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BOOK OF ABSTRACTS

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T07-P6

OLIVE TREE RESPONSE TO POTASSIUM APPLICATION UNDER DIFFERENT WATER REGIMES AND CULTIVARS

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Taking into account the role of potassium in plant nutrition it is poorly understood the lack of studies on olive tree response to potassium application. This paper reports the results of two field trials and two pot experiments on potassium fertilization in olive carried out from 2013 to 2017. The two field trials and one of the pot experiments were classic experiments on the plant response to the nutrient application. The second pot experiment was arranged in a factorial design with two levels of potassium, two water regimes and two cultivars ('Cobrançosa' and 'Arbequina'). The application of potassium did not increase the growth and yield of the trees although it increased the concentration of the nutrient in the tissues. The application of potassium increased the shoot/root ratio. The potassium concentration in the roots was lower than in the aerial parts for low levels of potassium in the soil but increased more than proportionally in the root relative to the shoot as the availability of potassium in the soil increased. These results seem to indicate that the shoots are a priority sink for K and that the roots can act as a reservoir when the soil K availability is high. Indices of plant water status and chlorophyll *a* fluorescence parameters were not significantly affected by K applications. Plants suffering from water stress, confirmed by indices of leaf water status and chlorophyll *a* fluorescence parameters, yielded less phytomass. 'Cobrançosa' appeared as a more tolerant cv. to water stress than 'Arbequina', being the former more suitable to be grown under rainfed conditions and probably more adapted to climate change.

T07-P7

AGRONOMIC PRACTICES CHANGE THE PATTERNS OF SOIL GLOMALIN IN OLIVE RAINFED ORCHARDS

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Glomalin, a thermostable hydrophobic glycoprotein produced by arbuscular mycorrhizal fungi, plays an important role in the stability of soil aggregates and in the sequestration of C, N and heavy metals, being their concentrations dependent from agronomic practices such as tillage and application of pesticides and fertilizers. Despite the recognized importance of glomalin in soil quality, studies on olive groves are scarce. The study conducted on summer 2017 in three different rainfed orchards (cv. Cobrançosa) of Northeast Portugal revealed that both total glomalin, measured as Bradford-reactive soil protein (T-BRSP), and the easily extractable Bradford-reactive soil protein (EE-BRSP) concentrations were lower under mechanical cultivation than on a permanent sward grazed with a flock of sheep or than on an annual legume cover crop. Moreover, higher T-BRSP and EE-BRSP levels were found on orchards without phosphorus and boron supply, and also on the top soil layer (0-10 cm) and on tree row, mainly in younger orchards. Interestingly, one soil presented a twofold superior EE-BRSP:T- BRSP ratio than the other two soils, representing an increase of labile glomalin, probably related with greater applications of copper formulations to control olive fungal diseases. This study demonstrated that less disruptive agronomic practices influences positively the levels of glomalin, an appropriate indicator of healthy soil conditions, which in turn may favour carbon sequestration.

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