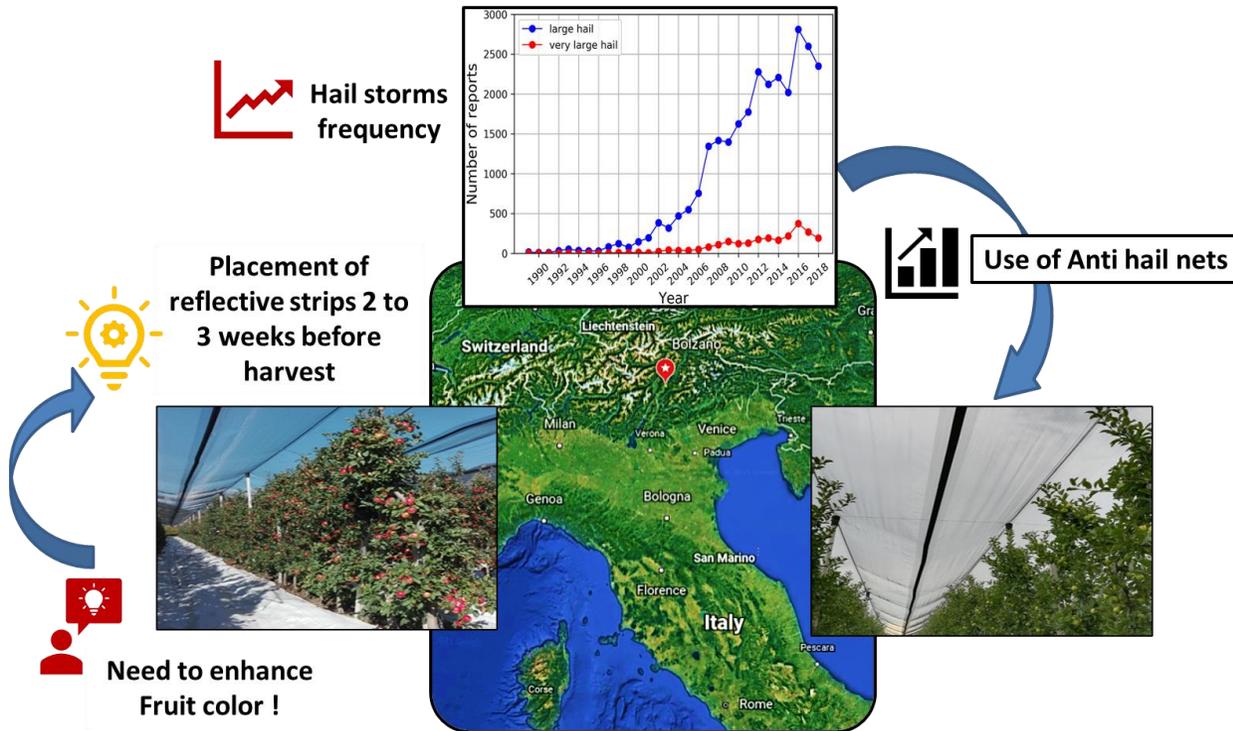




# Effects of hail nets and reflective ground covers on microclimate and evapotranspiration demand in an apple orchard

## 1. INTRODUCTION

### Current trends in apple orchard management



Evaluate the effect of hail nets and the presence of the ground reflective strips on microclimate and potential ET of apple orchard.

## 2. METHODOLOGY

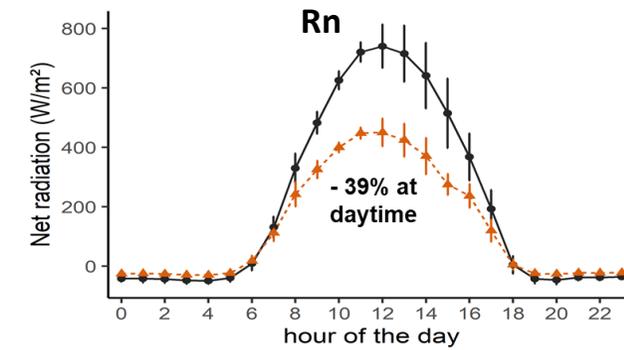
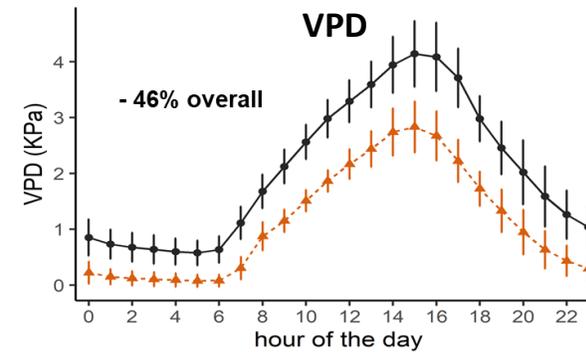
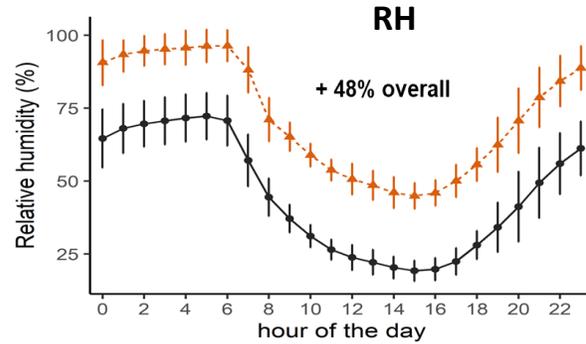
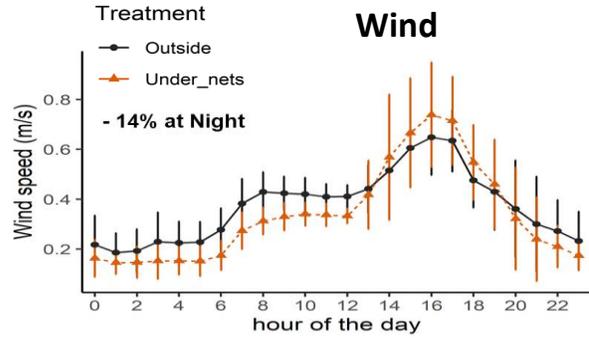
- **Study site:**
  - Apple orchard (BZ, Italy)
  - cv. Nicoter “Kanzi” (13 years old)
  - 4160 tree/ha (3m \*0.8m)
  - Soil texture: sandy loam
- **Orchard management:**
  - Black anti-hail nets
  - White plastic reflective strips (2 weeks before harvest)
- **Data collection and analysis:**
  - Two meteorological stations: outside and under the nets
  - FAO-56 PM to assess potential ET



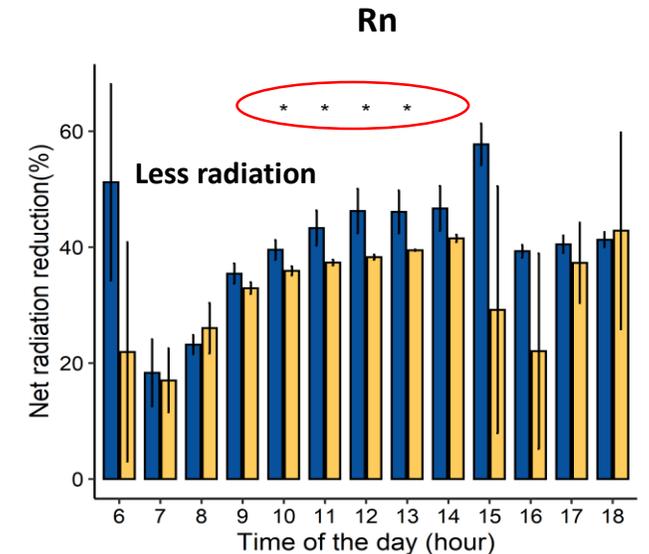
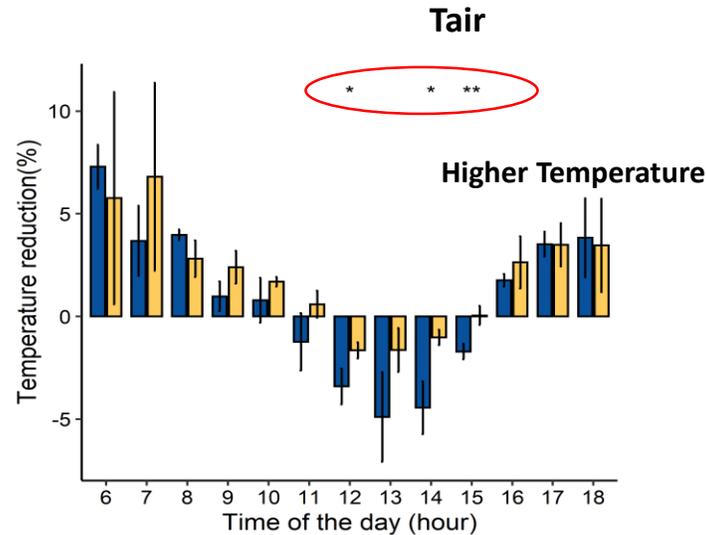
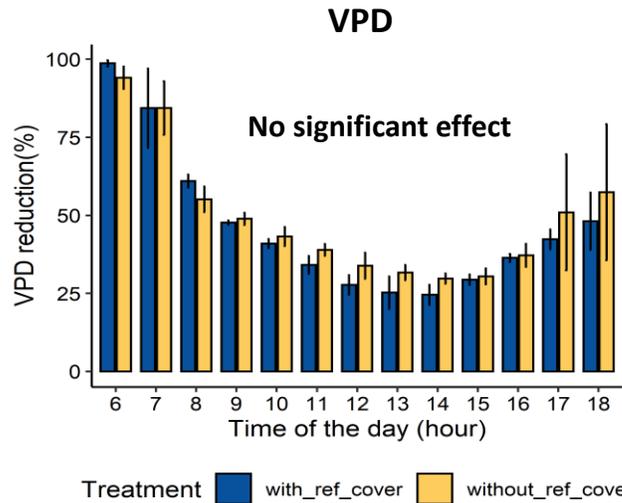


### 3. RESULTS

#### Most significant climatic variables measured during the summer season 2020 with and without nets...



... and after application of the reflective ground cover: changes compared to conditions without nets





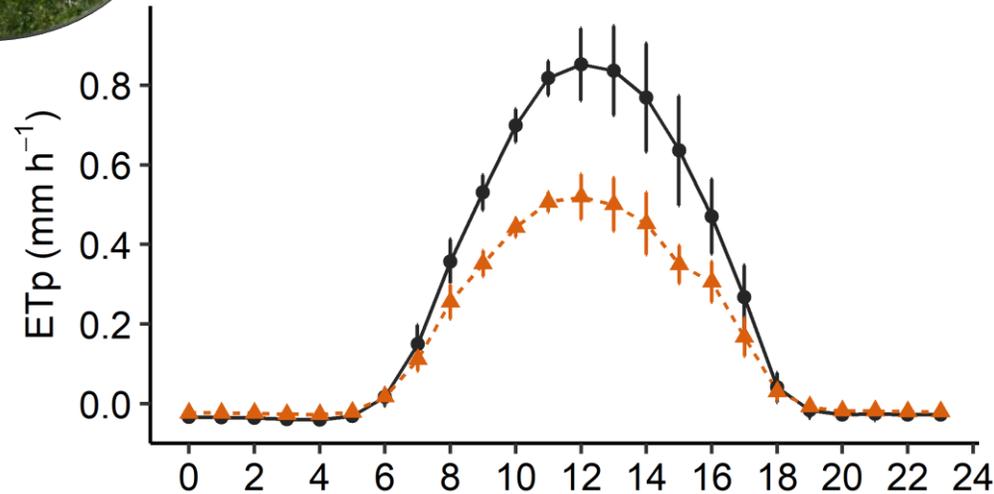
### 3. RESULTS

#### Effects on potential ET (ETp)



#### Anti-hail nets

Decrease of ETp by 39%  
under the nets

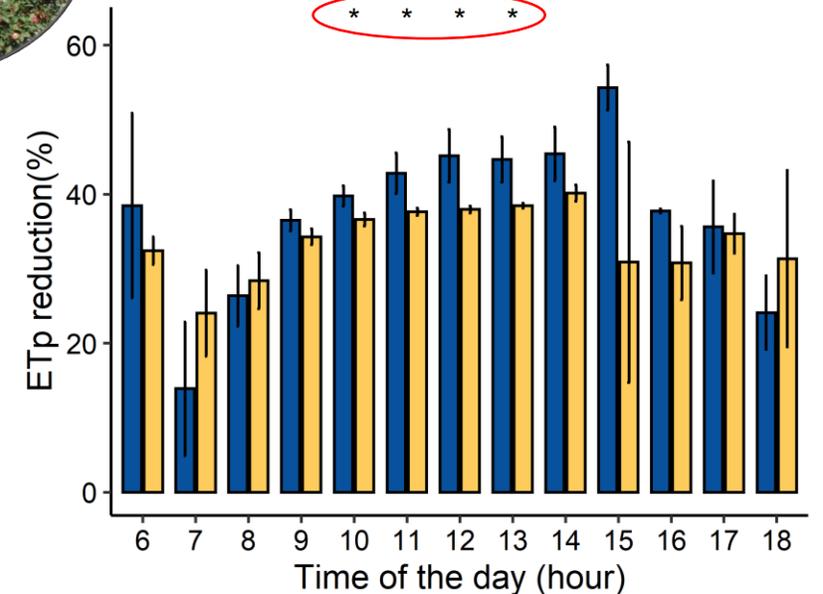


Treatment ● Outside ▲ Under\_nets



#### Reflective strips

Further reduction in ETp



Treatment ■ with\_ref\_cover ■ without\_ref\_cover

### 4. CONCLUSION

- The presence of **hail nets** modifies the microclimate around the tree canopy, possibly reducing tree transpiration.
- The **reflective strips** cause a further reduction on Rn (and consequently on ETp) during the hottest hours.
- Active role of the two management practices in reducing the orchard's water requirements.