



**The Abdus Salam
International Centre for Theoretical Physics**



2242-7

**Joint ICTP-IAEA Workshop on Uncovering Sustainable Development
CLEWS; Modelling Climate, Land-use, Energy and Water (CLEW)
Interactions**

30 May - 3 June, 2011

The AquaCrop approach

STEDUTO Pasquale
*Water Development and Management Unit
FAO Food and Agriculture Organisation
Roma
ITALY*

FAO WATER

AquaCrop: The new FAO's crop water-productivity model

Pasquale STEDUTO
 Deputy Director
 Land and Water Division
 FAO, Rome

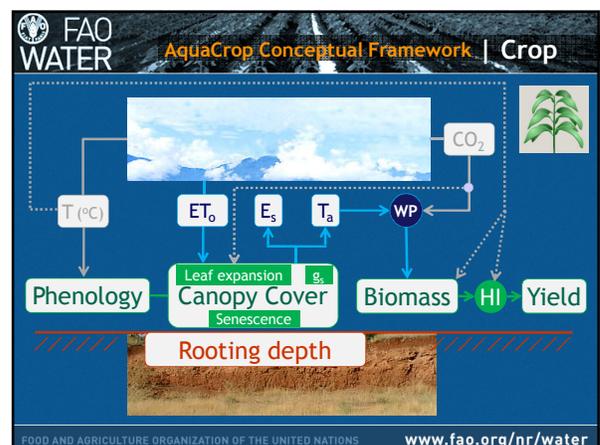
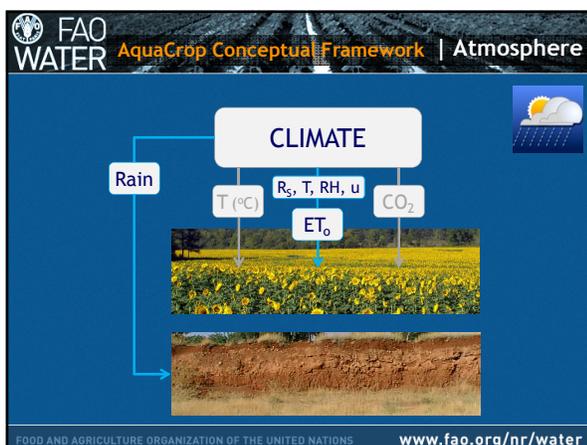
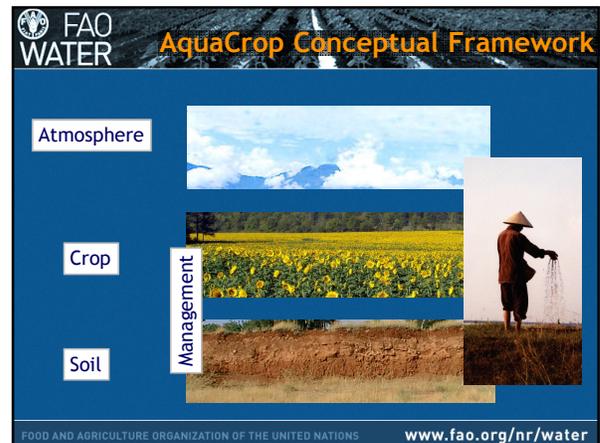
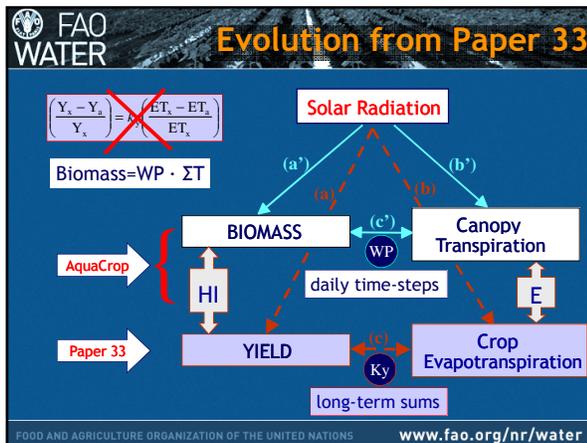
*Modeling Climate, Land-use, Energy and Water (CLEW) Interactions
 Joint ICTP-IAEA Workshop
 Trieste 30 May-3 June 2011*

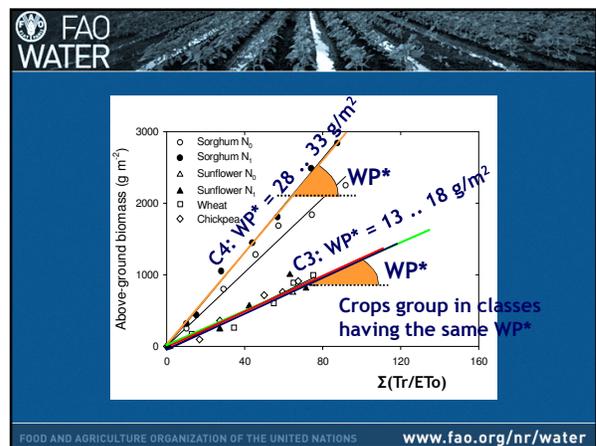
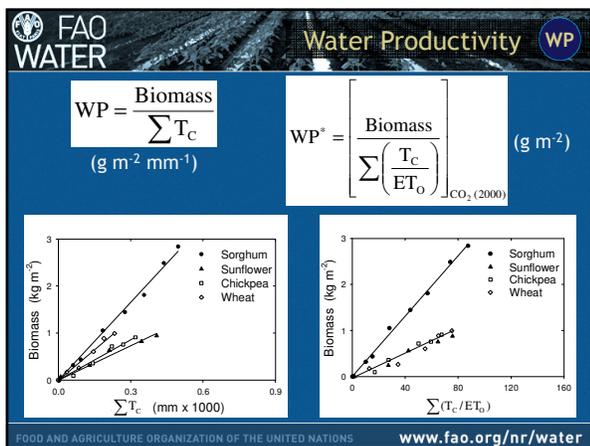
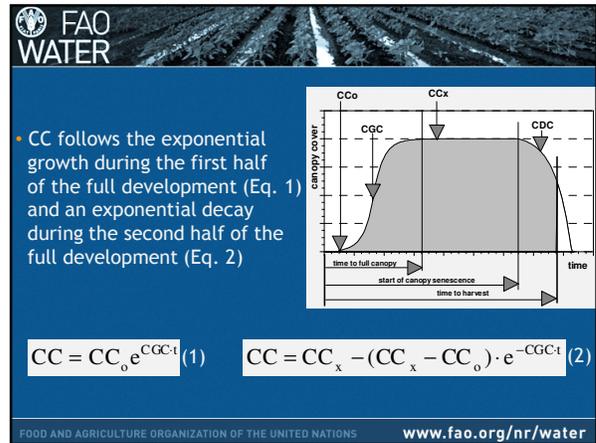
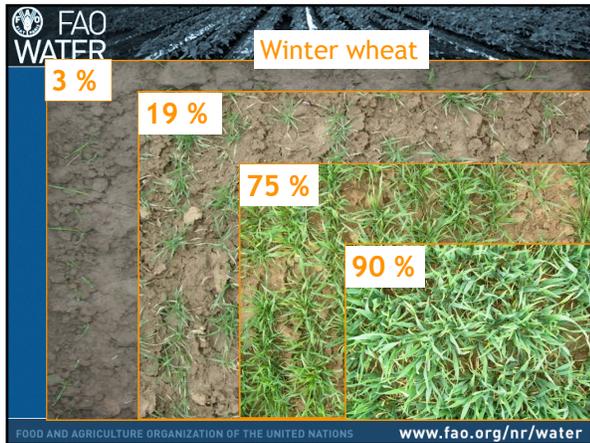
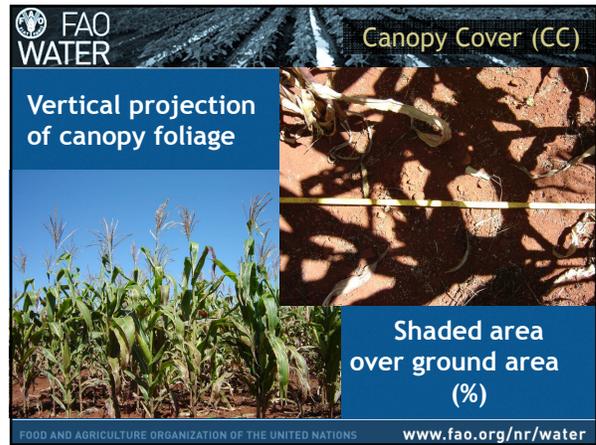
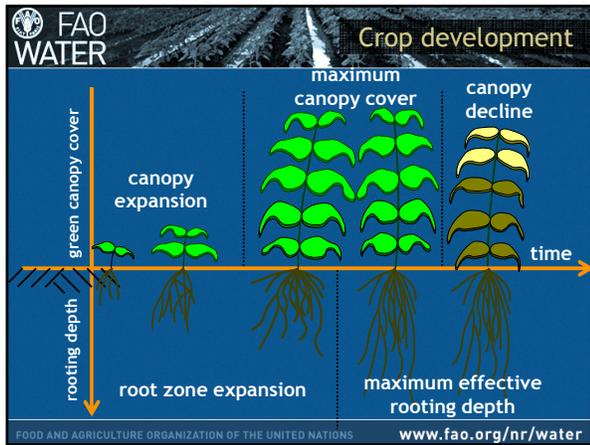
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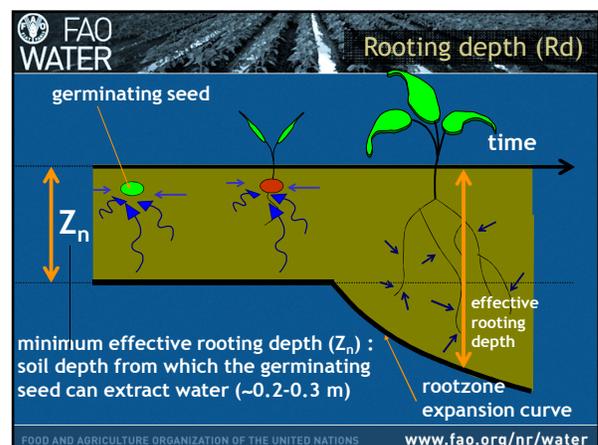
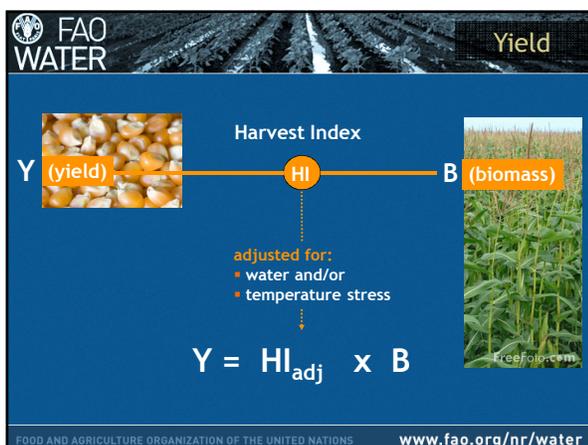
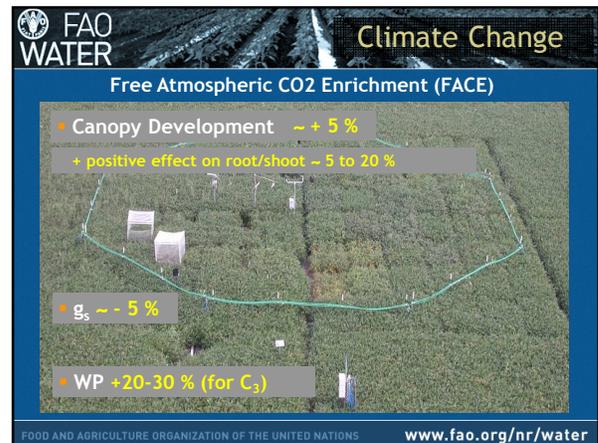
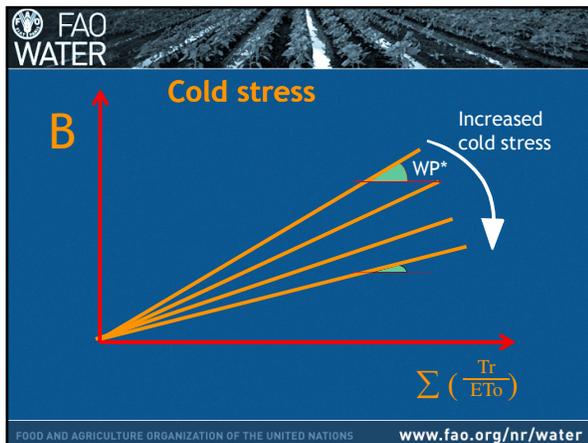
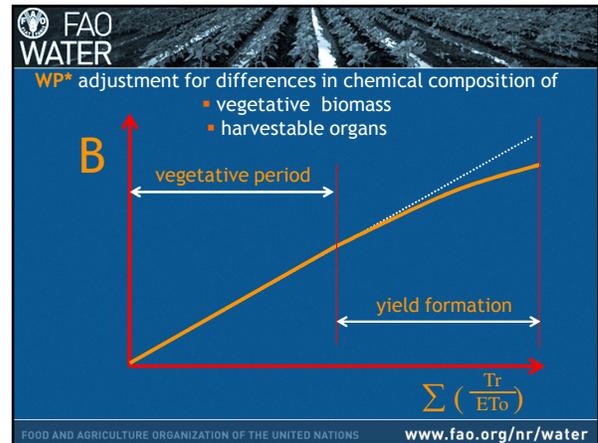
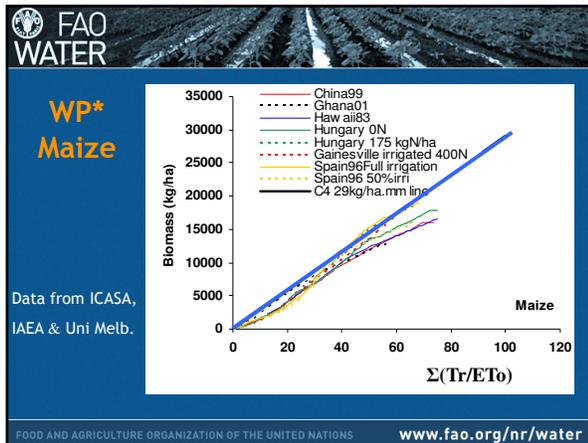
FAO WATER **Background**

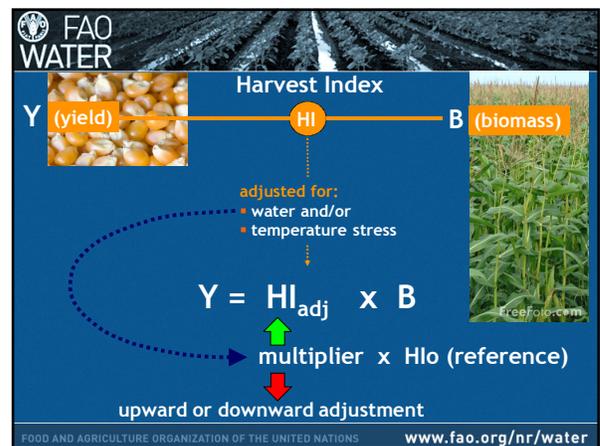
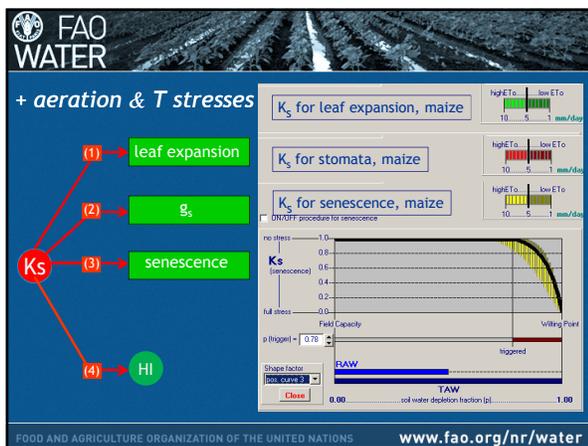
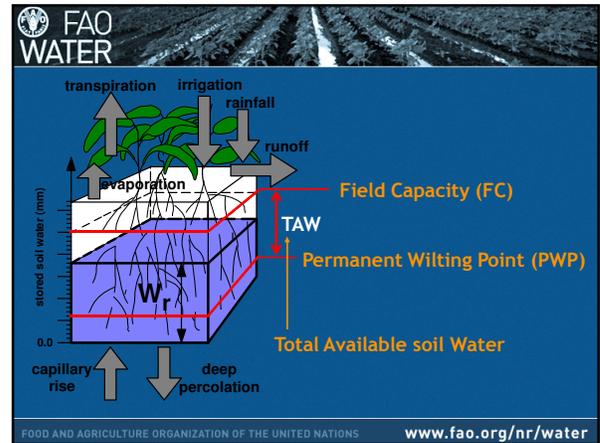
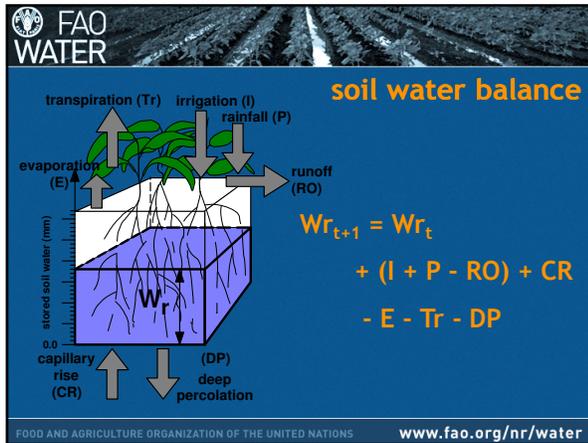
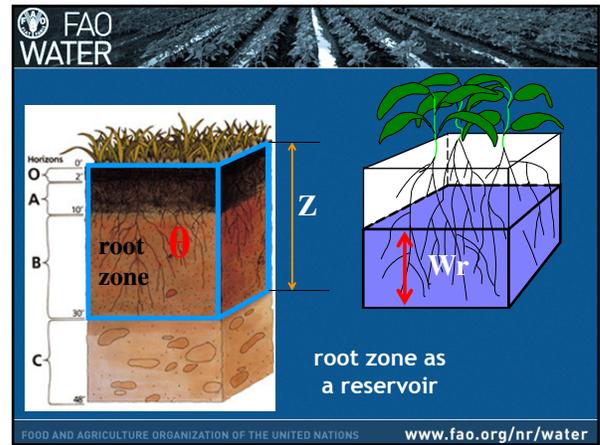
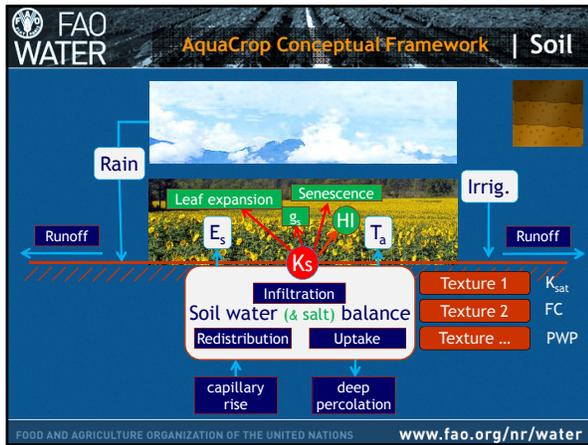
- Revision of the 1979 FAO I & D Paper no.33, "Yield Response to Water" (Doorenbos & Kassam)
- Consultative process with experts
- Separation between **herbaceous-crops** and **trees: AquaCrop & Guidelines**
- **AquaCrop** as one model with crop-specific parameters

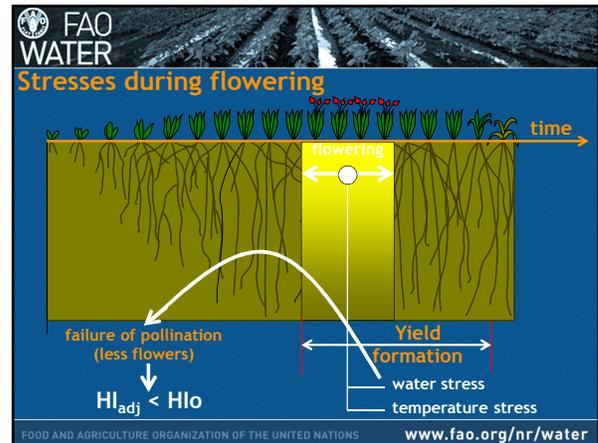
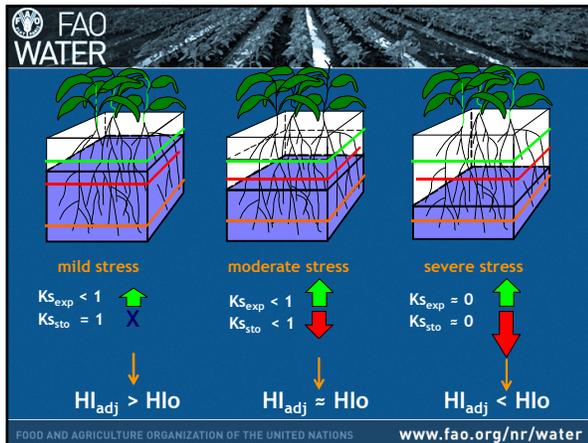
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FAO WATER AquaCrop Conceptual Framework | Management

Field Management

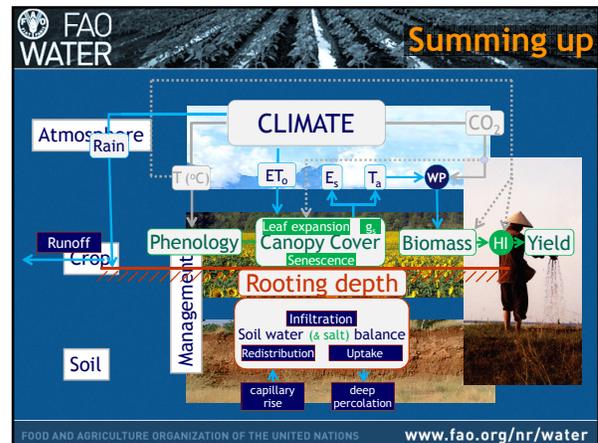
- Fertility level (non-limiting; moderate; poor)
- Field-surface practices (mulching; soil bunds)

Water Management Rainfed

Irrigation

- User defined schedule (timing and depth)
- Model-generated schedule (fixed interval; fixed depth; % of RAW)
- Irrigation method (drip; sprinkler; surface » basin; border; furrow)

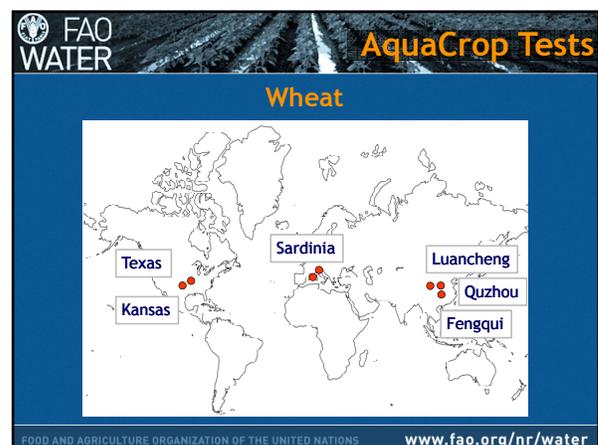
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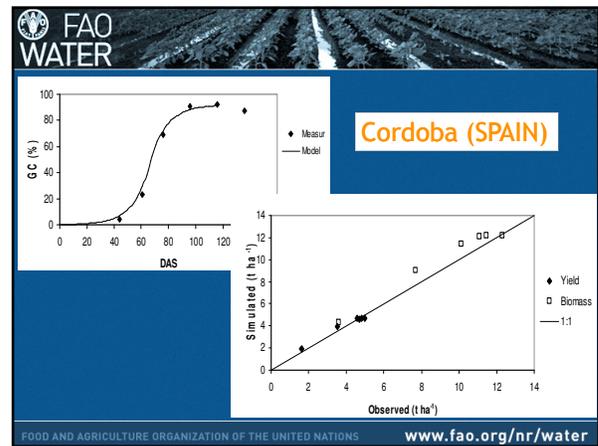
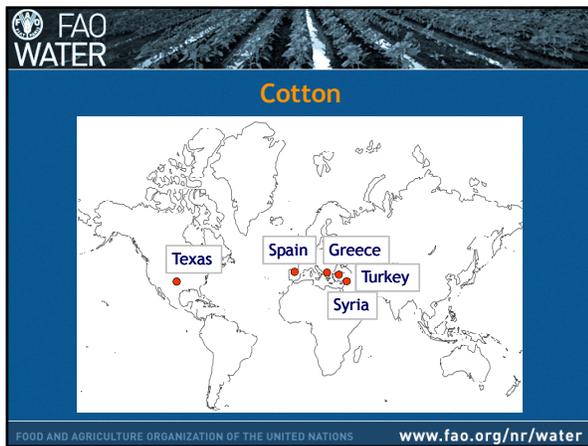
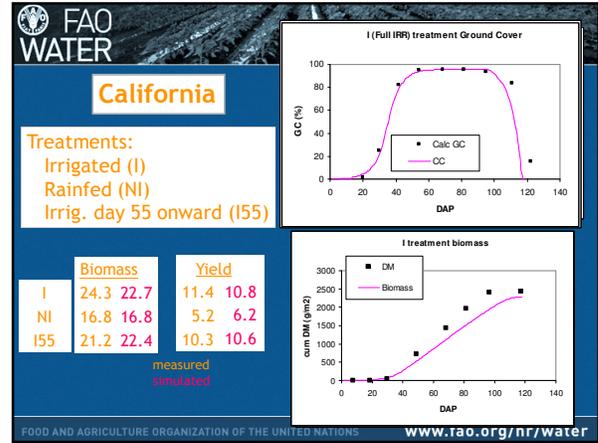
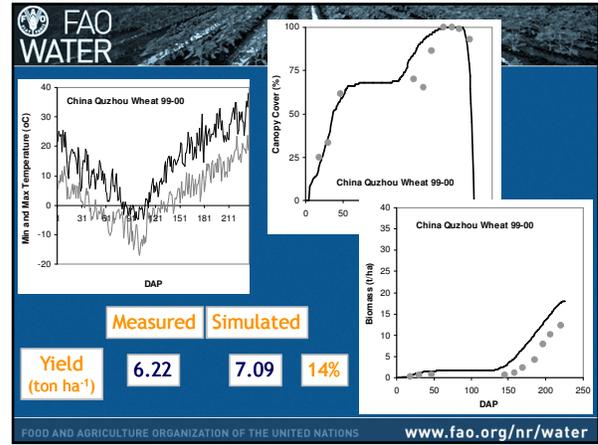
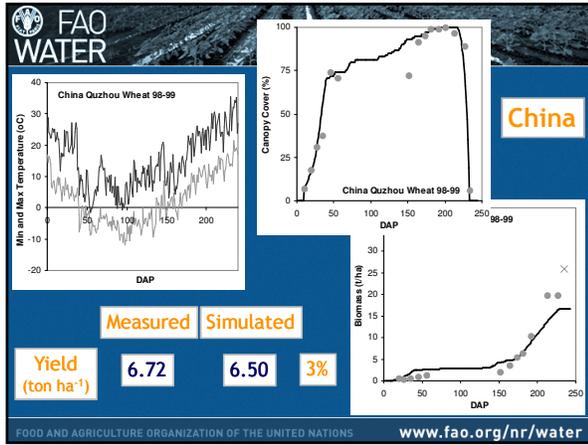


FAO WATER Key features

- AquaCrop is explicit and mostly intuitive, and maintains an optimum balance between simplicity, accuracy and robustness
- AquaCrop differs from other models for being water-driven, using CC instead of LAI, not having partitioning except than HI, not attempting nutrient balance but relate to fertility regimes, and for its relatively lower number of parameters
- AquaCrop is aimed at practical end-users, as those in farmers and irrigation associations, extension services, governmental agencies and NGOs, planners and economists, for devising water management and saving strategies, and productivity analysis as well
- AquaCrop is also particularly suited for perspective studies (e.g., under different climate change scenarios)

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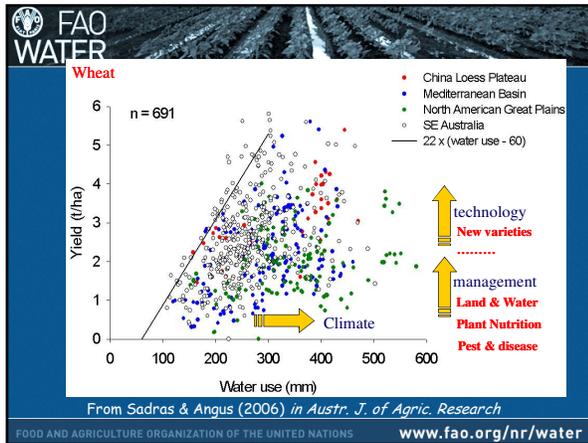
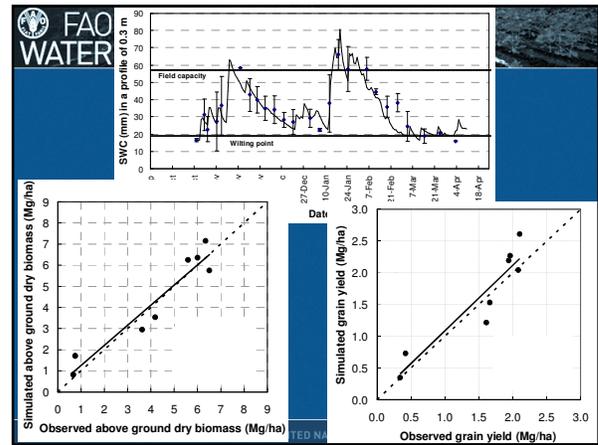


FAO WATER

Patacamaya (BOLIVIA)

Quinoa

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Thank You

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