



Food and Agriculture Organization
of the United Nations

Chapter 5

Training videos

AquaCrop
Version 7.3

Reference manual

July 2026

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Food and Agriculture Organization of the United Nations
Rome, 2026

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Chapter 1. AquaCrop – FAO crop-water productivity model to simulate yield response to water

Chapter 2. Users guide

Chapter 3. Calculation procedures

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I. Crop Parameters

II. Indicative values for lengths of crop development stages

III. Indicative values for soil salinity tolerance for some agriculture crops

IV. ETo calculation procedure

Chapter 5. Training videos

The (43) training modules (MP4 videos) are posted in an ‘AquaCrop Training’ channel of YouTube.

For the playlist go to FAO AquaCrop website <http://www.fao.org/nr/water/aquacrop.html> or find the playlist and videos at the following link:

<https://www.youtube.com/playlist?list=PLzp5NgJ2-dK7H85cyEmGc8KSodqm8gCf2>

Unit 1. Introduction

Unit 1. Introduction		
Video	Learning objective	Length [min:sec]
01. Introduction to AquaCrop	Discover AquaCrop	-
– Part 1. Need for Models		05:16
– Part 2. Practical applications		04:00
– Part 3. Calculation scheme		22:58
– Part 4. Input requirements		05:24

Unit 2. Climate – conditions at the upper boundary

Unit 2. Climate - Conditions at the upper boundary		
Video	Learning objective	Length [min:sec]
02.1 Required weather data	Know the required weather data	08:33
02.2 Reference evapotranspiration	Understand the concept of the reference evapotranspiration (ET _o)	10:21
02.3 Determination of reference evapotranspiration	Become familiar with the determination of reference evapotranspiration	19:49
02.4 Import climatic data	Know how to import climatic data	19:35

Unit 3. Soil – soil profile and lower boundary conditions

Unit 3. Soil - Soil profile and lower boundary conditions		
Video	Learning objective	Length [min:sec]
03.1 Water retention and movement	Understand how AquaCrop describes water retention and water movement in the soil profile	-
– Part 1. Soil physical characteristics		06:18
– Part 2. Soil water content		09:28
– Part 3. Soil water retention, soil water balance and required physical characteristics		15:36
– Part 4. Soil water movement and required physical characteristics		10:01
03.2 Soil profile characteristics	Know the required soil profile characteristics	10:23
03.3 Depth and quality of the groundwater table	Know the required conditions at the lower boundary	04:56



Soil profile



Groundwater table

Unit 4. Crop

Unit 4. Crop		
Video	Learning objective	Length [min:sec]
04.1 Crop parameters	Know the required crop parameters	-
– Part 1. Type of crop parameters		06:23
– Part 2. Tuning of crop parameters		15:59
– Part 3. Crop development adjustment to temperature regimes		08:15
04.2 Stress coefficients	Understand the way the stress is simulated	06:52
04.3 Crop development	Understand how AquaCrop simulates crop development	13:23
04.4 Crop transpiration	Understand how AquaCrop simulates crop transpiration	09:22
04.5 Biomass production	Understand how AquaCrop simulates biomass production	10:59
04.6 Yield response to water	Understand how AquaCrop simulates yield and adjust the Harvest Index to stresses	-
– Part 1. Reference Harvest Index, Period of potential vegetative growth		07:35
– Part 2. Stresses affecting yield formation		17:19
04.7 Water productivity	Understand the concept of water productivity	06:56

Unit 5. Management

Unit 5. Management		
Video	Learning objective	Length [min:sec]
05.1 Irrigation management	Know the required irrigation management parameters	-
– Part 1. Determination of net irrigation requirement		08:56
– Part 2. Evaluation of an irrigation schedule		12:11
– Part 3. Generation of an irrigation schedule, Deficit irrigation		19:54
05.2 Field management	Know the required field management parameters	-
– Part 1. Estimate of surface runoff, Practices affecting surface runoff		18:59
– Part 2. Mulches		05:19
– Part 3. Soil fertility		12:05
05.3 Calibration for soil fertility	Understand the procedure to calibrate the crop response to soil fertility stress	17:42



Irrigation management



Field management

Unit 6. Simulation

Unit 6. Simulation		
Video	Learning objective	Length [min:sec]
06.1 Initial conditions at start of the simulation period	Know the required initial conditions at the start of the simulation period	17:30
06.2 Start of the growing season	Understand how to determine the start of the growing cycle	06:40
06.3 Soil salinity	Understand how AquaCrop simulates soil salinity	under development
06.4 Climate change	Understand how AquaCrop simulates the effects of climate change on crop production	09:44
06.5 Evaluation of simulation results	Understand how to evaluate simulations with field data	-
– Part 1. Green canopy cover		12:46
– Part 2. Crop transpiration		10:46
– Part 3. Above ground biomass production, Yield		05:37
06.6 Applications	Grasp the kind of applications that can be developed	-
– Part 1. Deficit irrigation		05:03
– Part 2. Scenario for policy makers		03:06
– Part 3. Improving water productivity		04:18
– Part 4. Scenario analysis for optimizing field management		under development
– Part 5. Effect of climate change		06:26
– Part 6. Yield forecast		04:59
– Part 7. Regional applications		07:41

