

CCAFS EAST AFRICA

Site: Makueni/Wote, Kenya



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



Photo: K. Trautmann (CCAFS)

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Introduction

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is a strategic partnership of CGIAR and Future Earth led by the International Center for Tropical Agriculture (CIAT). CCAFS brings together the world's best researchers in agricultural science, development research, climate science and Earth System science to identify and address the most important interactions, synergies and trade-offs between climate change, agriculture and food security.

CCAFS is focusing its research for development efforts in five regions, East and West Africa, South and Southeast Asia as well as Latin America, working in 25 research sites. The regions represent areas that are particularly vulnerable to climate change, and the sites are focal locations to generate knowledge and learning that can be applied and adapted to other regions worldwide.

Extensive baselines have been implemented at all CCAFS sites and consist of analysed information collected at three levels: households, communities and organisations. The baselines capture the big picture of how farmers are changing their practices in light of climate change and other pressures. The aim is to revisit the same communities and households in five and again in ten years to document changes in livelihoods, resource management practices and other factors over time

and update these indicator documents accordingly. The CCAFS baseline is a key component of the program's monitoring and evaluation system.

This document series compiles key indicators from the three levels of the baseline for each site. Indicators include: demography and basic site characteristics of each site, rainfall distribution, changes in farming practices and land management, income sources, food security and food sources, asset ownership by households and involvement in organisations and more.

This CCAFS baseline indicator document was developed for the CCAFS site at Makueni/Wote, in Kenya.

The baseline indicator series is complemented by CCAFS site atlases, that include site maps with climate information, biophysical characteristics and socio-economic factors. Site maps are available at: www.ccafs.cgiar.org/atlas-ccaafs-sites

Download the baseline tools, data and reports:
www.ccafs.cgiar.org/resources/baseline-surveys

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Sources

Throughout this document the sources of data for the indicators are colour coded as follows:



CCAFS Household baseline study



CCAFS Village baseline study



CCAFS Organisational baseline study

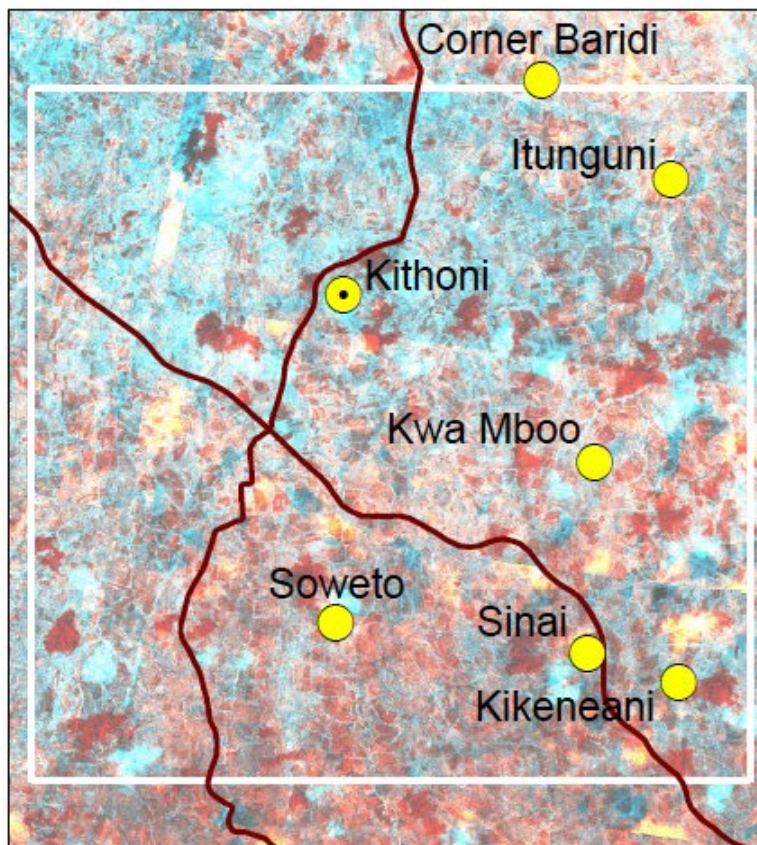
Map

Country: Kenya



□ Site location

CCAFS Sampling Frame: Makueni - Wote



CCAFS Site Name (ID):
Makueni (KE02)

CCAFS Sampling Frame
Name (ID): Wote (02)

Road

CCAFS VBS / OBS Village

CCAFS HBS Village

Coordinates of the CCAFS
Sampling frame

37.724E 1.809S

37.724E 1.900S

37.630E 1.900S

37.630E 1.809S

Source: L. Förch, W. et al. 2013. Core Sites in the CCAFS Regions: East Africa, West Africa and South Asia, Version 3. Copenhagen: Denmark. CCAFS

Demography and basic site characteristics

	Baseline	Mid-term	Final
Ratio of women headed households	28%		

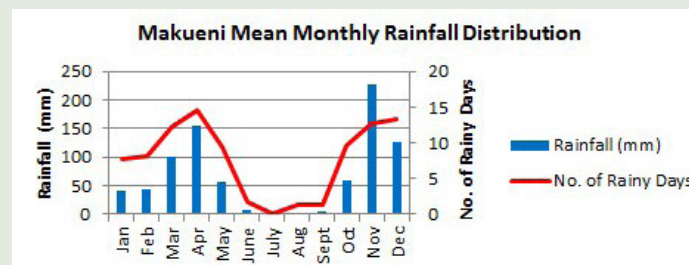
% households of different sizes

Number of people in the household	Baseline	Mid-term	Final
1	4%		
2	4%		
3	7%		
4	14%		
5	23%		
6	20%		
6+	28%		

Area of land cultivated (ha)*	198.04		
Average (mean) per household (ha)	1.41		

Highest level of education obtained by any household member

No formal education	1%		
Primary	43%		
Secondary	38%		
Post-secondary	18%		



Source: MarkSim¹

Ratio of local organisations to total number of organisations named*

	Baseline	Mid-term	Final
Men's group	8/17		
Women's group	16/27		

* Organisations have been recoded by CCAFS researchers from original data (participant perceptions of community, local and beyond local) to categories of local and external.

*Area of land cultivated (ha) is the total amount of owned or rented land used for growing food or aquaculture

¹Source: Jones P G, Thornton P K, Diaz W and Wilkens P W. 2002. MarkSim, a computer tool that generates simulated weather data for crop modeling and risk assessment. Version 1, 2002. CD-ROM and Users Manual. CIAT, AA6713, Cali, Colombia, 87 pp.

Changes in farming practices and drivers of changes in resources

% households introducing 3 changes or more	Baseline	Mid-term	Final
Crop	94%		
Water	1%		
Soil	89%		
Tree/agroforestry	83%		
Livestock	61%		
Adaptation			
% households reporting changes to their agricultural practices			
0-1 change	0%		
2-10 changes	4%		
11 or more changes	96%		
Mitigation			
% households doing			
Tree management*			
Yes	83%		
No	17%		
Soil management			
None	9%		
Some	91%		
Intensification			
None	2%		
Low	69%		
High	29%		
Productivity			
No Increase	1%		
Some increase	99%		

Drivers of changes to crop production and land management

% households reporting this driver

	Baseline	Mid-term	Final
Markets	99%		
Weather/climate	100%		
Pest and Diseases	98%		
Labour	99%		
Land	100%		
Projects	98%		

Drivers of changes to livestock production*

% households reporting this driver

	Baseline	Mid-term	Final
Markets	100%		
Weather/climate	100%		
Pest and Diseases	99%		
Labour	99%		
Projects	99%		

Drivers of change in the community

Frequency with which they were mentioned in group discussions

	Men			Women		
	Baseline	Mid-term	Final	Baseline	Mid-term	Final
Population Growth	1			7		
Deforestation	0			0		
Pest and Diseases	0			0		
Information/Knowledge	0			0		
Land Demarcation/fragmentation	0			0		
Soil degradation/Erosion	0			0		
Rainfall Changes	1			2		
Charcoal Burning/Fuel	1			0		
Government	2			0		
Forest Fire/Bush burning	0			0		
Overuse	0			1		
Spiritual/Cultural/Religious	0			0		
Invasive tree species	0			0		
Increase in wealth	0			3		
Increase in livestock	0			1		
Social/Community conflicts	0			0		
Infrastructure	0			0		

*For tree/agroforestry changes these are the households who have either planted or protected trees within the last year

*For livestock changes these are the households who have made 3 of more of the changes in the livestock section

Livelihood diversification

	Baseline	Mid-term	Final
Source of Cash Income other than own farm			
Employment on someone else's farm	53%		
Other off-farm employment	34%		
Business	29%		
Remittances/gifts	42%		
Payments for environmental services	4%		
Payments from government or other projects/programs	11%		
Loan or credit from a formal institution	9%		
Informal loan or credit	36%		
Renting out farm machinery	7%		
Renting out your own land	9%		
No off-farm cash source	3%		
Product diversification			
% of households			
1-4 products (low)	5%		
5-8 products (intermediate)	35%		
9 or more products (high)	60%		
Selling/Commercialization Diversification:			
% of households			
No products sold	11%		
1-2 products sold (low)	47%		
3-5 products sold (intermediate)	34%		
6 or more products sold (high)	8%		

Food security

Food Security Index

% households	Baseline	Mid-term	Final
More than 6 hunger months/year	44%		
5-6 hunger months/	34%		
3-4 hunger months/	19%		
1-2 hunger months/	1%		
Food all year round/No hungry period	2%		

Food security organisational linkages

Men groups			
Organisation receives	Baseline	Mid-term	Final
Funding	0		
Capacity Building	0		
Food	0		
Organisation provides			
Funding	0		
Capacity Building	0		
Food	0		

Women groups			
Organisation receives	Baseline	Mid-term	Final
Funding	0		
Capacity Building	0		
Food	0		
Organisation provides			
Funding	0		
Capacity Building	0		
Food	0		

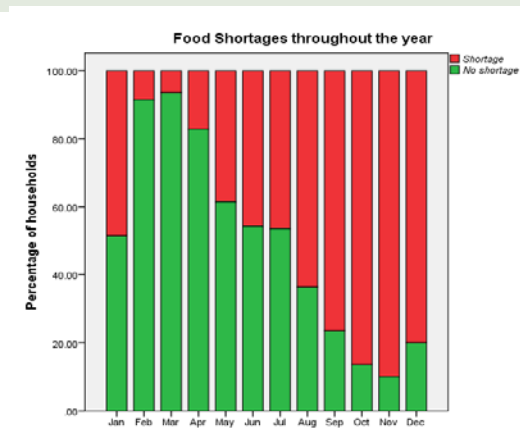
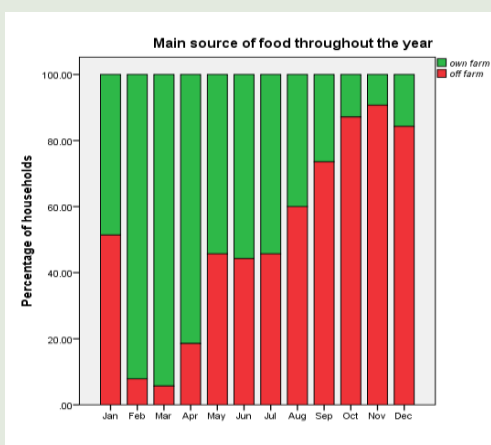
Source of food during highest and lowest shortage months

	Baseline	Mid-term	Final
% households mainly consuming from own farm in the month of highest shortage	9%		
% households mainly consuming from own farm in the month of lowest shortage	94%		

Ratio of local organisations to total number of organisations named in each area of food security work*

Men's group	Baseline	Mid-term	Final
Availability	1/3		
Access	0/2		
Utilisation	0/2		
Women's group	Baseline	Mid-term	Final
Availability	2/4		
Access	1/5		
Utilisation	1/5		

* Organisations have been recoded by CCAFS researchers from original data (participant perceptions of community, local and beyond local) to categories of local and external.



Collective action in natural resource management (NRM)

Resource	Gender	Discussed	Baseline	Mid-term	Final
Is there an issue with the resource?					
Irrigation	M	Yes	Water in dams is brown, bad, animals drink directly from dams. Owned and managed by the community		
	F	Yes	Poor quality water. Owned and managed by the community		
Farmland	M	Yes	Bad, not enough rainfall, Owned and managed individually.		
	F	Yes	Depletion of vegetation cover. Owned and managed individually.		
Forest	M	Yes	Not good, degraded, with few trees. Owned and managed individually.		
	F	No			
Pasture	M	No			
	F	Yes	Owned and managed individually.		
Markets	M	Yes	Bad, always closed, abandoned buildings (Kambi Mawe). Very active, good buildings (Kwa Kathoka), Theft, robbery.		
	F	No			
Is there a problem of access to the resource?					
Irrigation	M	Yes	Poor quality water.		
	F	Yes	access to water is seasonal. Siltation. River very far away from village. Very limited recharge by rainfall		
Farmland	M	No			
	F	Yes	Average of 4 Ha per HH, land is mostly inherited.		
Forest	M	Yes	reduced in size.		
	F	No			
Pasture	M	No			
	F	Yes	reduced in size.		
Markets	M	Yes	managed by individual owners		
	F	No			
Is there any local action in place to address the problem?					
Irrigation	M	Yes	Dams to collect water		
	F	Yes	Dams to collect water. Boreholes, provide water all year.		
Farmland	M	No			
	F	No			
Forest	M	No			
	F	No			
Pasture	M	No			
	F	No			
Markets	M	No			
	F	No			

Membership of organisations and organisational agendas

% households with at least one member belonging to organised groups

	Baseline	Mid-term	Final
Tree nursery/tree planting	20%		
Water catchment/management	3%		
Soil improvement related	2%		
Crop improvement related	6%		
Irrigation	6%		
Savings/credit related	77%		
Agricultural product marketing	2%		
Agricultural productivity enhancement related	20%		
Seed production	0%		
Vegetable production	2%		
Other group not mentioned above?	0%		
No groups	11%		

Ratio of local organisations involved in Natural Resource Management to total number of organisations involved in NRM*

	Baseline	Mid-term	Final
Men's group	1/3		
Women's group	1/4		

** Organisations have been recoded by CCAFS researchers from original data (participant perceptions of community, local and beyond local) to categories of local and external.*

Household assets

% household with assets by type	Baseline	Mid-term	Final
Basic level	9%		
Intermediate level	47%		
High level	44%		

% households ownership

Transport

Bicycle	64%		
Motorcycle	7%		
Car or Truck	4%		

Production

Tractor	1%		
Mechanical Plough	32%		
Mill	18%		
Water pump/Treadle pump	1%		
Thresher	1%		
Boat	0%		
Fishing Nets	1%		

Energy

Solar Panel	11%		
Generator	3%		
Battery	11%		
Biogas Digester	1%		
LPG	6%		

Information

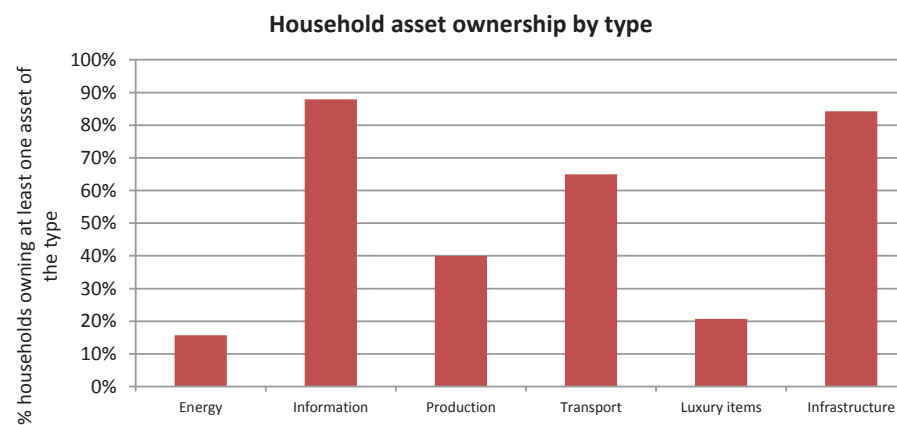
Radio	80%		
Television	11%		
Cell Phone	80%		
Computer	1%		
Internet Access	5%		

Luxury

Refrigerator	1%		
Air Conditioning	0%		
Electric Fan	0%		
Bank Account	21%		

Infrastructure

	Baseline	Mid-term	Final
Improved storage facility for crops	49%		
Water storage tank	19%		
Well/borehole	4%		
Running/tap water in dwelling	9%		
Electricity from a grid	2%		
Improved housing	72%		
Improved roofing	75%		
Separate housing for farm animals	67%		



Networks of information

Networks of information - Men Group

	Baseline	Mid-term	Final
Type of seed			
Family	No		
Friends	No		
Neighbours	No		
Old women	No		
Organisations	No		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Functions/Meetings	No		

Networks of information - Men Group

	Baseline	Mid-term	Final
Farming methods			
Family	No		
Friends	No		
Neighbours	No		
Old women	No		
Organisations	Yes		
Radio	No		
TV	No		
Newspaper	No		
Personal observation	No		
Functions/Meetings	No		

Networks of information - Men Group

	Baseline	Mid-term	Final
Market			
Family	Yes		
Friends	Yes		
Neighbours	No		
Old women	No		
Organisations	No		
Radio	No		
TV	No		
Newspaper	No		
Personal observation	No		
Functions/Meetings	No		

Networks of information - Men Group

	Baseline	Mid-term	Final
Rainfall			
Family	No		
Friends	No		
Neighbours	No		
Old women	No		
Organisations	No		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Functions/Meetings	No		

Networks of information - Men Group

	Baseline	Mid-term	Final
Drought			
Family	No		
Friends	No		
Neighbours	No		
Old women	No		
Organisations	Yes		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Functions/Meetings	No		

Networks of information - Men Group

	Baseline	Mid-term	Final
Planting and post harvest handling			
Family	Yes		
Friends	No		
Neighbours	No		
Old women	No		
Organisations	Yes		
Radio	No		
TV	Yes		
Newspaper	No		
Personal observation	No		
Functions/Meetings	Yes		

Networks of information

Networks of information - Women Group

	Baseline	Mid-term	Final
Rainfall and other weather information			
Family	No		
Friends	Yes		
Neighbours	No		
Old women	No		
Organisations	Yes		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Functions/Meetings	No		

Networks of information - Women Group

	Baseline	Mid-term	Final
Type of seed			
Family	No		
Friends	Yes		
Neighbours	Yes		
Old women	No		
Organisations	Yes		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Functions/Meetings	No		

Networks of information - Women Group

	Baseline	Mid-term	Final
Market information			
Family	No		
Friends	Yes		
Neighbours	No		
Old women	No		
Organisations	Yes		
Radio	Yes		
TV	No		
Newspaper	No		
Personal observation	No		
Functions/Meetings	No		

Networks of information

% of households receiving weather-related information			
	Baseline	Mid-term	Final
Start of the rains	98%		
Forecast of extreme events	95%		
Forecast of pest or disease outbreak	43%		
2-3 month weather forecast	35%		
2-3 day weather forecast	30%		

Of households receiving information, who in the family receives it			
	Baseline	Mid-term	Final
Start of the rains			
Men	17%		
Women	33%		
Both	50%		

Forecast of extreme events			
Men	18%		
Women	32%		
Both	50%		

	Baseline	Mid-term	Final
2-3 month weather forecast			
Men	20%		
Women	31%		
Both	49%		

2-3 day weather forecast			
Men	32%		
Women	37%		
Both	32%		

	Baseline	Mid-term	Final
Forecast of pest or disease outbreak			
Men	27%		
Women	30%		
Both	43%		

Organisational priorities

Relative importance in the portfolio of organisations
placed on climate or weather related activities

	Baseline	Mid-term	Final
Allocation of time			
Very high	44%		
High	44%		
Medium	11%		
Low	0%		
None	0%		
Allocation of staff			
Very high	22%		
High	33%		
Medium	44%		
Low	0%		
None	0%		
Allocation of budget			
Very high	11%		
High	78%		
Medium	11%		
Low	0%		
None	0%		

Organisational priorities

Match of organisational activities to perceived needs of communities			
Community issues about natural resources and infrastructure	Organisation activities		
	Baseline	Mid-term	Final
Farmland: In bad condition, dry because of lack of rainfall. Depletion of vegetation cover	training in soil conservation practices, organic farming, composting, integrated pest management, integrated crop management. Promotion of diversification in agriculture. Promotion and/or provision of drought tolerant and early maturing crops. Monthly drought information		
Grassland: very limited in dry season. Managed and owned by individuals.	Promotion of small livestock production. Advisory on soil and water conservation.		
Forest: Not good, degraded with few trees, reduced in size. Managed and owned by individuals.	Tree nurseries; tree planting; provide tree seedlings; on-farm tree establishment & management; agroforestry training; train farmers in replanting or afforestation of degraded areas		
Dams: seasonal, with poor quality water, problems of siltation, not enclosed so animals drink directly from the dam	Water harvesting, sand dams, check dams, water pans, micro catchment, water tanks and roof catchment.		
Rivers: dries up seasonally	no activities directly related to cleaning the rivers; advice on irrigation during dry season		
Borehole: Provides water all year round. Is managed communally	Promotion of solar panel use for boreholes.		
Roads: from tarmac good condition to dirt road in very bad condition, impassable during rainy season. Lack of bridges	Problems with access in general and with roads and road materials in particular are not mentioned in any activities.		
Schools: From adequate with enough staff & teachers to bad, old structures, lacking doors and window shutters and fewer teachers.	Child sponsorship, Advocacy of children's rights; provision of water tanks for schools; Training of school children on hygiene.		
Churches: Good condition, large capacity			
Markets: From very active with good buildings to bad, always closed and abandoned buildings. Thefts, robbery and contributes to prostitution.	Market linkages (link farmers to buyers, link importers to exporters and facilitate contractual farming)		



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