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RATIONAL

Food legumes (faba bean, field pea, lentil, and chickpea) productivity and production are affected by aphids and pod borers in rainfed and irrigated production systems in CWANA region. Farmers are practicing several cropping systems that can play both positive and negative roles on insect pests (Lamichhane *et al.*, 2015). Intercropping is one of the systems that plays a major role in contributing to pest management practices in many countries (Abad *et al.*, 2020; Li *et al.*, 2023). In Morocco, coriander (*Coriandrum sativum* L.) is produced by farmers as sole and intercropping system. The role of coriander intercropping with chickpea to manage pod borer of chickpea and food legume aphids was not explored under Moroccan cropping systems.

OBJECTIVE

To evaluate the impacts of coriander intercropping insect pests of legumes

METHODOLOGY

Chickpea pod borer and faba bean black aphids

The study was carried out at ICARDA Merchouch Research Station during the 2022/23 cropping season. Chickpea-Coriander intercropping was set up as a randomized complete block design with two planting dates (04 April and 09 May 2023). The Plot size was 3.6 m² with four rows of chickpea (cv. Farihane) and four rows of local coriander were planted between chickpea plots. The sole cropped chickpea was used as checks. Data on the number of larvae and damaged pods were recorded from five random plants per plot at full podding stage of chickpea.

For faba bean black aphid (*Aphis fabae*), faba bean (cv. Defes) was intercropped with coriander and trial was arranged in randomized complete block design with four replications. Six rows of coriander were planted between faba bean plots. Sole faba bean plots were used as checks. Five faba bean plants were randomly selected from each plot and the number of aphids were counted.

RESULTS

Effects of intercropping on chickpea pod borer

Mean number of chickpea pod damage was high in May planting under sole chickpea compared with early planting (Fig.1). In both planting dates, chickpea intercropped with coriander showed the lowest mean pod damage (28%) as compared to sole cropping (49%).

Effects of intercropping on faba bean black aphids:

The aphid population was high in the third week of March 2023 and declined towards the end of April (Fig. 2). The mean number of aphids during the evaluation period was high under sole faba bean crop as compared with intercropping with coriander. Observations of flowering coriander and faba bean plants showed different species of natural enemies (Figs. 3 & 4). The major ones were Green Lacewing (*Chrysoperla rufilabris*), 7-spot ladybird (*Coccinella septempunctata*), and common soldier beetle (*Rhagonycha fulva*).

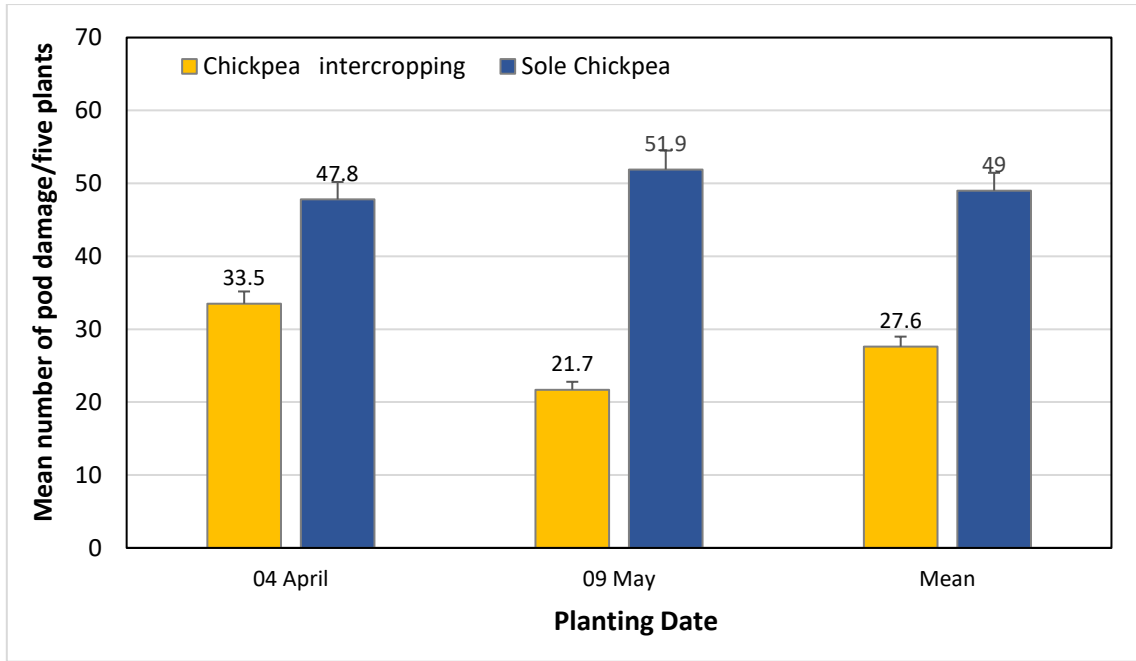


Figure 1. Effects of planting date and intercropping on mean pod damages, 2022/23 cropping season, Merchouch, Morocco.

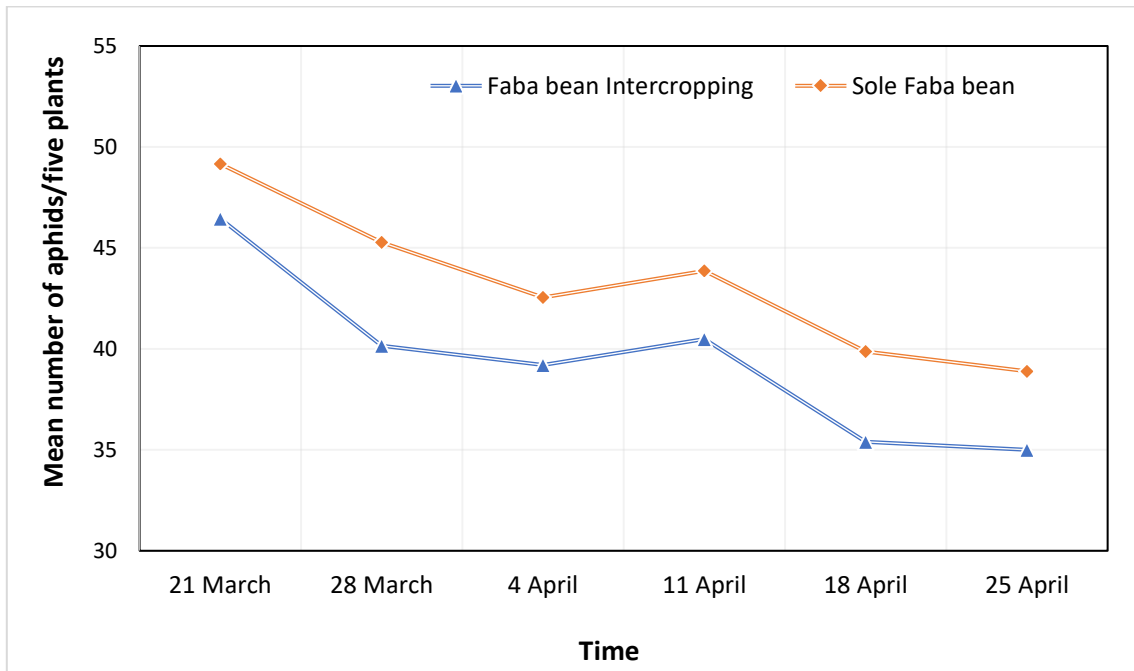


Figure 2. Aphid population as affected by intercropping with coriander, 2022/23 cropping season, Merchouch, Morocco.



Figure 3. Natural enemies recorded from faba bean and coriander.

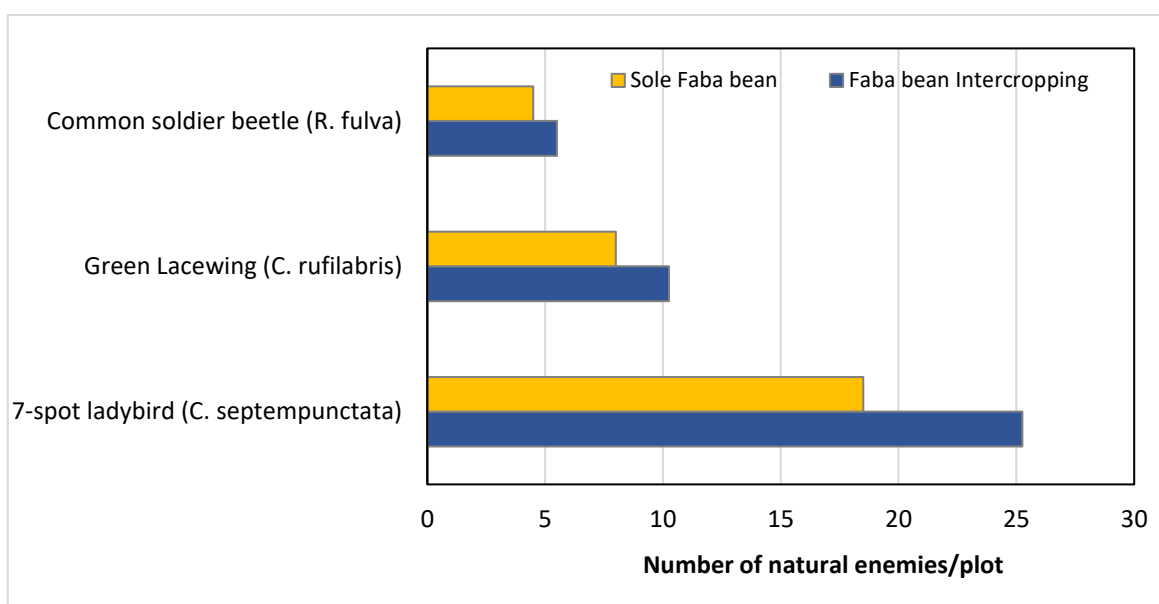


Figure 4. Natural enemies recorded on faba bean and coriander, 2022/23 cropping season, Merchouch, Morocco.

Low productivity of faba bean was due to drought in the cropping season. However, intercropping of coriander gave some yield advantage over sole faba bean cropping (Fig. 5). The mean seed yield of the faba bean under coriander intercropping was over 1t/ha compared with sole faba bean cropping.

CONCLUSION

Intercropping of chickpea and faba bean with coriander showed reduction in pod borer and aphid damages. Since coriander is produced by farmers in Morocco, it will be easily adopted as cash crop and contribute to ecological services by reducing pesticide applications. Additional economical flowering plants for intercropping will be evaluated in 2023/24 cropping season.

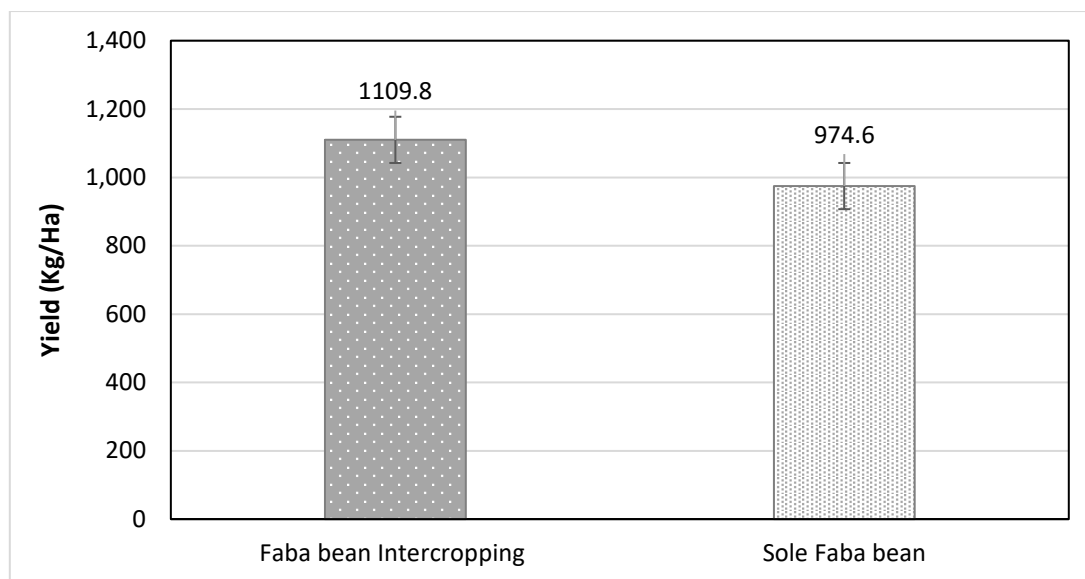


Figure 5. Mean seed yield of faba bean under two cropping systems, 2022/23 cropping season, Merchocuh, Morocco.

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