

IRRIGATION



QUELLES STRATÉGIES POUR ÉCONOMISER L'EAU ? WHAT STRATEGIES FOR WATER SAVINGS ?

REGARDS CROISÉS EUROPÉENS
SHARING EUROPEAN VIEWS



13 - 14

nov. 2019

MONTPELLIER

FRANCE



PROJET COFINANCÉ PAR LE FONDS EUROPÉEN AGRICOLE POUR LE DÉVELOPPEMENT RURAL
L'EUROPE INVESTIT DANS LES ZONES RURALES



MONTPELLIER UNIVERSITY OF EXCELLENCE WATERS



Irrigation efficiency and water saving: scale and rebound effects



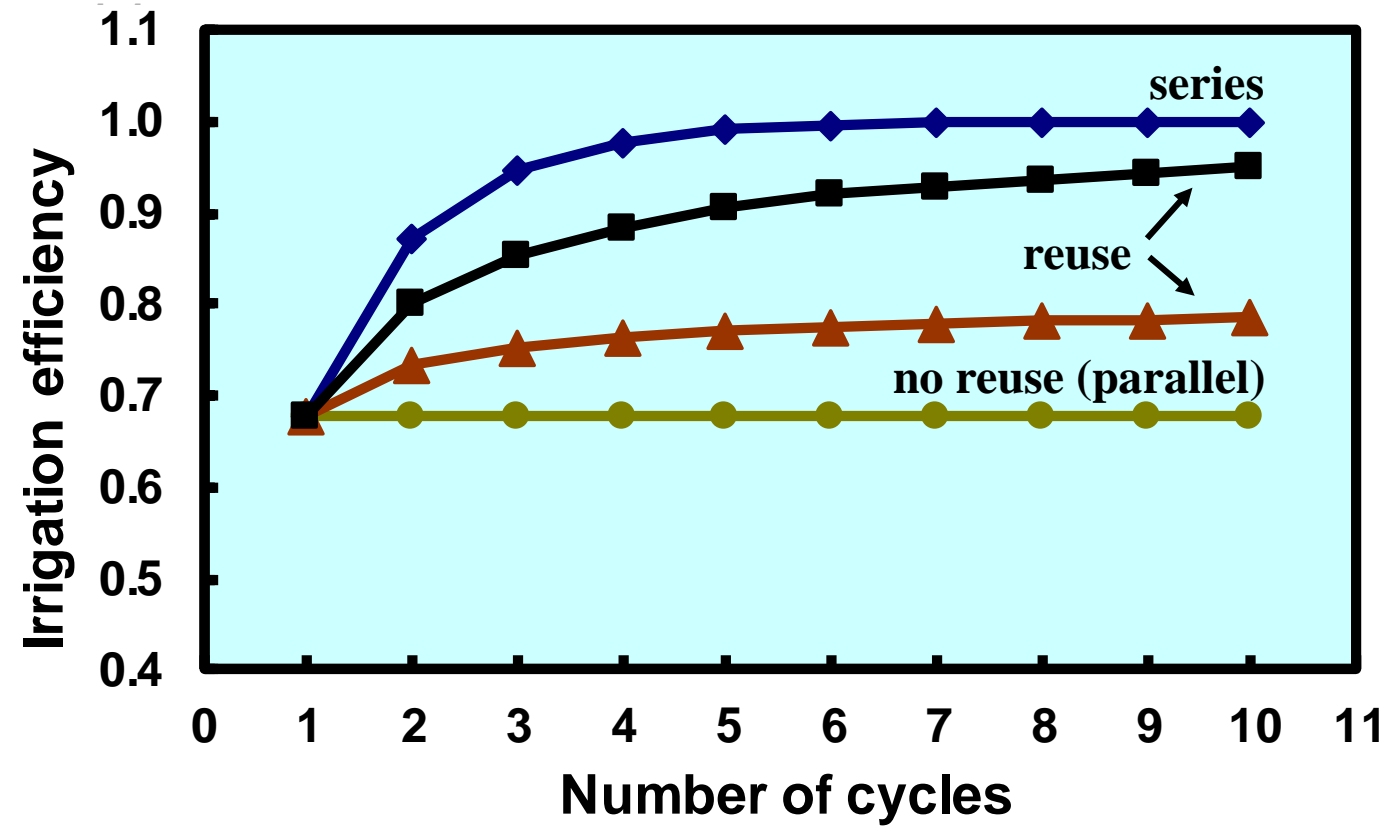
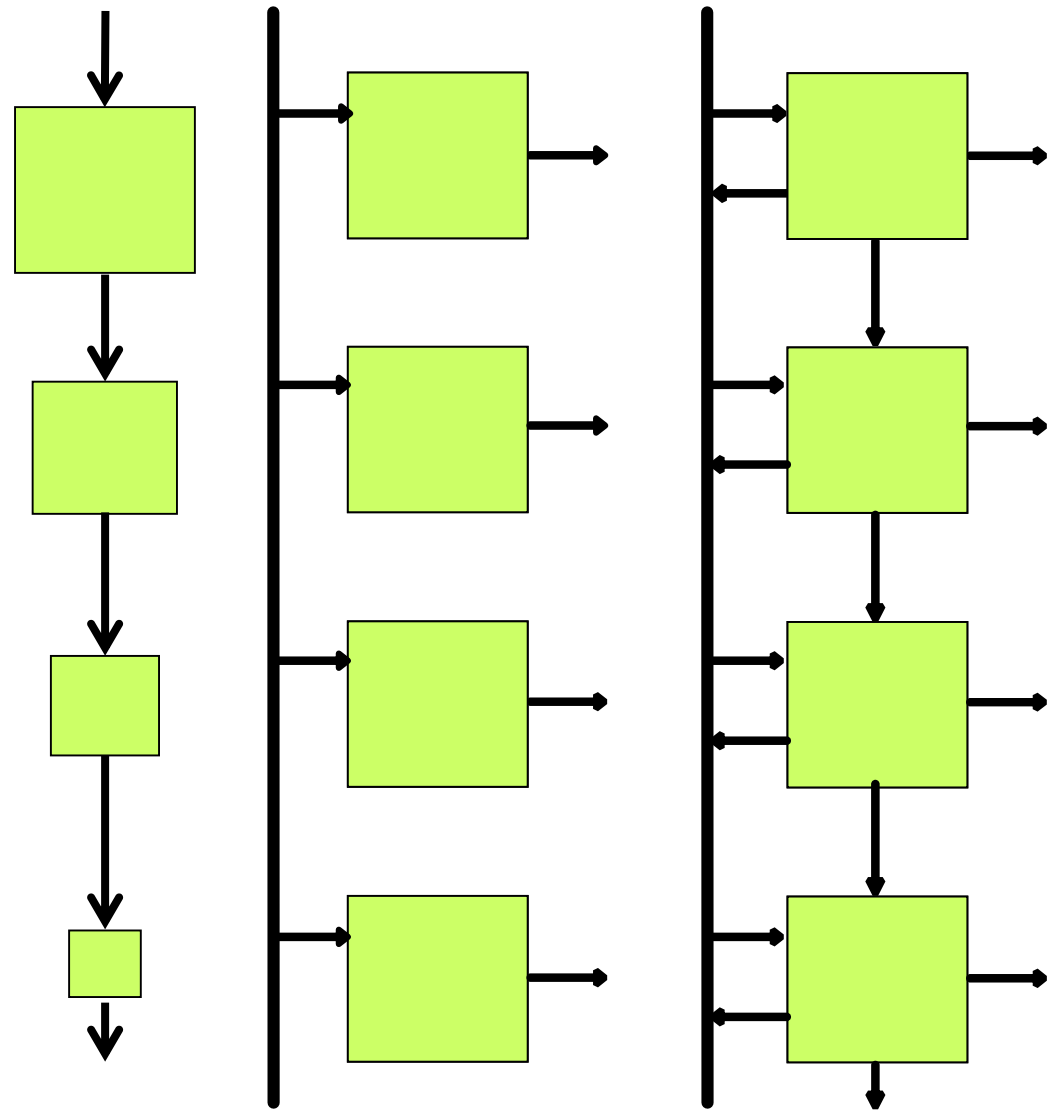
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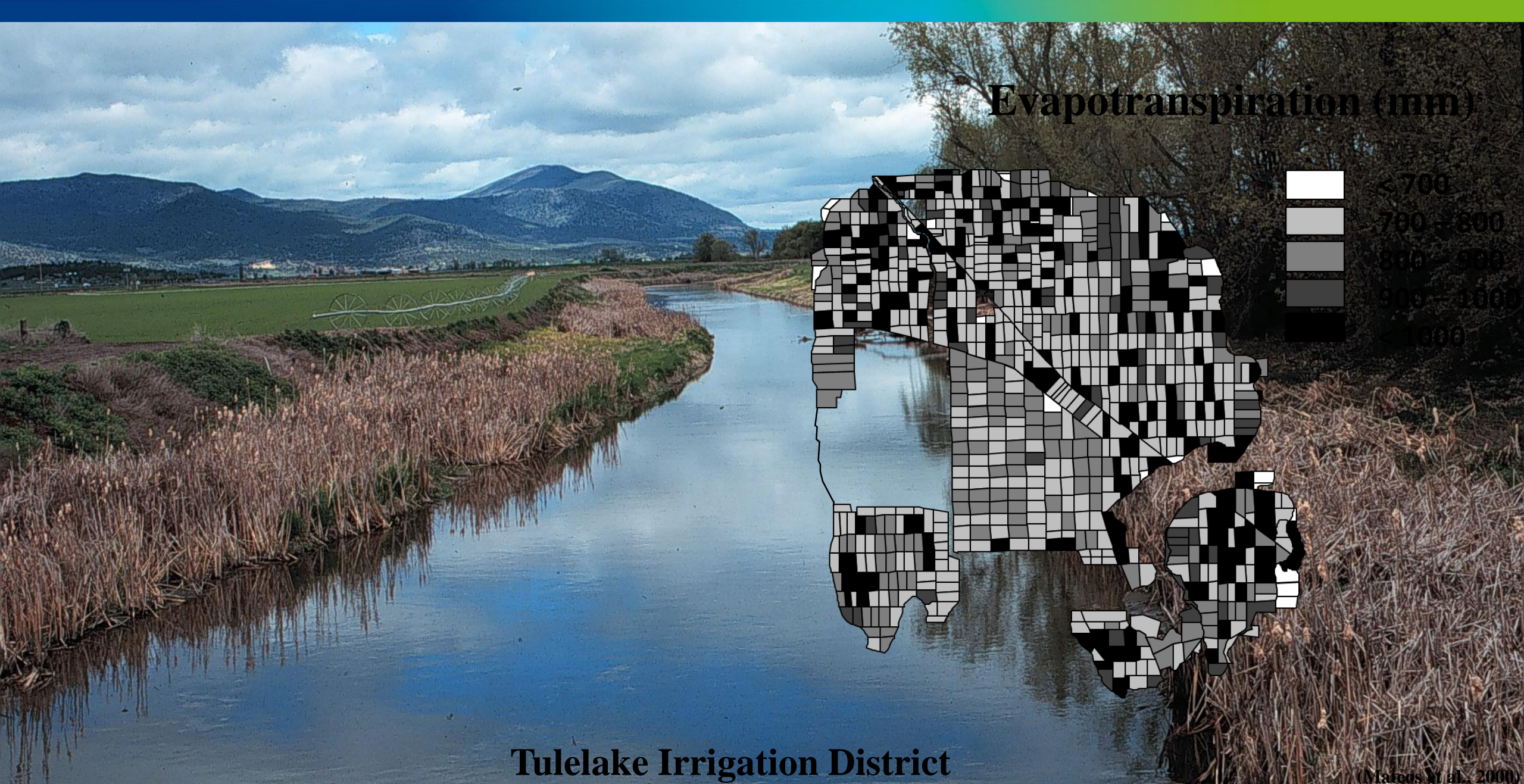
Series

Parallel

Mixed



(Mateos, 2008)

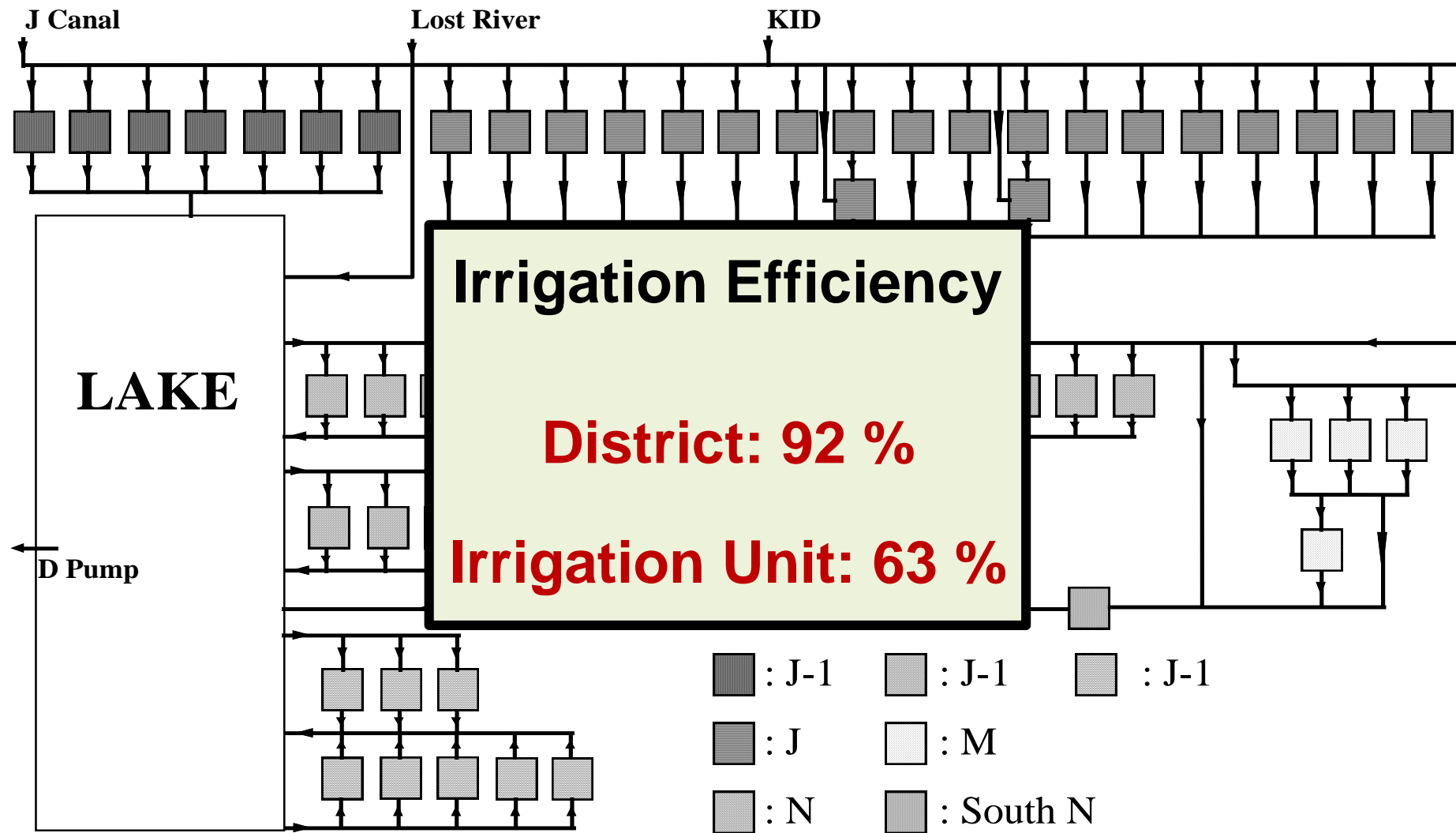


Evapotranspiration (mm)



Tulelake Irrigation District

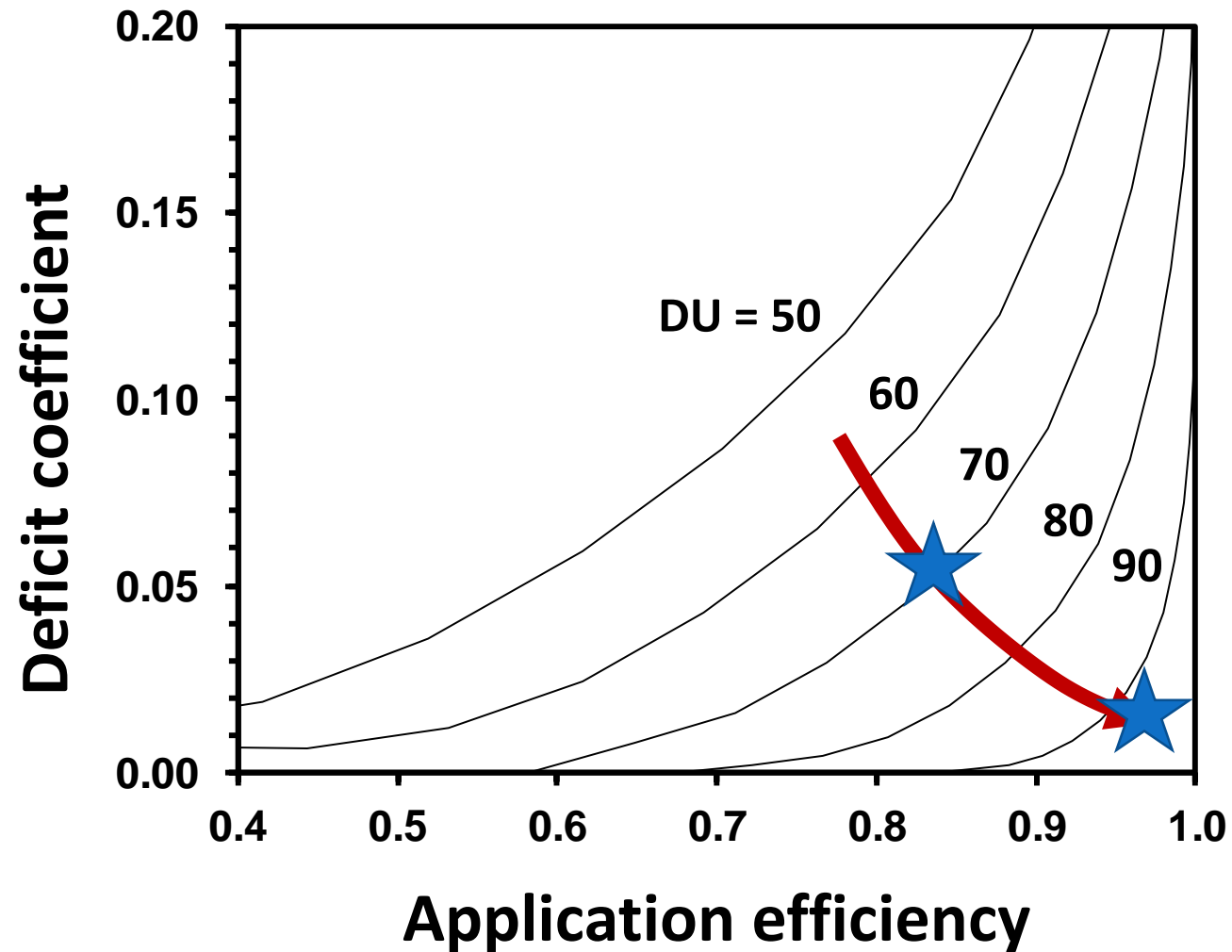
(Mateos et al., 2000)



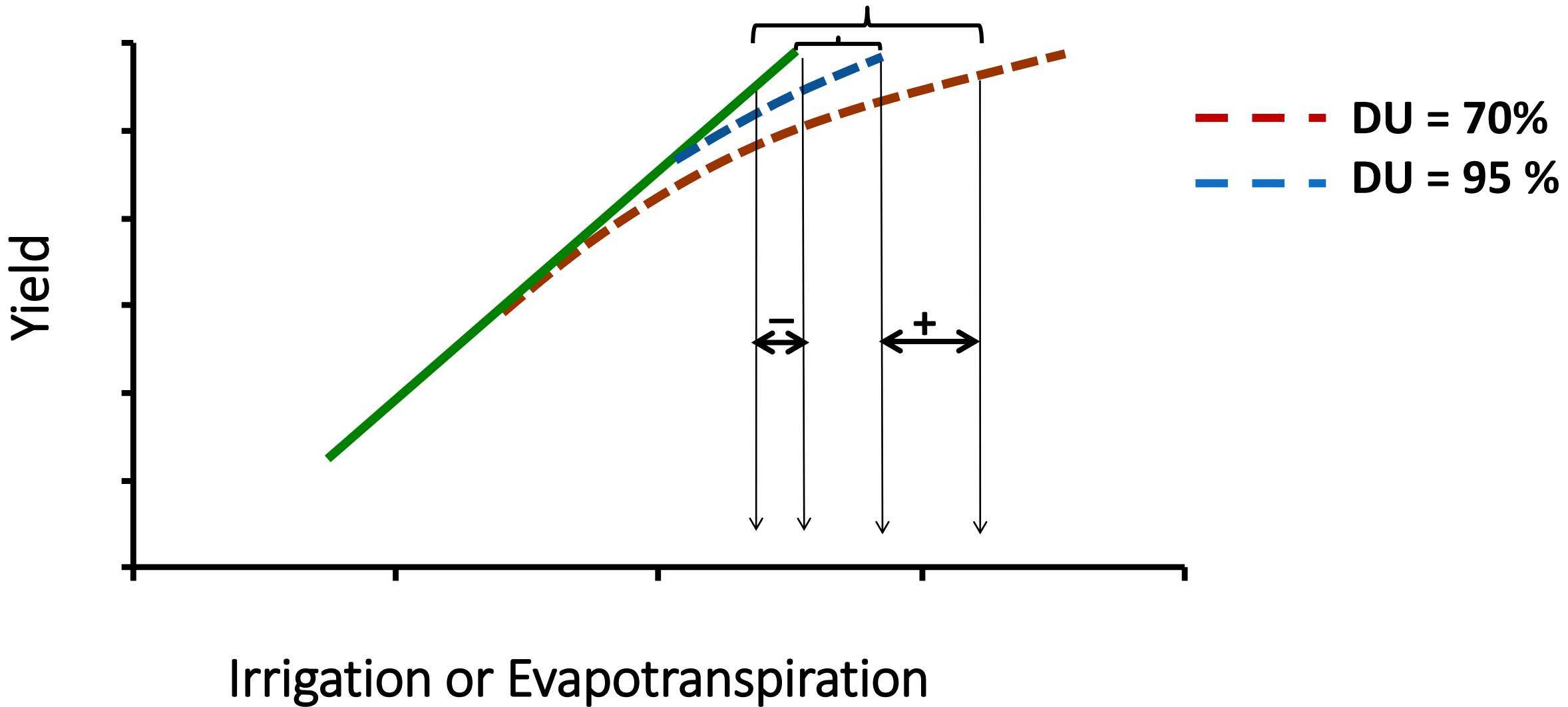
Tulelake Irrigation District

(Mateos et al., 2000)

Trajectory of irrigation modernization

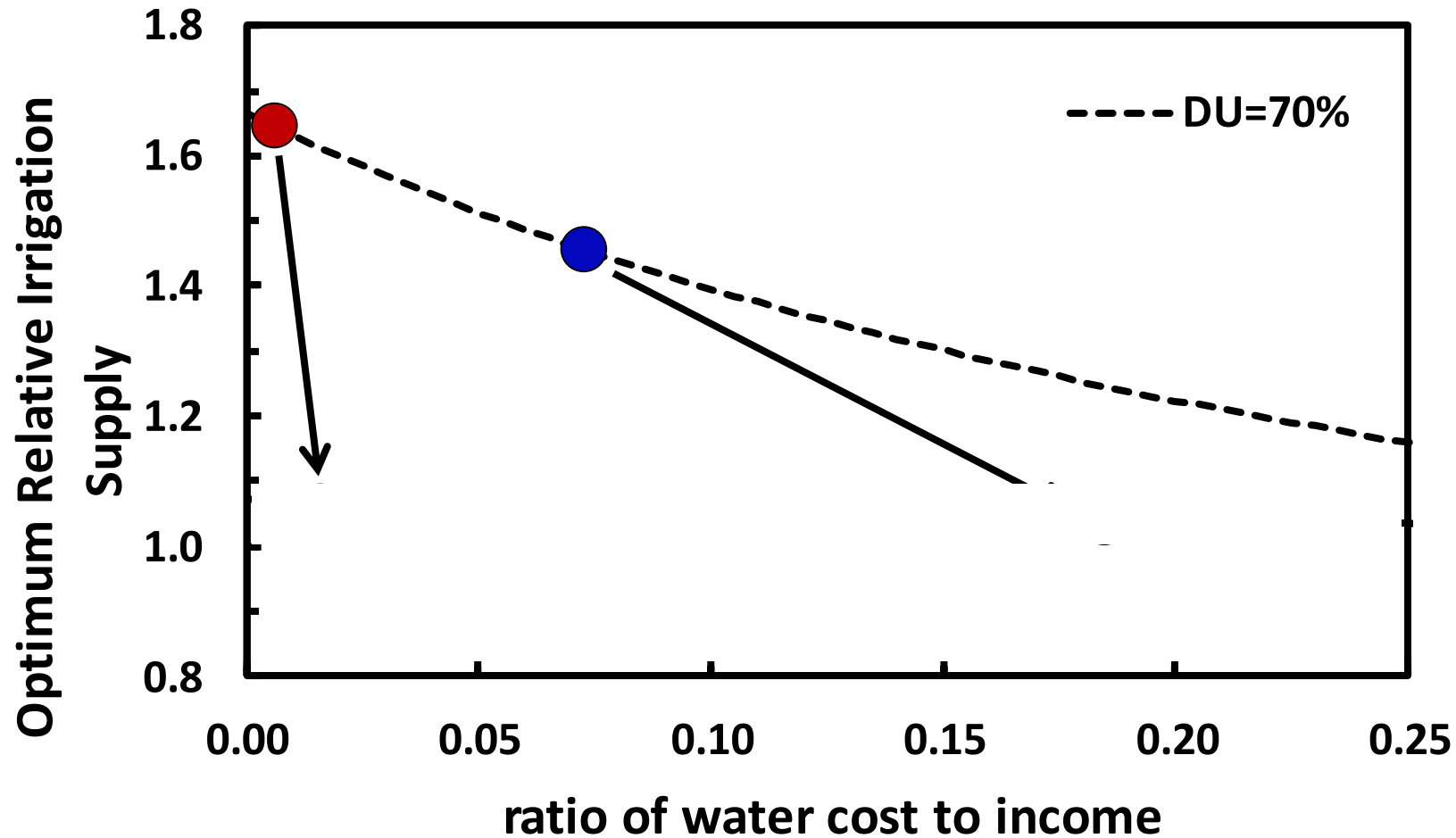


(Playán and Mateos, 2004)



1) land is limiting

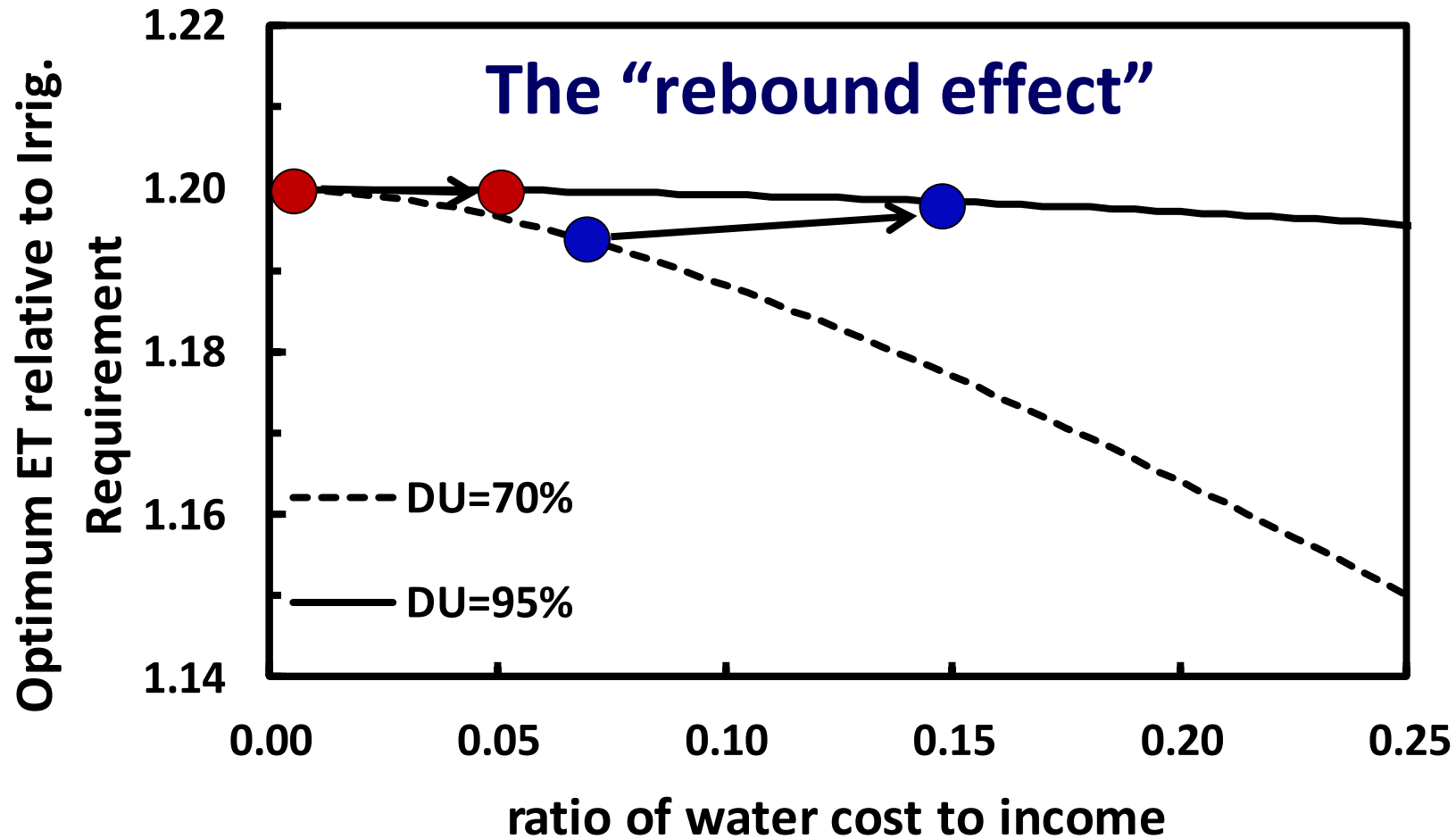
● horticultural crop ● maize-type crop



(Berbel, Mateos, 2014)

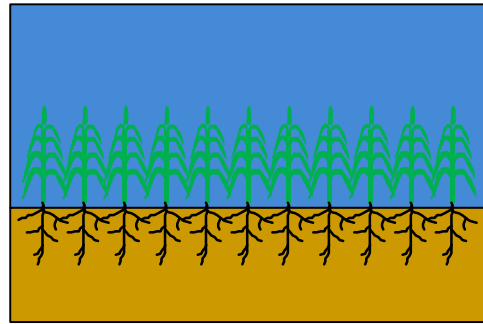
1) land is limiting

● horticultural crop ● maize-type crop

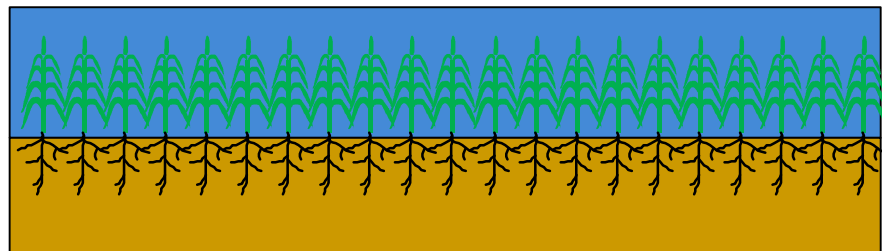
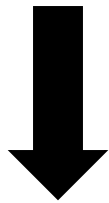


(Berbel, Mateos, 2014)

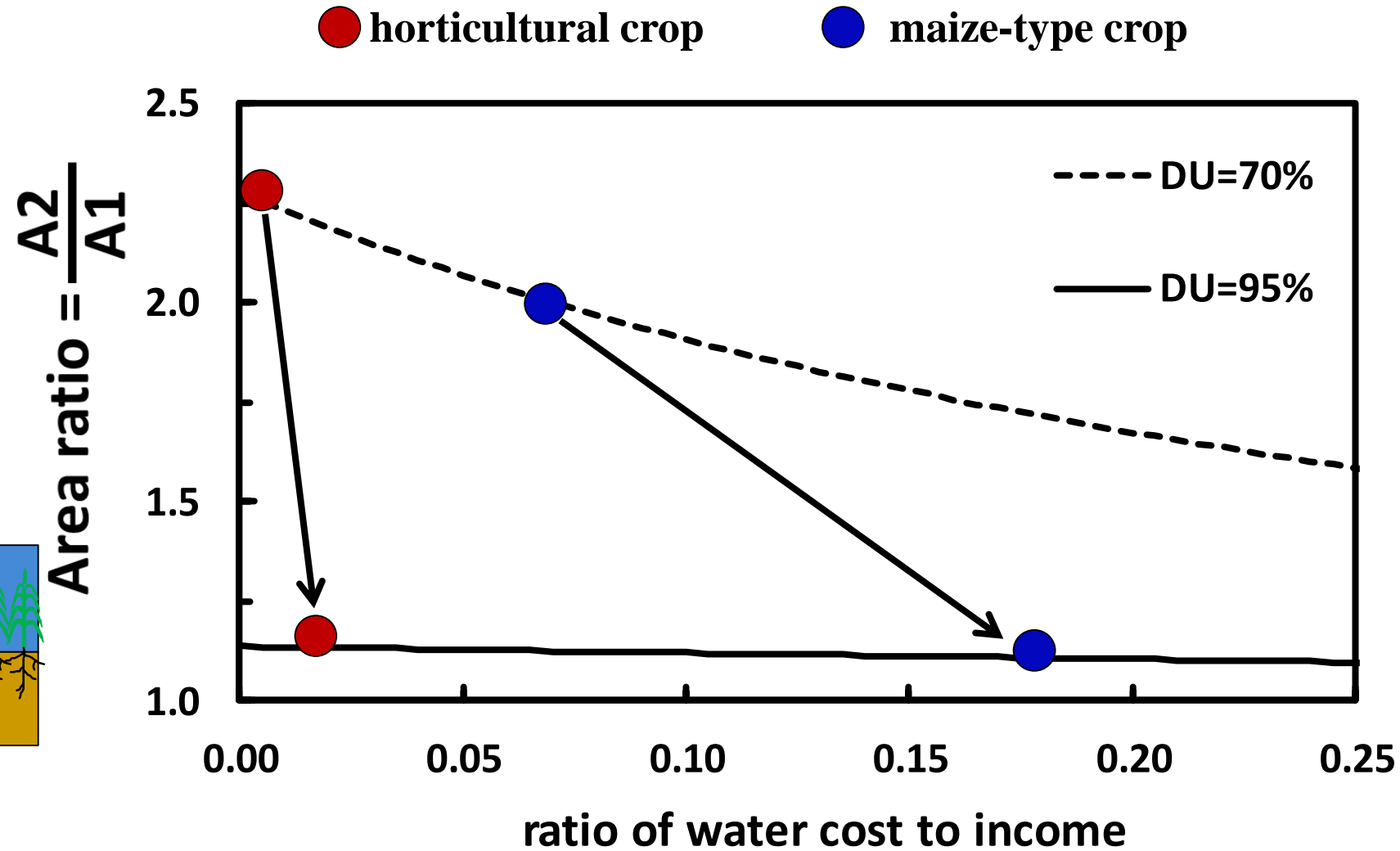
2) water is limiting



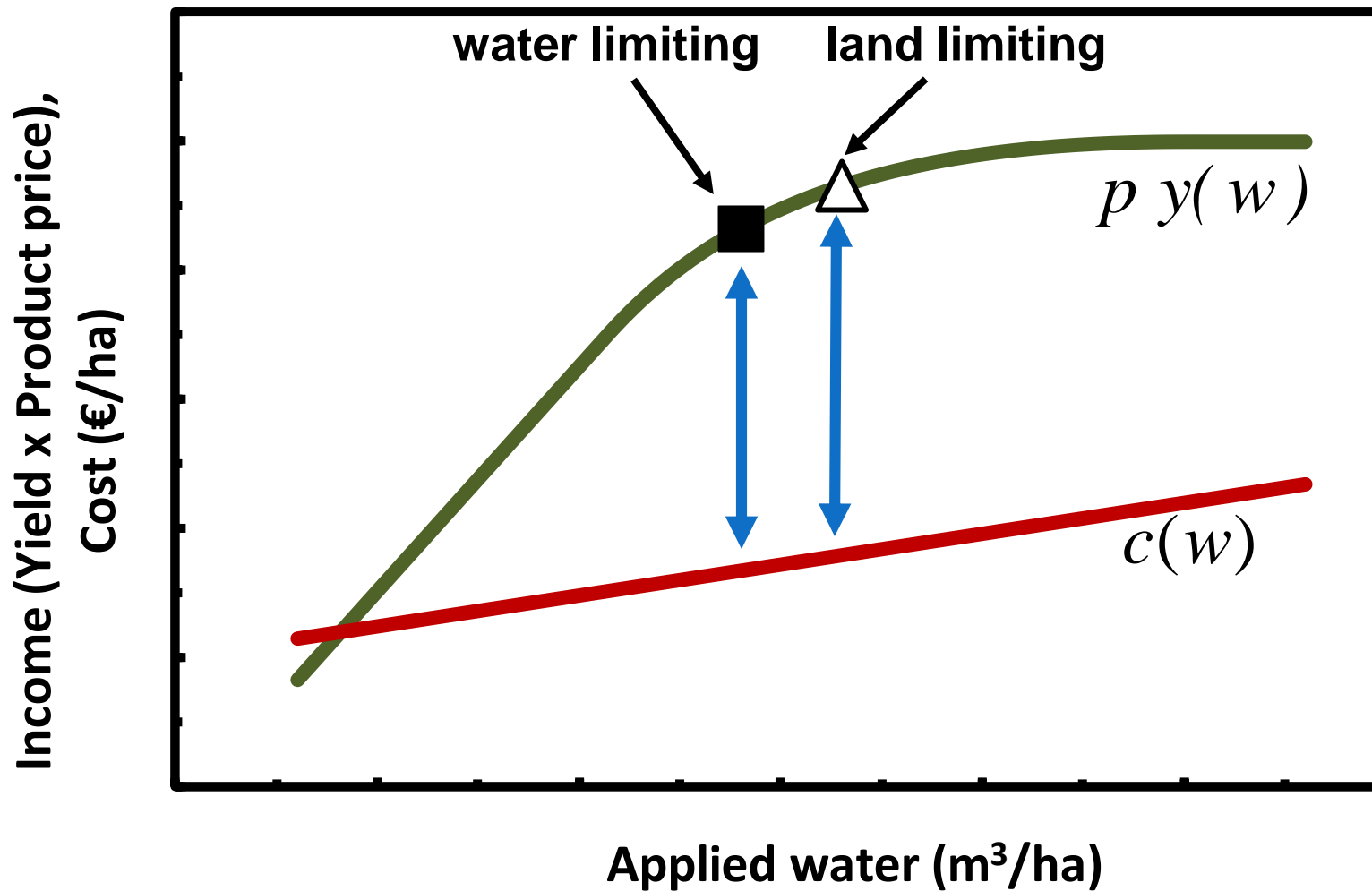
A1



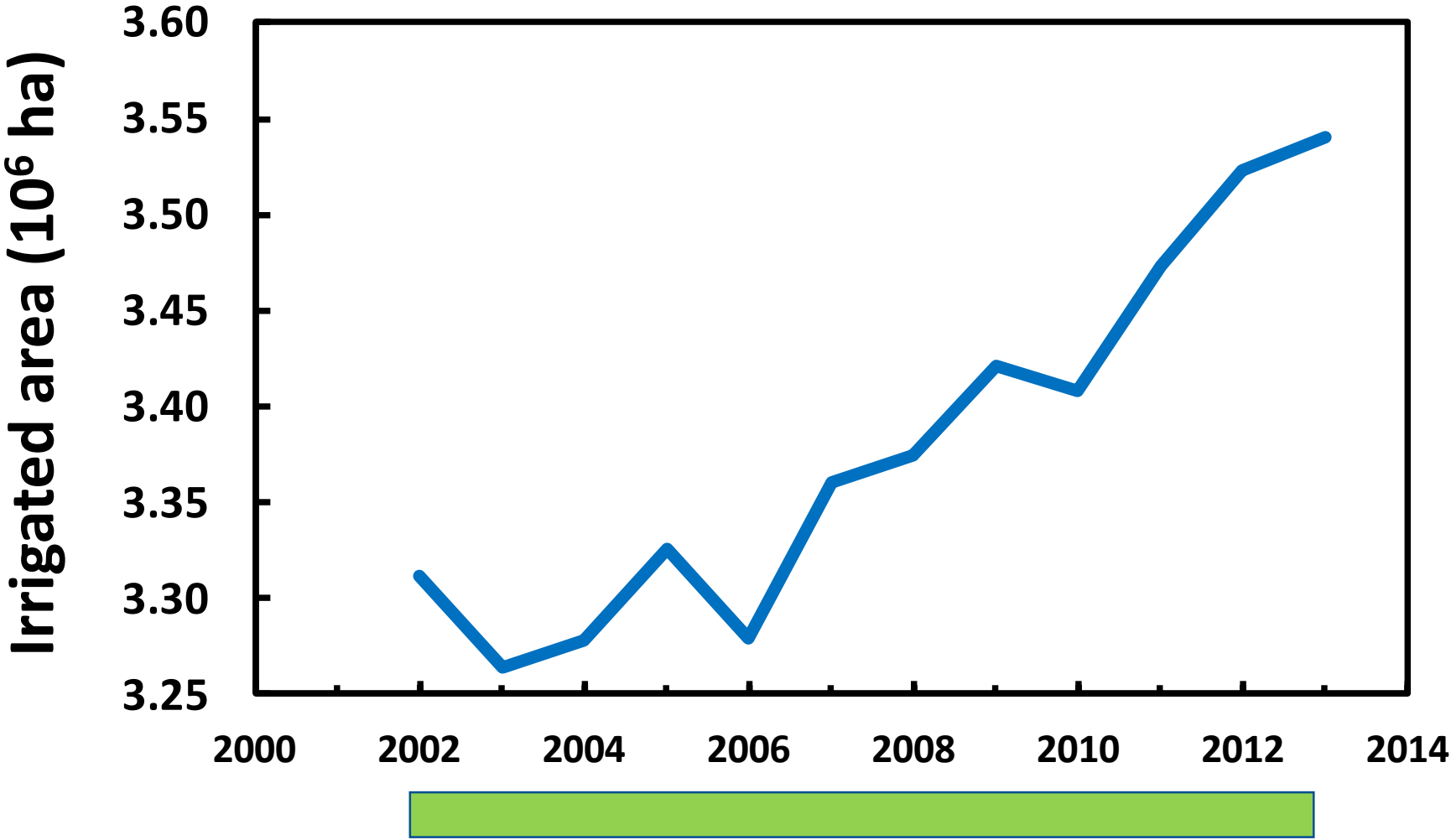
A2

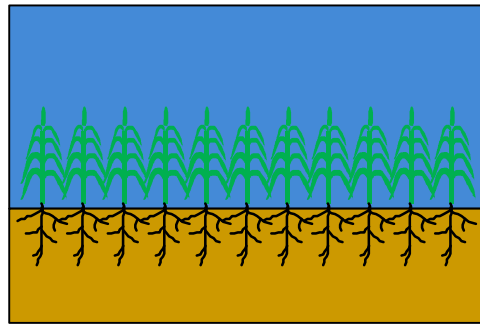


(Berbel, Mateos, 2014)

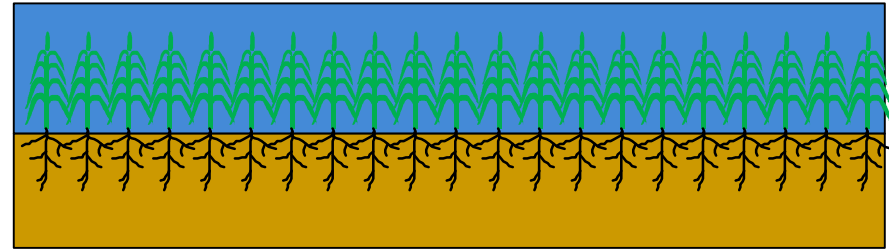


Irrigated area in Spain

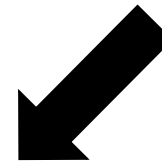




A1

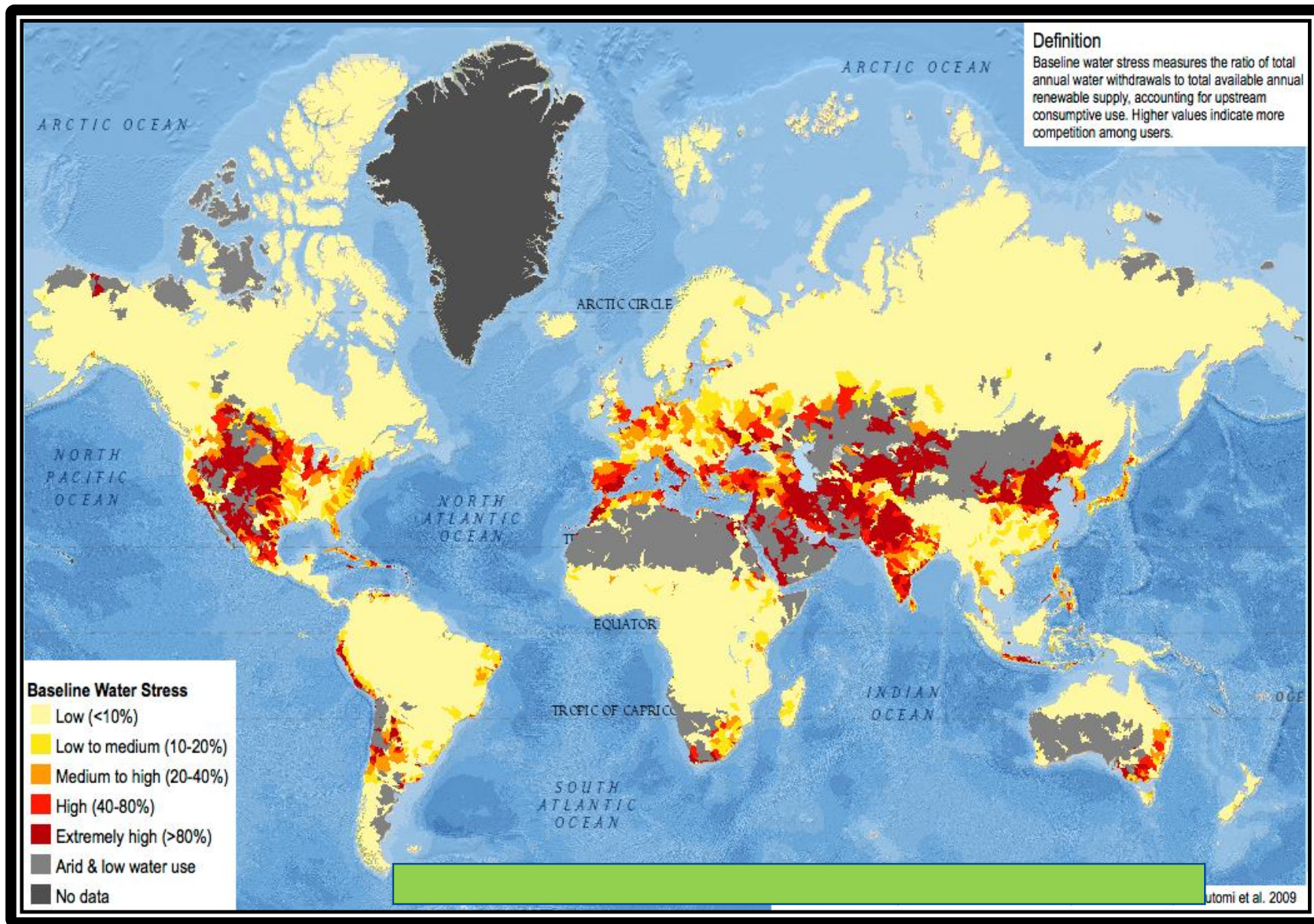


A2



A2

“rebound effect”



Conclusions

- The effect of improving unit irrigation efficiency on basin irrigation efficiency is highly dependent on the hydrological arrangement of the irrigation units
- In closed basins, water is conserved only by reducing evapotranspiration
- The improvement of irrigation efficiency may entail an increase of water consumption (“rebound effect”)
- There is the temptation of investing “water savings” into an expansion of irrigated area, increasing water consumption (“rebound effect”)
- [There are good reasons to improve on-farm irrigation efficiency]



Thank you !

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