

1. INTRODUCTION

An experimental design of agricultural interventions is performed for water saving and crop yield in the context of climate change. Ten (10) pilot farms, both organic and conventional ones, have been selected in the area of Platania (part of the Tavronitis River Basin) in western Crete – Greece (Fig. 1). These pilot farms were selected as representative of the most typical crops in the area (olive & citrus trees), as well as of typical soil, landscape and agricultural practices (Table 1).

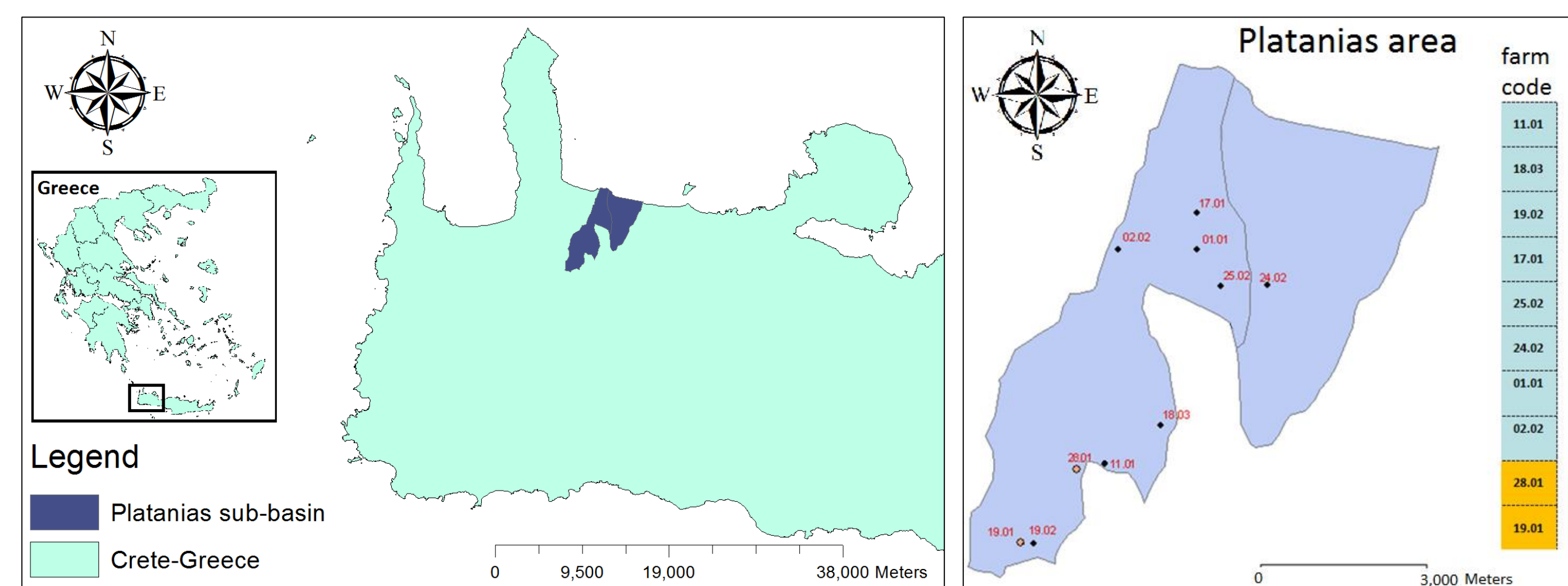


Figure 1. Study area

Table 1.

CITRUS						
Farm code	Irrigated	Conventional	Low Slope			
19.01	✓	✓	✓			
28.02	✓	✓	✓			
OLIVES						
Farm code	Irrigated	Rainfed	Conventional	Organic	Low Slope	High Slope
01.01		✓		✓	✓	
02.02		✓	✓		✓	
11.01	✓		✓		✓	
17.01	✓		✓		✓	
18.03	✓			✓		✓
19.02	✓		✓		✓	
24.02	✓		✓		✓	
25.02	✓		✓			✓

2. AIMS & SCOPE

- Improve water efficiency,
 - Increase the adaptive capacity of tree crops,
 - Save water
- under different climate conditions and agricultural practices.

3. METHODOLOGY

Every pilot farm has been divided in two parts (Fig. 2)

- one will be used as a **control part**,
- one as the **demonstration part** where the interventions will be applied.

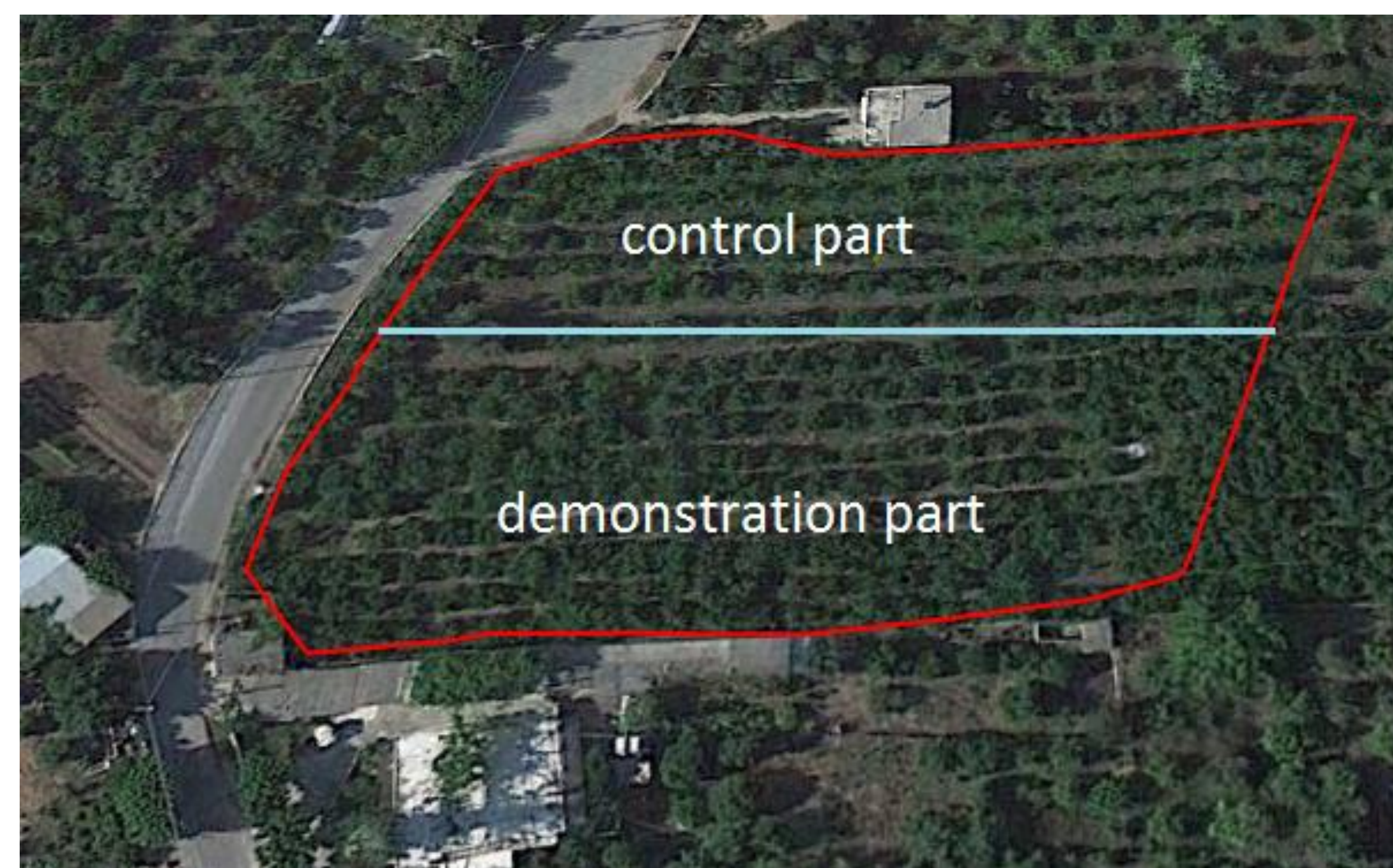


Figure 2. Pilot farm 11.01, divided in two parts

Agricultural interventions

a) Reduction of water evaporation losses from soil surface

- Soil Mulching (Weed mowing, Shredding of pruning)



b) Reduction of transpiration water losses

- Appropriate winter pruning (balanced canopy size)
- Summer pruning
- No weeds in critical periods

c) Reduction of deep percolation water and nutrient losses

- Increase soil organic matter
- Fertigation



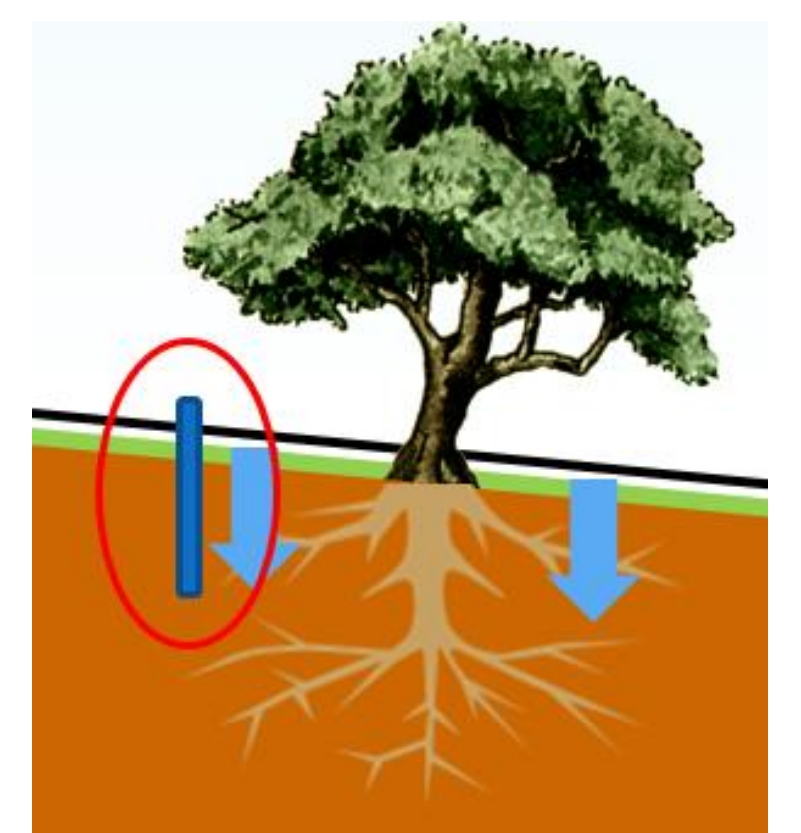
d) Reduction of surface runoff

- Maintenance of weeds during winter
- No tillage
- Use of bio-rolls



e) Measures in order to maximize the efficiency of irrigation

- Irrigation based on meteorological data and soil moisture sensors
- Apply deficit irrigation



f) Rationalization of fertilizers and agrochemicals utilized

4. RESULTS & CONCLUSIONS

Expected results

1. Up to 50%-60% reduction of water evaporation losses through weed mowing
2. Up to 30% reduction of transpiration water losses through green pruning
3. Up to 10% and 30% savings in water and nutrients, respectively, through fertigation
4. Up to 50% reduction of surface runoff

Preliminary results indicate that water saving and crop yield can be significantly improved based on the above interventions, both at farm and river basin scale and under different climate conditions.

This work is a part of LIFE + AGROCLIMAWATER project