East Africa Climate-Smart Villages AR4D Sites: 2016 Inventory
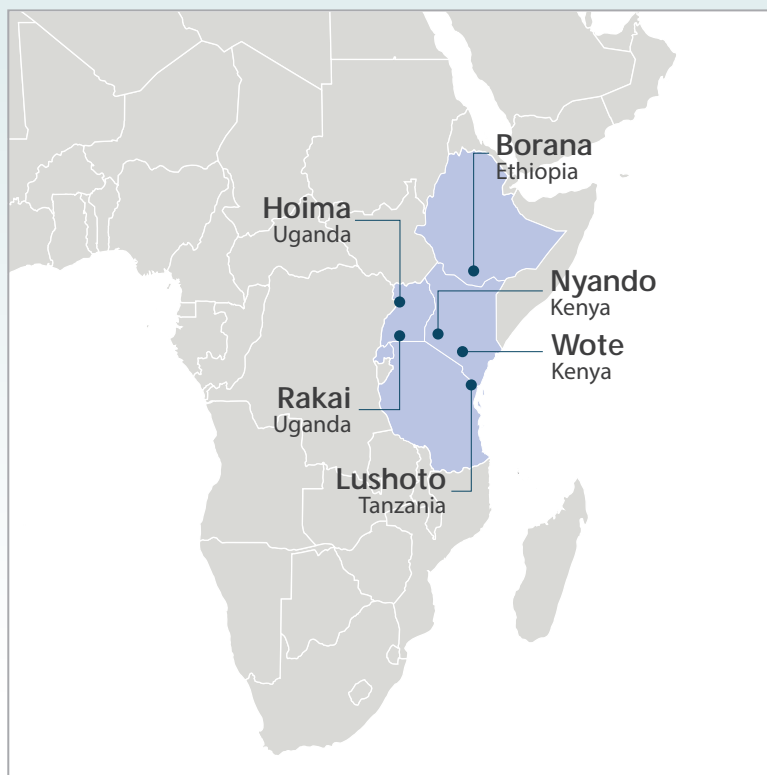
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CCAFS

Borana
Ethiopia

Hoima
Uganda

Nyando
Kenya

Wote
Kenya

Rakai
Uganda

Lushoto
Tanzania

CIAT 50 1967–2017

CIP INTERNATIONAL POTATO CENTER

ICRISAT INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS

IITA Transforming African Agriculture

50 1967 – 2017

ILRI INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

KALRO Kenya Agricultural & Livestock Research Organization

HARAMBEE

NARO

MAKERERE UNIVERSITY

SOKOINE UNIVERSITY OF AGRICULTURE "1984" ARDHI NI HAZINA

TANZANIA METEOROLOGICAL AGENCY MAMLAKA YA HALI YA HEWA TANZANIA

Vi AGROFORESTRY

Inventory of CSA practices in East Africa's Climate-Smart Villages

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CCAFS
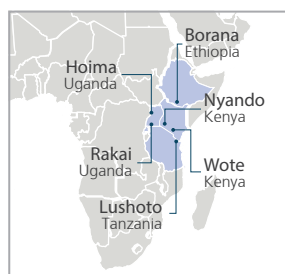
Total practices: 5

Practices with mitigation potential: 2

♀ Gender impact assessed for: 3

♀ Potential gender impact known for: 5

CSA sub-practice	Mitigation potential	Country	CSV sites	Crop	Tested	Evaluated	# HH[1]	Gender assessed	Potential gender impacts
Improved breeds (small ruminants)	X	Kenya	Nyando	Galla Goats, Red Maasai Sheep	X	-	1900	-	X
Improved varieties	-	Kenya	Nyando	Sorghum, Pigeon pea, Beans, Maize	X	-	2350	-	X
	-		Wote	Sorghum, Pearl millet, Maize, Pigeon pea, Cowpea, Green grams	X	-	750	-	X
	-	Uganda	Hoima	Sorghum, Finger millet, Beans, Maize, Cassava, Sweet potatoes	X	-	2200	-	X
	-		Rakai	Maize, Beans, Sweet potatoes, Cassava	X	-	-	-	X
		Tanzania	Lushoto	Casava, Beans, Maize	X	-	1600	-	X
Intercropping	-	Kenya	Nyando	Sorghum-Pigeon pea, Beans-Maize	X	-	2350	-	X
	-		Wote	Sorghum-Pigeon pea, Sorghum-Cowpea, Maize-Beans	X	-	750	-	X
	-	Uganda	Hoima	Beans, Maize	X	-	2200	-	X
	-		Rakai	Beans, Maize	X	-	-	-	X
	-	Tanzania	Lushoto	Cassava, Beans, Maize	X	-	1600	-	X
Intercropping (tree planting)	X	Kenya	Nyando	Casuarina, Grevillea	X	-	800	-	X
	X		Wote	Fruit Trees, Casuarina, Grevillea	X	-	400	-	X
	X	Uganda	Hoima	Casuarina, Grevillea, Fruit trees	X	-	700	-	X
	X		Rakai	Grevillea, Mangoes	X	-	-	-	X
	X	Tanzania	Lushoto	Casuarina, Grevillea, Fruit trees	X	-	650	-	X
Water harvesting	-	Kenya	Nyando		X	-	150	-	X
			Wote		X	-	350	-	X
	-	Uganda	Hoima		X	-	100	-	X
			Rakai		X	-	-	-	X
	-	Tanzania	Lushoto		X	-	300	-	X

[1] HH: households

Inventory of CSA practices in East Africa's Climate-Smart Villages

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Agro-Met service	Country	CSV sites	Tested	Evaluated	# HH	Potential gender impacts
Seasonal forecast	Kenya	Nyando	X	-	2350	X
		Wote	X	-	750	X
	Uganda	Hoima	X	-	2200	X
		Rakai	-	-	-	X
	Tanzania	Lushoto	X	-	1600	X

Market services	Country	CSV sites	Available	Tested	Evaluated	# HH	Gender assessed	Potential gender impacts
Imput subsidies	Kenya	Nyando	-	X	-	-	-	X

Financial services	Country	CSV sites	Available	Tested	Evaluated	# HH	Gender assessed	Potential gender impacts
Capacity building/ Technical assistance (by dev agencies/ programs)	Kenya	Nyando	X	-	-	2350	-	X
		Wote	-	-	-	750	-	X
	Uganda	Hoima	X	-	-	2200	-	X
		Rakai	-	-	-	-	-	X
	Tanzania	Lushoto	X	-	-	1600	-	X
Informal individual credits/loans	Uganda	Rakai	-	-	-	-	-	X
Informal group loans	Kenya	Nyando	X	-	-	2350	-	X
		Wote	-	-	-	750	-	X
	Uganda	Hoima	X	-	-	2200	-	X
		Rakai	-	-	-	-	-	X
	Tanzania	Lushoto	X	-	-	1600	-	X

Contacts

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Acknowledgments
This CSV inventory was implemented as part of CCAFS Flagship 2 activities under the global and regional coordination of Osana Bonilla-Findji and John Recha, respectively. We would like to acknowledge the valuable support of our local partners and focal points from each site.

Climate-Smart Village Nyando (Kenya)

1100-2500 m.a.s.l

1-5 Ha Farm size

467 HH

64% Headed HH

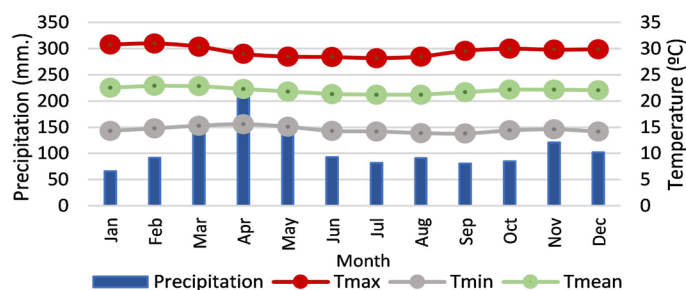Photo: T.Muchaba (CCAFS)

Photo: K. Trautmann

Main crops and livestock ♀ Women specific

Food: beans, maize, green grams, pigeon pea, cowpeas, sweet potatoes ♀
Food/cash: sorghum, finger millet ♀, tomatoes, kales, cassava ♀, bananas ♀, sheep ♀, goat ♀♂, cow, fish, chicken

Climate-related risks

High rainfall variability in the expected onset, long dry spells and extreme flooding during the late onset. Extensive soil erosion leading to land degradation affecting about 40% of the landscape
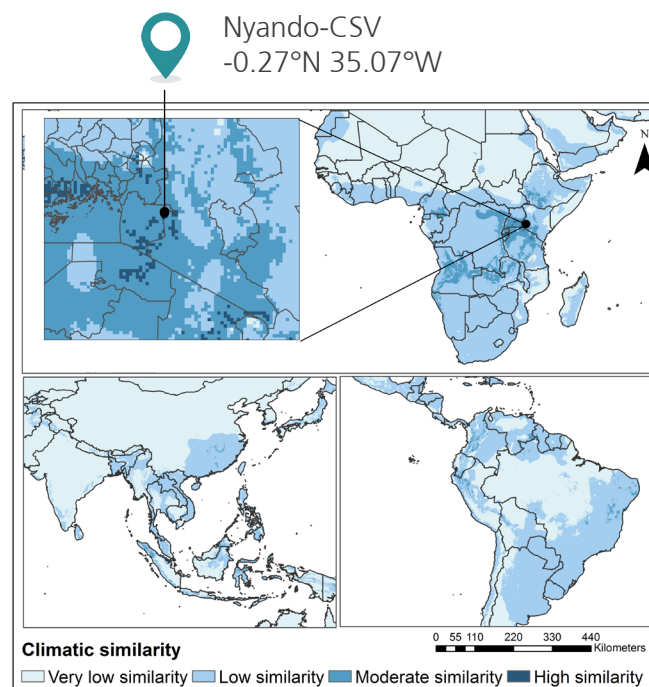
Climatic conditions

Source: www.worldclim.org

Parameter	Amount	Narrative
Total annual P	1.337 mm	In a single rainy season of 524 mm (Mar-May) and a dry season of 813 mm (Jun-Feb)
Max # of consecutive dry months	5 months (< 100 mm)	
Max T rainy season	30.4^{0}C	
Max T dry season	31.0^{0}C	
Highest Tmin	15.6^{0}C	April

*CCAFS Household (2011), Community and Gender baselines (2014)

Areas of climatic similarity

Nyando-CSV
-0.27°N 35.07°W

Climatic similarity
☐ Very low similarity ☐ Low similarity ☐ Moderate similarity ■ High similarity

Areas whose future projected climate (by 2030) is similar to the current climate in this CSV

Source: www.ccafs-analogues.org

Climate-Smart Village Nyando (Kenya)

RESEARCH PROGRAM ON
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1100-2500 m.a.s.l	1-5 Ha Farm size	467 HH	64% Headed HH

2016: Field testing of CSA portfolio and # of households involved

- **i** Tested
- Evaluated
- Tested & Evaluated
- **U** Mitigation potential
- Households
- ▲ Available in Site, not by CCAFS
- ♀ Gender aspect assessed
- ♀ Potential gender impact

CSA Practices

Practice	HH
♀ Tree planting (casuarina, grevillea)	800
♀ Improved breeds (Galla goats, Red maasai sheep)	1900
♀ Improved varieties (sorghum, pigeon pea, beans, maize sheep)	2350
♀ Water harvesting	150
♀ Intercropping (sorghum-pigeon pea, beans-maize)	2350

Agro-climatic services **i**

Service	HH
♀ Seasonal forecast	2350

Financial services

Service	HH
♀ i Capacity building tech. assistance	2350
♀ i Informal group loans	2350

Market incentives

Service	HH
♀ i Input subsidies	—

Flagship projects

- Regional and national engagement, synthesis and strategic research (incl. PAR in CSVs)
- Analyzing the science-policy-practice interface in climate change adaptation in East and West Africa

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Partners

ILRI INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

KALRO Kenya Agricultural & Livestock Research Organization

Vi AGROFORESTRY

International Livestock Research Institute (ILRI), Kenya Agricultural and Livestock Research Organization (KALRO), Kenya Meteorological Department Kericho and Kisumu County Departments of Agriculture, Livestock and Fisheries, Vi Agroforestry

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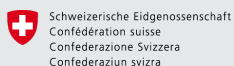
Climate-Smart Village Wote (Kenya)

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Climate Change, Agriculture and Food Security
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CCAFS

900-1000 m.a.s.l

1-5 Ha Farm size

276 HH

66% Headed HH

Photo: S.Kilungu (CCAFS)

Main crops and livestock ⚭ Specific

Food: beans♀, maize, sorghum, green grams ♀, cowpea
Food/cash: pearl millet, pigeon peas, goat♀, cow♀ poultry ♀

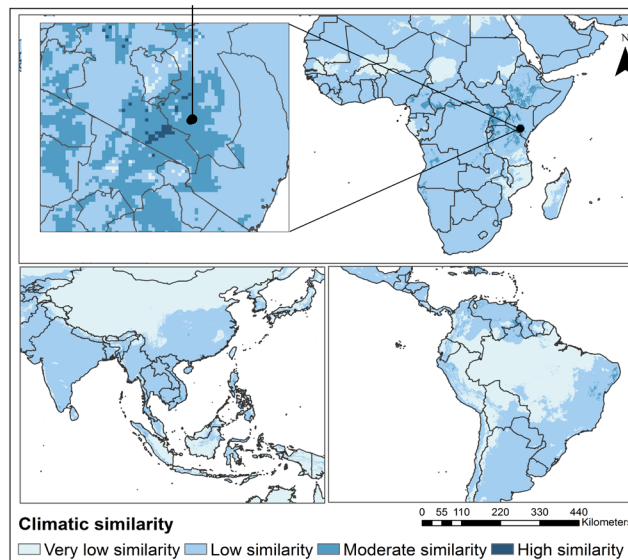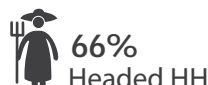## Climatic conditions
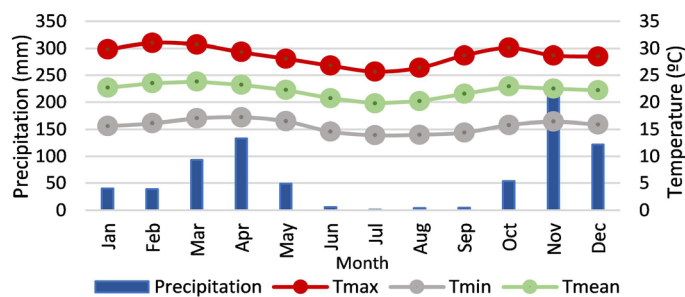
Source: www.worldclim.org

Parameter	Amount	Narrative
Total annual P	770 mm	Divided in two rainy season of 275 mm (Mar-May) and 400 mm (Oct-Dec) and a dry season of 95 mm.
Max # of consecutive dry months	6 months (< 100 mm)	
Max T rainy season	30.7°C	
Max T dry season	31.0°C	
Highest Tmin	17.2°C	April

Climate-related risks

Low rainfall amounts and poorly distributed. High variability seasons also in the expected onset and cessation. Long dry spells and more frequent drought. Water stress and erosion. High temperature and evaporation rates leading to water stress. Erosion on landscape and increased pest and disease incidences.

Areas of climatic similarity

Wote-CSV
-1.80°N 37.72°W

Climatic similarity
☐ Very low similarity ☐ Low similarity ☐ Moderate similarity ☐ High similarity

Areas whose future projected climate (by 2030) is similar to the current climate in this CSV

Source: www.ccafs-analogues.org

Climate-Smart Village Wote (Kenya)

RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security
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- 900-1000 m.a.s.l
- 1-5 Ha Farm size
- 276 HH
- 66% Headed HH

2016: Field testing of CSA portfolio and # of households involved

- **i** Tested
- Evaluated
- Tested & Evaluated
- **U** Mitigation potential
- Households
- ▲ Available in Site, not by CCAFS
- ♀ Gender aspect assessed
- ♀ Potential gender impact

CSA Practices

Practice	HH
♀ Tree planting (fruit trees, casuarina, grevillea)	400
♀ Improved varieties (sorghum, pearl millet, maize, pigeon pea, cowpea, green grams)	750
♀ Water harvesting	350
♀ Intercropping (sorghum-pigeon pea, sorghum-cowpea, maize-beans)	750

Agro-climatic services

Service	HH
♀ Seasonal forecast	750

Financial services

Service	HH
♀▲ Capacity building tech. assistance	750
♀ i Informal group loans	750

Market incentives

Service	HH
♀ i Input subsidies	—

Flagship projects

- Regional and national engagement, synthesis and strategic research (incl. PAR in CSVs)
- Analyzing the science-policy-practice interface in climate change adaptation in East and West Africa

Contacts

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Partners

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International Livestock Research Institute (ILRI), Kenya Agricultural and Livestock Research Organization (KALRO), Kenya Meteorological Department Kericho and Kisumu County Departments of Agriculture, Livestock and Fisheries

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Climate-Smart Village Lushoto (Tanzania)

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900-2250 m.a.s.l

0.1-1 Ha Farm size

3315 HH

22% Headed HH

Photo: H. Dieudonne (CIP)

Main crops and livestock ⚭→ Specific

Food: beans♀ , maize, irish potato
Food/cash: cabbages, tomatoes, cassava ♀, sweet potatoes ♀, cow ♀, chicken
Cash: fruits

Climatic conditions
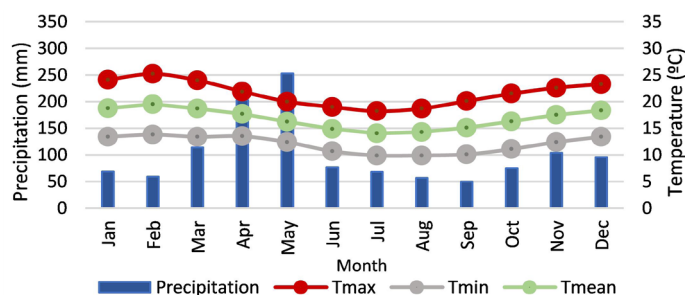
Source: www.worldclim.org

Parameter	Amount	Narrative
Total annual P	1225 mm	Divided in two rainy season of 570 mm (Mar– May) and of 275 mm (Oct-Dec) a dry season of 380 mm.
Max # of consecutive dry months	5 months (< 100 mm)	
Max T rainy season	24.0°C	
Max T dry season	25.2°C	
Highest Tmin	13.8°C	February

Climate-related risks

Rainfall variability, late in expected onset and early cessation, long dry spells, land degradation through erosion, and floods in lowlands. Upsurge in crop and livestock pests and diseases.

Areas of climatic similarity

Lushoto-CSV
-4.79°N 38.41°W

Climatic similarity
☐ Very low similarity ☐ Low similarity ☐ Moderate similarity ☐ High similarity

Areas whose future projected climate (by 2030) is similar to the current climate in this CSV

Source: www.ccafs-analogues.org

Climate-Smart Village Lushoto (Tanzania)

900-2250 m.a.s.l

0.1-1 Ha Farm size

3315 HH

22% Headed HH

RESEARCH PROGRAM ON **Climate Change, Agriculture and Food Security**

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2016: Field testing of CSA portfolio and # of households involved

i Tested   Evaluated   **⚑** Tested & Evaluated   **U** Mitigation potential   Households

▲ Available in Site, not by CCAFS   ♀ Gender aspect assessed   ♀ Potential gender impact

CSA Practices	Agro-climatic services **i**	Financial services	Market incentives
♀⚑ <u>Tree planting</u> 650 (casuarina, grevillea, fruit trees)	♀**i** Seasonal forecast 1600	♀▲ Capacity building tech. 1600	♀**i** Input subsidies —
♀**i** Improved varieties 1600 (cassava, potatoes, beans, maize)		♀▲ Informal group loans 1600	
♀⚑ Water harvesting 300			
♀⚑ Intercropping 1600 (beans, maize, cassava)			

Flagship projects

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CSV profile developed by Osana Bonilla-Findji, Patricia Alvarez-Toro and Julian Ramirez-Villegas

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Climate-Smart Village Hoima (Uganda)

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620-1600 m.a.s.l

1-5Ha Farm size

989 HH

22% Headed HH

Photo: CGIAR

Photo: P. Casier (CGIAR)

Main crops and livestock ⊶ Specific

Food: maize, beans ♀, cassava ♀, sweet potatoes ♀
Food/cash: finger millet ♀, sorghum ♀, banana, cows sheep, goats, pigs, poultry ♀
Cash: coffee ♂

Climate-related risks

Rainfall variability, late in expected onset, long dry spells and floods in lowlands. Widespread soil erosion affecting 20% of the landscape, and declining soil fertility.

Climatic conditions
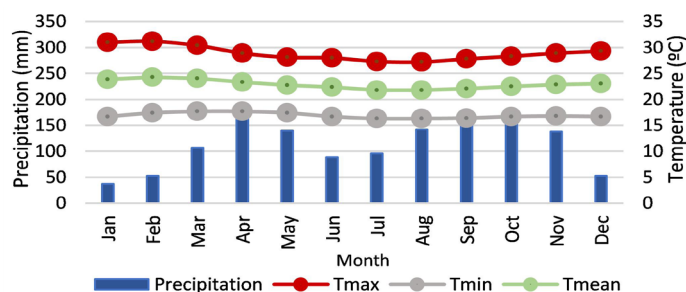
Source: www.worldclim.org

Parameter	Amount	Narrative
Total annual P	1400 mm	Divided in two rainy season of 800 mm (Mar-May) and of 550 mm (Aug-Nov) and a dry season of 50 mm.
Max # of consecutive dry months	3 months (< 100 mm)	
Max T rainy season	30.4°C	
Max T dry season	31.2°C	
Highest Tmin	17.7°C	March, April

Areas of climatic similarity

Hoima-CSV
-1.53°N 31.54°W

Climatic similarity
Very low similarity Low similarity Moderate similarity High similarity

Areas whose future projected climate (by 2030) is similar to the current climate in this CSV

Source: www.ccafs-analogues.org

Climate-Smart Village Hoima (Uganda)

620-1600 m.a.s.l

1-5Ha Farm size

989 HH

22% Headed HH

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📁 2016: Field testing of CSA portfolio and # of households involved

i Tested   Evaluated   🚩 Tested & Evaluated   **U** Mitigation potential   Households

🔺 Available in Site, not by CCAFS   ♀ Gender aspect assessed   ♀ Potential gender impact

CSA Practices 🌱⚙	Agro-climatic services **i**	Financial services 💲	Market incentives 🛒
<u>Tree planting</u> **700** (casuarina, grevillea, fruit trees)	Seasonal forecast **2200**	Capacity building tech. assistance **2200**	Input subsidies **—**
Improved varieties (maize, sorghum, finger millet, beans, cassava, sweet potatoes) **2200**		Informal group loans **2200**	
Water harvesting **100**			
Intercropping (beans-maize) **2200**			

Flagship projects

- Regional and national engagement, synthesis and strategic research (incl. PAR in CSVs)
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Partners

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Hoima District Government, Hoima District Farmers Association (HODFA), International Center for Tropical Agriculture (CIAT), International Institute of Tropical Agriculture (IITA), Makerere University, National Agricultural Research Organization (NARO) Bulindi

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Climate-Smart Village Rakai (Uganda)

620-1600 m.a.s.l

1-5Ha Farm size

675 HH

19% Headed HH

Photo: N. Palmer (CIAT)

Photo: J.Recha (CCAFS)

Main crops and livestock
⟲⟳ Specific

Food: maize, banana, cassava♀, sweet potatoes♀ ground nuts♀, beans♀
Food/cash: finger millet ♀, sorghum ♀, mangos, cows, goats, pigs, poultry ♀

Climatic conditions
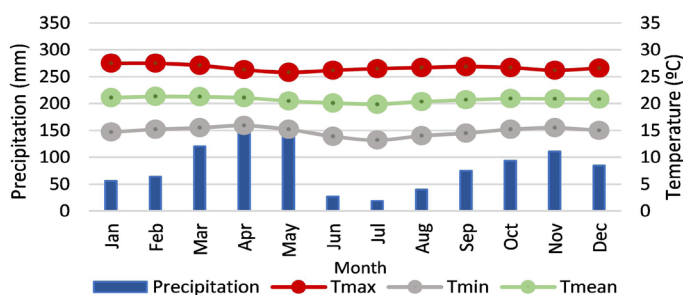
Source: www.worldclim.org

Parameter	Amount	Narrative
Total annual P	1000 mm	Divided in two rainy seasons of 635 mm (Mar - May) and of 365 mm (Sep-Dec).
Max # of consecutive dry months	5 months (< 100 mm)	
Max T rainy season	27.1°C	
Max T dry season	27.5°C	
Highest Tmin	15.9°C	April

*CCAFS Household (2011) and Gender baselines (2014), ImpactLite (2013)

Climate-related risks

Rainfall variability, late in expected onset and early cessation. Long dry spells, frequent drought events, and floods when it rains. Widespread soil erosion affecting 30% of the landscape, and declining soil fertility.

Areas of climatic similarity

Rakai-CSV
-0.62°N 31.48°W
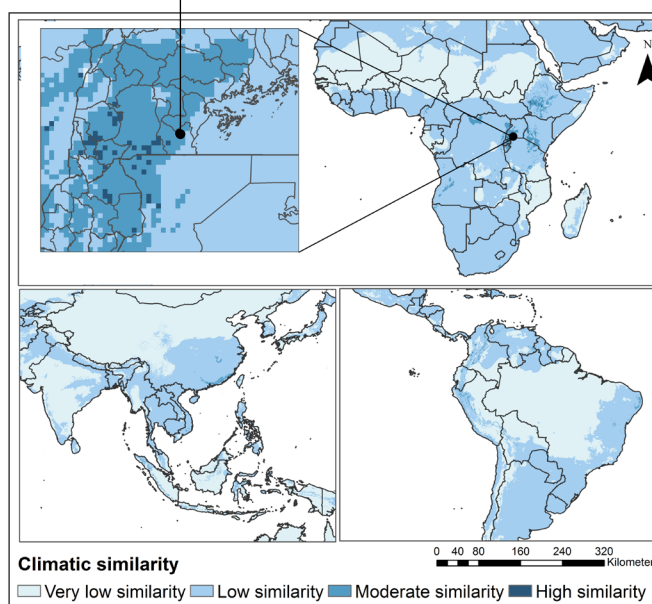
Climatic similarity
☐ Very low similarity ☐ Low similarity ☐ Moderate similarity ☐ High similarity

Areas whose future projected climate (by 2030) is similar to the current climate in this CSV

Source: www.ccafs-analogues.org

Climate-Smart Village
Rakai (Uganda)

RESEARCH PROGRAM ON
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620-1600 m.a.s.l   1-5Ha Farm size   675 HH   19% Headed HH

2016: Field testing of CSA portfolio and # of households involved

i Tested   Evaluated   ⚑ Tested & Evaluated   U Mitigation potential   Households

▲ Available in Site, not by CCAFS   ♀ Gender aspect assessed   ♀ Potential gender impact

CSA Practices 🌿⚙	Agro-climatic services i	Financial services 💲	Market incentives 🛒
♀i <u>Tree planting</u> — (Grevillea, mangoes)	♀▲ Seasonal forecast —	♀▲ Capacity building tech. assistance —	♀▲ Input subsidies —
♀i Improved varieties (maize, beans, sweet potatoes, cassava) —		♀▲ Informal - individual - credits/loans	
♀i Water harvesting —		♀▲ Informal group loans	
♀i Intercropping — (beans-maize)			

Flagship projects

- Regional and national engagement, synthesis and strategic research (incl. PAR in CSVs)
- Analyzing the science-policy-practice interface in climate change adaptation in East and West Africa

Partners

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

MAKERERE UNIVERSITY

NARO

International Livestock Research Institute (ILRI), Makerere University, National Agricultural Research Organization (NARO), Rakai District Government

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