

Vicia faba cultivation as seen by farmers: Diversity of practices in two Moroccan regions (Saïs and Haouz plains)

P. Dugué¹, A. Amassaghrou², A. Bouaziz², P-Y. Le Gal¹

¹: CIRAD Centre de coopération Internationale en Recherche Agronomique pour le Développement, UMR Innovation, Montpellier (France)
²: IAV Institut Agronomique et Vétérinaire HASSAN II, Rabat (Maroc)
 email: patrick.dugue@cirad.fr



Introduction and study aims

Legumes are considered by agronomists as a potential source of nitrogen that could ecologically replace mineral one based on fossil energy. However this bio-technical position has to be discussed in the light of current farmers' practices. This study is based on two contrasted cases in Morocco, the Haouz plain and Saïs plain between Meknès and Fès where it is mainly rainfed.

objective : (i) Analyze the diversity of practices and performance related to the conduct of the bean on farms. (ii) Understand the position held by this legume in the rotation range of producers based on their mode of use. (iii) Understanding farmers logic considering the functions held by faba-bean and the production context {water resources, soil, agricultural markets}

Methods

41 and 29 farm surveys were conducted respectively in 2014 in Haouz and 2015 in Saïs in order to cover a large diversity of farm cases in terms of total cultivated area and production systems

- declarative data obtained through interviews without quantitative measures
- Focus on the choices and decisions of farmers and the overall logic of the functioning,

Number of	Small mixed-farming and breeding < 10 ha	Medium Farms (8 à 30 ha)	Large farmers (> 100 ha)	Total
Saïs	11	15	3	29
Haouz	32	6	8	46

Results

A large diversity of performing faba-bean

Irrigated bean in Haouz

- on ridges around Bersim boards in gravity irrigation
- on the old lines of melon in drip irrigation
- between the rows of newly planted citrus in drip irrigation

Rainfed and irrigated bean in Saïs

- total mechanization
- animal traction, and small plots in pure culture (< 3 ha)
- intercropping crops olive-bean//olive-wheat, manual harvest (< 5 ha)
- rarely in drip irrigation (< 1 ha)

Objectifs	Gain by livestock, household food security	Fertility, less cereal monoculture, income diversification	Profitability, Fertility no cereal monoculture
% repartition	10 à 30 %	10 à 50%	20 à 60%
Previous crop	cereal	Cereal (some gardening)	cereal
Destination of grain	Livestock and familial consumption	sale and family farming	Sale (seed contract)
Destination of straw	Family farming	Sale and family farming	Sale or burying

family farming in rainfed (9 à 12 ha) oriented « livestock »

firm Agriculture by employee > 100 ha

diversified family farming (5 à 20 ha)



Picture 1 : After melon in drip irrigation (Catch crop) (Haouz)



Picture 2 : Faba-bean in monoculture (Saïs)

Figure 1: Three usage profiles in the farms of Saïs

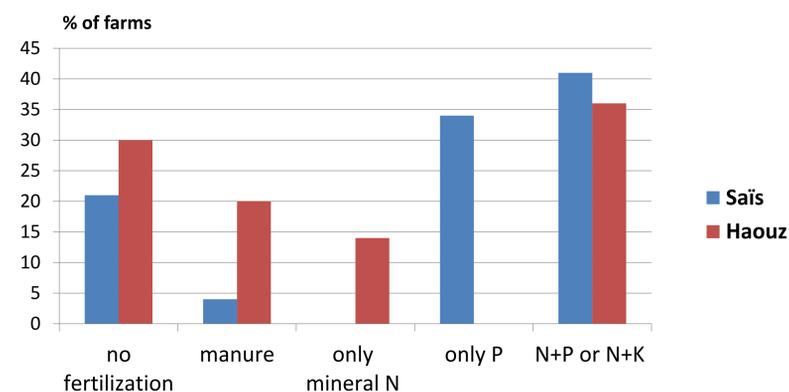


Figure 2: Variety types of fertilizers in the two regions

Discussions et Conclusion

At faba-bean plot level : (i) significant input of mineral nitrogen especially in the Haouz , (ii) pilotage of fertilizer P and K to view (some soil analyzes are done)→ edge progress possible in terms of yield and reduce production cost,(iii) the legume is indispensable in Saïs to avoid cereal monoculture (soil fertility or rather limit parasitism or weed?) and iv) a research question: What are the effects of fertilization on symbiotic fixation of atmospheric nitrogen?

At farming system level, importance variable depending on the type of farm : (i) small farms, crop diversification and family of supply security and improvement of livestock (use straws); (ii) subculture in modernized and irrigated farms in Haouz.

But farmers' choices are primarily based on economic criteria and / or labor costs: (i) Price Ratio of feed purchased and food produced on the farm with the bean, (ii) Ratio of price beans, cereals and other crops, and (iii) use of rhizobia added to seed it is profitable in these culture conditions of use?