



Consiglio Nazionale
delle Ricerche



CLIMA, AGRICOLTURA, MIGRAZIONI

Risultati scientifici e scenari possibili

13 Ottobre 2017, Accademia dei Lincei, Roma

“Clima, Agricoltura, Mitigazione, Adattamento”

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Consiglio Nazionale delle Ricerche
Istituto di Biometeorologia

Species, cultivar
Soil & Nutrients (fertilizers)
Weather & Climate

Farmers skill & technology
Pest & Diseases

Crop Yields

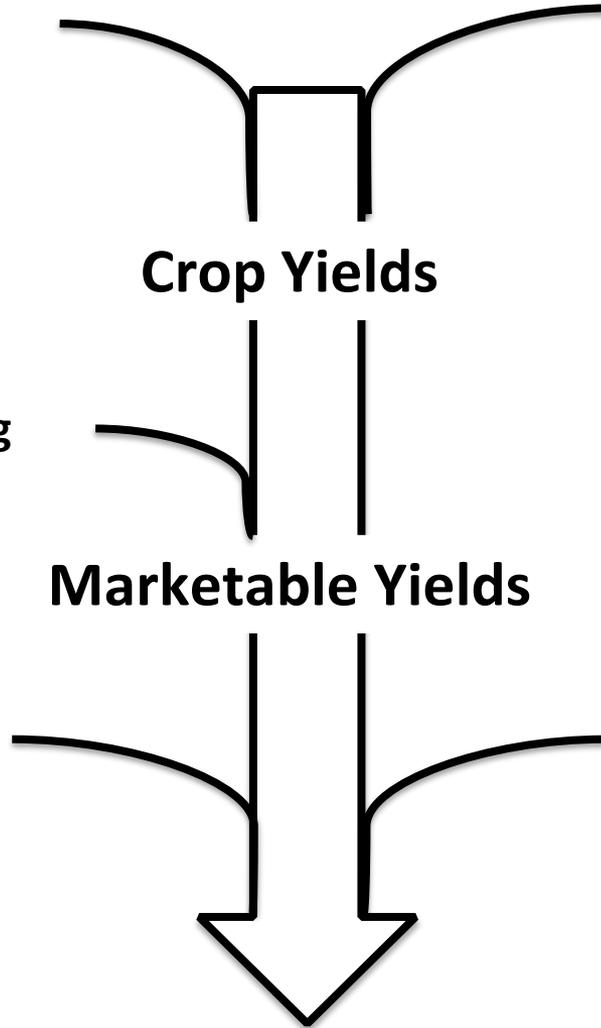
Crop Losses
Transformation & Processing
Transport losses

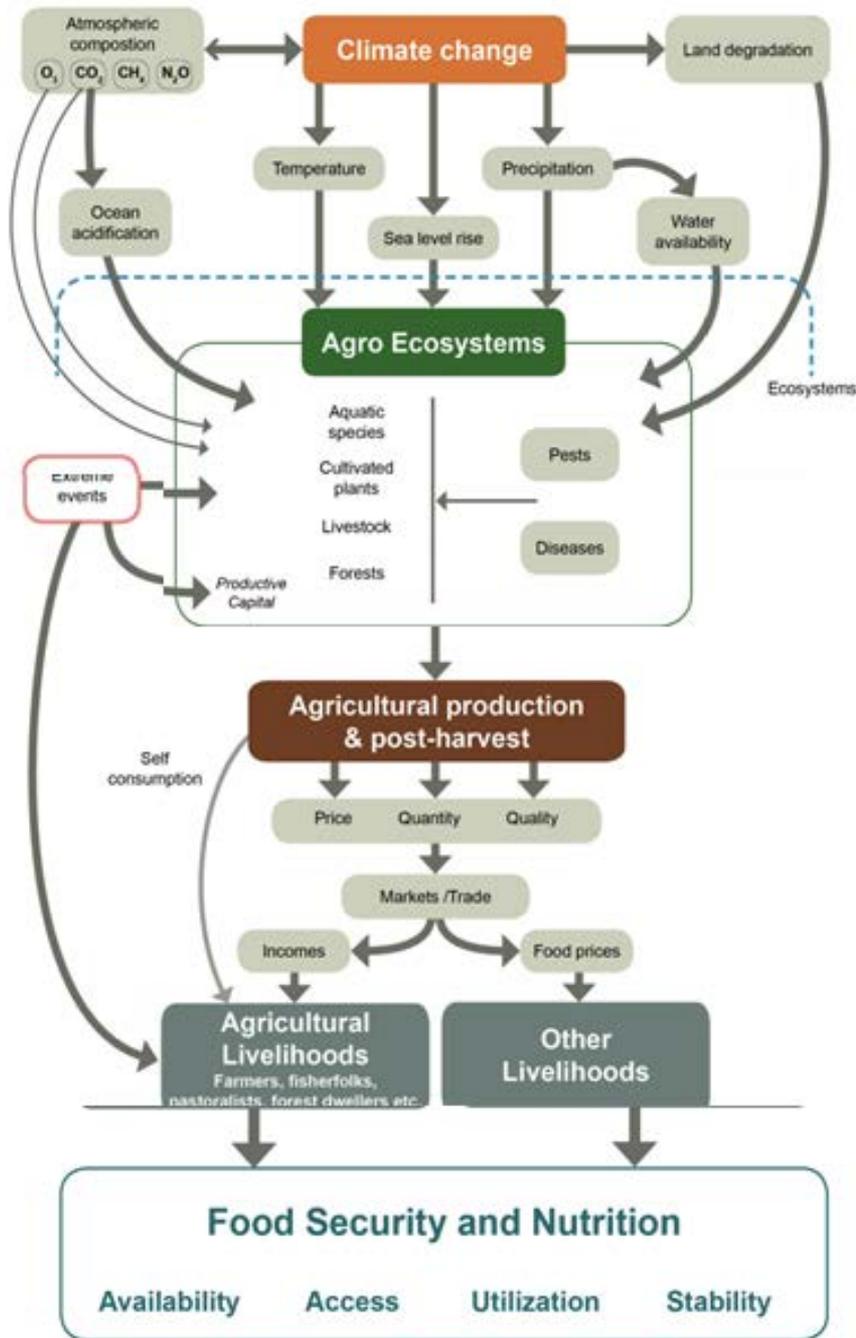
Marketable Yields

Commodities prices
Trading

Population (demand)
Accessibility

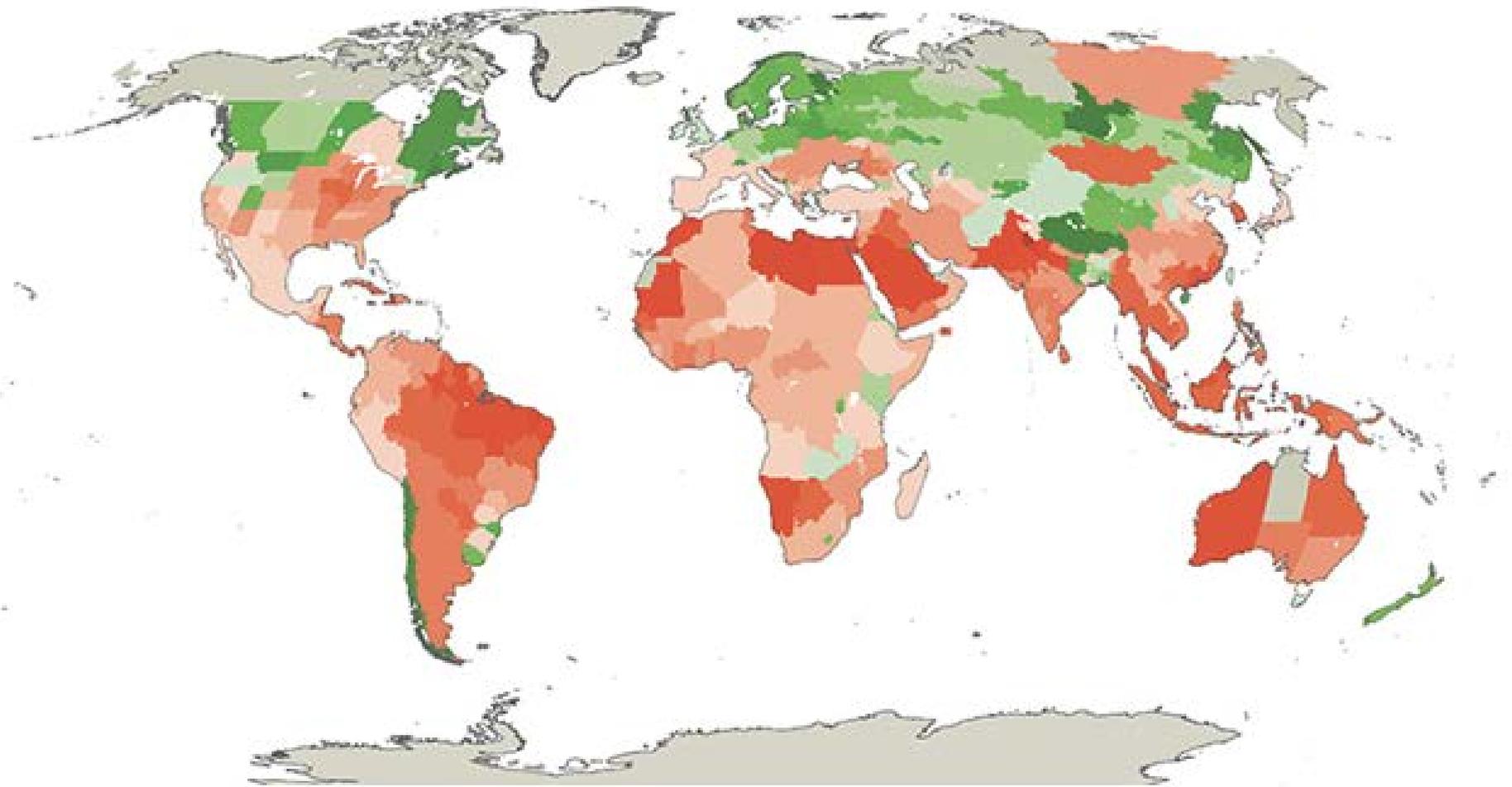
Food Security





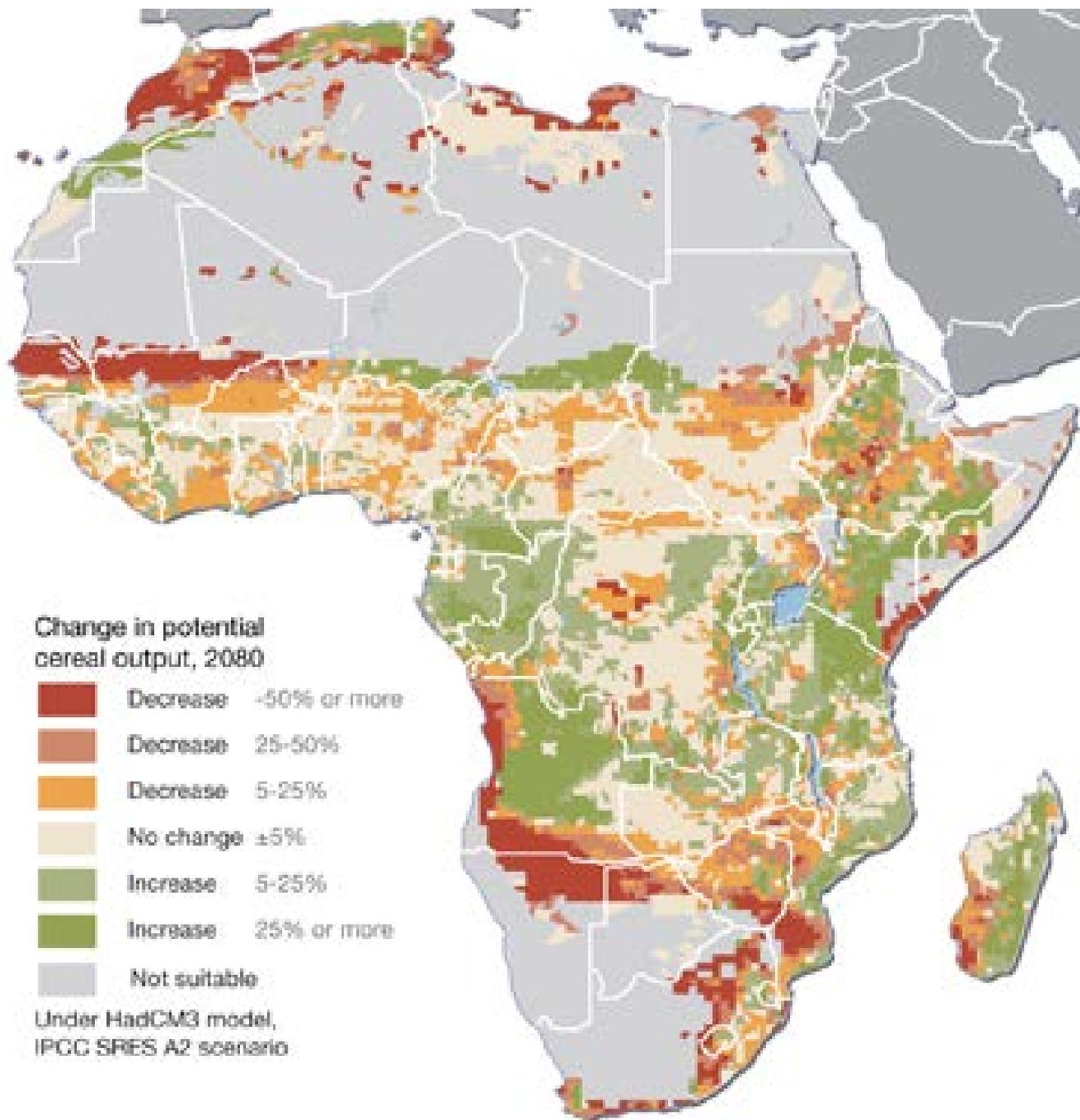
Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO, 2003)

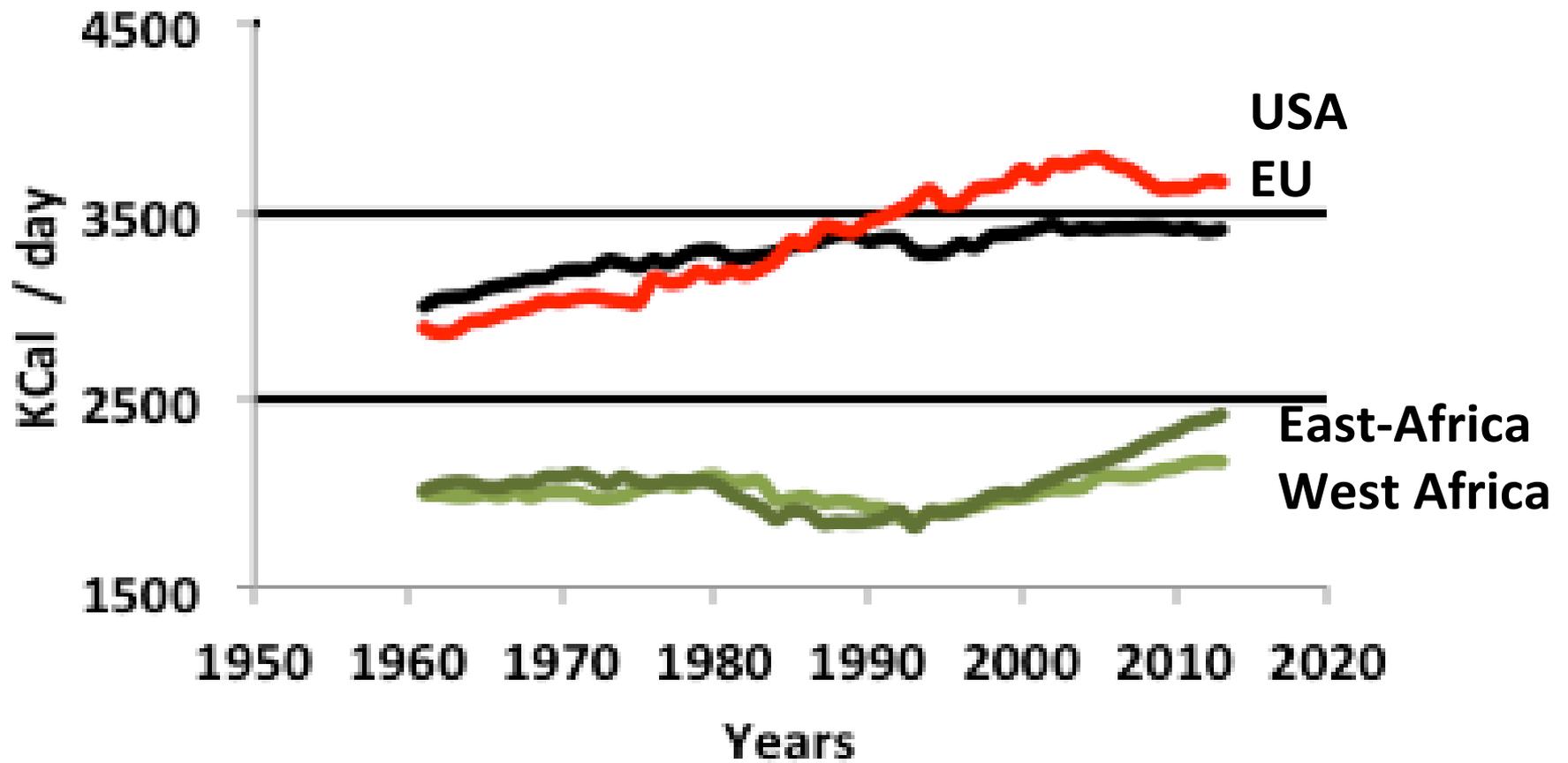
Climate Change & Crop yield



Source: World resources institute

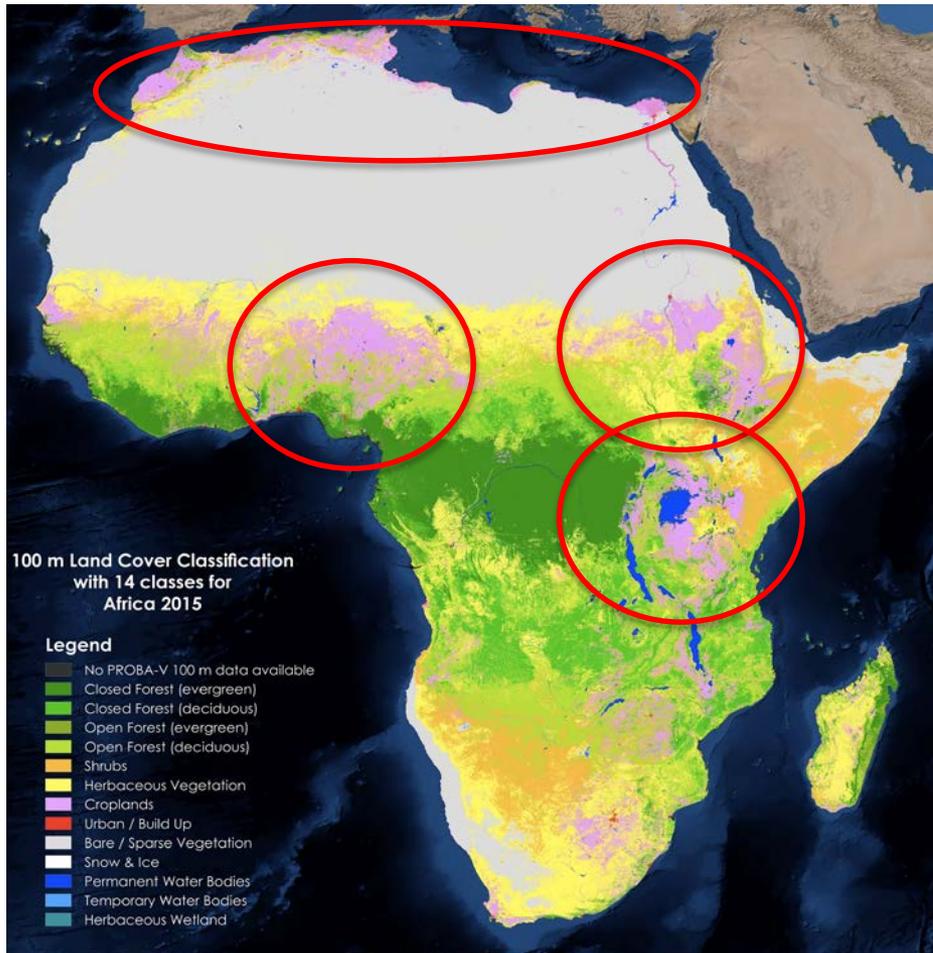
Crop yield changes estimated at 2050



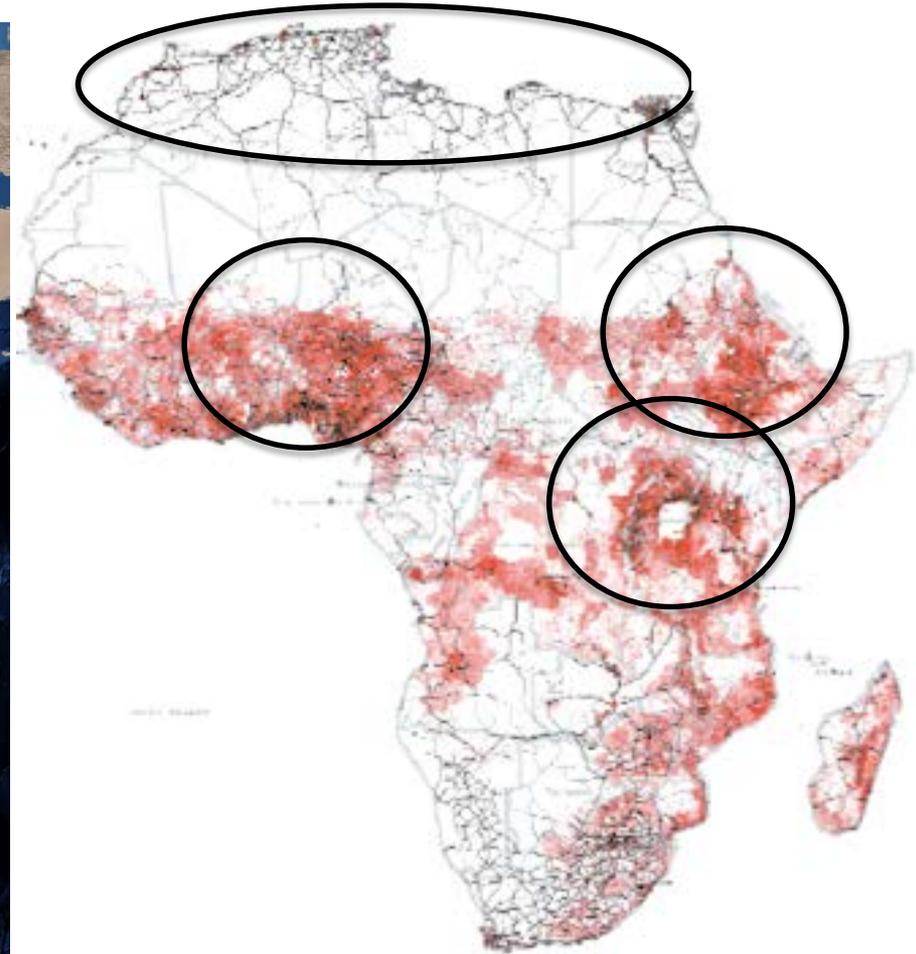


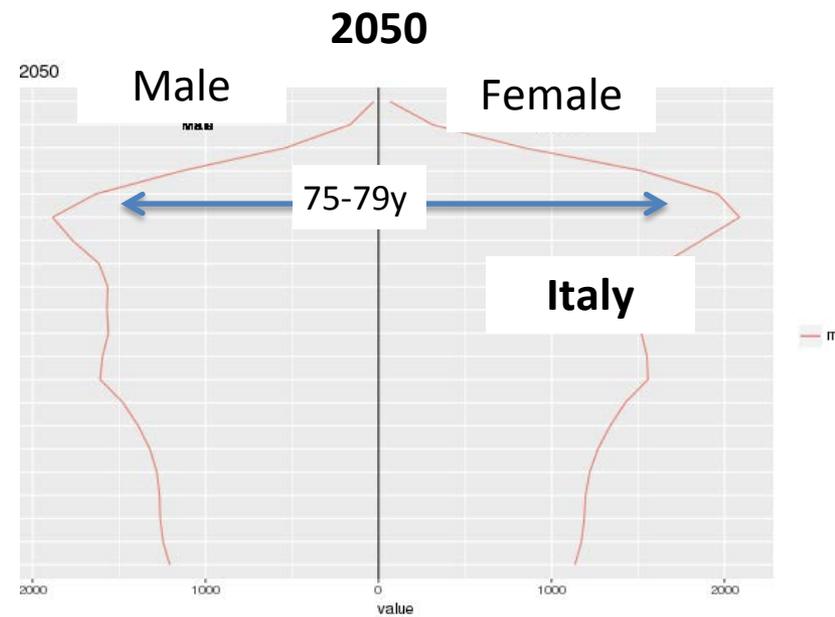
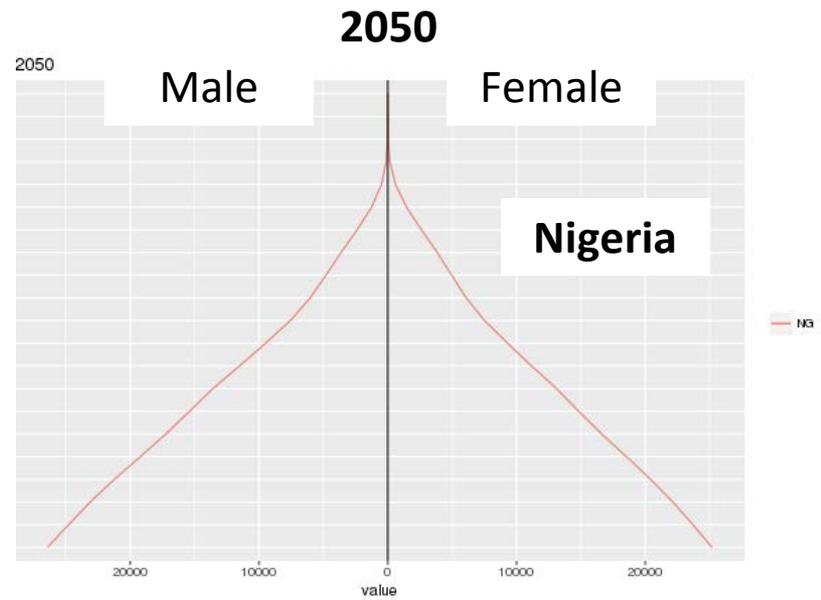
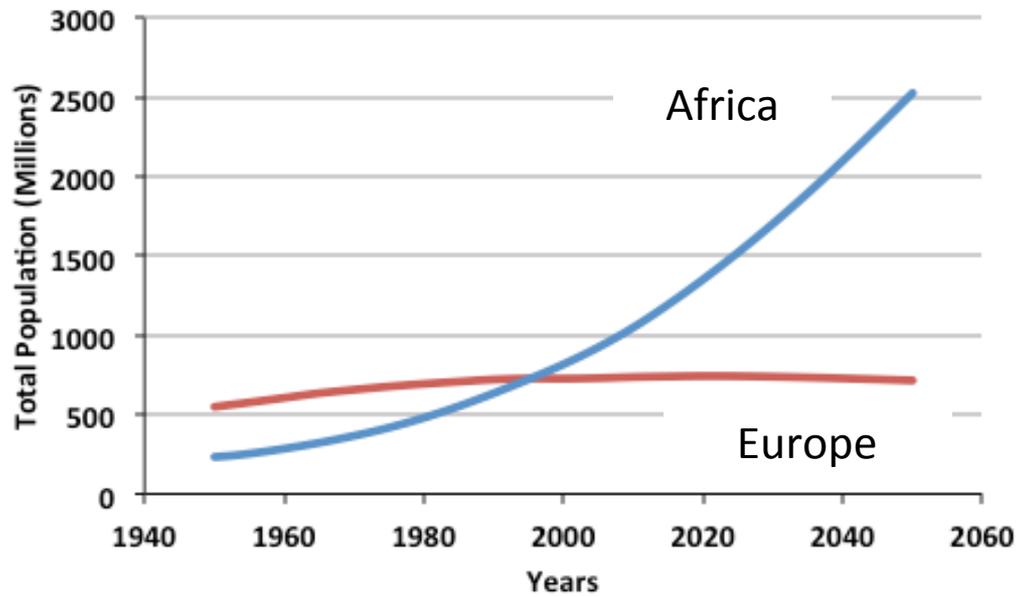
Climatic belts	Kcal/inhab ^a
Arctic	3,500
Boreal	3,100
Cold-temperate	2,850
Warm-temperate	2,750
Sub-tropical	2,550
Tropical	2,350

LAND USE MAP (Esa-Copernicus)



Demography map

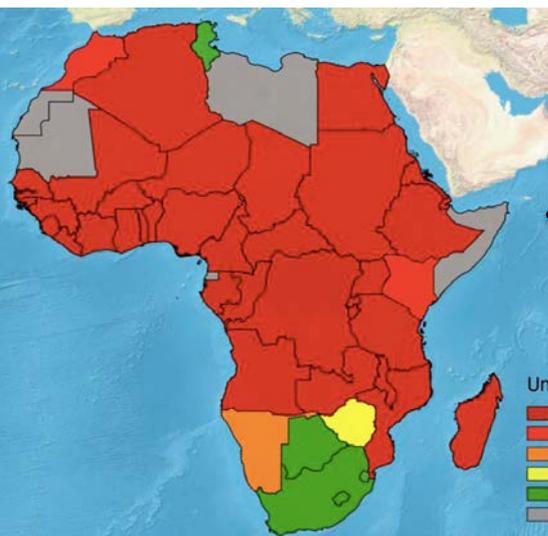




The impact of population growth and climate change on food security in Africa: looking ahead to 2050

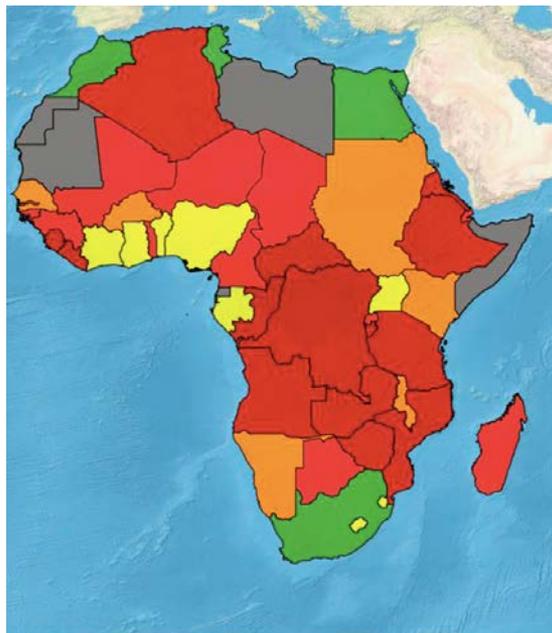
C. Hall, T. P. Dawson, J. I. Macdiarmid, R.B. Matthews & P. Smith

2050

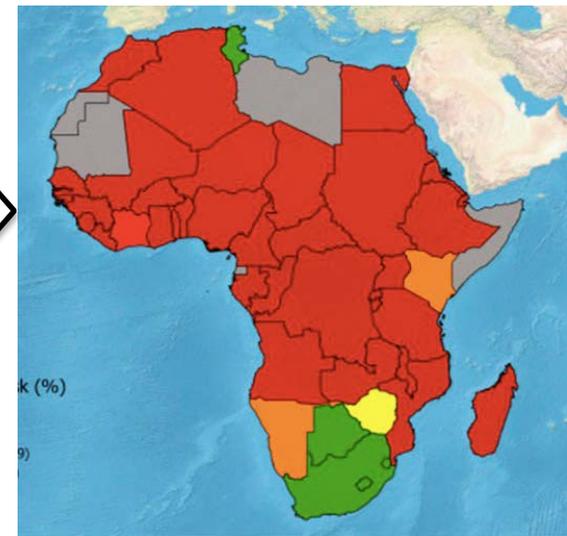


With Climate Change

2017



2050



Without Climate Change

Undernourishment Prevalence (%)

- Very High (>35)
- High (25-34.9)
- Moderately High (15-24.9)
- Moderately Low (5-14.9)
- Very Low (<5)
- Not Included

Which strategies ?

- I. Sustainable Intensification: close the yield gaps
- I. Stop degradation, reclaim degraded soils, regenerate fertility
- I. Increase food security through aids, equitable trading to sustain imports
- I. Promote and enlarge access to education & training

I. Sustainable Intensification: close the yield gaps

New Perennial Grain crops



Photosynthesis 2.0 Project



Photosynthesis 2.0 - Italy

AnaEE and Emphasis – ESFRI Projects



EU-Flagship project on Photosynthesis

I. Stop degradation, reclaim degraded soils, regenerate fertility

IT-LDN (Land Degradation Neutrality) Project



Sustainable Development Goal 15

“Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”

African Biochar Partnership





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Grazie per l'attenzione !!



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