AgMIP The Agricultural Model Intercomparison and Improvement Project

Soil fertility change outweighs climate change impact on maize yield in sub-Saharan Africa

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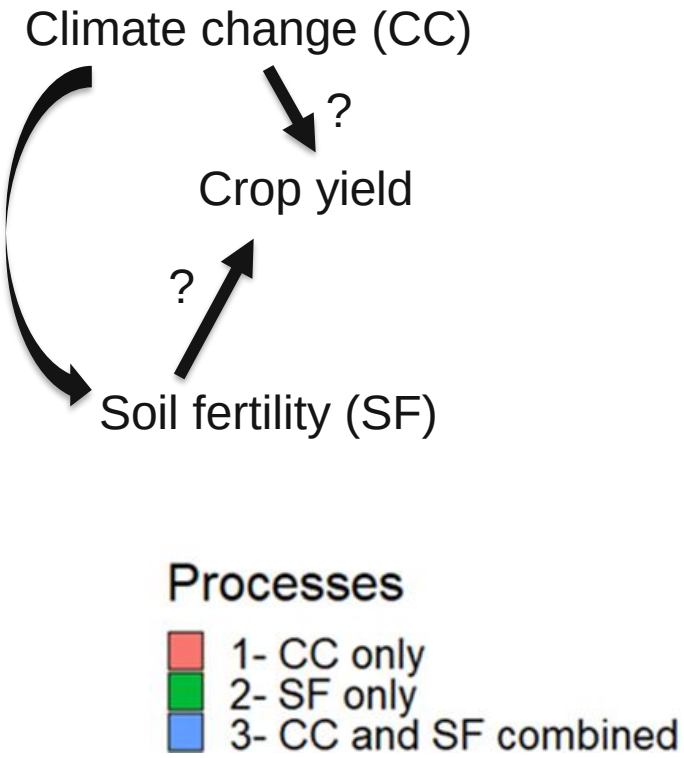
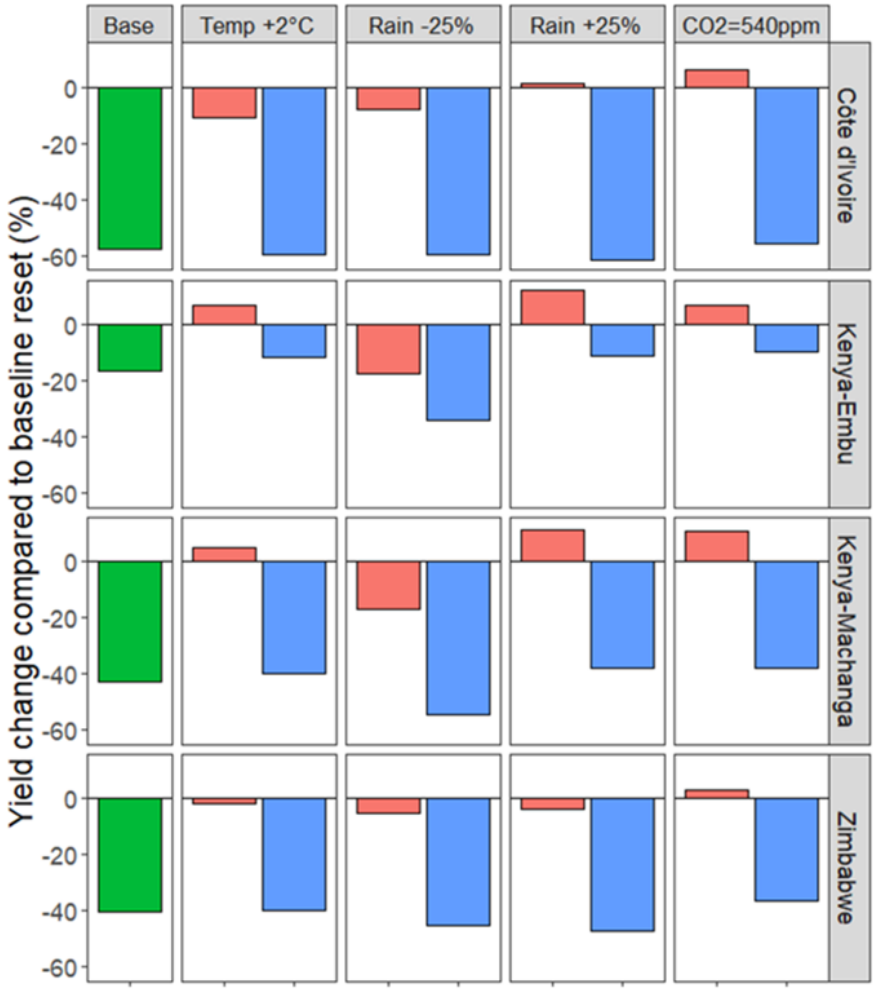
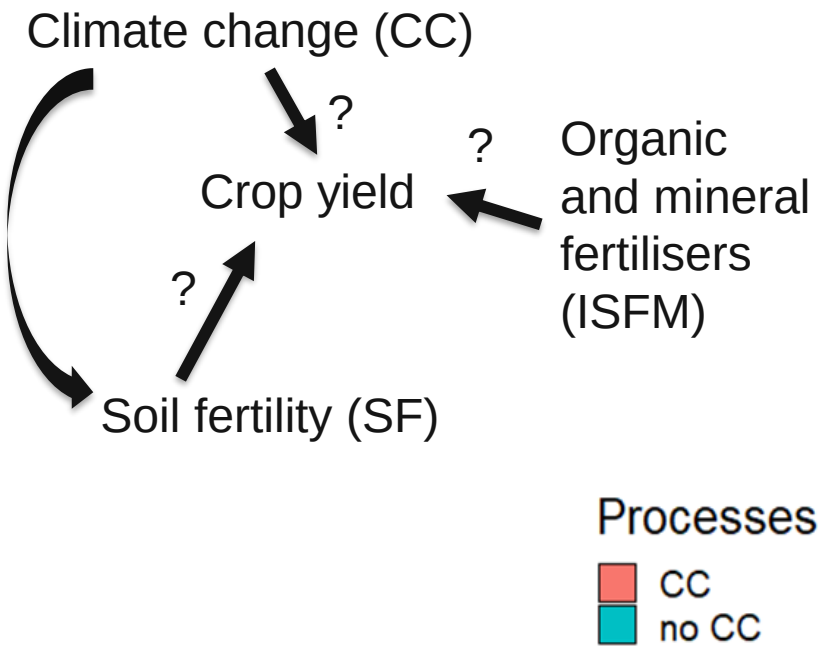
Impact of climate change and soil fertility on crop yield in no input systems

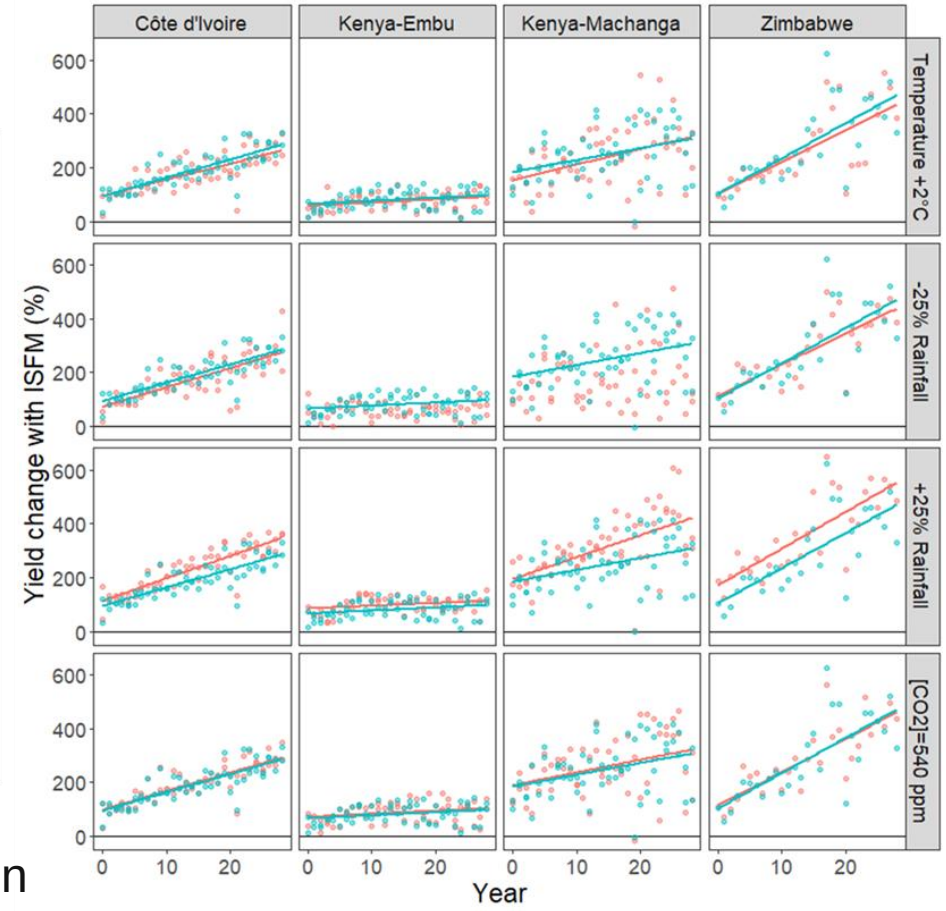




→ Soil crop long term feedback have to be taken into account

Impact of climate change and soil fertility on crop yield with organic and mineral fertilisers (ISFM)



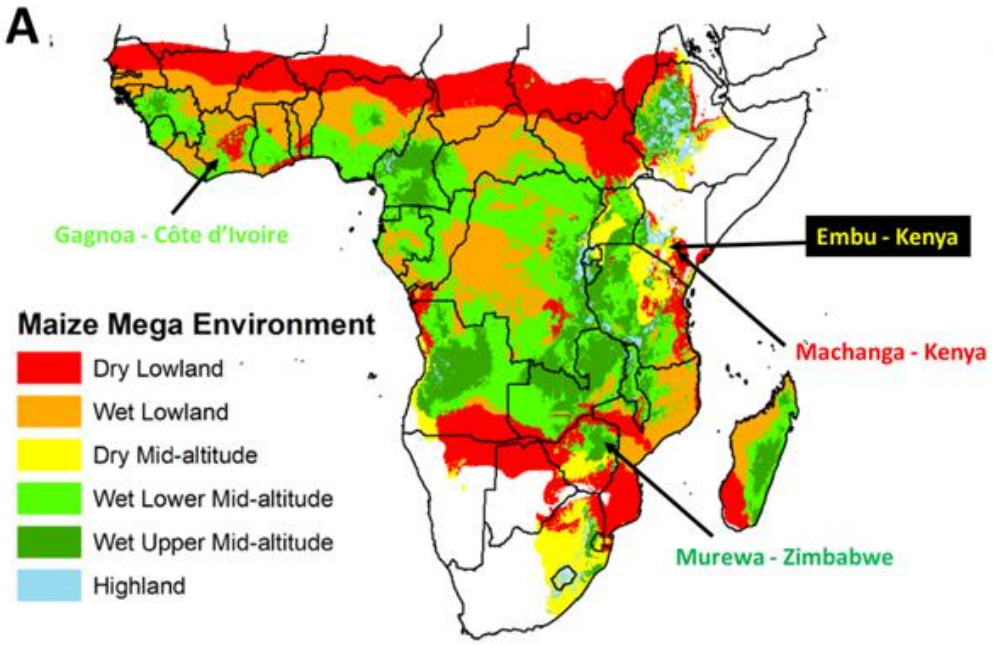


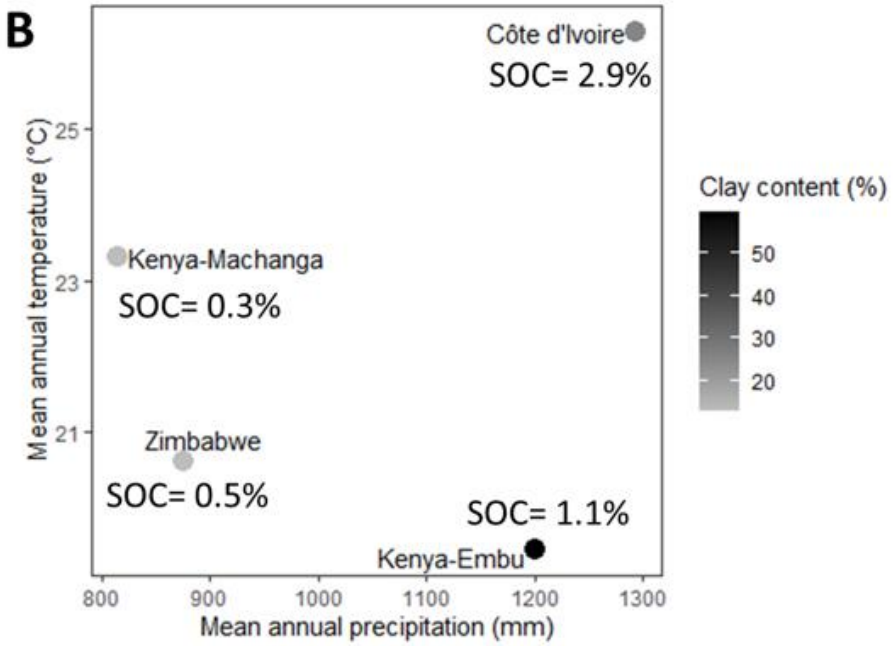
→ ISFM as a non regret CC adaptation

→ **Take home message: urgent need to account for soil-crop long-term feedback**

Supplementary slides

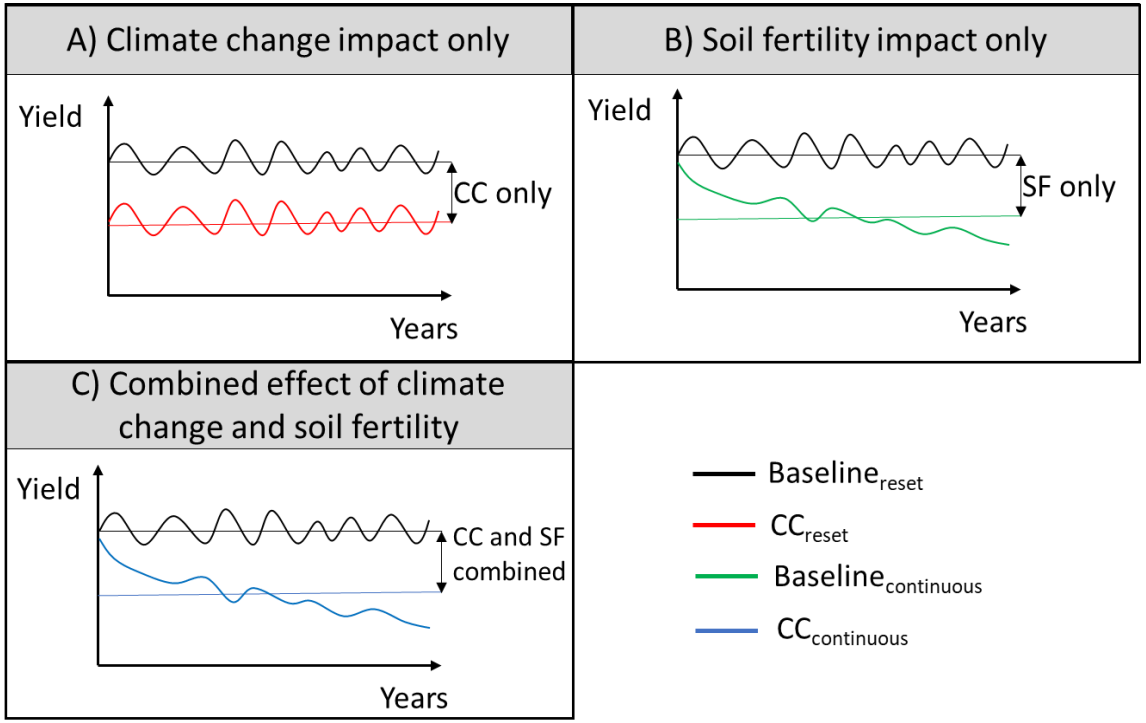
Low Input Smallholder Systems group



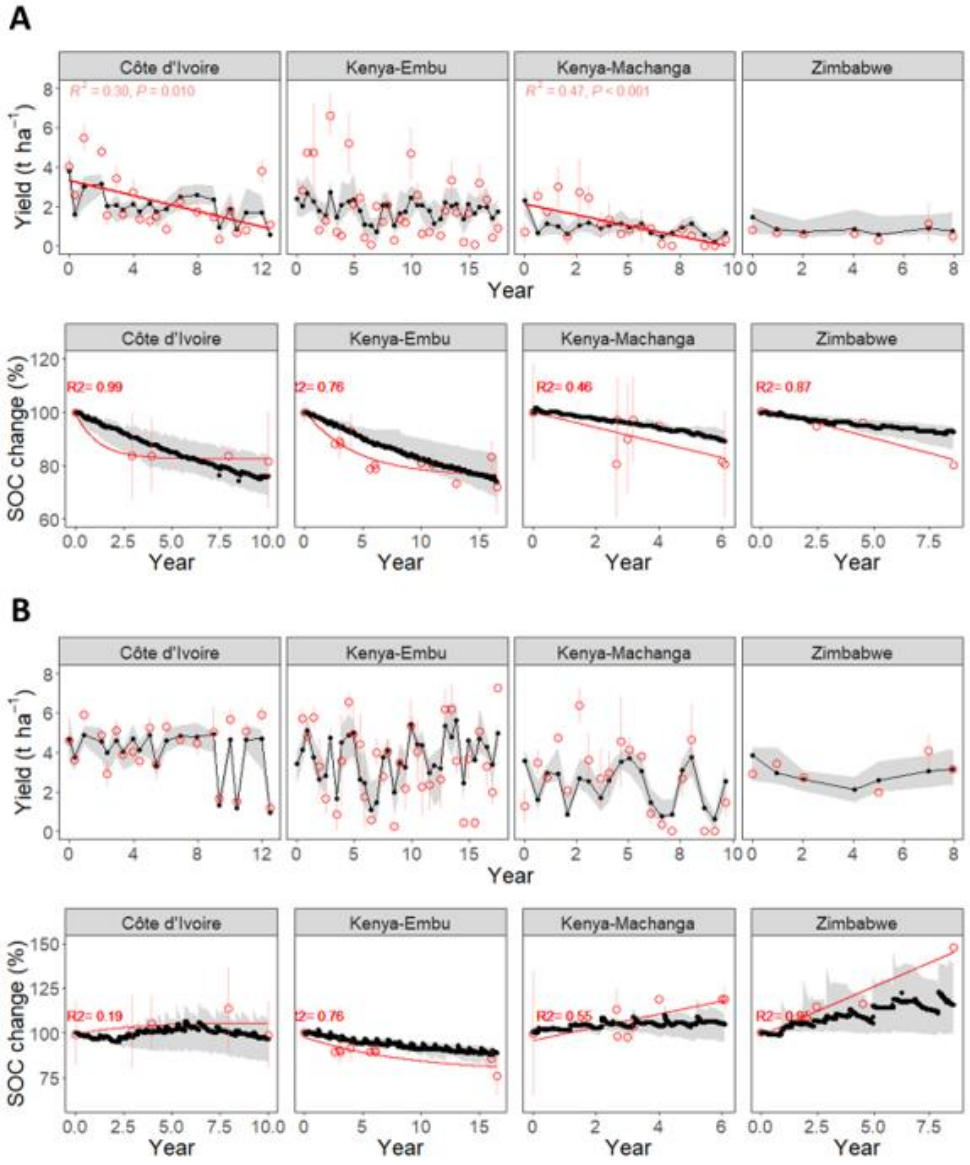


Low Input Smallholder Systems group

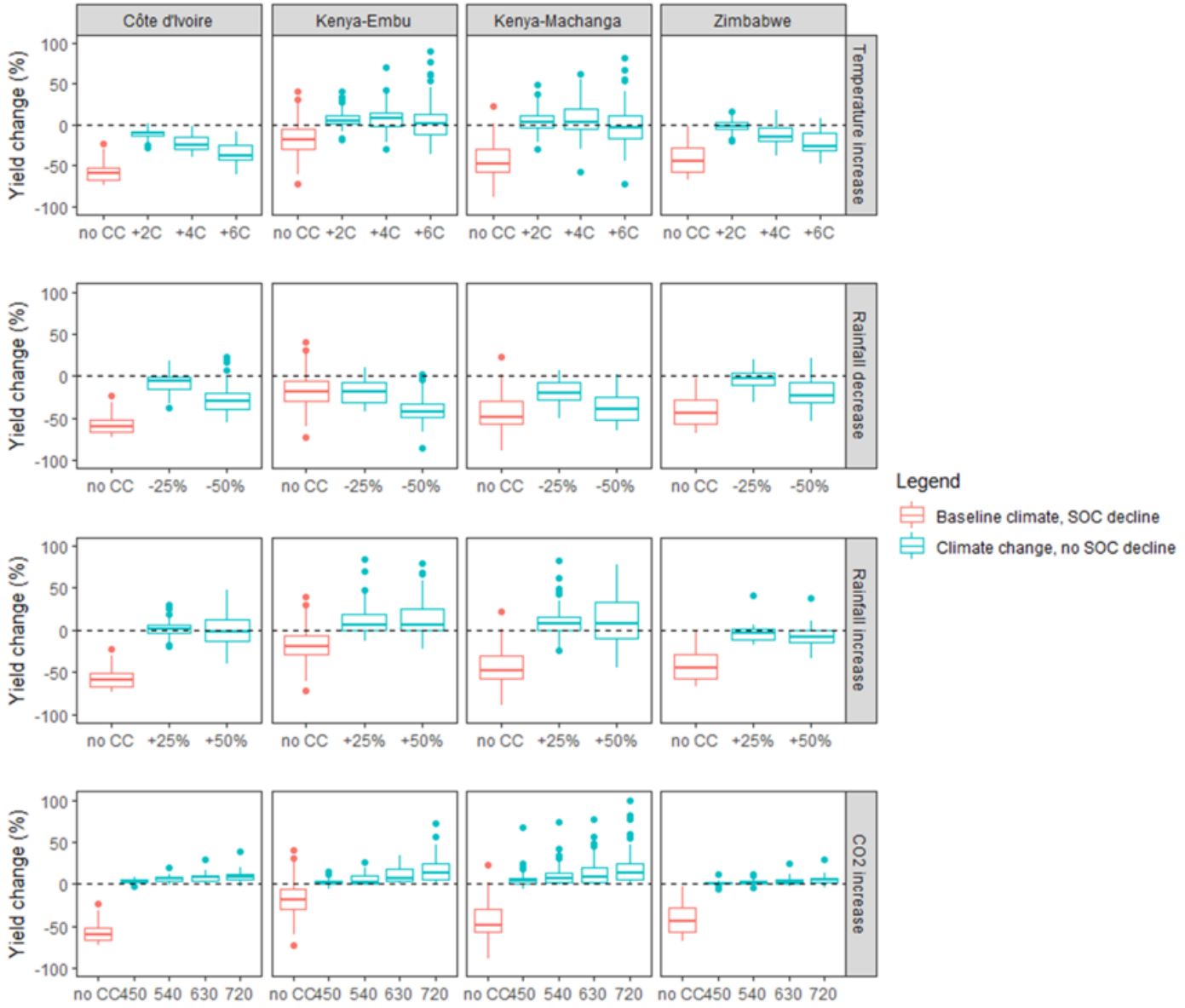
Model
APSIM v7.9
CELSIUS
DayCent
DNDC v.CAN
DSSAT v4.8.0.19 -CERES-Maize + Century
DSSAT v4.8.0.19 -CERES-Maize + Ceres-SOM
EPIC
Expert-N v5.1-Gecros
Expert-N v5.1-Spass
Expert-N v5.1-Ceres
InfoCrop v2.1
MONICA v3.3.1
SALUS
SIMPLACE-Lintul + Option 1
SIMPLACE-Lintul + Option 2
STICS v10

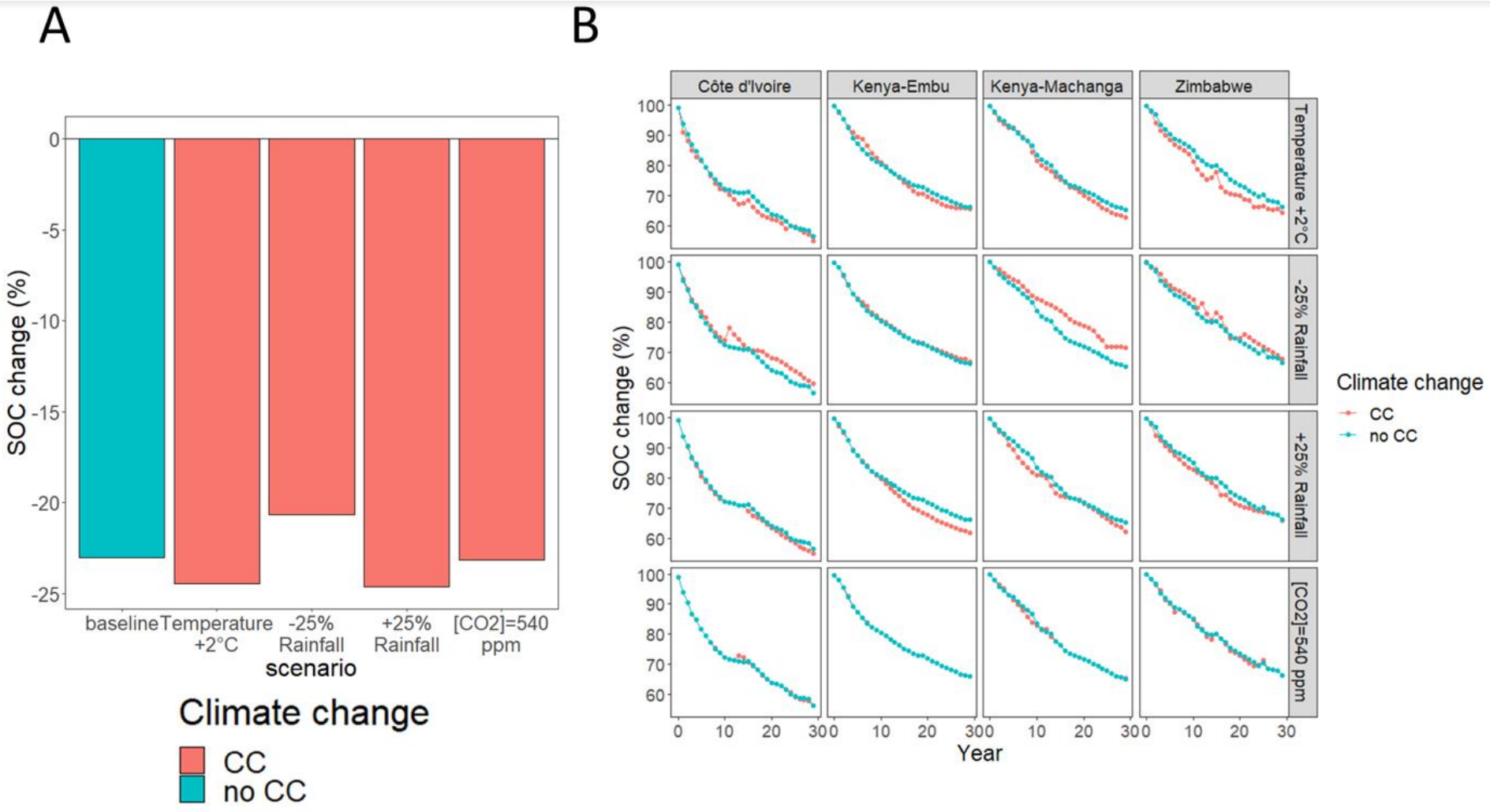


Low Input Smallholder Systems group

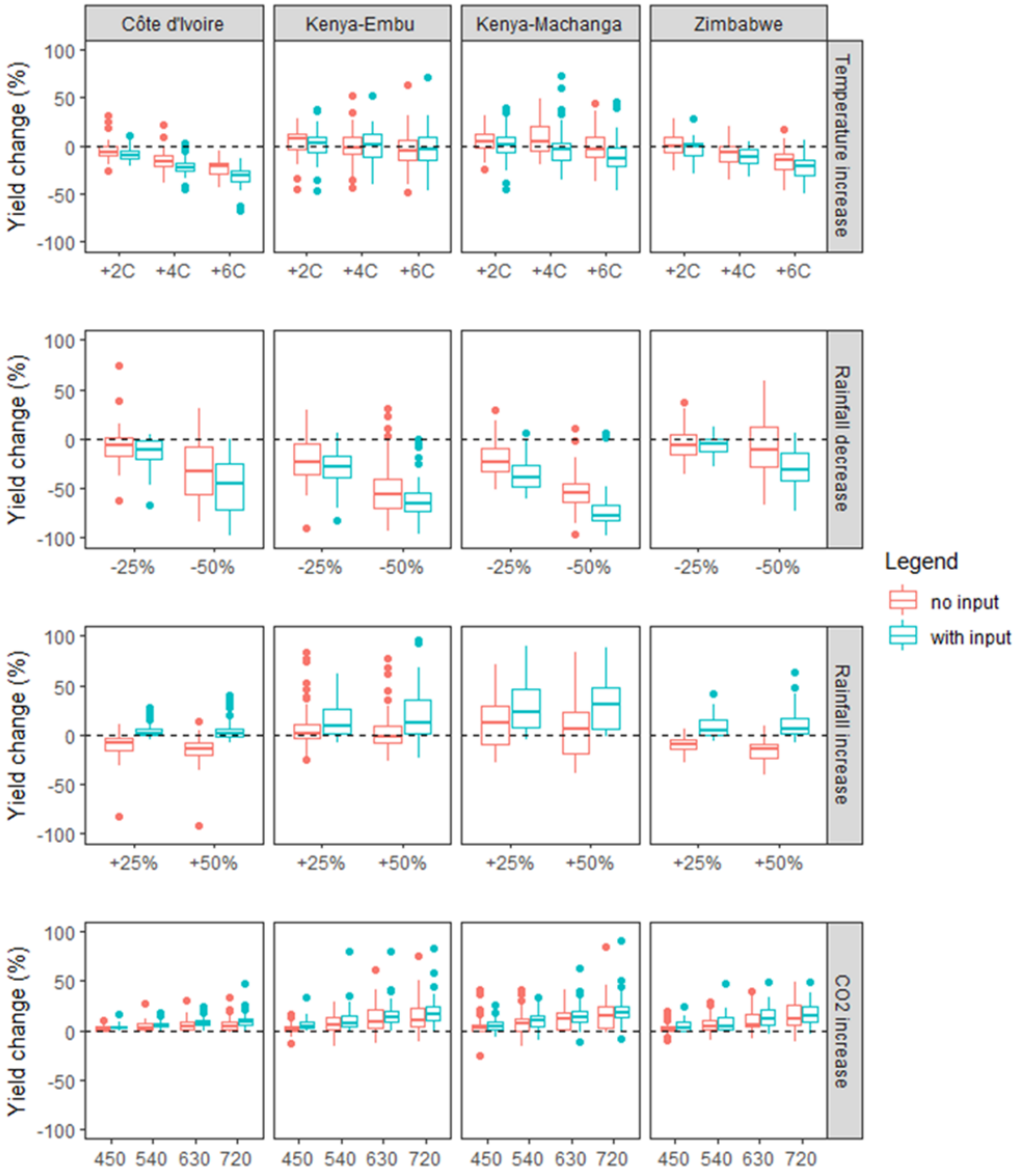


Low Input Smallholder Systems group

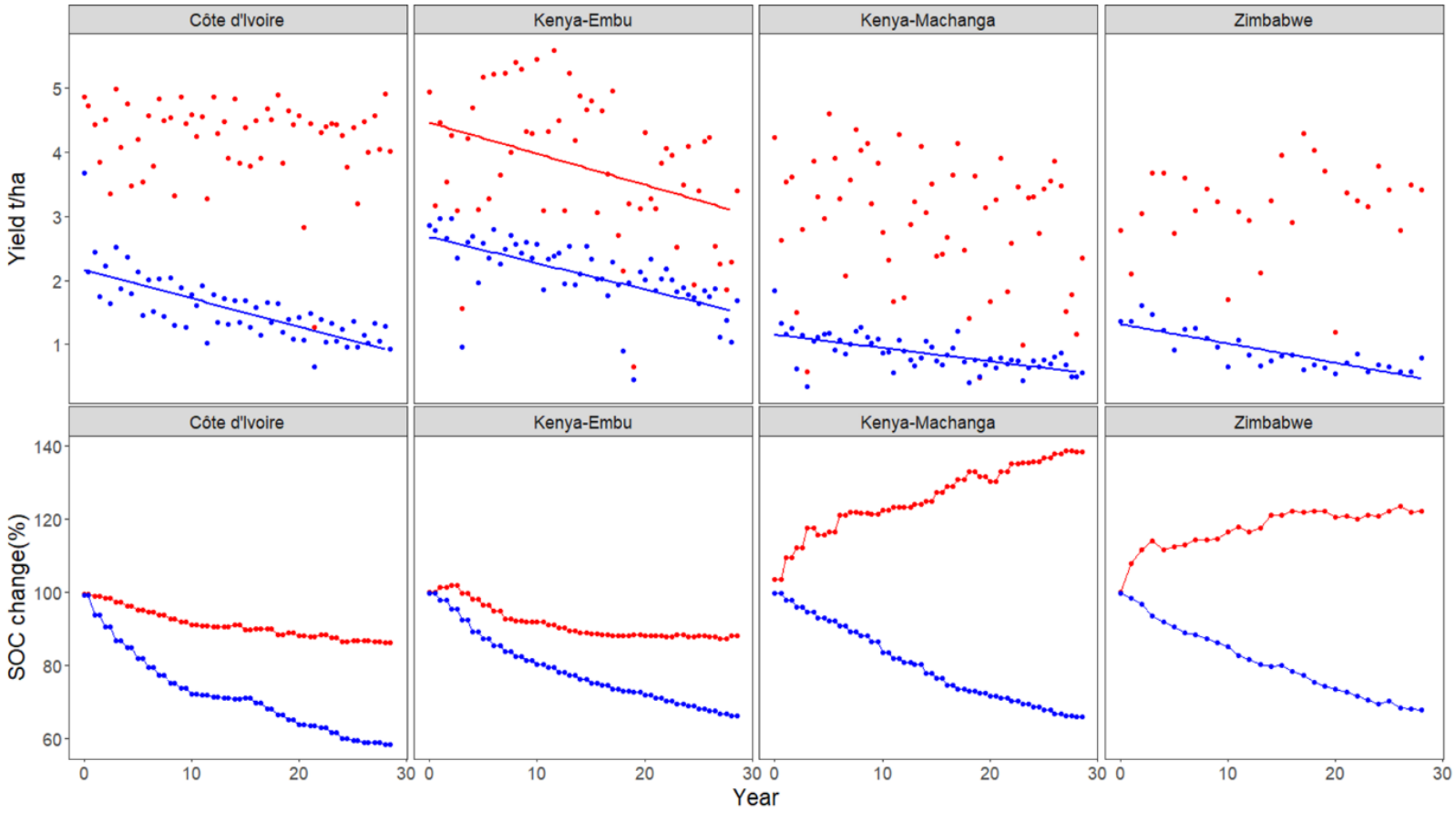



A
SOC change (%)
0
-5
-10
-15
-20
-25
baseline
Temperature +2°C
-25% Rainfall
+25% Rainfall
[CO2]=540 ppm
scenario
Climate change
CC
no CC
B
Côte d'Ivoire
Kenya-Embu
Kenya-Machanga
Zimbabwe
Temperature +2°C
-25% Rainfall
+25% Rainfall
[CO2]=540 ppm
SOC change (%)
100
90
80
70
60
0
10
20
30
Year
Climate change
CC
no CC

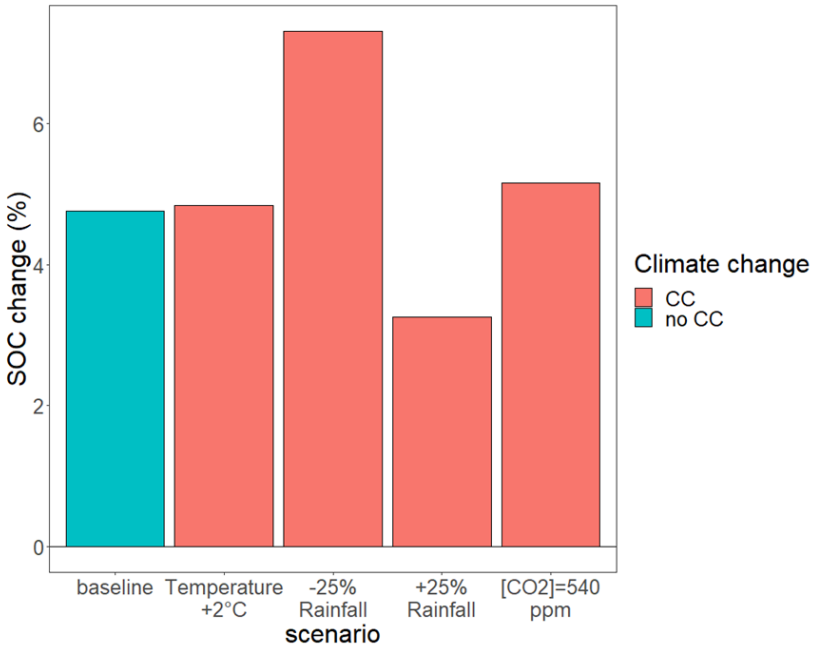
Low Input Smallholder Systems group



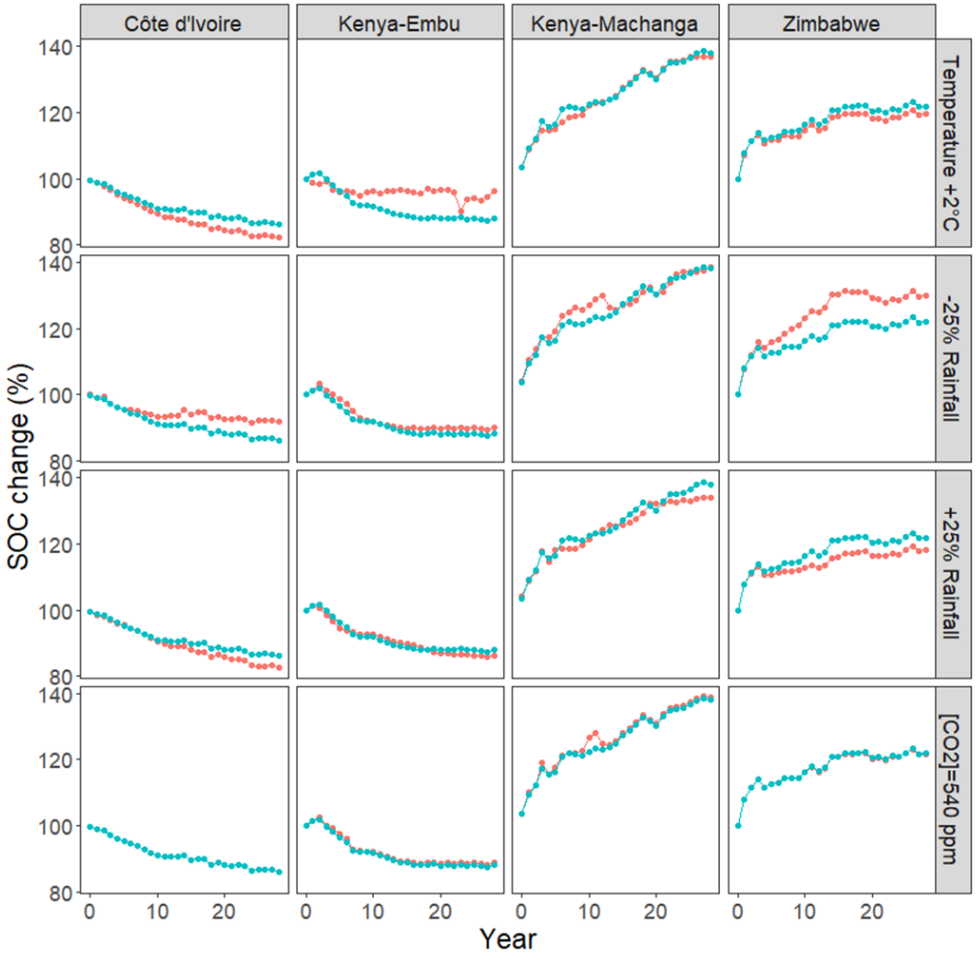
Low Input Smallholder Systems group



A


SOC change (%)
0
2
4
6
baseline
Temperature +2°C
-25% Rainfall
+25% Rainfall
[CO2]=540 ppm
scenario
Climate change
CC
no CC

B


Côte d'Ivoire
Kenya-Embu
Kenya-Machanga
Zimbabwe
Temperature +2°C
-25% Rainfall
+25% Rainfall
[CO2]=540 ppm
SOC change (%)
80
100
120
140
0
10
20
Year