

Handout Nr. 1

AquaCrop – FAO's crop water productivity model



Although grounded on basic and complex biophysical processes, AquaCrop uses a relatively small number of explicit parameters and mostly-intuitive input-variables requiring simple methods for their determination. When designing AquaCrop an optimum balance between simplicity, accuracy and robustness was pursued.

Applications of AquaCrop include:

- assessing water-limited, attainable crop yields at a given geographical location
- as a benchmarking tool, comparing the attainable yields against actual yields of a field, farm, or region, to identify the yield gap and the constraints limiting crop production
- assessing rainfed crop production on the long term
- developing irrigation schedules for maximum production (seasonal strategies and operational decision-making), and for different climate scenarios
- scheduling deficit and supplemental irrigation
- evaluating the impact of fixed delivery irrigation schedules on attainable yields
- carrying out future climate scenario analyses
- optimizing a limited amount of water available (economic, equitability, and sustainability criteria)
- evaluating the impact of low fertility and of water-fertility interactions on yields
- assessing actual water productivity (biological and/or economic) at the field and higher scales, up to regions
- supporting decision making on water allocation and other water policy actions
- appraising the role of various water-related crop responses in yield determination for ideotype design

The model is intended to provide guidelines to mainly a practitioner type of end-user such as those working for extension services, governmental agencies, NGOs and various kind of farmers associations.

Download from website:

<http://www.fao.org/nr/water/aquacrop.html>

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