

# Agro ecological options for an efficient management of the Agroforestry system basis on olive tree and annual crops

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## Introduction

To face climatic change, reconversion of cereals by more adaptable crops like olive tree is the option choice under Moroccan Green Plan, while the association of perennial and annual crops on the same land is widely practiced in those conditions. This fact constitutes due to its diversity (various systems of productions, various **agro ecological conditions** and different agricultural practices) a **natural laboratory** the follow-up of which will allow the constitution of a rich and useful database.

This reality constitutes a very interesting opportunity to be able to accompany the efforts of reconversion of the cultivation of cereals in olive growing in order to face climatic change, promote food production and enhance land productivity in sustainable way.

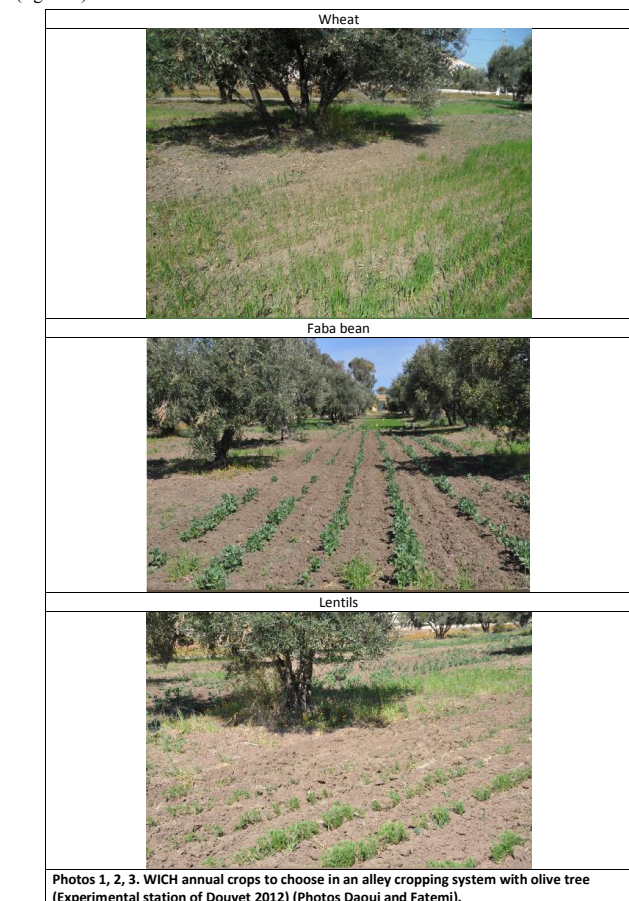
The objective of this work is to present how we can succeed the agro forestry system basis on olive tree in order to: reduce soil erosion, promote water conservation, enhance biodiversity, reduce climatic change impact and mainly enhance farmers income with respect of their choices and priorities.

## Materials & Methods

This work of analysis and synthesis of orientations for an efficient management of the association olive tree – annual crops is based on: the feasibility study of the project (PAF), the follow-up of the practices of the farmers and the exploitation of the first results of the trials conducted in experimental station and in farmers fields in various regions of Morocco (Ouzazane, Khénifra, Sefrou, Fès, Taounate, Taza).

## Results

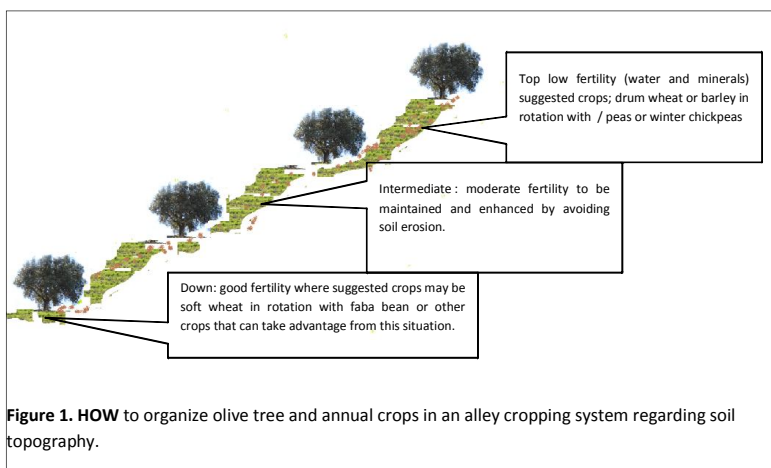
It is about the presentation of options for efficient management of the association olive tree – annual crops. This by trying to bring answers to the various questions asked namely: **WHERE** this practice is possible (table 1)? **WITCH** annual crops to choose for association with olive tree and take advantage from both crops and reduce competition between them (photos 1, 2, 3)? And **HOW** to manage implementation of this association according to soil topography and fertility (figure 1)? Etc ...



Photos 1, 2, 3. **WICH** annual crops to choose in an alley cropping system with olive tree (Experimental station of Douyet 2012) (Photos Daoui and Fatemi).

**Table 1. WHERE alley cropping (olive tree and annual crops) may be or not possible regarding annual rainfall.**

ZONE	Rainfall (mm/year)	
ESSAOUIRA	330	Zone where cultivating annual crops between olive trees alley may affect negatively olive productivity
ALHOCEIMA	365	
AZILAL	390	
MY YACoub	457	Zone where cultivating annual crops between olive alley may be possible and profitable
SEFROU	474	
TAOUNATE	512	
TAZA	534	Zone where cultivating annual crops between olive alley is recommended
KHENIFRA	558	
TETOUAN	598	
LARACHE	616	
SIDI KACEM	648	
OUAZZANE	655	
CHEFCHAOUEN	1007	



**Figure 1. HOW** to organize olive tree and annual crops in an alley cropping system regarding soil topography.

## Conclusions and Perspectives

Association of perennial crops and annual ones is a common practice by farmers and might be more important in future due to land scarcity. **Scientific involvement to analyse such system is necessary.** Positive and negative interactions should be elucidating to choose more profitable combinations in more adaptable conditions **under an agroecology point of vue.** Association of perennial and annual crops might be an interesting option to face climatic change. Also, it could enhance land profitability.