

## RESEARCH COMMISSION SEMINAR

### ***Do trees shiver in cold?***

### ***Climate induced changes in tree carbohydrate management can threaten Mediterranean horticulture on warmer Earth***

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14/4/2015 10.30 Aula 1

Grugliasco Campus - Largo Braccini 2

#### Abstract

Mediterranean winters are becoming warmer and drier. Consequently, rapid and extreme frost events are more frequent due to lower humidity and reduced cloud cover. With few exceptions, living organisms (i.e. microbes, plants, and animals) responds to lower temperatures by reducing both respiration rates and metabolic activity. In this talk I present a novel finding that trees from semi-arid environments respond to cooling by increasing respiration. Semi-arid trees confronted with episodes of freezing temperatures prior to dormancy, use starch reserves to boost respiration and to fuel cellular metabolic activity. This unique form of protection occurs prior to intracellular water crystallization or cell damage. However, the energetic costs may be too high in future climates, negatively impacting the yield and survival of semi-arid woody plants across the planet.

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