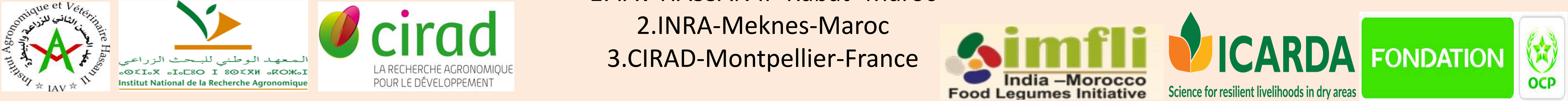


is it possible to mix olive trees and crops efficiently? Setting the big picture from the rich diversity of agroforestry practices in Morocco

Amassaghrou A¹ *, Bouaziz A¹, Daoui K², Barkaoui K³

- 1. IAV HASSAN II- Rabat- Maroc
- 2.INRA-Meknes-Maroc
- 3.CIRAD-Montpellier-France



INTRODUCTION

The practice of agroforestry in Morocco is dominating in areas where farmers seek to maximize the profitability of their often limited agricultural land (Daoui, 2012). Meknes 75% of farmers cultivating olive trees in the field of agroforestry under the conditions of agroforestry in a small area (Daoui et al., 2012) .According to Sabir et al. (1999) These systems are very diverse in different geographical areas. The climate, the substratum, the morphology of the land and the history of the occupation of the landscapes, Currently, there are very few studies on agroforestry systems based on olive and annual crops in Morocco, and a study on diversity and performance is necessary

OBJECTIVES

The work presented here aims to respond through a survey of a sample of farmers the variations in farming systems . And to assess the opportunity for a tree-based diversification in the Meknès–Tafilalet region, specially :i)-to evaluate the characteristics of agroforestry practices in small farms of the agricultural landscape of Moulay Driss Zerhoun, and to evaluate the performance of the main agroforestry associations

METHODS

Our study area was situated within the Meknes-Saïss, in Zerhoun massif is situated in one of Morocco’s most favorable cropping regions, with a typical Mediterranean Climate, 72 surveys were conducted, sampling was difficult because of the lack of a database of all Moulay Driss Zerhoun farms. For this purpose, farmers from all commune were randomly selected to take into account the environmental disparities of the territory. To answer the questions we used a maintenance guide that focuses on the following Identification of the farm surveyed

- Characteristics of the agroforestry plot
- Production performance: (yield and cost price of crops and trees over the last three years 2012/2013/2014),
- Description of the technical routes
- Farmers perception of agroforestry

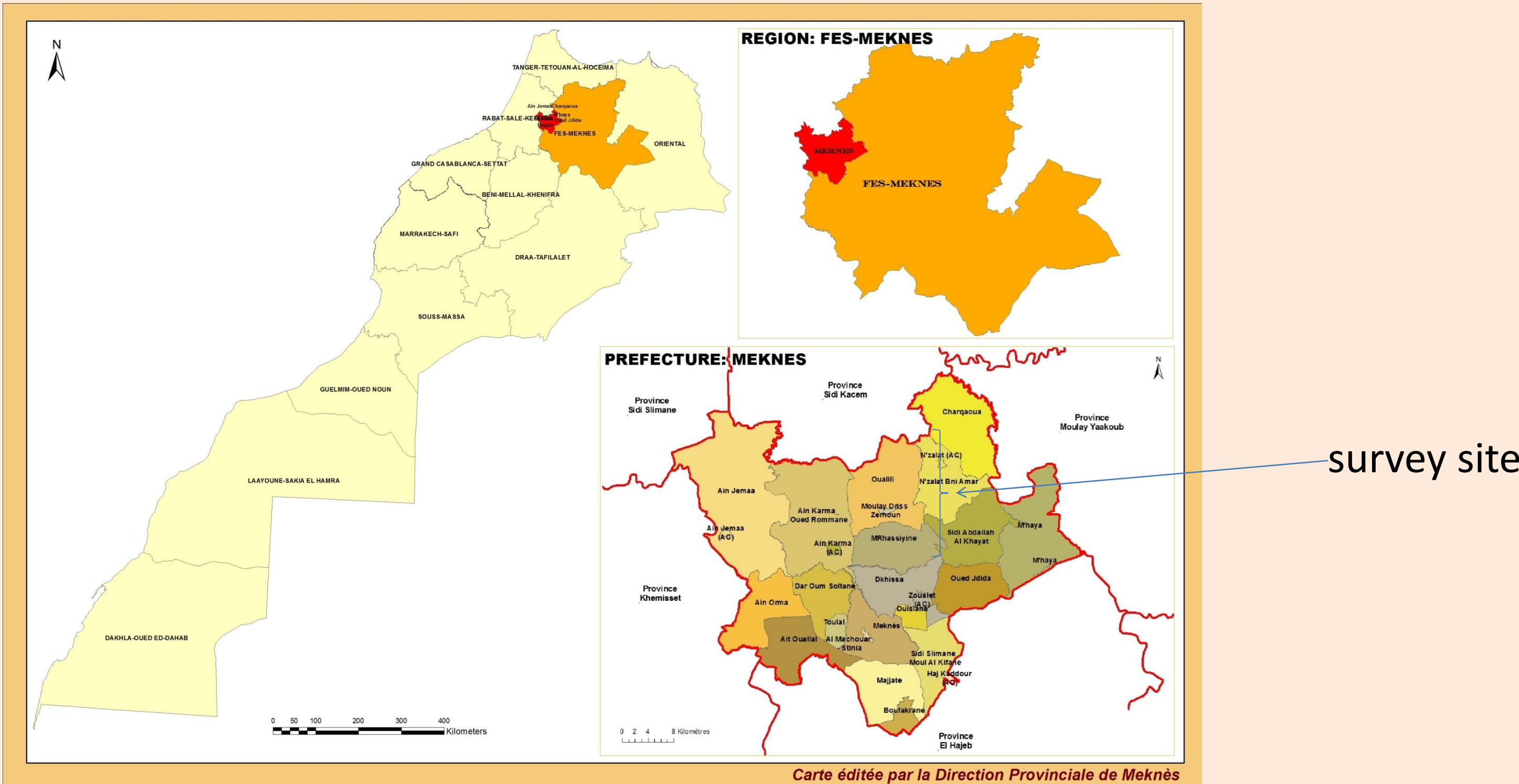


Figure1. Geographical location of Meknes saïs and the survey site

Agroforestry in Moulay Driss Zerhoun



Figure 2.View of agroforestry system in MOULAY DRISS ZERHOUN mountains

There are several agroforestry practices common to Zerhoun, including: the delimitation of land from annual crops by the olive tree, barbaric figs, fruit trees irrigated especially for small plots near the home where they also grow vegetables and legumes food. There are also some farmers who plant ornamental species, as there are also agroforestry practices where forages are cultivated in olive orchards and where cattle are allowed to graze.

RESULTS

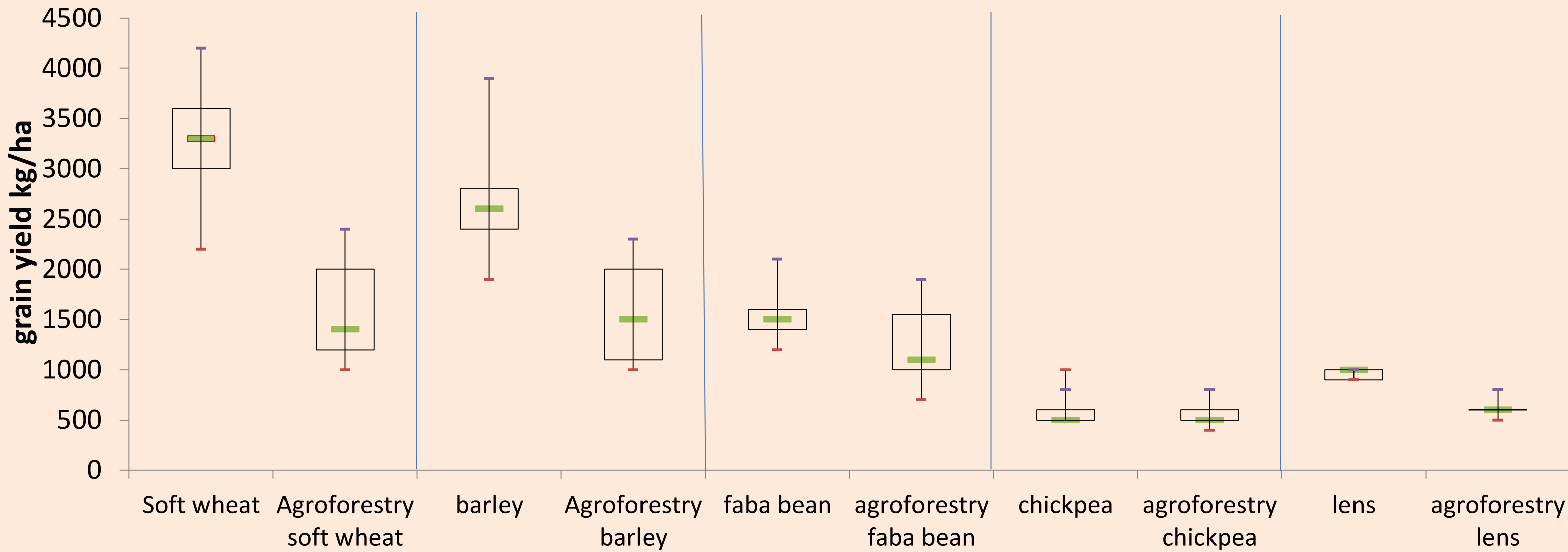


Figure 3. Annual crop grain yield variation in agroforestry and pure crop (soft wheat, barley, faba bean, chickpea and lens

The yield of annual crops varies from agroforestry plots to agricultural plots, and the analysis of yields reported by farmers shows that there is a highly significant difference between yields. There was a 57% decrease in the yield of soft wheat compared to wheat in the field, a 42% decrease for barley, 26% for bean, 50% for chickpea and 40% for lens.

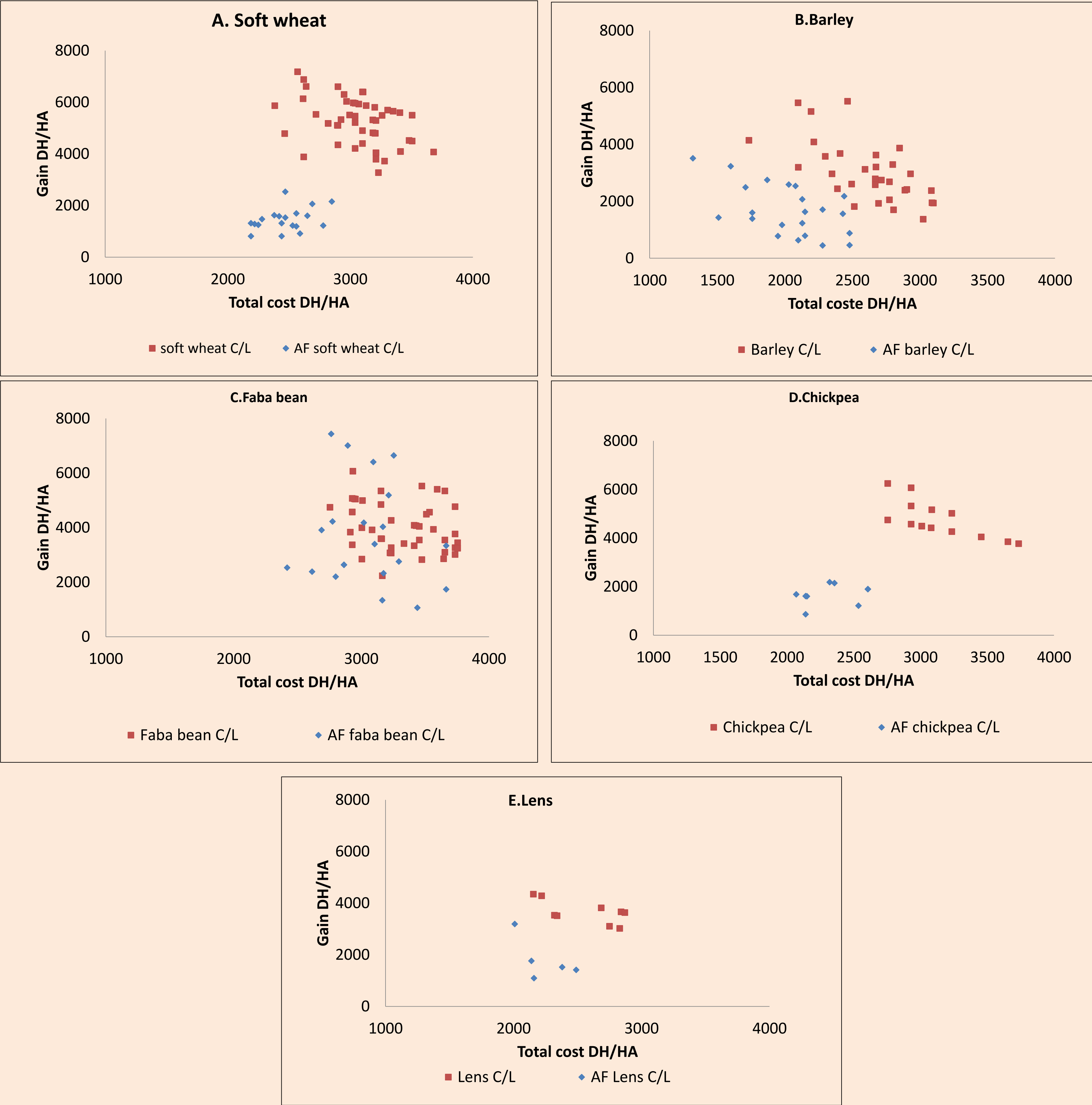


Figure 4. The gain DH/HA of annual crops in agroforestry vs. in pure crops A.Soft Wheat , B.Barley , C.Faba bean, D.Chickpea, E.lens ; AF: Agroforestry C/L : crop rotation Cereal/legume

the figures show the returns obtained with annual crops in agroforestry and in pure crop within the same rotation cereal /legume.

The ANOVA test showed that there is a significant difference between the gain obtained with chickpea in agroforestry and pure crop ($p=0,005$) and incomes in pure crops are competitive compared to agroforestry , while there is no difference between soft wheat in both situation agroforestry and pure crop ($p=0,202$), Barley ($p=0,858$), Faba bean ($p=0,170$) and Lens ($P=0,275$).

CONCLUSION

Despite the low income achieved with cereals in agroforestry, an average of 2600 DH / HA for agroforestry soft wheat and 3500 DH / HA for agroforestry barley, farmers are attached to these associations to meet their family needs, on the other hand farmers claim that legumes are more profitable compared to agroforestry cereals up to 7000 DH / HA for agroforestry faba bean under the conditions of a good climate year, but complain about the expensive and rare labor to maintain legumes.

*corresponding author : amassaghrou.asmae@gmail.com