

**Faculty of Mechanical Engineering  
And Naval Architecture, University of Zagreb, Croatia**

I.Boras, B.Ranilović, S.Švaić, M.Zovko\*

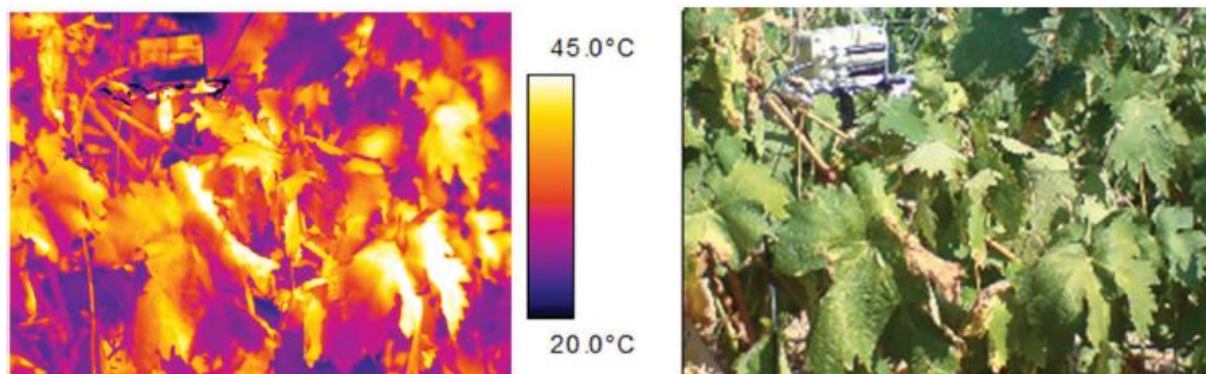
\* *Faculty of Agriculture, Zagreb*

srecko.svaic@fsb.hr

### **Application of thermography for monitoring the irrigation of agricultural crops**

In the last decades the irrigation of fields becomes more and more the subject of interest because of climate changing, lack of water and rising of its price. In the same time a smart irrigation result in better harvesting. Today we have different systems which give us information about state of the field in sense of need for irrigation which are aimed for special types of plants or corps (cotton, vines, strawberries, asparagus, etc.). All this systems are designed for local monitoring of the field which means that they must be installed according to the experience if a good results are expected. The better situation in the field control can be obtained by monitoring the whole field surface. That could be achieved by using thermography. This paper is dealing with a possibility of using thermography for determination the necessity to irrigate a field when the water stress of the plant is on the certain level. The experiments were performed on two types of plants, papers and tomatoes. In previous study the vineyards was also observed by means of thermography.

The main idea was to show the relation between Corp water stress index (CWSI) and Leaf water potential (LWP) using thermographic measurement. The results obtained show that thermography could be successfully applied for measuring the leaf and soil temperatures which are the parameters for calculation the CWSI.



**Fig. 1 Thermogram and digital photography of vineyard**