



Case study: Wheat-faba bean intercropping in dry areas

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We have tested a selection of faba bean breeding lines intercropped with wheat in three representative locations of dry land agriculture (Kfardan (KF) and Tal Amara (TA) in Lebanon and Marchouch (MA) in Morocco). The seed density was 25 seeds/m² in the case of faba bean monoculture, and 15g/m² in the case of wheat monoculture. For intercropping these seeds were mixed.

Faba bean plant height and pod length were higher, while number of branches was lower, in intercrop versus faba bean sole crop. Pod loss of faba bean during mechanical harvesting was significantly lower in intercrop than in sole crops across the three seasons. However, crop phenology was delayed under intercropping which can cause problems with crop management and harvest.

The average faba bean yield was significantly less in intercrop than faba bean sole crop (89% at KF, 20% at TA and 75% at MA). Compared to sole crop wheat, the average wheat yield in intercrop was higher (10% at KF) or lower (90% at TA, 50% at MA) with no significant effect being found between the monoculture and intercropping system overall. These results indicate that faba bean had limited competitive ability with wheat under low rainfall conditions and showed better adaption to intercropping under favourable environments. Finally, combined wheat/faba bean yield was significantly higher by at least 10% in intercropping than in wheat or faba bean sole crop.

These trials have resulted in the selection of three faba bean accessions (BPL710, ILB1593 and Sel TH/011/58124-5) that showed adaptation to intercropping and will allow for further development of this system, especially with regard to developing faba beans that have a competitive advantage when intercropped with wheat. For dry regions at this stage, our major recommendation is to focus on intercropping in irrigated agriculture (e.g., in Egypt) and under high rainfall conditions to gain the best results when growing faba bean in mixture with wheat.