

Portugal – innovation example 1

A HEALTHY SOIL AS THE CORE OF THE MONTADO SYSTEM – INFORMAL GROUP

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- **Location:** Central Alentejo, Portugal
- **HNV system:** Extensive grazing under Montado but also forage production
- **Scale of operation:** Alentejo region, distributed among 15-20 farms, supported by an informal group of farmers and a researcher specialist in soil conservation and field techniques from the University of Évora.
- **Timespan:** Operating for approximately 15 years.
- **Keys to success:** Availability of agronomic knowledge and willingness for its sharing and application in the field conditions of Alentejo both by the group promotor (researcher from UE) and from the farmers. Improvement of economic viability of the farms as a result of the knowledge shared and applied within the group.
- **For more info:** <https://parceriaptsolo.dgadr.pt/9-ano-internacional-dos-solos/344-prof-mario-de-carvalho-e-o-grupo-informal-de-evora-promocao-e-divulgacao-da-agricultura-de-conservacao>



Figure 1

Problems addressed by this example

- Poor soil fertility
- Low soil organic matter content
- Reduced pastures productivity
- Poor economic viability of extensive grazing Montado farms

Story in a nutshell

A group of Alentejo farmers, concerned about the economic and environmental sustainability of their farms and in particular the risk of soil degradation, have abandoned the conventional system of planting crops with the use of soil conventional tillage and moved to conservation agriculture. This informal group gathers around a field researcher who is largely respected both among the researchers' and farmers' community and functions as the "leader" of the group. The group have been meeting for about 15 years to share experiences, knowledge and technical and scientific support from a specialist from the University of Évora – Mário de Carvalho.

A significant part of the group work in the Montado system applying the principles of conservation agriculture within the Montado mainly through improvement of soil fertility using mineral correction with no tillage, direct seeding and grazing management to increase soil organic matter, soil fertility and pasture productivity.



What does the informal group achieve for HNV farming?

Recovery of generally poor and degraded soils

- Reduce soil erosion
- Correction of frequent problems (soil acidity and Mn toxicity)
- Increase soil organic matter content
- Avoidance of oak root damage – no tillage



- ↑ Pasture productivity
- ↑ Oak tree productivity and thus health
- ↑ Other cultures productivity



Increased economic and environmental sustainability of the system



Figure 2



Figure 3

Achievements

The informal group has a fluctuating number of farmers. Data resulting from field experiments on the effect of different tillage practices on soil organic matter (OM) content have shown significant increases over a period of 10 years associated to no tillage, direct seeding and culture residue incorporation in the soil (data from Mário de Carvalho, the promotor of the informal group).



Figure 4

How does the informal group “conservation agriculture” respond to the HNV LINK innovation themes?

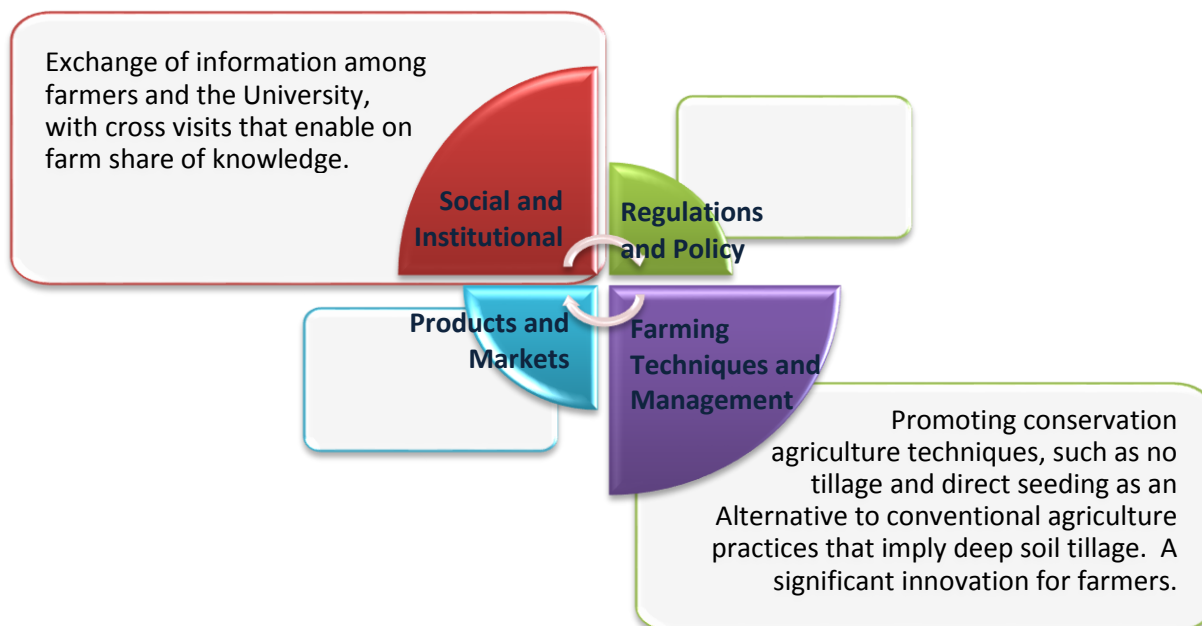


Figure 5 Shows how this innovation addresses the four themes of the HNV-Link innovation framework.

The process that made it happen and critical factors for success

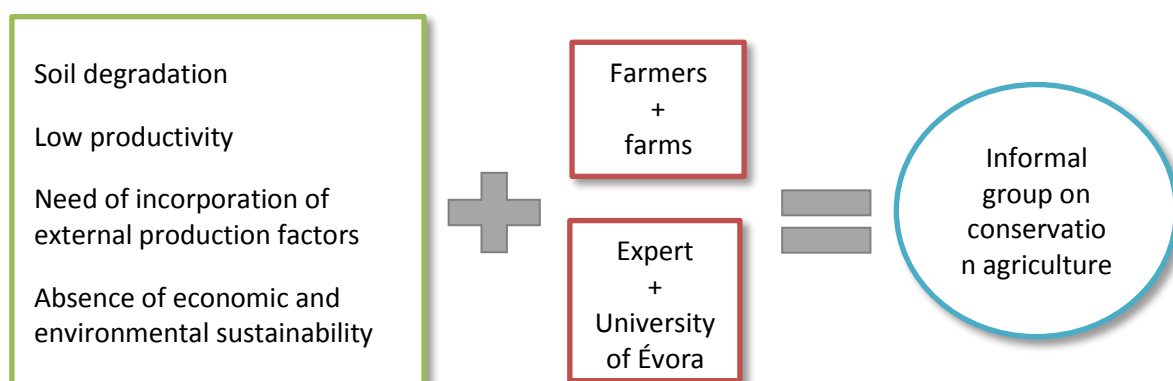


Figure 6

- Key actors:** The group on conservation agriculture is assumed as informal, and is very much dependent on the expert (from the University of Évora) that gathers and supports the knowledge application in each particular case. Access to specialised technical/agronomic knowledge is therefore critical for this innovation. However the exchange of knowledge happens between all group participants. There is no real institutional support from anywhere, apart from the University of Évora, and there is no funding to support meetings or even travelling expenses.
- The critical factor** is probably the high reliance on a single person. The fact that there is a long lasting experience of group discussion with experience/problems sharing among all farmers and expert is an important factor for success. Replication of such an experience requires funding for specific training in order to be able to prepare field technicians capable of provide the technical assistance with a similar structure.

Lessons learnt from this innovation example, and its potential replication



Figure 7



Figure 8

- Main required conditions for the adoption of conservation agriculture practices
 - ➔ Access to specialised knowledge and its adaptation to each farm conditions it is mandatory.
 - ➔ Continuous technical assistance in the field.

Replication of this experience implies specialised training and specific funding for preparation of field technicians capable of assisting a larger number of farms.

Overall lessons from this example, especially from point of view of HNV farming?

Conservation agriculture and its approach to soil management is undoubtedly more knowledge demanding than the conventional agriculture approach. Access to technical and agronomic knowledge is the limiting factor to the generalisation of this innovative approach.

Is the innovation unique to its territory and its characteristics, or is it replicable in other areas?

The informal group is unique, however it is replicable through the use of specialised training to prepare field technicians capable of disseminating the soil management approach used under conservation agriculture.

Could it be rolled out on a bigger territorial scale? What would be needed to do this successfully?

Yes, soil management for conservation within the Montado is considered extremely relevant by most farmers and so it is the access to technical advice across time. To replicate successfully this experience, funding for specific training in order to be able to prepare field technicians capable of provide the required technical assistance across time and to support the periodic cross visits.

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