crop-model errors studies [to be more carefully planned]
Activity status	Partially completed	
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	**All 2012 activities have been completed, and from the current (2013) year's activities, a number of them have been started. A journal article on the CMIP5 model skill is being revised for final journal resubmission, and CMIP5 data have been gathered in full for the downscaling. Further studies are to be pursued during 2013 and 2014 related to CMIP5.**	

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Data	Datasets from PRECIS for Central America and Andes provided online through www.ccafs-climate.org, continued hosting of www.ccafs-climate.org	2012	Completed	GIS raster (ESRI Grids, GeoTiff, etc)
Data	Downscaled data of CMIP5 runs [~70 climate model runs]	2014	Partially completed	GIS raster (ESRI Grids, GeoTiff, etc)
Reports, publications	Paper on CMIP3 model skill	2012	Completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	Paper on CMIP5 model skill	2013	Partially completed	Document (*.doc, *.odt, *.pdf)
Data	Data of other regional models (ETA, CORDEX) published in the CCAFS-Climate website	2014	Uncompleted	GIS raster (ESRI Grids, GeoTiff, etc)
Reports, publications	Study comparing crop-climate models	2014	Uncompleted	GIS raster (ESRI Grids, GeoTiff, etc)

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
CRP - Challenge Research Program	CCAFS	Climate change, agriculture and food security	Andy Jarvis	a.jarvis@cgiar.org
CG - CGIAR Center	ILRI	International Livestock Research Institute	Phil Thornton	p.thornton@cgiar.org
CG - CGIAR Center	IFPRI	International Food Policy Research Institute	Jawoo Koo	j.koo@cgiar.org
CG - CGIAR Center	CIP	Centro Internacional de la Papa	Roberto Quiroz	r.quiroz@cgiar.org

	Acronym	Name	Contact Point Full Name	Contact Point Email
AI - Academic Institution		University of Leeds	Andy Challinor	a.j.challinor@leeds.ac.uk
NARES - National agricultural research and extension services	CPTEC	Centro de Previsão de Tempo e Estudos Climáticos	Chou Sin Chan	chou@cptec.inpe.br
PRI - Private Research Institution		Waen Associates	Peter Jones	p.jones@cgiar.org

Activity No. 5

Activity title		Improved modelling framework for cassava, beans, rice and tropical forages to set centre priorities for technology development in the face of climate change
CCAFS Objective *(select from drop list)*	4.3 Refine frameworks for policy analysis	**CCAFS Milestone No.** *(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)* 4.3.1 2012 (1)
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Development of new cassava model under DSSAT umbrella
	Objective 2	Evaluation of climate impacts in beans
	Objective 3	Evaluation of climate impacts in rice in Latin America using regional cultivars
	Objective 4	Evaluation of climate impacts in cassava globally
Activity status		Partially completed
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		**The cassava model in DSSAT is being reviewed by a multidisciplinary team from CIAT, U Florida, and WS University. The DSSAT-ORYZA implementation is going ahead in CIAT.**

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Model tools and software	Improved/new model for cassava in DSSAT	2013	Partially completed	Other
Model tools and software	Calibrated models of LAC rice cultivars under DSSAT-ORYZA	2012	Partially completed	Other
Capacity	Training of at least 3 NARS partners in LAC on DSSAT-ORYZA	2012	Partially completed	Other
Reports, publications	Provisional climate impacts for beans, cassava and rice	2012	Partially completed	GIS raster (ESRI Grids, GeoTiff, etc)
Reports, publications	Detailed climate impact studies with CMIP5 data for cassava, beans and rice	2013	Uncompleted	Document (*.doc, *.odt, *.pdf)

	Acronym	Name	Contact Point Full Name	Contact Point Email
AI - Academic Institution		U. of Florida	James W. Jones	jimj@ufl.edu
CG - CGIAR Center	IFPRI	International Food Policy Research Institute		
CG - CGIAR Center	IRRI	International Rice Research Institute		
CG - CGIAR Center	CIP	Centro Internacional de la Papa		

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
AI - Academic Institution		University of Leeds		
PRI - Private Research Institution	Z	Federación de productores de arroz		
NARES - National agricultural research and extension services	EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária		
NARES - National agricultural research and extension services	INIA	Instituto nacional de innovacion agraria		
NARES - National agricultural research and extension services	CORPOICA	Corporación Colombiana de Investigación Agropecuaria		
Select a partner.	WSU	Washington State University	Gerrit Hoogenboom	gerrit.hoogenboom@gmail.com

2012 summary report of activities and deliverables by Output level

Each Program Participant must prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives. Length is dependent on budget size so please refer to the table on the explanatory notes.

CCAFS Center Led Activities

CIAT - Centro Internacional de Agricultura Tropical

Theme 1. Adaptation to Progressive Climate Change	
Objective 1.1 Analyze and design processes to support adaptation of farming systems in the face of future uncertainties of climate in space and time	
Outcome 1.1: Agricultural and food security strategies that are adapted towards predicted conditions of climate change promoted and communicated by the key development and funding agencies (national and international), civil society organizations and private sector in at least 20 countries	
Output 1.1.2 Building of regional and national capacities to produce and communicate socially inclusive adaptation and mitigation strategies for progressive climate change at the national level (e.g. through NAPAs)	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	Criteria of scientists on useful bean traits for climate adaptation, especially for drought, have been validates with feed back from farmers in E-Africa. The impact of climate change on maize and bean systems and farmer's livelihoods in Central America have been quantified and adaption strategies proposed. A supply chain adaptation framework has been developed and tested across Latin America.
Output 1.1.3 New knowledge, guidelines and access to germplasm are provided for using genetic and species diversity to enhance adaptation, productivity and resilience to changing climate with benefits for socially marginal groups.	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	Crop wild relative (CWR) gaps for 80 gene pools for climate change adaptation pre-breeding were identified. Brachiaria grasses (germplasm accessions and hybrids) and tropical forage legumes (species and germplasm accessions) for drought and waterlogging to respond to increased vulnerability to climate change were evaluated. Comparative adaption differences between tepary bean and common bean were characterized.
Objective 1.2 Develop breeding strategies for addressing abiotic and biotic stresses induced by future climatic conditions, variability and extremes, including novel climates	
Outcome 1.2: Strategies for addressing abiotic and biotic stresses induced by future climate change, variability and extremes, including novel climates mainstreamed among the majority of the international research agencies who engage with CCAFS, and by national agencies in at least 12 countries	
Output 1.2.1 Understanding and evaluating the response of different varieties/crops to climate change in time and space, and generating comprehensive strategies for crop improvement through a combination of modeling, expert consultation and stakeholder dialogue	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	Estimates of current and future climatic stress on bean yield using GCMs and DSSAT were refined.
Objective 1.3 Integrate adaptation strategies for agricultural and food systems into policy and institutional frameworks	
Outcome 1.3: Improved adaptation policies from local to international level supporting farming communities, rural institutions and food system actors adapted to future climate conditions in at least 20 countries.	
Output 1.3.2 Public and private sector policies and strategies at the national level to enable farming communities and the food system to adapt to predicted future conditions	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	Cost and benefits of adaptation measures in four productions systems in Colombia were evaluated. E-African benchmark site databases were completed with soils (through AfSIS), gender, crop and some socio-economic data to comprehensively assess the adoption barriers of farmers to progressive climate change.
Theme 3. Pro-Poor Climate Change Mitigation	
Objective 3.1 Inform decision makers about the impacts of alternative agricultural development pathways	
Outcome 3.1: Enhanced knowledge and tools about agricultural development pathways that lead to better decisions for climate mitigation, poverty alleviation, food security and environmental health, used by national agencies in at least 20 countries	
Output 3.1.1 Analysis of agricultural development pathways and trade-offs	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	Cost effectiveness and cost-benefit analysis of mitigation/adaptation options for pasture systems, rice, fruits, rubber and soybean in Colombia were conducted.
Objective 3.3 Test and identify desirable on-farm practices and their landscape-level implications	
Outcome 3.3: Key agencies dealing with climate mitigation in at least 10 countries promoting technically and economically feasible agricultural mitigation practices that have co-benefits for resource-poor farmers, particularly vulnerable groups and women	
Output 3.3.1 Analysis of mitigation biophysical and socioeconomic feasibility for different agricultural practices and regions, and impacts on emissions, livelihoods and food security	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	The potential of tropical forage options to mitigate climate change through reducing nitrous oxide emission and enhance carbon sequestration was assessed. The usefulness and limitations of carbon footprints in coffee systems based on evidence data compiled across Latin America was discussed.

Theme 4. Integration for Decision Making	
Objective 4.2 Assemble data and tools for analysis and planning	
Outcome 4.2 Improved frameworks, databases and methods for planning responses to climate change used by national agencies in at least 20 countries and by at least 10 key international and regional agencies	
Output 4.2.1 Integrated assessment framework, toolkits and databases to assess climate change impacts on agricultural systems and their supporting natural resources	
Regional site and baseline characterization	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	Climate information for the globe is continuously being improved and RCM's being tested.
Objective 4.3 Refine frameworks for policy analysis	
Outcome 4.3 New knowledge on how alternate policy and program options impact agriculture and food security under climate change incorporated into strategy development by national agencies in at least 20 countries and by at least 10 key international and regional agenciesat least 10 key international and regional agencies	
Output 4.3.1 Climate change impacts assessed at global and regional levels on agricultural systems (socially and gender differentiated producers and consumers, and their natural resources), national/regional economies, and international transactions and potential of international and regional policy changes to enhance adaption and support agricultural greenhouse gas emissions mitigation	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	Modeling framework for cassava, beans, rice and tropical forages is being improved to set center priorities for technology development in the face of climate change.

List of publications that acknowledge CCAFS support

(a) Each Program Participant must list all publications that acknowledge CCAFS support. Only include publications that came out in final version in the calendar year. Please do not include journal papers under review (submitted etc) or out in electronic format ahead of print, except of course for electronic-only journals.
(b) Please try to format references in the Harvard style. A clear guide can be found here:
http://libweb.anglia.ac.uk/referencing/harvard.htm

(c) For journal articles, please indicate all of the references that are "green open access" with a single asterisk and those that are "gold open access" with a double asterisk. This is now a requirement from CGIAR donors. Green open access means that the authors have made a free copy available on a website. Gold open access means that the journal allows free download (either as standard practice or because the authors paid for it).
(d) For all publications that are up online, please provide a web link if possible. This will help us to advertise your work more widely.

CCAFS Center Led Activities
CIAT - Centro Internacional de Agricultura Tropical

	Type	Citation identifier	Citation
Publication 1	Journal papers	DOI: 10.1007/s12042-011-9091-	Bellotti, A.C., Herrera-Campo, B. V. and Hyman, G. 2012. Cassava production and pest management: present and potential threats in a changing environment . Tropical Plant Biology 5:39-72. http://www.springerlink.com/content/6u7862v747662664/
Publication 2	Journal papers	DOI:101186/2048-7010-1-7	Mba, Ch., Guimaraes, E.P. and Ghosh, K. 2012. Re-Orienting crop improvement for the changing climatic conditions of the 21st century. Agriculture & food security 1:7 http://www,agricultureandfoodsecurity.com/content/1/1/7. Open access
Publication 3	Journal papers	Doi 10.1371	Díaz Nieto, J., Fisher, M., Cook, S.E., Läderach, P., Lundy, M. 2012. Weather indices for designing micro-insurance products for small-holder farmer in the tropics . Plos One 7 (6) : e38281.

Publication 5

Type

Journal papers

Citation identifier

DOI 10.1007/s11027-012-9432-0

Citation

Eitzinger, A., Läderach, P., Bunn, Ch., Quiroga, A., Benedikter, A., Pantoja, A., Gordon, G.,and Michele B. 2012. Implications of a changing climate on food security and mallholders' livelihoods in Bogotá, Colombia, Mitig Adapt Strateg Glob Change.Springer. http://rd.springer.com/article/10.1007%2Fs11027-012-9432-0

Publication 6

Type

Policy briefs

Citation identifier

Citation

Eitzinger, Anton; Läderach, Peter; Sonder, Kai; Schmidt, Axel; Sain, Gustavo; Beebe, Steve; Rodríguez, Beatriz; Fisher, Myles; Hicks, Paul; Navarrete-Frías, Carolina; Nowak, Andreea. 2012. Tortillas on the roaster : Central America's maize–bean systems and the changing climate . Centro Internacional de Agricultura Tropical (CIAT), Cali, CO. 6 p. (CIAT PolicyBrief No. 6)

Publication 7

Type

Journal papers

Citation identifier

. DOI: 10.1007/s12571-012-0209-9

Citation

Hyman, G., Bellotti, A. C., Becerra López-Lavalle, L. A., Palmer, N. and Creamer, B. 2012. Cassava and overcoming the challenges of global climatic change : report of the second scientific conference of the Global Cassava Partnership for the 21st century . Food Security 4 (4) : 671-674. https://www.integratedbreeding.net/cassava-and-overcoming-challenges-global-climatic-change-report-second-scientific-conference-global

Publication 8

Type

Working papers

Citation identifier

Citation

Sova, Chase; Chaudhury, Abrar; Helfgott, Ariella; Corner-Dolloff, Caitlin. 2012. Community-based adaptation costing : An integrated framework for the participatory costing of community-based adaptations to climate change in agriculture . CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Cali, CO. 68 p. (Working Paper No. 16) Centro Internacional de Agricultura Tropical (CIAT) 2012. Eco-Eficiencia : De la visión a la realidad . Centro Internacional de Agricultura Tropical (CIAT), Cali, CO. 12 p.

Publication 9

Type

Journal papers

Citation identifier

DOI: 10.1007/s12042-012-9096-7.

Citation

Jarvis, A., Ramírez -Villegas, J., Herrera C., B. V. and Navarro-Racines, C. 2012. Is cassava the answer to African climate change adaptation?. Tropical Plant Biology 5: 9-29.

Publication 10

Type	Citation identifier
Journal papers	DOI:10.1371

Citation

Kost, A., Läderach, P., Myles, F., Cook, S.E., and Gómez, L. 2012. Improving index-based drought insurance in varying topography : Evaluating basis risk based on perceptions of Nicaraguan hillside farmers . PL o S One 7 (12)

Publication 11

Type	Citation identifier
Journal papers	DOI:101186/2048-7010-1-7.

Citation

Mba, Ch., Guimaraes, E.P. and Ghosh, K. 2012. Re-Orienting crop improvement for the changing climatic conditions of the 21st century. Agriculture & food security 1:7 http://www,agricultureandfoodsecurity.com/content/1/1/7.

Publication 12

Type	Citation identifier
Journal papers	

Citation

Mosquera, O., Buurman, P., Ramirez, B. L. and Amezquita, M. C.2012. Carbon replacement and stability changes in short-term silvo-pastoral experiments in Colombian Amazonia . Geoderma170 : 56-63.

Publication 13

Type	Citation identifier
Journal papers	

Citation

Mosquera, O., Buurman, P., Ramirez, B. L. and Amezquita, M. C. 2012. Carbon stock and dynamics under improved tropical pasture and silvopastoral systems in Colombia Amazonia . Geoderma 189-190 : 81-86.

Publication 14

Type	Citation identifier
Journal papers	

Citation

Ndjiondjop, M.N., Seck, P.A., Lorieux, M., Futakuchi, K., Yao, K.N., Djedatin, G., Sow, M.E., Bocco, R., Cisse, F. and Fatondji, B.. 2012. Effect of drought on Oryza glaberrima rice accessions and Oriza glaberrima derived-lines . Asian Journal of Agricultural Research 6(4): 144-157.

Publication 15

Type	Citation identifier
Policy briefs	

Citation

Peterson, Catlin; Nowak, Andreea; Jarvis, Andy; Navarrete-Frías, Carolina; Figueroa, Apolinar; Riano, Nestor; Vargas, Julio. 2012. Analysingvulnerability : a multi-dimensional approach from Colombia's upper Cauca river basin. Climate and Development Knowledge Network (CDKN), Cali, CO. 6 p.

Publication 16

Type: Journal papers

Citation identifier: Doi 10-100-1/s10584-012-0500-4

Citation

Ramirez, J.; Salazar, M.; Jarvis, A. ; Navarro, C. 2012 A way forward on adaptation to climate change in Colombian agriculture: Perspectives towards 2050. Climatic Change December 2012, Volume 115, Issue 3-4, pp 611-628

Publication 17

Type: Journal papers

Citation identifier:

Citation

Ramirez, J. and Challinor, A. 2012 Assessing relevant climate data for agricultural applications. Agricultural and forest meteorology. 161, 26-45.

Publication 18

Type: Conference proceedings

Citation identifier: DOI: 10.1007/s12571-012-0209-9.

Citation

Hyman, G.; Bellotti, A., Becerra, L.A.; Lopez-Lavalle, N.P.; and Bernardo Creamer. 2012. Cassava and overcoming the challenges of global climatic change: report of the second scientific conference of the Global Cassava Partnership for the 21st century. Food Security https://www.integratedbreeding.net/cassava-and-overcoming-challenges-global-climatic-change-report-second-scientific-conference-global

Publication 19

Type: Journal papers

Citation identifier:

Citation

Van den Bergh, I., Ramírez, J., Staver, Ch., Turner, D.W., Jarvis, A. and Brown, D. 2012. Climate change in the subtropics: The impacts of projected averages and variability on banana productivity .ActaHorticulturae 928: 89-100. http://www.actahort.org/books/928/928_9.htm

Publication 20

Type: Journal papers

Citation identifier:

Citation

Vermeulen, S.J., Aggarwal, P.K., Ainslie, A., Angelone, C., Campbell, B.M., Challinor, A.J., Hansen, J.W., Ingram, J.S.I., Jarvis, A., Kristjanson, P., Lau, C., Nelson, G.C., Thornton, P.K. and Wollenberg, E. 2012. Options for support to agriculture and food security under climate change . Enviromental Science & Policy, 15:136-144.

Publication 21

Type	Citation identifier
Book chapters	ISBN: 978-0-84407-893-6.

Citation

Ramirez-Villegas, J., Jarvis, A., Hanson, J., Leibing, C., and Fujisaka, S. 2012. Crop and Forage Genetic Resources: International Interdependence in the Face of Climate Change. In: Halewood, M., López Noriega, I, Louafi, S. (Eds.) Crop Genetic Resources as a Global Commons: Challenges in international law and governance. Routledge, Taylor and Francis Group, London and New York 424 p

Publication 22

Type	Citation identifier
Book chapters	

Citation

Jarvis, Andy; Ramirez-Villegas, Julián; Tapasco, Jeimar; Navarro, Carlos; Peterson, Caitlin A.; Zapata-Caldas, Emmanuel; Fisher, Myles J..2012. Are climate change adaptation and mitigation options eco-efficient? . In: Hershey, Clair H. (ed.). Eco-Efficiency: From vision to reality .Centro Internacional de Agricultura Tropical (CIAT), Cali, CO. 22 p. http://www.ciat.cgiar.org/publications/Pages/eco_efficiency_from_vision_to_reality.aspx

Publication 23

Type	Citation identifier
Book chapters	

Citation

Peters, Michael; Rao, Idupulapati Madhusudana; Fisher, Myles J.; Subbarao, Guntur; Martens, Siriwan; Herrero, Graefe; Tiemann, Tassilo; Ayarza, Miguel; Hyman, Glenn. 2012. Tropical forage-based systems to mitigate greenhouse gas emissions . In: Hershey, Clair H. (ed.). Eco-Efficiency: From vision to reality .Centro Internacional de Agricultura Tropical (CIAT), Cali, CO. 20 p.

Publication 24

Type	Citation identifier
Book chapters	ISBN 978-983-44503-1-1

Citation

Läderach, P. Ovalle,O.;Lau,Ch.; Haggar,J.;Eitzinger,A.;Baca,M.;Benedikter, A.;Zelaya C.; 2012Climate Change at Mesoamerican Origins. Chapter 1.3 In: editors Oberthür, T.; Läderach, P.; Pohlan, J.; Cock, J.2012. Specialty coffe.Managing quality.International Plant nutrition institute.IPNI SEAPhttp://seap.ipni.net/articles/SEAP0102-EN http://seap.ipni.net/articles/SEAP0102-EN

Publication 25

Type	Citation identifier
Book chapters	

Citation

Peters, Michael; Rao, Idupulapati Madhusudana; Fisher, Myles J.; Subbarao, Guntur; Martens, Siriwan; Herrero, Graefe; Tiemann, Tassilo; Ayarza, Miguel; Hyman, Glenn. 2012. Tropical forage-based systems to mitigate greenhouse gas emissions . In: Hershey, Clair H. (ed.). Eco-Efficiency: Fromvisiontoreality .Centro Internacional de Agricultura Tropical (CIAT), Cali, CO. 20 p.

Publication 26

Type	Citation identifier
Book chapters	ISBN: 978-92-9043909

Citation

Mathur, P.N.; Ramírez Villegas, Julián; Jarvis, Andrew. 2012. The impacts of climate change on tropical and subtropical horticultural production . In: Sthapit, B.R., Ramanatha Rao, V., Sthapit, S.R. (Eds.) Tropical Fruit Tree Species and Climate Change . Biodiversity International, New Delhi, IN. 27-44 p. http://www.bioversityinternational.org/index.php?id=19&user_bioversitypublications_pi1[showUid]=6946

2012 Case studies

Number of case studies to be submitted is dependent on budget size so please refer to the table on the explanatory notes. Each case study should be about half a page, and Program Participants are expected to build a portfolio of case studies over the years that demonstrate all different types.

CCAFS Center Led Activities
CIAT - Centro Internacional de Agricultura Tropical

CASE STUDY 1

Title
ıg waterlogged areas in Latin America and identification of waterlogging tolerant tropical forage grasses and le

Author
Idupulapati Rao

Type
Select a type

Date (DD/MM/YYYY)
20.01.2013

Countries
Colombia, Nicaragua and Panama

Keywords
forage, tolerance to waterlogging, Brachiaria,

Photo URL

Introduction/Objectives (400 characters)

Poorly drained soils are found in about 11.3% of agricultural land in Latin America. Waterlogging drastically reduces oxygen difusión into the soil causing hypoxia which is the main limitation that reduces root aerobic respiration and the absorption of minerals and water. Tropical pastures during the rainy season occasionally face waterlogging conditions that severely limit pasture productivity and therefore livestock production. Brachiaria grasses and tropical forage legumes tolerant to waterlogging are needed to integrate into production systems for sustainable meat and milk production. Forage germplasm development programs in Colombia, Nicaragua and Panama are very active in selection of improved germplasm and are interested in releasing grass and legume cultivars that are adapted to waterlogging conditions.

Description of the project,procedures etc. (1100 characters)

A map developed on distribution of waterlogged soils in different countries in Latin America using with data at continental level on rainfall and climate derived from TRMM satellite. There are more than 300 million hectares with waterlogged soils for more than 7 days during the year and Brachiaria grass genotypes selected can be targeted to areas with waterlogged soils up to 3 weeks. Six field sites in three countries (Colombia, Nicaragua, Panama) were selected to evaluate tolerance to waterlogging in Brachiaria grasses using farmer participatory approaches and higher level of waterlogging tolerance observed with six Brachiaria humidicola accessions and one Brachiaria hybrid showed greater level of waterlogging tolerance than the commercial cultivar CIAT 26110 (cv. Toledo).

Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)

Among the six germplasm accessions of the legume Cannavalia brasiliensis that were evaluated for their tolerance to waterlogging stress, CIAT 905 was found to be outstanding based on higher values of shoot biomass, leaf chlorophyll content and photosynthetic efficiency. Among the eight germplasm accessions of the legume Stylosanthes guianensis that were evaluated for their tolerance to waterlogging stress, three accessions (CIAT 11995, CIAT 178 and CIAT 146) were found superior based on greater values of both green leaf biomass and leaf chlorophyll content. Among the eight germplasm accessions of the legume Arachis pintoi that were evaluated for their tolerance to waterlogging stress, three Arachis pintoi accessions (CIAT 22268, CIAT 22342 and CIAT 22233) were found to be superior based on greater values of green leaf biomass, shoot biomass, leaf chlorophyll content and total root biomass

Partners involved and their role (250 characters)

Corpoica-Colombia, INTA-Nicaragua and IDIAP-Panama are involved in participatory evaluation of Brachiaria grasses for their tolerance to waterlogging conditions in the field.

Links/Sources for further information

Title
TORTILLAS ON THE ROASTER (TOR) - CENTRAL AMERICAN MAIZE-BEAN SYSTEMS AND THE CHANGING CLIMATE

Author
Anton Eitzinger

Type
Inter-center collaboration

Date (DD/MM/YYYY)
21.01.2013

Countries
El Salvador, Honduras, Guatemala, Nicaragua

Keywords
Climate change, Central America, Maize, Beans, Socio-economic, crop-modelling, DSSAT, Hot-spots

Photo URL
http://goo.gl/Yzkci http://goo.gl/GyKdR

Introduction/Objectives (400 characters)

Maize and beans are a vital component of human diets and culture in Central America. More than a million smallholder families grow these crops for subsistence, producing 70% of the maize and 100% of the beans consumed locally. Average yields are low, however – 1.5 t/ha for maize and 0.7 t/ha for beans – on the approximately 2.5 million hectares of land sown to these crops (40% of the total area harvested) in El Salvador, Guatemala, Honduras, and Nicaragua. In the years to come, a harsher climate together with soil degradation, widespread poverty, and rural people's limited access to services and infrastructure will pose challenging obstacles to production. The objective of the Tortillas on the Roaster (TOR) project was to provide climate predictions on a local scale, using dynamic crop model DSSAT to show changes of future maize and beans production, to identify areas where impact is predicted to be significant, to quantify effects on socio-economic factors and develop adaptation- and mitigation strategies

CASE STUDY 2

Description of the project,, procedures etc. (1100 characters)

The Tortillas on the Roaster (TOR) project predicts and analyzes expected climate change impacts on maize and bean production in the four Central American countries. In order to adapt to climate change, maize and bean producing smallholders will have to know the type of changes to expect, how these changes are likely to affect yields, when and where changes will occur. Adaptation is only possible if global climate predictions are reduced to local levels, so that farmers know what to adapt to and so that local, national, and regional authorities, as well as donors and development actors can access sufficiently detailed information about the extent of climate change and its effects in specific areas. This information provides a foundation for decisions, policy, coordination and interventions.
Project steps include (i) downscale global and regional climate models to local levels (increased resolution); (ii) predict impact of climate change on maize and bean production systems in Central America including yield; (iii) quantify impacts on maize-bean production systems and pinpoint the consequences for socio-economic indicators; (iv) indentify adaptation hot spots: a) areas where maize-bean systems can be adapted (Focus on adaptation), b) areas where maize-bean systems are no longer an option (Focus on diversification of livelihoods to other production systems), c) areas where maize-bean systems are apt to be established (migration from current areas to the agriculture frontier where risk of deforestation is high);(v) Develop local adaptation and mitigation strategies using participatory methods.

Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)

TOR's crop modeling work uncovered four key results: (i) Imminence of adverse impacts: Before the end of the 2020s, the main impact on maize and bean yields in Central America will occur. Increased temperatures are predicted to exceed or threaten plant physiological limits within this time frame. (ii) Severe yield reductions: Maize yields are threatened. Conservative estimates of total annual losses start at US$102 million (m) for the four TOR countries. Bean yields will decrease by at least 21,000 tons ($20m value) annually along the dry corridor of Central America. This corridor is the major bean production area for Central America, supplying both domestic and export markets. (iii) Policy, extension essential: TOR shows that it is possible through crop modeling and Geographic Information Systems (GIS) to identify appropriate and inappropriate land use into the future, at a scale that is small enough to guide adaptation to climate change and reduce adverse impact on vulnerable families. Yet successful adaptation will depend on critical policy and regulatory change throughout Central America, as well as sweeping reorganization and improvements to national agriculture programs and extension services. (iv) Brown revolution crucial: Soil quality, which is sometimes overlooked in discussions on adaptation to climate change, will be vital to the capacity of many crops to maintain yields and adapt to insufficient or excess rainfall. Under expected climate change conditions, the difference in predicted maize yields will vary as much as 30% from fertile to infertile soils.
Based on study results, TOR recommends adaptation and mitigation strategies: Eco-efficient and sustainable intensification of production systems through combining soil and fertility management with water harvesting schemes; Marketed-oriented production; High value crop and tree production systems; and plant genetic improvement for heat and drought stress.

Partners involved and their role (250 characters)

Lead institution: Catholic Relief Services; Project Leader: Axel Schmidt, Consultant; Research Institution (Beans & GIS): International Center for Tropical Agriculture (CIAT); Research Institution (Maize, GIS & Economics): International Center for the Improvement of Maize and Wheat (CIMMYT)

Links/Sources for further information

http://dapa.ciat.cgiar.org/tortillas-on-the-roaster-new-study-to-support-maizebean-farmers-in-central-america-to-adapt-to-climate-change/

CASE STUDY 3

Title

Collaborative training in the Gap Analysis methodology

Author

Nora P. Castaneda- Alvarez, Colin Khoury

Type

Capacity enhancement

Date (DD/MM/YYYY)

15.01.2013

Countries

Kenya, Peru, UK, Netherlands, Colombia

Keywords

crop wild relatives, ex situ conservation

Photo URL

Introduction/Objectives (400 characters)

The crop wild relatives are threatened in their habitat by land use changes and climate change. These species are considered as sources of diversity and traits useful to adapt crops to climate change through their use in breeding. International efforts in collecting plant genetic resources have been declining in recent decades and many national programs lack the capacity to collect such types of plants. The wild relatives of crops are underrepresented in ex situ collections (estimated to be 2%-18% of total holdings) and with very large gaps in species coverage (e.g. 94% of European CWR are entirely missing from ex situ collections). Agricultural research for adaptation to climate change is thus constrained by limited options in available and useful diversity for crop breeding.

Description of the project,, procedures etc. (1100 characters)

Our project analyzes the current conservation status of the crop wild relatives in ex situ collections for 80 crop genepools, and gives recommendations on which species need urgent conservation and which places need to be visited for collecting this material. This information provides a basis for prioritizing areas and species requiring conservation.
Project steps are (i) Gathering occurrence data for some 1100 taxa; (ii) Digitization of herbaria gathered data and literature records; (iii) Building a database to store CWR occurrence data; (iv) Occurrence data georeferenciation and crosschecking; (v) Gap Analysis ; (vi) Experts validation

Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)

A database holding occurrence data for 193 crop wild relatives genera was accomplished. This global dataset contains 5.092.171 records, including 2.608.118 records of the 29 project priority genera, representing the largest and most comprehensive dataset describing the distributions of the wild relatives of the world's major crops. This dataset was used for applying the gap analysis methodology on 29 crop genepools (wheat, avena, barley, rye, faba bean, vetch, chickpea, carrot, lentil, alfalfa, grasspea, pea, apple, rice, pigeon pea, banana and plantain, cowpea, Bambara groundnut, sorghum, pearl millet, finger millet, eggplant, bean, lima bean, sweet potato, potato and sunflower). The preliminary results of the gap analysis, show that 49% of 316 taxa analyzed is classified as species requiring urgent ex situ conservation, whilst 16% were considered mid-priorities, 18% were considered low-priorities, and 8% were do not require further collection.

Partners involved and their role (250 characters)

CIAT: Nora P. Castaneda-Alvarez, Colin Khoury (organizers and trainers); ABCIC: John Yumbya (participant - African rice wild relatives analysis); CIP: Henry Juarez (participant - Potato wild relatives analysis); PBI/National History Museum -UK: Tiina Sarkinen and Morvah George (participants - Eggplant and Tomato wild relatives analysis); Wageningen U: Marleen Cobben (participant - Carrot wild relatives analysis)

Links/Sources for further information

https://sites.google.com/a/cgxchange.org/gap-analysis/data.

CASE STUDY 4

Title

Farmer perceptions of tepary bean, a species for stressful environments

Author

R. Chirwa

Type

Successful communications activities

Date (DD/MM/YYYY)

01.02/2013

Countries

Malawi

Keywords

Phaseolus acutifolius, heat stress, tepary

Photo URL

Introduction/Objectives (400 characters)

Tepary bean evolved in the deserts of Mexico and the American southwest under conditions of high temperatures and drought. While crosses with common bean (Phaseolus vulgaris) can be obtained with some difficulty, it is difficult to transfer the full complement of its favorable stress tolerance traits to common bean. An alternative is to employ tepary bean per se as a crop. It has several traits that may inhibit its adoption, such as prostrate plant habit and small seed. Thus it is necessary to explore its potential acceptability with producers.

Description of the project,, procedures etc. (1100 characters)

A set of 36 tepary bean lines together with 3 common bean lines were planted at Kasinthula during 2012 winter.
Data collected included: maximum and minimum temperatures, days to flower, days to physiological maturity, diseases scores, pod harvest index, seed brilliance, seed color and yield. In addition, participatory variety selection (PVS) was done at near harvest. During PVS farmers were categorized into three groups; a) male farmers, b) women only and c) mixed group of men and women, and data were collected on the perceptions of farmers on the performance of the tepary bean varieties in the field and their suitability for markets.

Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)

From PVS the best performing lines were G40065, G40001, G40020, G40042. These lines were selected based of farmers' perceptions that they had reasonable canopy, as well as good (well filled and brilliant) grain characteristics, which farmers said were marketable and an indication of drought tolerance and resistance to diseases. Acceptance of tepary bean by farmers bodes well for employing this species to confront heat and drought stress.

Partners involved and their role (250 characters)

DARS, Malawi; Producers in proximity to DARS Kasinthula station.

Links/Sources for further information

2012 Outcome report

Frequency of reporting outcomes is dependent on budget size so please refer to the table on the explanatory notes. (max 1 page)

CCAFS Center Led Activities
CIAT - Centro Internacional de Agricultura Tropical

OUTCOME 1

What is the outcome of the research (use of research results by non-research partners)?

Over the last 3-years, several CIAT studies demonstrated the sensitivity of coffee systems to progressive climate change. According to CIAT's model, climate change is likely to have a significant impact on coffee suitability, yield, quality and pest and disease pressure. The outputs have had a fairly broad influence with numerous sectors of society which leads us to believe that a legitimate outcome has been achieved. The outcome consists of the following:

(i) Public awareness raised: Research outputs have been used extensively in the popular media aimed at the global community, which we believe has raised public support for action against climate change. NGOs such as Oxfam have used the outputs in their campaigns.
(ii) Round table: A coffee climate change round table is being established in Nicaragua.
(iii) National policy: The results have been incorporated (and cited) in the National Plan for Agricultural Sector Adaptation in Nicaragua, which explicitly prioritises specific adaptation options on the basis of the results of CIAT's work.
(iv) Private sector investment: The largest coffee roaster in the US has already invest US$15m in livelihoods projects to support farmers to adapt through the "thin months" brought about by climate risks, and they are now considering adopting the concept of carbon insetting to support adaptation to climate change of their supply chains smallholder farmers.

What outputs produced in the three preceding years resulted in that outcome?

The primary source of the results are published in two articles, and synthesised in a policy brief:

Schroth, Gotz; Laderach, Peter; Dempewolf, Jan; Philpott, Stacy; Haggar, Jeremy P.; Eakin, Hallie; Castillejos, Teresa; García Moreno, Jaime; Soto Pinto, Lorena; Hernández, Ricardo; Eitzinger, Anton; Ramírez Villegas, Julián. 2009. Towards a climate change adaptation strategy for coffee communities and ecosystems in the Sierra Madre de Chiapas, Mexico [Approved article] . Mitigation and Adaptation Strategies for Global Change (Netherlands) 14(7):605-625.

Läderach, P.; Lundy, M.; Jarvis, A.; Ramírez, J.; Pérez, P.E.; Schepp,K,; Eitzinger, A. 2010. Predicted impact of climate change on coffeesupply chains. In Leal Filho, W. (ed) The Economic, social and Political Elements of Climate Change, Springer Verlag, Berlin.
Chapter 42.

Läderach, P.; Haggar, J.; Lau, C.; Eitzinger, A.; Ovalle, O.; Baca, M.; Jarvis, A.; Lundy, M. 2010. Mesoamerican coffee: Building a climate change adaptation strategy. CIAT Policy Brief no. 2. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia. 4 p http://ciat.cgiar.org/wp-content/uploads/2012/12/policy_brief2_mesoamerican_coffee.pdf

What partners helped in producing the outcome?

Catholic Relief Services (CRS), national coffee organisations in Central America and South America, farmer cooperatives, CATIE, CIRAD, IITA scientists, and the private sector (primarily Green Mountain Coffee Roasters)

Who used the output?

Popular media in numerous countries, Nicaraguan Government, Private Sector Coffee Organisations, Farmers organisations involved in the coffee sector

How was the output used?

Public awareness raising: Research outputs have been used in more than 30 press articles either by citing results of the studies or printing interviews of CIAT researcher talking about the studies.
Round table: The results shocked farmer organisations and the private sector, and following a recommendation in the policy brief, a coffee climate change round table is being established in Nicaragua.
National policy in Nicaragua: Engagement with the government of Nicaragua resulted in the citation of these results in their National Plan for Adaptation in the Agricultural Sector, and the development of explicit strategies for addressing the challenges of progressive climate change in the coffee sector in the country.
Potential private sector investment: Green Mountain COffee Roasters used results form CIAT in 2008 in addition to results of the climate change studies to directly invest US$15m in livelihoods and diversification to get coffee farmers through the thin months, when they face significant food insecurity due to a long dry season. They are also considering adopting the concept of carbon insetting to support adaptation to climate change of their supply chains smallholder farmers.

What is the evidence for this outcome: Specifically, what kind of study was conducted to show the connection between the research and the outcome? Who conducted it? Please provide a reference or source.

Raised awareness of the impacts of climate change on coffee (suitability, yield and quality) through over 30 press releases on coffee and climate change where CIAT studies are cited or CIAT scientists were interviewed. Some examples:

Al Gore Climate reality project: http://www.ciatnews.cgiar.org/category/ciat-media/
BBC: http://www.bbc.co.uk/mundo/noticias/2011/06/110630_cafe_cambio_climatico_ciat_am.shtml
Reuters: http://www.reuters.com/article/2012/12/19/mexico-climate-idUSL1E8LCFBJ20121219
2 degrees up movie in all the media and youtube: http://www.ciatnews.cgiar.org/2012/06/19/two-degrees-up-climate-change-films-published-by-reuters-alertnet/
Worldenvironment.tv: http://www.worldenvironment.tv/index.php?option=com_content&view=article&id=1322:starbucks-prepares-for-disrupted-coffee-production-due-to-climate-change&catid=46:global-warming&Itemid=122

Formal expert meeting and round table to discuss the implications of climate change and coffee: http://spanish.peopledaily.com.cn/31614/7919477.html

Nicaragua national policy: No public link available. Strategy available please contact p.laderach@cgiar.org.

Green Mountain Coffee Roasters livelihoods program. Some information is available in their sustainability report: http://gmcr.com/~/media/Sustainability/PDF/ReportsDisclosures/SustainabilityReportFY12.ashx

OUTCOME 2

What is the outcome of the research (use of research results by non-research partners)?

During 2011 the Norwegian Government funded the Global Crop Diversity Trust and the Kew Millennium Seed Bank to establish a 10-year US$50m programme focused on crop wild relative collection and pre-breeding for climate change adaptation. Research led by CIAT scientists over the previous 5-6 years and regular discussions with the Global Crop Diversity Trust were fundamental in the prioritizing and design of the programme. During 2012, CCAFS-led vulnerability analyses for 28 prioritised crops led to the selection of priority traits for pre-breeding with collected materials.

What outputs produced in the three preceding years resulted in that outcome?

Maxted, N.; Dulloo, E; Ford-Lloyd, B.V.; Iriondo, J.M.; Jarvis, A. 2008. Gap analysis: a tool for complementary genetic conservation assessment. Diversity and Distributions p. 1-13.
Hijmans, R.J.; Jarvis, A.; Guarino, L. 2008. Climate envelope modeling: Inferring the ranges of species to facilitate biological exploration, conservation planning, and threat analysis . p. 244-254 In Problem-solving in conservation biology and wildlife management (2nd edition). Blackwell (UK)
Jarvis, A.; Lane, A.; Hijmans, R.J. 2008. The effect of climate change on crop wild relatives. Agriculture, Ecosystem & Environment 126:13-23.
Van Zonneveld, M.; Jarvis, A.; Dvorak, W.; Lema, G.; Leibing, C. 2009. Climate change Impact predictions on Pinus patula and pinus tecunumanii populations in Mexico and Central America, Forest Ecology and Management, 257(7): 1566-1576.
Jarvis, A.; Upadhyaya, H.; Gowda, CLL.; Aggarwal, PK.; Fujisaka, S.; Anderson, B. 2010. Climate Change and its effect on conservation and use of plant Genetic Resources for Food and Agriculture and associated biodiversity for food security. In FAO Thematic Background study. 27 p.
Maxted N., Shelagh Kell, Álvaro Toledo, Ehsan Dulloo, Vernon Heywood, Toby Hodgkin, Danny Hunter, Luigi Guarino, Andy Jarvis & Brian Ford-Lloyd. 2010. A global approach to crop wild relative conservation: securing the gene pool for food and agriculture. KEW BULLETIN VOL. 65: 561–576.
Ramirez, J.; Khoury, C.; Jarvis, A.; Debouck, D.G.; Guarino, L., 2010. A Gap analysis methodology for collecting crop genepools: a case study with Phaseolus beans. PLOS one, 5(10), e13497,doi10.137/journal.phone.0013497.

What partners helped in producing the outcome?

Global Crop Diversity Trust, University of Birmingham, Bioversity International

Who used the output?

- Global Crop Diversity Trust
- Norwegian Government
- FAO Commission on Plant Genetic Resources for Food and Agriculture

How was the output used?

The research demonstrating the threats that crop wild relatives were under from climate change and habitat conversion, and the analyses showing the very poor conservation status of these genepools made crop wild relative collecting a high priority for fundraising for the Global Crop Diversity Trust. Parallel to this, papers by Nigel Maxted (with CIAT co-authors) demonstrated a shift in the patterns of use for crop wild relatives, showing clear potential in these genepools for providing the traits required to adapt crops to future climate stresses. These results were presented in the FAO Commission on Plant Genetic Resources, and also distributed as background papers top the State of the World on Plant Genetic Resources published by the FAO in 2010. The Global Crop Diversity Trust made this their highest priority for a new programme initiative, and secured a US$50m grant from the Norwegian Government to implement an ambitious 10 year program in collaboration with the Millenium Seed Bank to ensure collection and conservation of threatened genepools, and to fund pre-breeding programmes for traits deemed crucial to adapt crops to climate change. The project commenced in 2011, and CIAT is currently providing research support to the project in defining priorities for collecting.

What is the evidence for this outcome: Specifically, what kind of study was conducted to show the connection between the research and the outcome?

• The website of the programme available here: http://www.cwrdiversity.org/home/

• Reports from two Bellagio workshops organized by the Global Crop Diversity Trust in which CIAT participated where many of the ideas were discussed and developed (available upon request)

• FAO Commission documents available online: http://www.bioversityinternational.org/fileadmin/bioversityDocs/Policy/Access_and_Benefit_Sharing/CGIAR%202009%20FAO%20Commission_Impact%20Climate%20Change_ak532e.pdf, and associated commentaries provided by FAO staff here http://climate-l.iisd.org/guest-articles/the-work-of-the-commission-on-genetic-resources-for-food-and-agriculture/

Ministerio Agropecuario y forestal

Plan de Adaptación a la variabilidad y el Cambio Climático en el Sector Agropecuario, Forestal y Pesca en Nicaragua

Este documento contiene los elementos básicos para impulsar el Plan de acción 2010-2015 de la Estrategia Nacional Ambiental y del Cambio Climático como un Plan de adaptación en los sectores agropecuario, forestal y pesca.

El Centro Internacional de Agricultura Tropical (CIAT), indica que en Nicaragua para el año 2050 las áreas para producir café se reducirán en dos terceras partes, la temperatura aumentará en 2.4 grados centígrados, y las lluvias se reducirán en 120 milímetros por mes. El café nicaragüense, que crece a 800 metros sobre el nivel del mar, necesitará "escalar" a los 1,200 metros para mantener su calidad y productividad. Las oportunidades no serán las mismas para los productores. De 300 mil hectáreas disponibles hoy en día, quedarán 100 mil, sin tomar en cuenta los problemas que desde ya enfrenta el secado del café al sol.

Translation:
"The International Center for Tropical Agriculture (CIAT), shows that by 2050 in Nicaragua the areas to produce coffee will decrease by two-third, the temperature will increase by 2.4 degrees Celsius and the precipitation will reduce by in average 120 mm. The coffee areas in Nicaragua at 800 masl will have to move up to 1200 masl in order to maintain their quality and productivity. The opportunities will not be the same for all the farmers. From the todays 300 thousand hectares suitable for coffee production today only 100 thousand hectares will remain, this without counting the current problems with coffee drying under sun."

Gender and Social Differentiation related activities summary report - 2012

CRPs that have presented their Gender Strategy to the Consortium in 2012 should show progress in 2013 in relation to implementing the Strategy. Therefore it is expected from Program Participants that findings of gender and social differentiation activities and their significance to be referred in this summary report. It is essential to relate progress towards outcomes to the baseline gender-differentiated conditions being used to measure change. This report should also refer specifically to what is being learnt about gender and how this knowledge is being used to inform research priority-setting and approach. If none or few of your activities integrate gender please explain why it is not relevant to your research portfolio.

CCAFS Center Led Activities
CIAT - Centro Internacional de Agricultura Tropical

In 2012 CIAT began to include gender into its CCAFS activities. New CIAT/CCAFS capacity in gender research and analyses with the hiring of Dr. Jennifer Twyman, a gender specialist that will primarily be working on gender research within CIAT CCAFS Theme 1 activities. Her 2012 outputs include the following: 1) Assisting in the design of an intra-household, gender-focused survey instrument in collaboration with several other CG centers and CRP gender experts (including a literature review of other similar surveys); 2) Field testing and refining this new survey instrument in Nyando, Kenya (two and half weeks of fieldwork); 3) Working with the new Gender and Agriculture Research Network, a cross-center/CRP gender network and assisting with plans for inter-center collaboration on CCAFS-supported gender work and capacity strengthening of partners in gender and climate change analysis; 4) Participating in a CIAT/CCAFS interdisciplinary project, Playing Out Transformative Adaptation in CCAFS Benchmark Sites in East Africa: When, Where, How, and With Whom?, in four CCAFS sites in East Africa (Nyando, Kenya; Hoima, Uganda; Usambara, Tanzania; and Borana, Ethiopia) to include gender activities in the participatory workshops and questions in a follow-up survey (this work entailed about 3 weeks of fieldwork); 5) Meetings aimed at strengthening partnerships for CIAT and CCAFS in gender-related work (included meetings with professors from the University of Florida, other CGIAR scientists from IFPRI, ILRI, and ICRAF, as well as local partners in Kenya and Uganda); 6) Meetings with other scientists within CIAT to learn about opportunities for including gender components in other CIAT/CCAFS activities; and 7) Assisting in the design of impact and evaluation survey instruments of rice production in Latin America that include questions for collecting data for gender and climate change analyses (data was collected from Peru and is planned for Bolivia).

CIAT also implemented an MOU with the Gender and Climate Change working group (composed of several professors from various disciplines) at the University of Florida to support Jennifer and other CIAT/CCAFS scientists in gender work. Under this MOU, Prof. Carmen Diana Deere visited CIAT in August and initial research plans were created