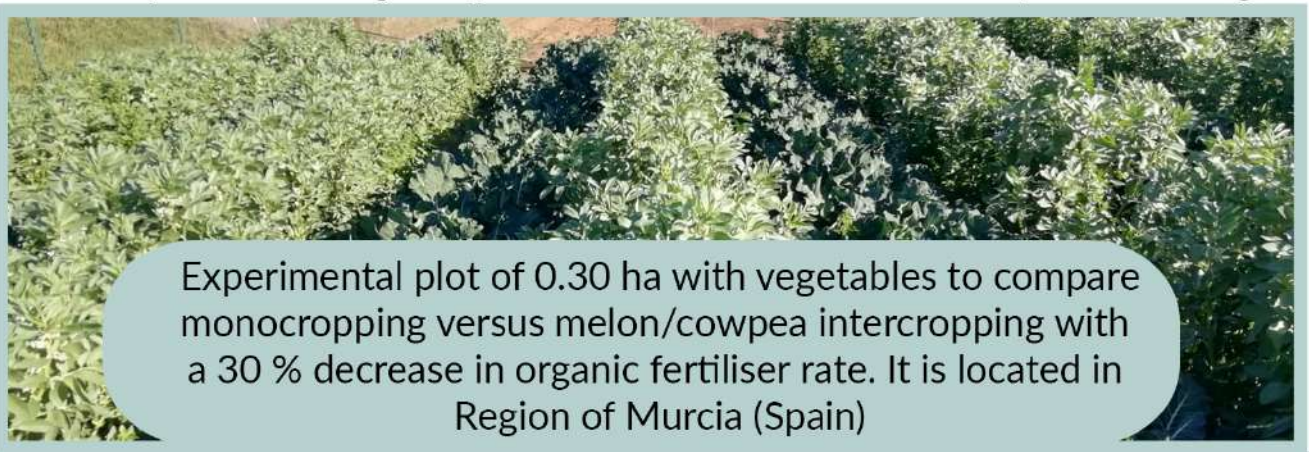
Intercropped vegetables in Spain
Case Study 16

Experimenting crop diversification and low input farming



Experimental plot of 0.30 ha with vegetables to compare monocropping versus melon/cowpea intercropping with a 30 % decrease in organic fertiliser rate. It is located in Region of Murcia (Spain)

3 TYPES OF INTERCROPS WERE CARRIED OUT IN THE CASE STUDY

1. **Row intercropping 1:1 (alternate rows of melon and cowpea)**
2. **Row intercropping 2:1 (two rows of melon every row of cowpea)**
3. **Mixed intercropping (alternate growth of cowpea in the same melon row)**

AGRONOMIC BENEFITS

1. **Highest melon crop yields** in intercropping systems, with no differences among patterns
2. Two harvested products with the same content of water consumption and lower fertiliser use
3. Improvement of soil fertility with intercropping strategies
4. Lower incidence of pests and increased number of pollinators

ENVIRONMENTAL BENEFITS

1. **Increased soil carbon sequestration**
2. **Increase in soil biodiversity**, particularly groups of microorganisms related to soil health
3. **Reduction of greenhouse gas emissions**

SOCIOECONOMIC BENEFITS

1. Farm revenues from intercropping in organic vegetables could be higher than in monocropping, at the time it could also **reduce market risks for farmers**
2. **Reduction in variable costs** for farmers
3. Public support to the implementation of intercropping practices could be **successfully articulated through operational funds**

WHY IMPLEMENT CROP DIVERSIFICATION?

This type of practice is positive to reduce the use of fertilisers increase the water productivity, and decrease the incidence of pests/diseases by increases in auxiliary fauna

AGRONOMIC DRAWBACKS

Difficult to optimise **harvesting work**

Melon **quality was not improved** by intercropping

ENVIRONMENTAL DRAWBACKS

No environmental drawbacks

SOCIOECONOMIC DRAWBACKS

Higher labour costs from planting and harvesting intercropped crops mean that no higher farm margins are obtained in legumes and vegetables intercropping

Challenging to differentiate organic and diversified vegetables from organic vegetables from a consumer perspective and throughout the value chain

Some alley crop does not have a locally developed value chain

FINAL CONCLUSION

Is it beneficial to adopt these sustainable practices?

The intercropping systems based on legumes under low input management practices such as fertilisers rate, irrigation, improve the horticultural crop yield as well as soil fertility and biodiversity.

HORIZON 2020

DIVERFARMING