المعهد الوطني للبحث الزراعي
Institut National de la Recherche Agronomique

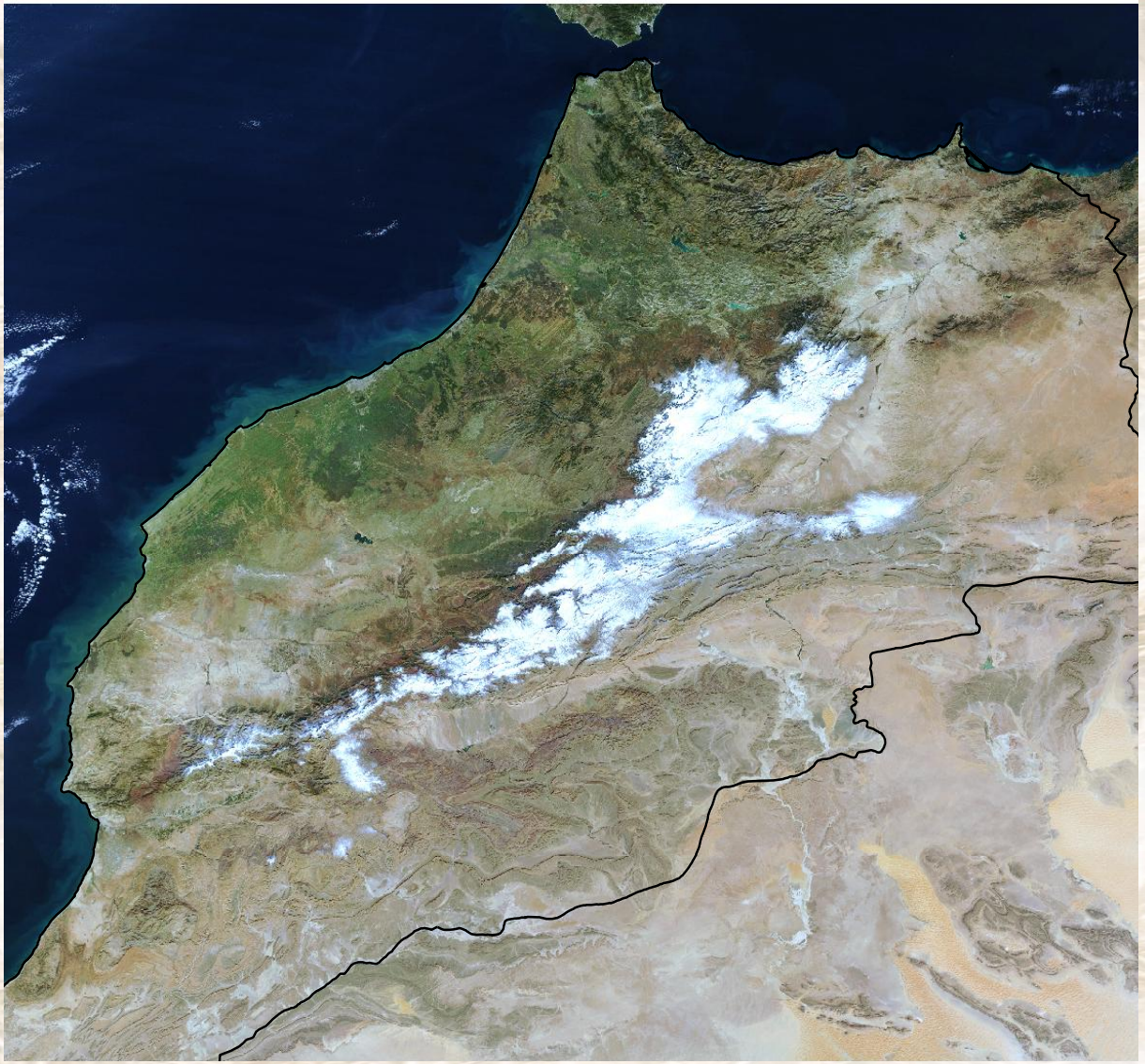
Impacts of Climate Change on Agriculture in Morocco

Balaghi R. Jlibene M.
INRA/Morocco

On behalf of: R. R. Gommes, FAO/NRCB ; R. Balaghi, INRA/Morocco ; Cervigni, BM; A. Khannoufi, DPV; T. El Hairech, A. Babqiqi et F. Driouech, DMN; H. Kanamaru, FAO/NRCB; D. Rosillon et A. El Ouali, consultants; R. Doukkali, IAV; M. Jlibene, INRA; R. Wilby, University of Lancaster, UK; W. Göbel, ICARDA

Worshop on biodiversity in agro systems. Milano, 24-25 February 2011

Evidence of climate change (warming)

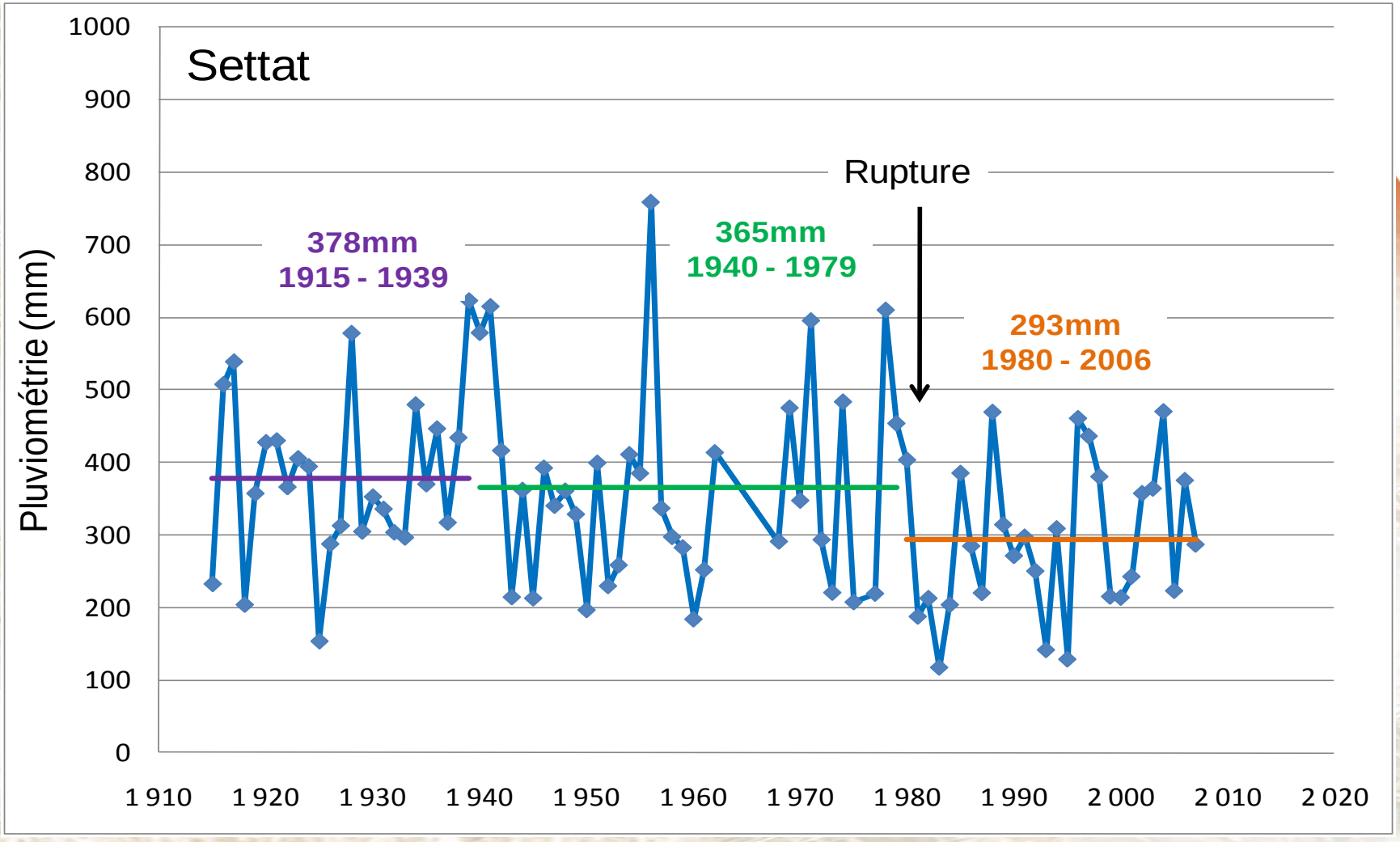


Agricultural land is located between sea and Atlas mountains

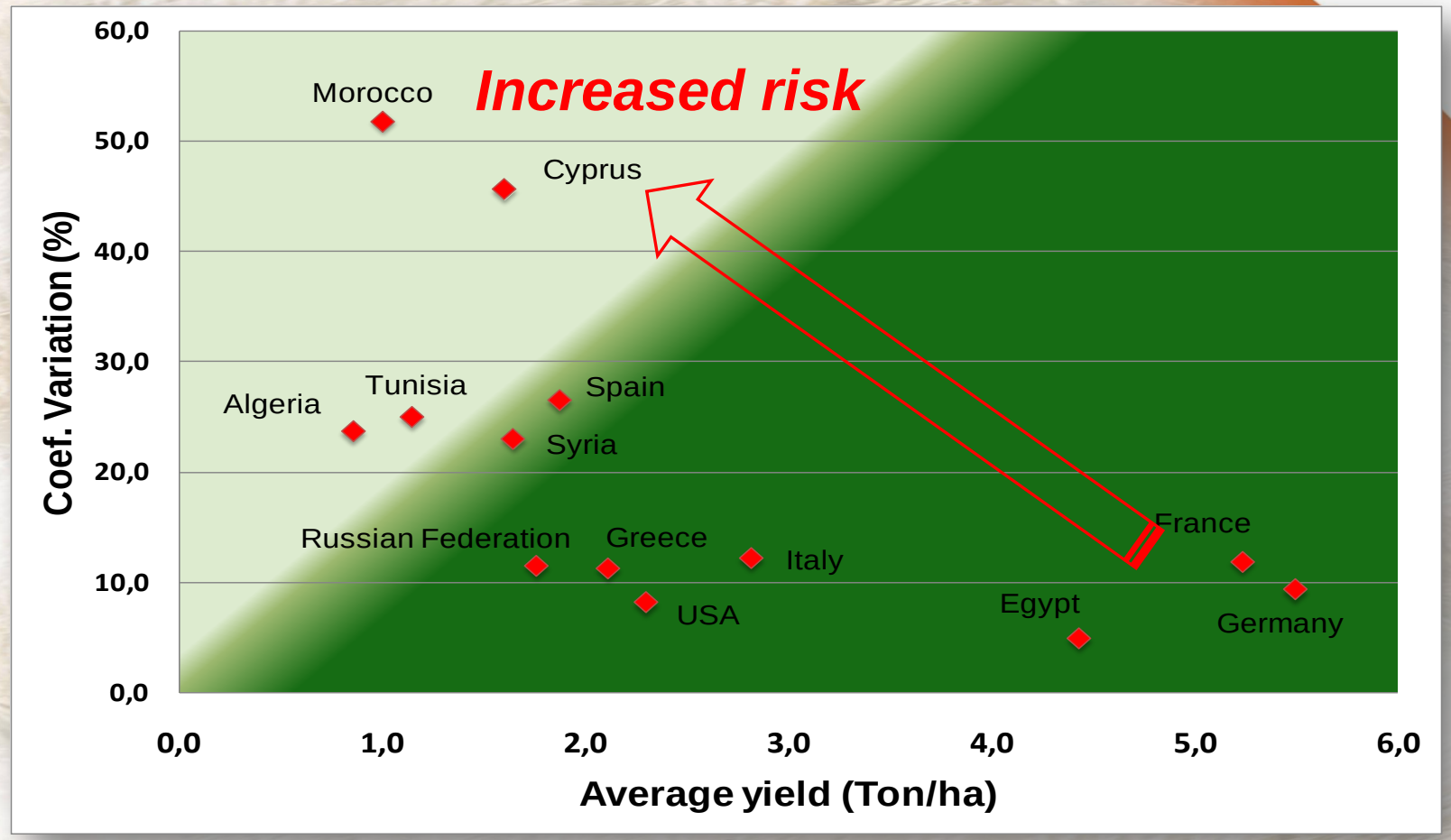
The Atlas mountains capture moisture and store it in the form of snow

Since the 80s no more eternal snow and some rivers are no more eternal

Evidence of climate change (decreased rainfall)

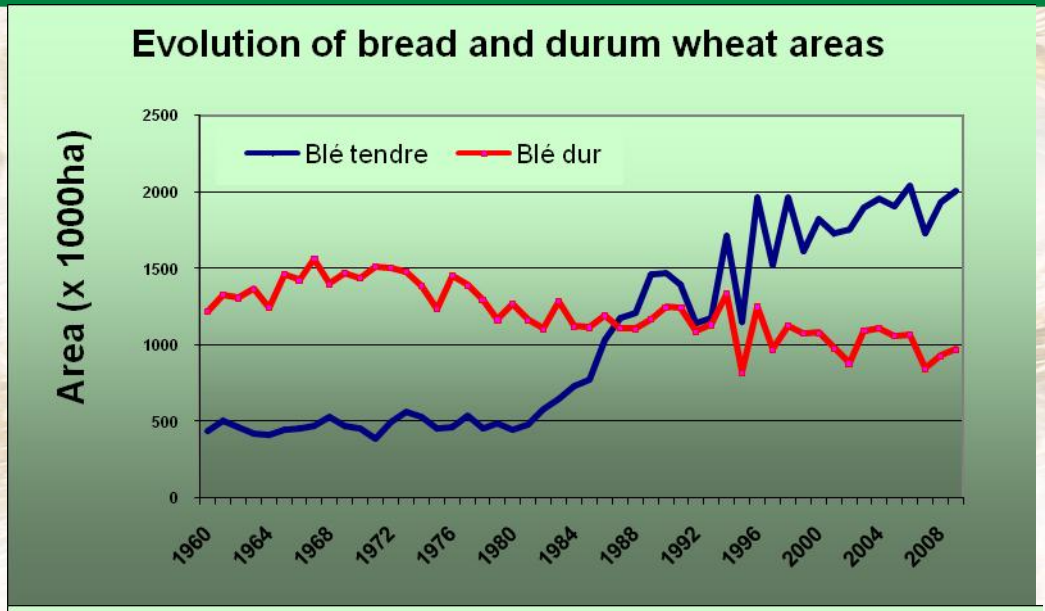


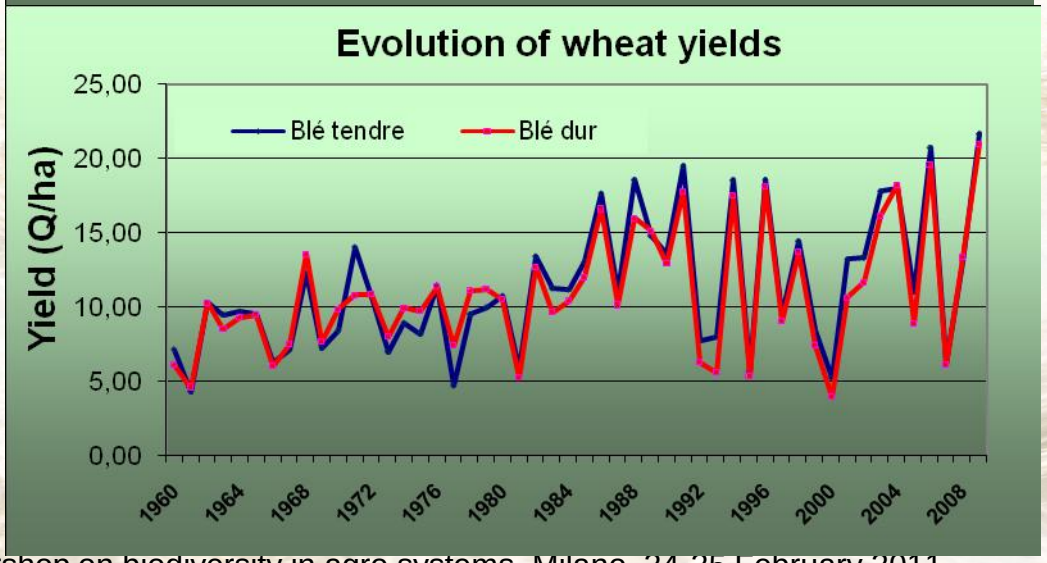
Impact of climate change on food security



Instability of food security resulting from low and fluctuating cereal yields due to erratic weather and limited irrigation capacities

Impact of climate change on food security





Wheat areas fluctuate depending on rainfall

1. ***Yields fluctuate in a ratio of 1 to 7***
2. ***Production fluctuates in a ratio of 1 to 5***

Expected climate change (Temperature)

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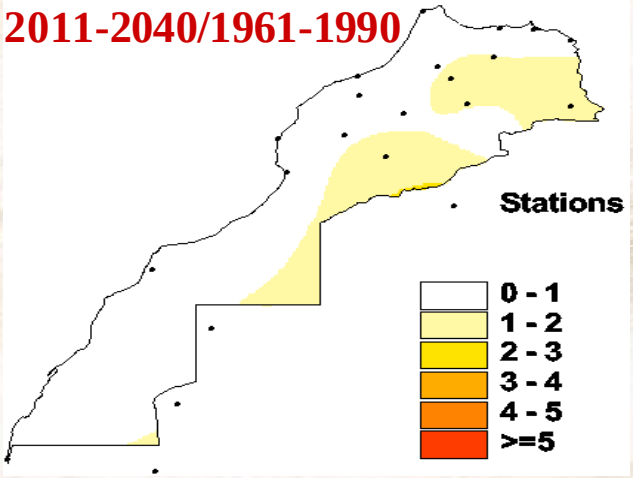
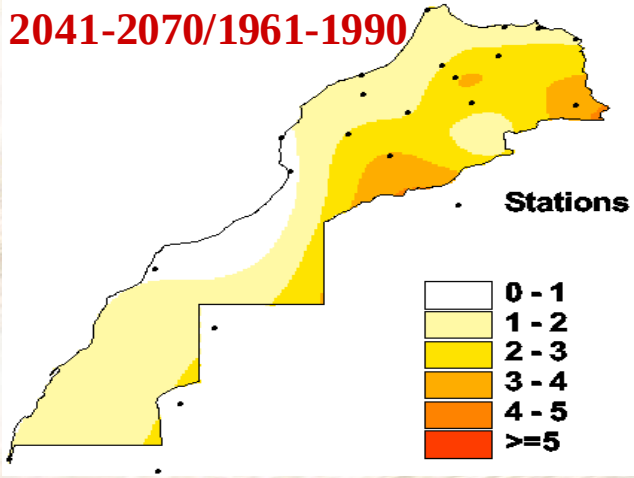
Anomalies de la Température Moyenne (Scénario A2)

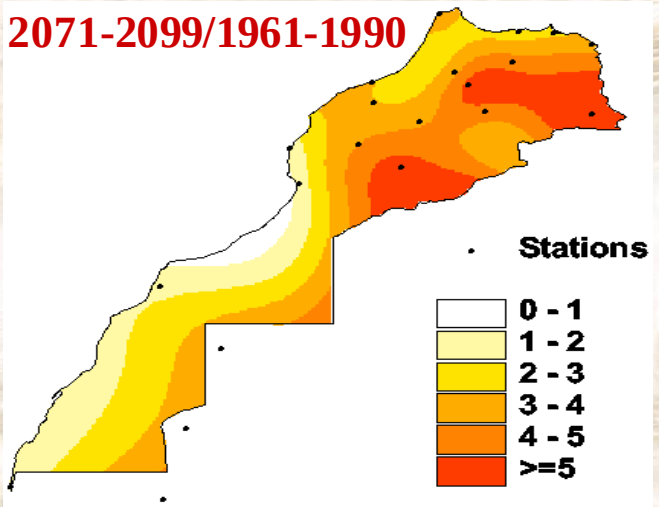
2011-2040/1961-1990



2041-2070/1961-1990



2071-2099/1961-1990



Gommes et al. 2009

Expected climate change (Precipitations)

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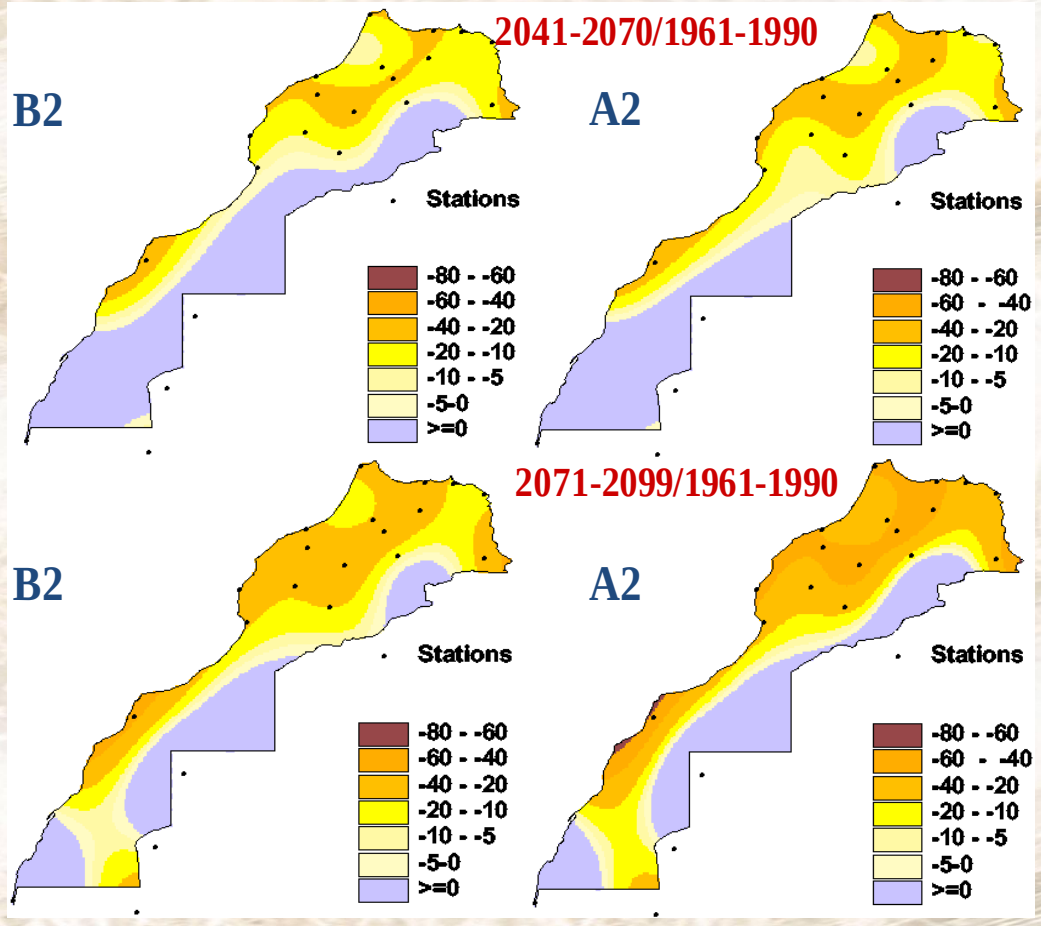
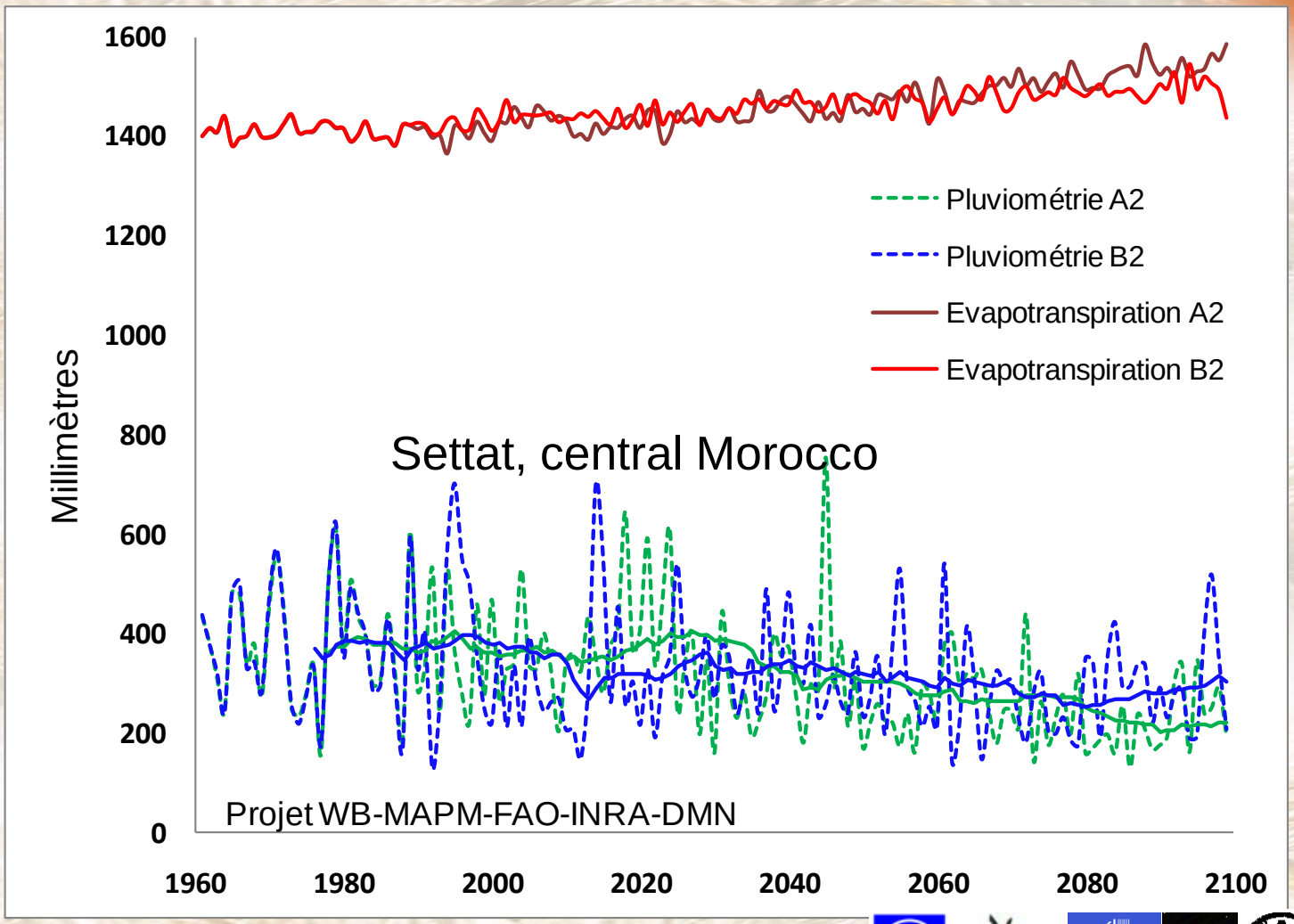
Anomalies de précipitations (Scénario A2 et B2)



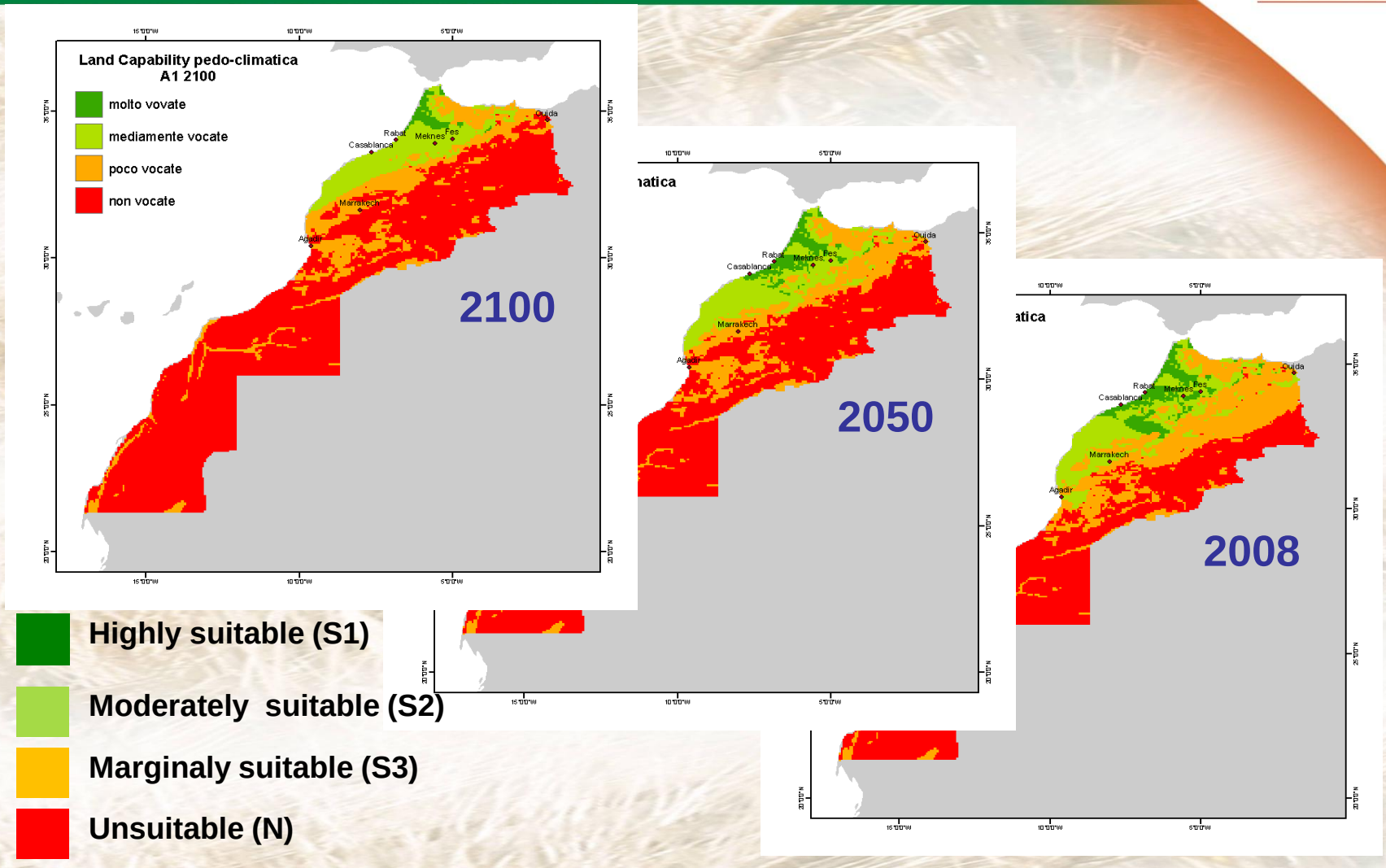
Whatever scenario used, aridity is expected to increase

Gommes et al. 2009

Expected climate change (extreme events)



Expected impact of climate change (land suitability)



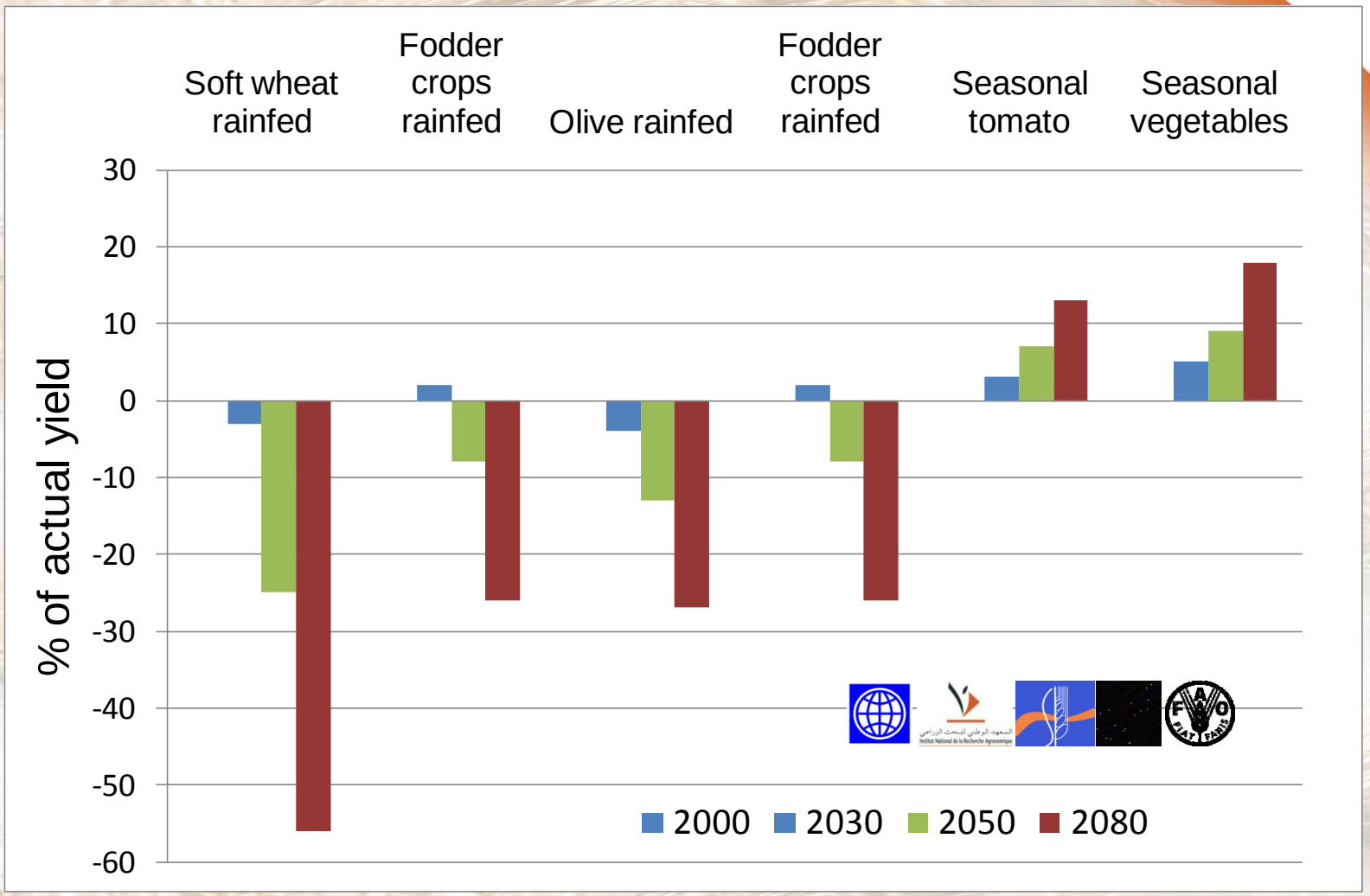
Highly suitable (S1)

Moderately suitable (S2)

Marginaly suitable (S3)

Unsuitable (N)

Expected impact of climate change on crops



Expected impact of climate change on crops

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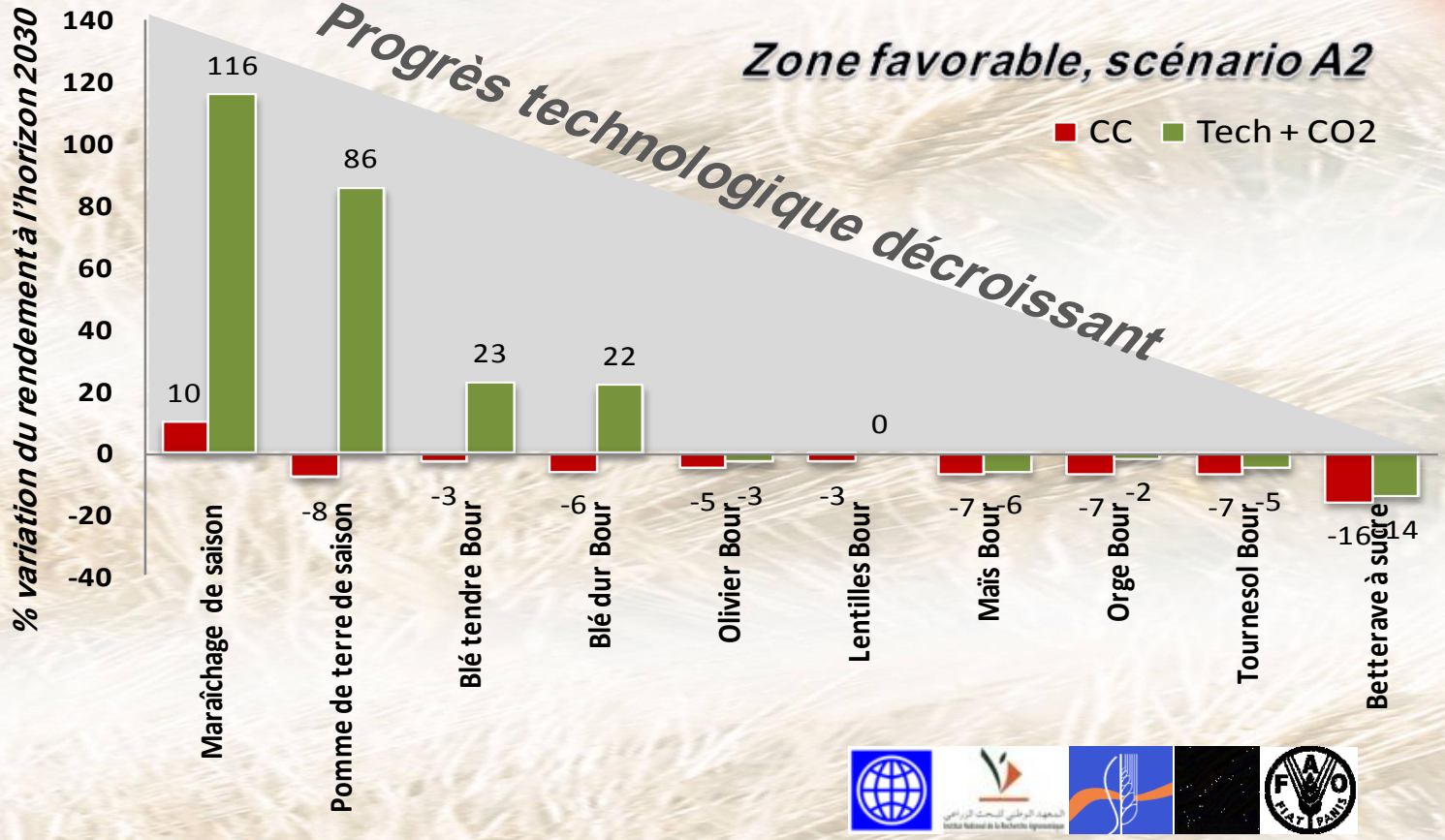
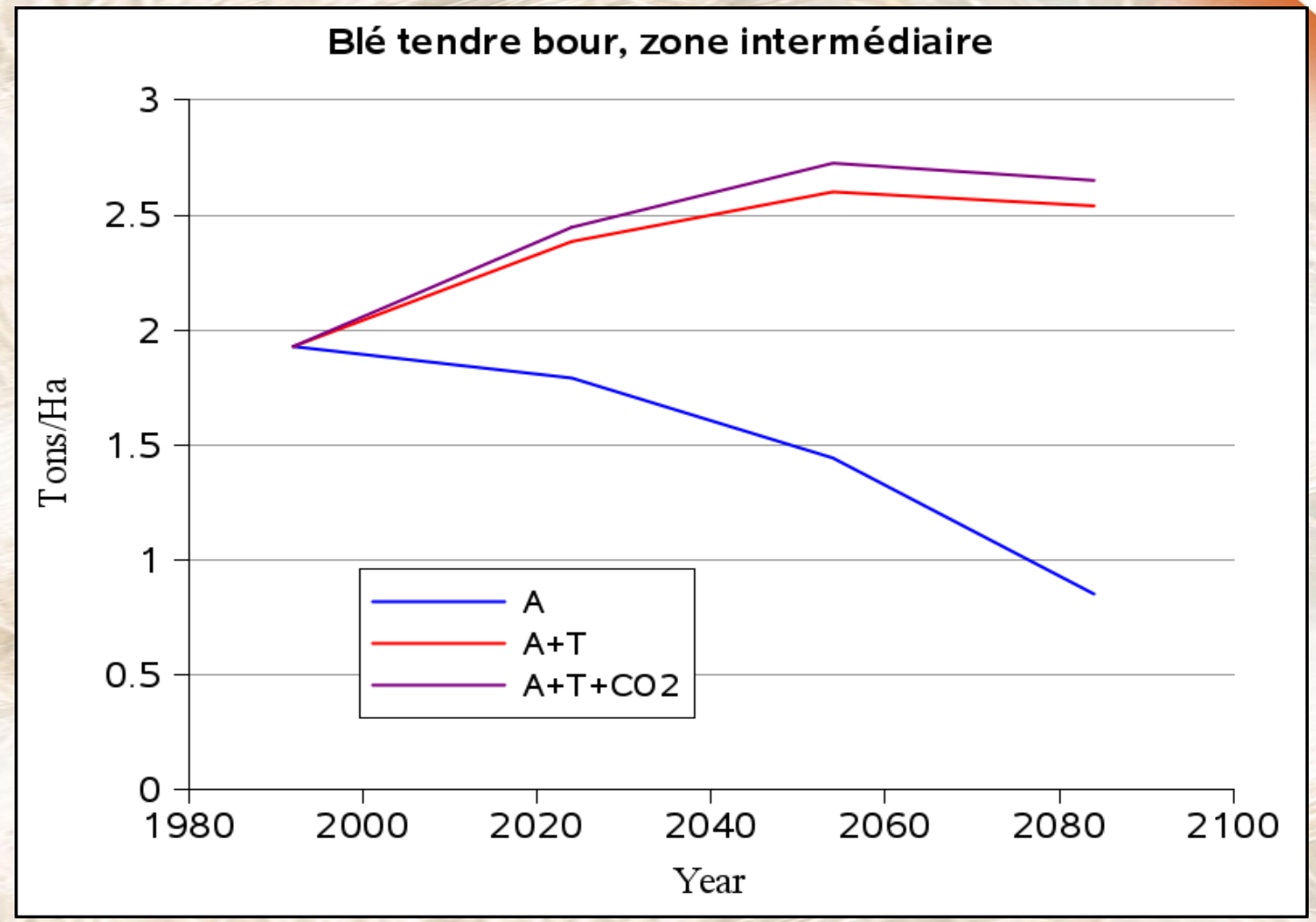
Higher impacts on crop with low technological trend

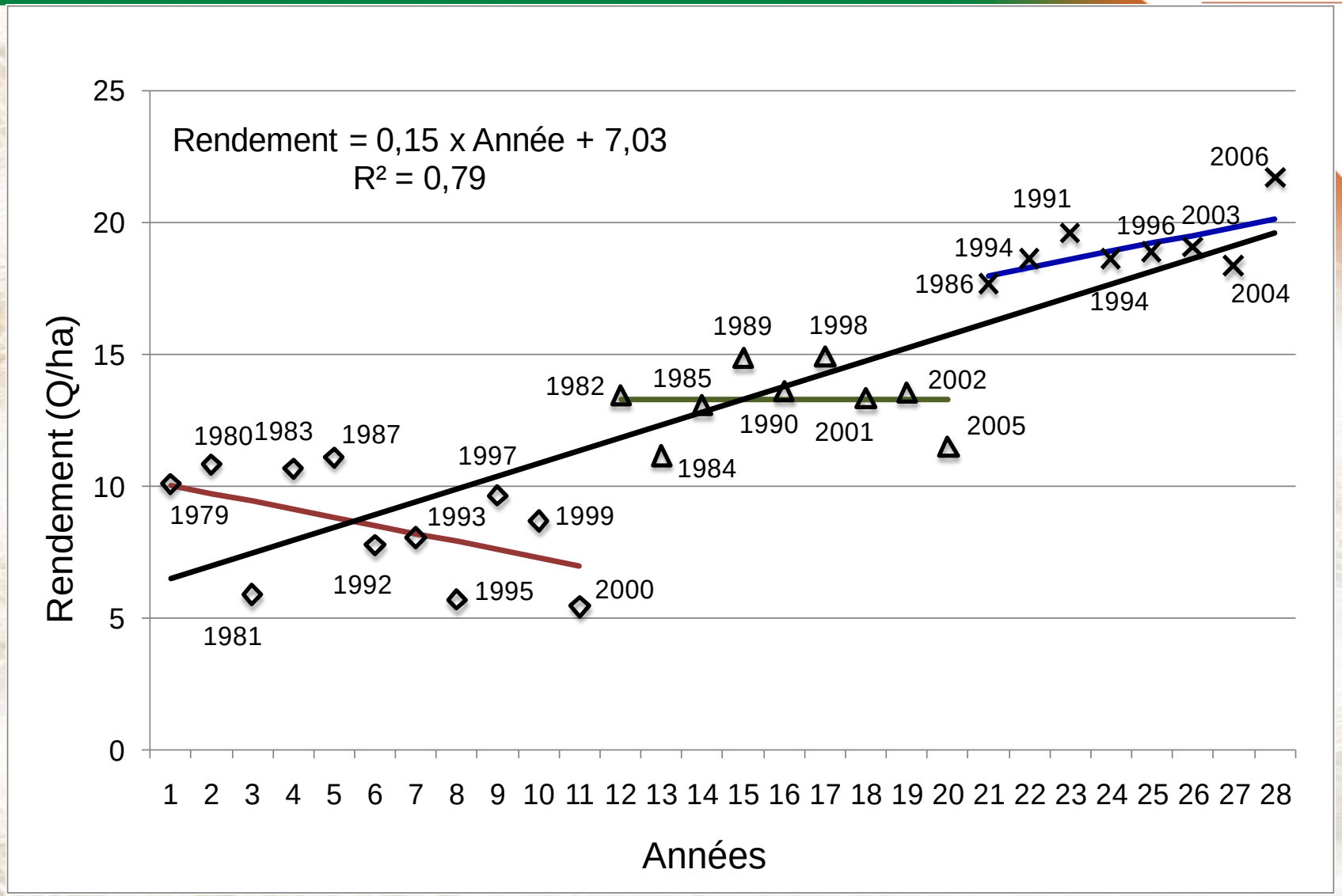


Expected impact on bread wheat in Morocco

in the absence (A) or presence (A+T) of technological trend, and CO2



Technology trend for bread wheat at three agro systems



Adaptation to climate change

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- ***Technological improvement for:***
  - ***rainfed (green water efficiency) and***
  - ***irrigated (blue water efficiency) crops;***

- ***Effective planning and implementation of strategies at the political level .***

المعهد الوطني للبحث الزراعي
Institut National de la Recherche Agronomique

Grazie

Thank you
شكرا
Merci
Спасибо
Gracias
谢 谢

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