**Olive tree (*Olea europaea*) shading effects on different varieties of faba bean (*Vicia faba*).**

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**Abstract**

Agroforestry basis on olive tree (*Olea europaea*) is a common practice by small farmers in Morocco to face climatic change and economic uncertainty. Under such system, different studies (Amassaghrou et al. (2021); Temani et al. (2021) have shown positive effects of legume crops comparatively to others, like cereals for example, on the productivity of the whole system. This even there is some negative interactions mainly competition for water and nutrients in addition to sun light intercept by intercrops. To evaluate adaptability of different faba bean (*Vicia faba*) genotypes under reduced sunlight a pot experiment, under open field conditions has been conducted. Six faba bean varieties were exposed to full sun light and reduced sun light intercepted under an olive tree canopy. At flowering stage, above-ground, root, nodule biomass and the ratio of root biomass / above ground biomass were determined. Results revealed a significant effect of variety, and exposition and their interaction on most studied parameters. We noticed significant differences between the studied varieties. Sun light reduction showed an increase of approximately 30.05% in above-ground biomass, 28.03% in nodular biomass and 15.27% in root biomass. Aguadulce showed high performance in above-ground (38.66 g/plant), root (63.33 g/plant) and nodule biomass (77,33 g/plant) under the olive tree canopy compared with plants exposed to full sun. In contrast, Zina was the lowest tolerant of shade in terms of nodule biomass (8,67 g/plant) und above-ground biomass (22,63 g/plant). The results suggest that incorporating Aguadulce variety into agroforestry systems can bring significant added value to local farmers, since it is the most tolerant to shade stress, which can improve the performance of the tree-plant association in terms of yield and productivity.

***References:***

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