Supporting Information

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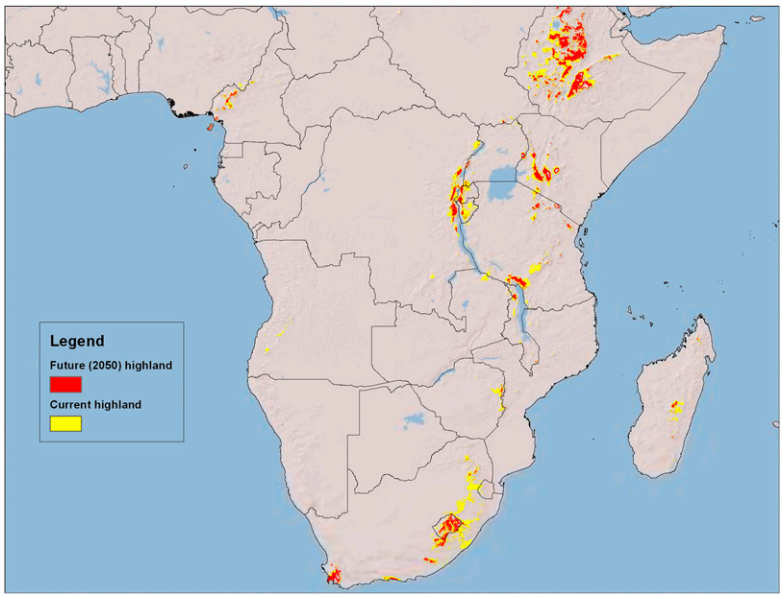

Fig. S1. Current (yellow) and future [2050 Hadley Centre Coupled Model Version 3 (HadCM3) scenario] (red) highland maize agro-climate environments in sub-Saharan Africa. Under this scenario, highland maize agro-climate environments are estimated to decline in area by ~47%.

Table S1. Farming characteristics in the communities studied by maize agro-climate environments

	Maize agro-climate environment				
	WL	DL	WUMA	H	Total
Household characteristics					
Indigenous households (%)	64.3	15.0	50.0	3.3	30.5*,§
Mean number of crops	2.8	2.3	2.8	3.9	3.2†,§
Mean number of fruit-tree species	1.3	1.8	1.7	0.6	1.1†,§
Mean number of domestic animal species kept	1.9	1.1	2.2	2.8	2.3†,§
Households who perform off-farm labor (%)	56.4	47.5	72.5	41.1	50.3*,§
Mean number of nonfarm activities per household	2.5	2.6	2.7	2.4	2.5
Farmers who produce for self-consumption (%)	99.3	99.3	95	97.2	97.7
Farmers who sell maize (%)	60	42.5	50	42.2	49.3*,‡
Household with migrants within the country (%)	22.86	22.5	25	17.8	20.8
Household with migrants outside the country (%)	5.7	17.5	10	17.8	12.75*,§
Maize planted					
Spring–summer (mean area per household, ha)	1.8	1.9	1.3	3.0	2.3†,§
Autumn–winter (mean area per household, ha)	1.8	1.9	1.1	0.0	1.7
Type of maize producers (%)					
Deficit	27.1	32.5	52.5	36.1	34.3
Equilibrium	12.9	7.5	12.5	11.7	11.7
Surplus	60	60	35	52.2	54.0
Number of uses of maize	3.3	3.2	2.7	3.2	3.2

DL, dry lowland; H, highland; WL, wet lowland; WUMA, wet upper midaltitude.
*Statistical significance associated with a likelihood-ratio χ^2 test.
†Statistical significance associated with a one-way ANOVA.
‡$P < 0.05$.
§$P < 0.01$.

Table S2. Current and predicted maize agro-climate environments and access to future environments within the current 10-km radial zones by community

Community	Current maize environment	Predicted maize environment		Current distribution of pixels (%, 10-km radial zones by maize agro-climate environment)							Maize environment already present within 10-km zone	
		Median	HadCM3-A2a	DL	WL	WLMA	WUMA	DMA	H	Suboptimal	Median	HadCM3-A2a
1	WL	WL	WL	0	100	0	0	0	0	0	Yes	Yes
2	WL	WL	WL	0	69.6	27.3	3.1	0	0	0	Yes	Yes
3	WL	WL	WL	0	100	0	0	0	0	0	Yes	Yes
4	WL	WL	WL	0	75.7	18.7	5.6	0	0	0	Yes	Yes
5	WL	WL	WL	0	98.5	1.5	0	0	0	0	Yes	Yes
6	WL	DL	DL	37.9	61.6	0.5	0	0	0	0	Yes	Yes
7	WL	DL	DL	36.6	63.4	0	0	0	0	0	Yes	Yes
8	DL	DL	DL	73.9	26.1	0	0	0	0	0	Yes	Yes
9	DL	DL	DL	99.2	0.8	0	0	0	0	0	Yes	Yes
10	WUMA	WLMA	WL	0	5.9	26	55.2	0	13	0	Yes	Yes
11	WUMA	WLMA	WL	0	80.3	12.4	7.3	0	0	0	Yes	Yes
12	H	DMA	DMA	0	0	0	0	0	100	0	No	No
13	H	H	DMA	0	0	0	0	0	94.2	5.8	Yes	No
14	H	H	H	0	0	0	0	0	90.1	9.9	Yes	Yes
15	H	Too dry/cool	Too dry/cool	0	0	0	0	15.2	3.5	81.3	Yes	Yes
16	H	H	H	0	0	0	0	0	82.2	17.8	Yes	Yes
17	H	Too dry/cool	Too dry/cool	0	0	0	0	3.1	64	32.9	Yes	Yes
18	H	H	H	0	0	0	0	0	89.4	10.6	Yes	Yes
19	H	H	H	0	0	0	0	0	38.6	61.4	Yes	Yes
20	H	WUMA	WL	0	0	0	28.5	0	71.5	0	Yes	No

DL, dry lowland; H, highland; WL, wet lowland; WLMA, wet lower midaltitude, WUMA, wet upper midaltitude.

Table S3. Results of marginal homogeneity tests on the change of pixels by maize environment between current conditions and the two future scenarios (median and HadCM3-A2a)

Current	WL	DL	WLMA	WUMA	DMA	H	Too dry	Too cold	Total
Median 2050*									
WL	2,110	492	0	0	0	0	0	0	2,602
DL	0	925	0	0	0	0	0	0	925
WLMA	323	0	16	0	0	0	0	0	339
WUMA	10	0	191	191	0	0	0	0	392
DMA	0	0	0	0	49	0	23	0	72
H	0	0	0	174	608	1,595	157	0	2,534
Too dry	0	0	0	0	0	0	440	0	440
Too cold	0	0	0	0	0	318	0	103	421
Total	2,443	1417	207	365	657	1,913	620	103	7,725
HadCM3-A2a 2050†									
WL	2,088	514	0	0	0	0	0	0	2,602
DL	0	925	0	0	0	0	0	0	925
WLMA	339	0	0	0	0	0	0	0	339
WUMA	156	0	194	42	0	0	0	0	392
DMA	0	0	0	0	40	0	32	0	72
H	0	0	2	297	1,066	923	246	0	2,534
Too dry	0	0	0	0	0	0	440	0	440
Too cold	0	0	0	0	0	379	0	42	421
Total	2,583	1,439	196	339	1,106	1,302	718	42	7,725

The numbers in the table are frequencies of pixels. WL, wet lowland; DL, dry lowland; WLMA, wet lower midaltitude; WUMA, wet upper midaltitude; H, highland.

	χ^2	df	Prob>χ^2
*Symmetry (asymptotic)	2,296.00	9	0.0000
*Marginal homogeneity (Stuart-Maxwell)	2,267.35	7	0.0000
*Marginal homogeneity (Bickenboller)	920.96	7	0.0000
*Marginal homogeneity (no diagonals)	1,667.43	7	0.0000
†Symmetry (asymptotic)	3,225.00	10	0.0000
†Marginal homogeneity (Stuart-Maxwell)	3,127.70	7	0.0000
†Marginal homogeneity (Bickenboller)	1,834.15	7	0.0000
†Marginal homogeneity (no diagonals)	2,581.58	7	0.0000

Table S4. Maize production estimates by maize agro-climatic environments in Mexico

Mega-environment	Estimated maize production in 2000 (*t*)	Proportion (%)
Dry lowland	2,254,217	15
Wet lowland	4,517,348	30
Dry mid-altitude	1,719,565	11
Wet lower mid-altitude	1,308,194	9
Wet upper mid-altitude	2,624,454	17
Highland	2,737,862	18

Estimates derived using Spatial Production Allocation Model (SPAM) 2000 (1), version 3, data on maize production estimates.

1. You L, et al. (2010) Spatial Production Allocation Model (SPAM), 2000 Version 3 Release 2. Available at http://MapSPAM.info. Accessed 21 December 2010).