KINGDOM OF MOROCCO

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AGROFORESTRY ALMOND ORCHARDS TO ASSESS INTERACTIONS BETWEEN TREES AND CROPS UNDER A MEDITERRANEAN CLIMATE IN MOROCCO

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Introduction

Intercropping – the growth of two or more crop species simultaneously in the same field area – is a method to increase biodiversity in agro-ecosystems. Results from intercropping studies indicate that crop diversity may improve the quality of an ecosystem. Greater species richness may be associated with nutrient cycling characteristics that often can regulate soil fertility, limit nutrient leaching losses, and significantly reduce the negative impacts of weeds.

Material and Methods

This study was conducted in an almond agroforestry system during Feb- 2024. The experiment was laid out in an intercrop design with three replications per leguminous species. The study included 18 plots in total. The weed management was evaluated by different means that are weed species and abundance presence by counting the different species of weeds and weighing them above ground biomass.

Photo. Intercropping in almond orchard in Ain-Taoujdate (*Faba bean* and *Lentil*)

Photo. Common weeds associated with leguminous crops during the experimentation

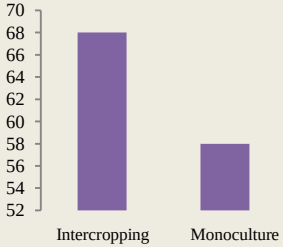

Fig.1.Effect of treatment on weed density per square meter

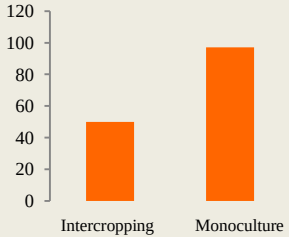

Fig.2.Effect of treatment on weed's drying weight

Results and Discussion

Our findings indicated that, belonging to 9 different species, 201 weeds were counted in 3 random square meters in *Fava bean* intercrop and 207 weeds were counted in another 3 random square meters in *Lentil* intercrop. Thus, belonging to 10 different species, the results showed that 166 weeds were counted in 3 random square meters in *Fava bean* monoculture and 180 weeds were counted in another 3 random square meters in *Lentil* monoculture (Fig.1).

Furthermore, the average of weeds per square meter was calculated to be 68 for intercrops and 58 for monocultures. In terms of drying weight, 50.35 g and 97.96 g were the average of weeds in intercrops and monocultures, respectively. Overall, significant variation was found among weeds abundance and weed dried weights (Fig.2).

⇒ As a result, it was determined that weeds were **1.18** times more numerous in the intercropping system than in the control system and weighed **1.96** times less.

Conclusion

An intercropping system is generally successful under Moroccan conditions. The main objectives of this work were: i) to showcase the importance of agroforestry systems in Morocco, ii) to explore the impact of intercropping on weed management in the agro-ecosystem environment of the Ain-Taoujdate site and iii) to better understand the role of legumes in the system.

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