LIFE Crops for Better Soil: profitable organic farming techniques based on traditional crops

Crops for better soil

www.traditional-crops.com/

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OPERATION CO_2

Final Conference

Why carried out this initiative?

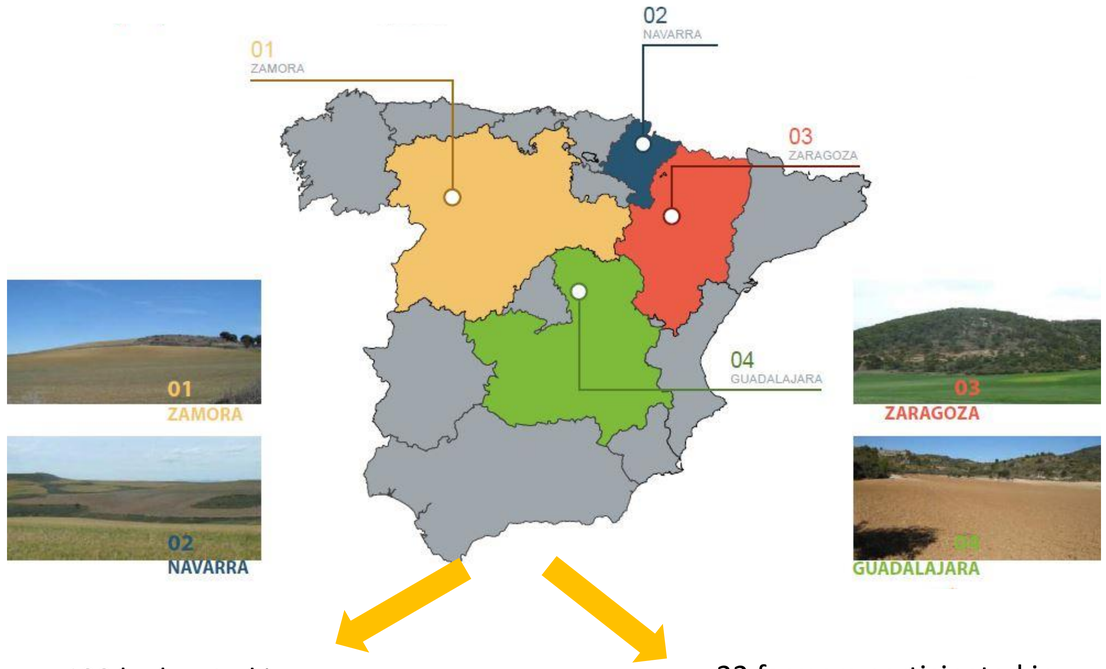
The extensive cultivation of crops on rainfed lands covers approximately 50% of the agricultural surface of Spain. The volume and distribution of rainfall creates **a semiarid environment** contained in the **Mediterranean region**, limiting the crop yield of these lands. These soils offer low profitability, high erosion rates, an alarming decrease in organic matter, as well as loss of biodiversity, soluble fertilizing elements and serious consequences for contaminant processes. These areas of Spain have thus become unsustainable for agricultural activities to continue, thereby accelerating the process of desertification.

The **main objective** of the project was to demonstrate the viability of an alternative method to revitalize agricultural activities on **rainfed land** by implementing comprehensive, **sustainable organic production** schemes.

The project's specific objectives were the following:

- An improvement in soil quality
- The re-introduction of at least 5 traditional crops
- An improvement in the common perception of organic farming
- The demonstration of the economic viability of organic agricultural production in semi-arid land

Where was the project carried out?



400 ha located in 4 Spanish areas

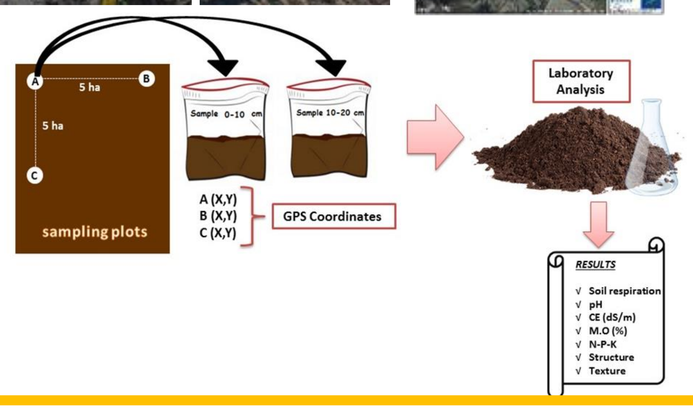
22 farmers participated in the project

Control and monitoring

- The effects of organic agriculture techniques vs. conventional management in different dryland crops were evaluated.



- Soil analysis (both edaphic and geo-physical properties) was carried out in all plots at the start and end of the project.

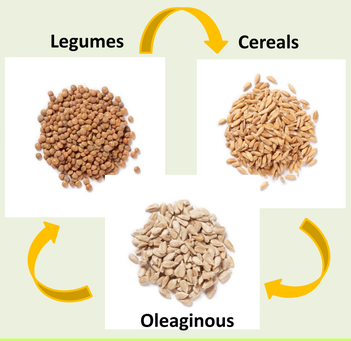


Beneficial practices of the project

Vertical tillage and soil decompaction



Crop rotation



Intercropping



Weed control



Fertilization



RESULTS & CONCLUSIONS

1. **To achieve agricultural sustainability in rainfed areas is necessary**
   - ✓ Implementation of appropriate soil management
   - ✓ Mixed crops (legume-cereals)
   - ✓ Mechanical methods for weed control
   - ✓ Vertical tillage systems
   - ✓ Reinsertion of traditional crops

2. **Vertical tillage** is beneficial and highly recommended:
   - ✓ Horizons are kept intact
   - ✓ Allows for the best possible soil organic matter content
   - ✓ Avoids compaction and favours water infiltration

3. **Crop rotation** Avoids the specialization of weed flora and helps improve soil quality. The different crop root systems carry out mechanical structuring work in the soil and they also combat hardsetting

4. **The perceptions of participating farmers have** shown a clear tendency towards a more positive outlook on the effects of organic agriculture and support for the argument that organic land becomes much more valuable.

5. **Economic assessment.** Example of the economic assessment comparing chickpea production in conventional management to organic management based on the actual data collected by the farmers involved in the project.

Labores Convencionales / *Conventional labour*	**Costos (€/ha)**	**Labores Ecológicos / *Organic management***	**Costos (€/ha)**
Pase chisel / *chisel plow*	23,25	Pase chisel / *chisel plow*	23,25
Tratamiento con glifosato / *glyphosate treatment*	4,62	Pase cultivador (1º) / *cropper* (1st)	14,73
Pulverizador suspendido / *mounted sprayer*	7,57	Pase cultivador (2º) / *cropper* (2nd)	14,73
Pase Cultivador / *cropper*	14,73	Siembra / *sowing*	31,8
Siembra / *sowing*	31,8	Semilla / *seed*	140
Semilla / *seed*	44	Pase rulo / *roller*	13,03
Abonado de sementera / *Starter fertilizer*	28	Pase Grada / *harrow*	12,44
Abonadora / *fertilizer tank*	6,32	Siega-Cosecha / *harvest*	46,98
Pase rulo / *roller*	13,03	Organic certification	5
Siega-Cosecha / *harvest*	46,98		
TOTAL costes / *TOTAL costs*	**220,3**	**TOTAL costes / *TOTAL costs***	**301,96**
Venta del Garbanzo (900kg/ha) / *Chickpea sold*	**270**	Venta del Garbanzo (900kg/ha) / *Chickpea sold*	675
TOTAL Ingresos / *TOTAL income*	**270**	**TOTAL Ingresos / *TOTAL income***	**675**
BENEFICIOS / *PROFIT*	**49,7**	**BENEFICIOS / *PROFIT***	**373,04**

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Project partners: