*Construction identifier: RRF-4.2.1-23-2023-00001*

# TRAINING PROGRAMME

**Name of training course:** Sustainable agricultural water management knowledge – The significance of retaining water locally and water-saving irrigation methods.

**Competences to be acquired during training:** Participants of the training will gain knowledge of the technical, technological, and operational characteristics of modern water- and energy-efficient agricultural systems; the water usage characteristics of various arable and horticultural crops; possible solutions for effective water conservation and utilization; sources and properties of irrigation water; other water supplementation options; procedures for obtaining water use permits; the economic and financial aspects of sustainable water management; and the frameworks of cost-effective cultivation and sustainable technologies. They will be capable of implementing modern water management systems; planning the water cycle of soil and crops; assessing the quality of water present in the crop production environment (such as groundwater, precipitation, inland water, etc.) based on laboratory report data; making independent water management decisions; evaluating results; and identifying potential directions for the development of sustainable water management systems.

**Conditions for participation and involvement in the training, training objectives and target group:** The aim of the training is to expand the knowledge base of sustainable water management communities, agricultural producers, as well as advisors and organizations, by providing up-to-date general and professional knowledge in the field of sustainable agricultural water management.
The training also aims to raise awareness of the importance of sustainable agricultural water management, and to introduce water-saving methods and technologies, opportunities for efficient water conservation and utilization, along with their economic benefits.

**Scheduled training time:** 8 hours

**Curriculum units of the training, their purpose, content, the number of hours allocated to the units and the training methods and forms of work used to implement the unit, and, if the form of work other than contact hours is used, the number of hours that can be credited to the training hours:**

### 1. Basic Water Quality Knowledge

Planned duration: 1 × 45 minutes, 100% theoretical presentation, distance education in on-line format.

Content:
a) Sources of irrigation water, its physical and chemical characteristics, and classification
b) Expected effects of irrigation water quality on vegetation
c) Treatment methods for irrigation water

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**2. Soil Physics Foundations of Sustainable Water Management**

Planned duration: 1 × 45 minutes, 100% theoretical presentation, distance education in on-line format.

Content:
a) Soil particle types and physical texture
b) Soil structure and the basics of structure formation
c) Forms of soil moisture, soil water content, and soil moisture measurement
d) Soil water retention and permeability
e) Classification of soils based on water management characteristics

**3. Water management fundamentals of horticultural crops**

Planned duration: 1 × 45 minutes, 100% theoretical presentation, distance education in on-line format.

Content:
a) Water use in orchards and technological solutions for improving water balance
b) Water use in tomatoes and technological solutions for improving water balance
c) Water use in peppers and technological solutions for improving water balance
d) Water use in cucumbers and melons and technological solutions for improving water balance
e) Water use in cabbages and related technological solutions
f) Water use in onion species and technological solutions
g) Water use in sweet corn and technological solutions for improving water balance

**4. Water Circulation Fundamentals of Arable Crops**

Planned duration: 1 × 45 minutes, 100% theoretical presentation, distance education in on-line format.

Content:
a) Water use in cereals and rice, and technological solutions for improving water balance
b) Water use in maize and technological solutions for improving water balance
c) Water use in sunflower and rapeseed, and related technological solutions
d) Water use in soybeans and technological solutions
e) Water use in potatoes and technological solutions
f) Water use in alfalfa and technological solutions

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**5. Cultivation and Technical Solutions for Sustainable Water Management**

Planned duration: 1 × 45 minutes, 100% theoretical presentation, distance education in on-line format.

Content:
a) Soil cultivation technologies for water retention
b) Agronomic solutions for water-saving crop production
c) Technical water-saving solutions in sustainable agricultural production
d) Water retention practices in horticulture

**6. The Economics of Sustainable Water Management**

Planned duration: 1 × 45 minutes, 100% theoretical presentation, distance education in on-line format.

Content:
a) Estimating damage caused by drought
b) Investment costs of technical and land improvement projects related to sustainable water management
c) Operational costs of sustainable water management systems
d) Return on investment and efficiency indicators in agricultural water management

**7. Water retention**

Planned duration: 1 × 45 minutes, 100% theoretical presentation, distance education in on-line format.

Content:
a) Measures supporting natural water retention (agricultural, forestry, hydromorphological, and urban)
b) Overview of the EU NWRM (Natural Water Retention Measures) guide (http://nwrm.eu/)
c) Examples and best practices

**8. Authorization of Water Use**

Planned duration: 1 × 45 minutes, 100% theoretical presentation, distance education in on-line format.

Content:
a) Overview of current regulatory framework and administrative procedures

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**Maximum group size (excluding closed-system electronic distance learning):** 60 participants

**Description of the system for evaluating the trainee's performance:** no need to take an exam at the end of the training

**Conditions for issuing a certificate about the training and the completion of certain curriculum units of the training moreover, if the training is accompanied by a micro-certificate, the name and registration number of the textbook on which the micro-certificate is based:** A certificate will be issued in both Hungarian and English upon 100% attendance of the training sessions. This is the primary condition for successful completion. The training does not require the passing of an exam.

**Staff and equipment required for the implementation of the training programme, as well as other specific conditions relating to the training and the way in which they are provided:** the trainer provides the person with a specialised higher education qualification in relation to the topic of the given curriculum unit. The online training will be delivered via the Microsoft Teams interface.