

12th European IFSA Symposium

*Social and technological transformation of farming systems:  
Diverging and converging pathways*

Harper Adams University, UK 12-15 July 2016.

*How to design and develop inclusive knowledge and  
innovation agricultural networks: Lessons from the case  
of the Portuguese Cluster of small fruits*



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# 1 | The research context

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- ❖ EIP AGRI (European Innovation Partnership on agricultural productivity and sustainability) and related initiatives, such as Operational Groups
  1. Relies on multi-actors networking - farmers, researchers, advisers, others
  2. Grounds on the innovation system approach, which envisages innovation as an outcome of interactive collective learning processes, involving heterogeneous actors and multiple sources of knowledge
- ❖ The link between networking behaviour and innovative performance is well-established (business literature)
- ❖ The idea underpinning EIP-AGRI of linking producers and users of knowledge and promoting their interaction around problem-solving is well grounded on the evidence provided by the 'innovation systems' and related literature.

## 2 | Research gaps and paper goals

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- Evidence gaps that matter to the implementation of the EIP-AGRI activities comprise the lack of knowledge regarding the best-fitted network configuration for different farming systems and farming styles, and the nature and effectiveness of a facilitator function and role to bridge communication between researchers and farmers
- 1. to present the configuration of the Portuguese Cluster of Small Fruits, by describing its structure, content and dynamics as learning and innovation network
- 2. to discuss how the originality of this network regarding its inclusiveness might be kept in its future development in spite of the tensions evidenced towards the segregation of different groups of farmers.

### 3 | Data collection and analysis

- **Case study** approach, with 3 phases:
  1. Exploratory research to understanding and mapping the actors of the Portuguese small fruit sector by conducting a collection and systematization of the latest news and events, direct observations and participation of the research team in some of those events (meetings, workshops, among others);
  2. **Exploratory-descriptive approach to gather information about the structure, content and dynamics** of the network was done using interviews guides applied through personal interviews
    - the sample selection was random: 'facilitators' (3), 'suppliers of knowledge' (9), and small farmers ('knowledge demanders') (24).
  3. To carry on the **analysis of social network**, supporting the **flow of information in the process of creating, sharing and storing knowledge**, Social Network Analysis (SNA) methodology was adopted.

## 4 | The berries sector in Portugal

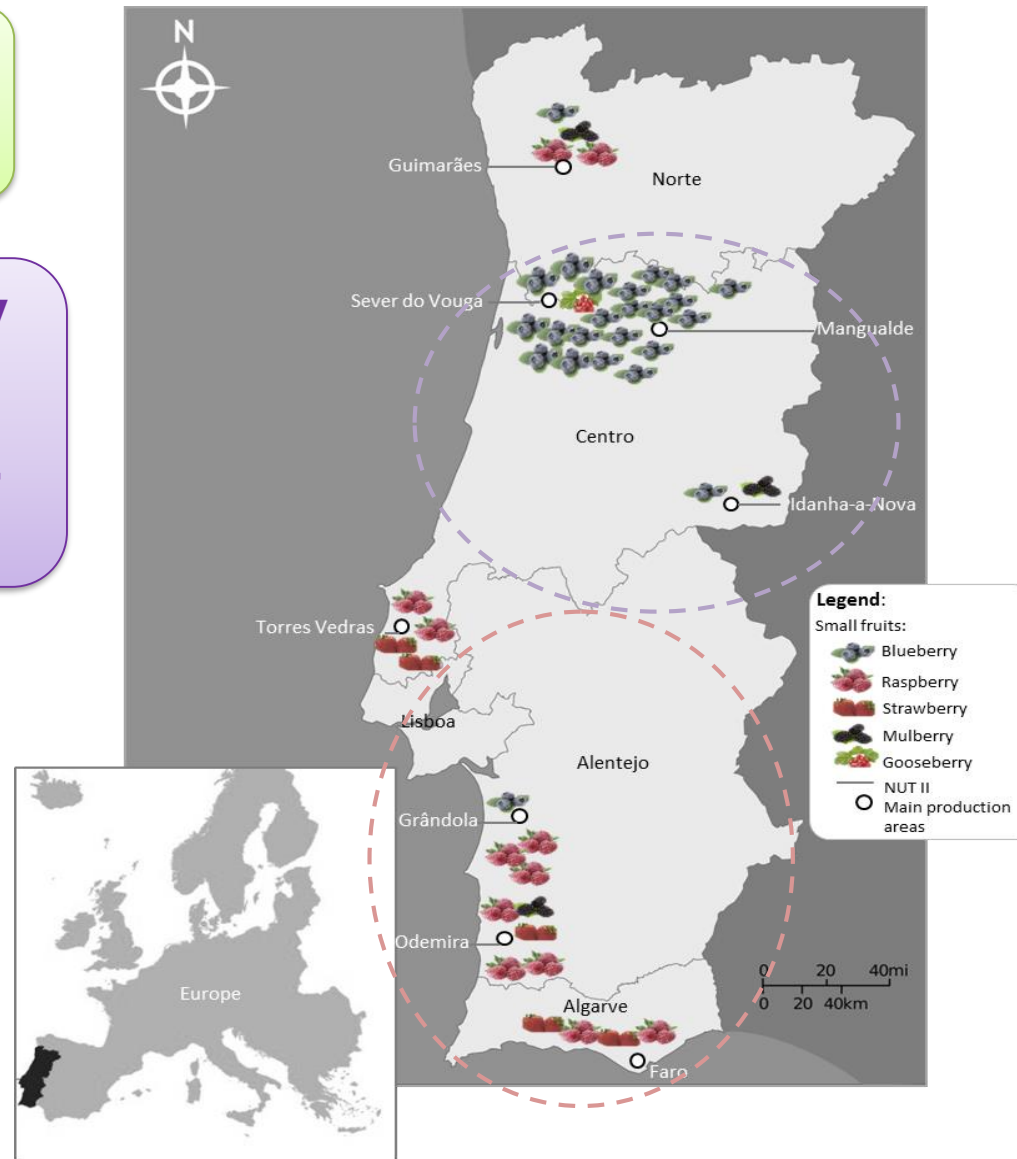
- Novel and exponentially growing sector: from a few hectares in 2009 to thousands in 2016
- The berries cultivation has been initiated in Portugal in the nineties, there was a group that continued the crop, located in the Southern that has created, converted and stored local-specific knowledge ('pioneers producers')
- Since 2009, driven by the economic crisis and young unemployment it generated, agricultural sector experienced an exponential demand from 'young farmers' (40 or less years old) benefiting from the RDP measures
- In the Central-Northern local authorities envisaged this 'young farmers' demand as an opportunity to counter depopulation and land abandonment
- They enhanced and supported the sector organization at this region aiming at to attract young farmers

# 4.1 | The berries sector in Portugal

Geographical dichotomy:  
Experienced vs. Inexperienced

**Central-northern is dominated by small young new-established inexperienced producers; mono-production of blueberries; sector novelty**

**Southern area is characterised by larger and specialized producers; experienced and innovative; well networked with research and trade**



## 5 | The *Small Fruits Cluster (SFC)*

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- A broad network, horizontal nationwide, encompassing multiple purposes and actors, with a national scale and sectoral scope.
- Was created in 2013, resorting to public funds (to agglomeration economies).
- It is led by a sectoral association, which is the main network facilitator along with other three partners (public and private R&D organisations).
- Its major concern is to ensure the sector's competitiveness and sustainability.

## 5 | The *Small Fruits Cluster (SFC)* – Actors and roles

<b>Actors</b>	<b>Description of their role in small fruit sector</b>
Independent producers	Production
Private companies	Berry production, harvest and/or trade
Micro SME	Storage, processing and transformation
	Advisory services (technical support, accounting, marketing, certification) supply
	Advisory services supply for application to PRODER incentives, direct payment, project installation
Producer groups	Berry production, harvest and trade
Cooperatives	Knowledge transfer (creation, storage, conversion and sharing)
	Supply of advisory services (technical support, accounting, marketing, certification)
	Berry harvest and trade
Farmer associations	Support and sectoral promotion
Sectoral associations	Promotion and support of knowledge creation and exchange
	Support and sectoral promotion
	Internationalization and innovation promotion
R&D public institutions	Knowledge creation, storage, conversion and sharing
R&D private institutions	Knowledge creation, conversion and sharing
Local governments	Supporting and encouraging enterprising farmers (land banks, business incubators, licensing new projects), territorial marketing
Public regional advisory agencies	Providing support to project installation management and technical advice
	Knowledge transfer (creation, storage, conversion and sharing)



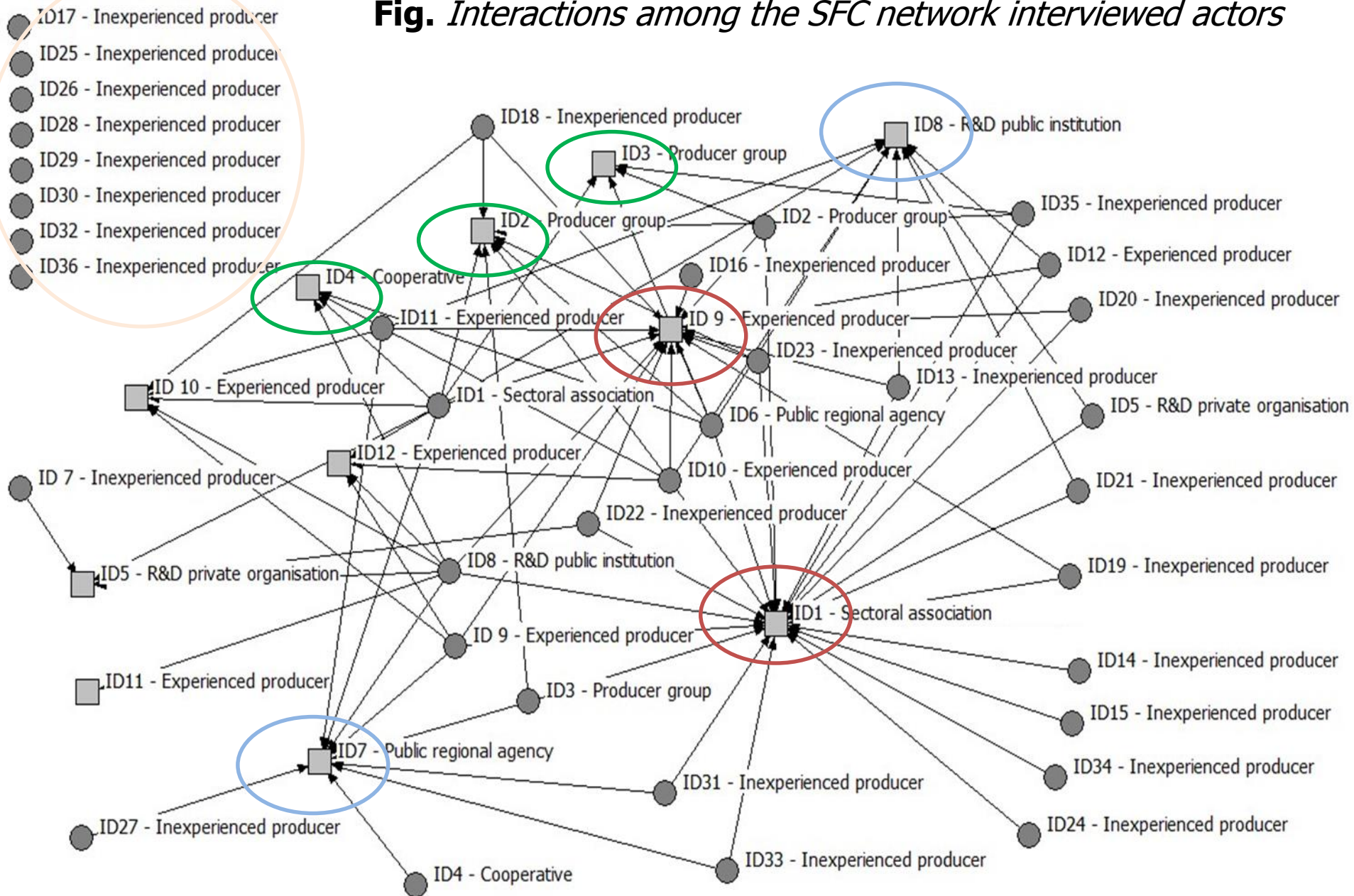
## 5 | The *Small Fruits Cluster (SFC)* – Groups of actors

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1. Core group with four organizations (1 FBO, 2 R&D, 1 FBO-internationalisation promoter; that coordinates the network and includes their key facilitators).
2. Independent producers, producer groups, small and medium firms of producers and others, cooperatives, farmer associations, private advisors, project developers and up and downstream firms, among others (knowledge and information supply)
3. Inexperienced producers (this is the largest group, with hundreds of producers, although not all of them participate in CSF activities, they are the demanders for information and skill)
4. The local governments and local development associations of central-northern region (enablers and supporters).

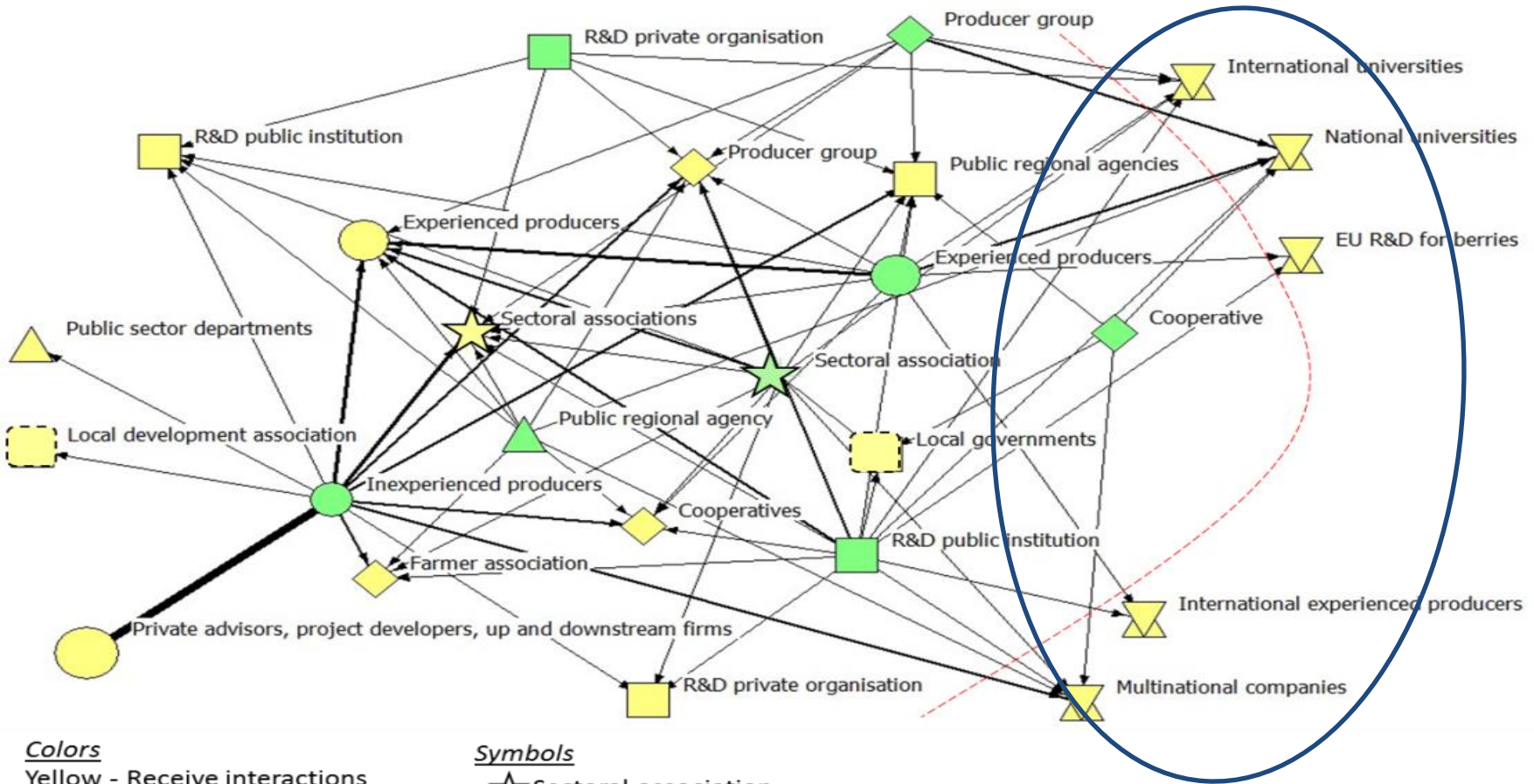
# 5 | The *SFC* – Network interactions

**Fig.** *Interactions among the SFC network interviewed actors*



# 5 | The *SFC* – Knowledge network actors interaction

*CFS network interactions according to the categories of actors*



## Colors

Yellow - Receive interactions  
Green – Seek interactions

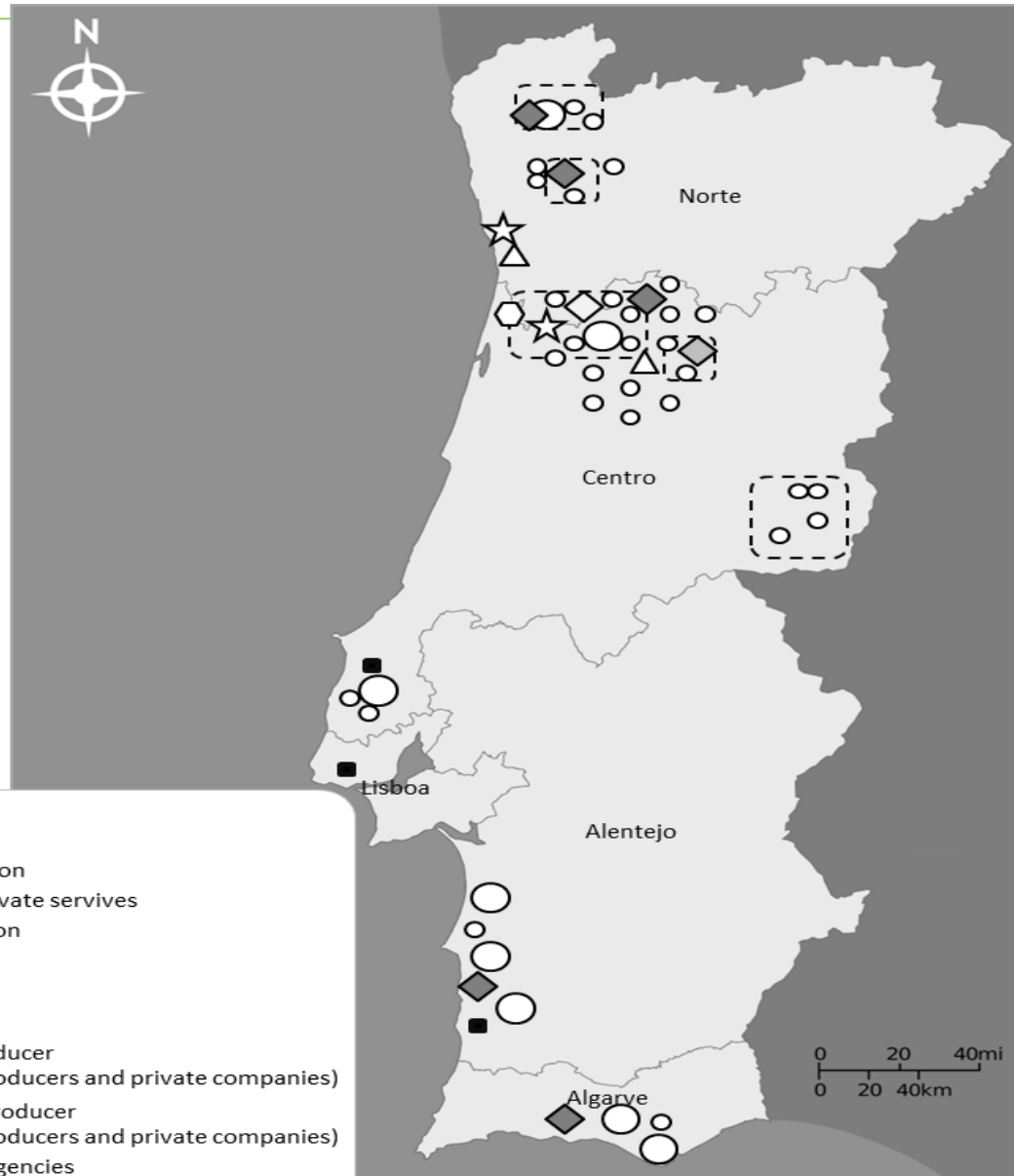
## Lines

-- Network border  
— Strong connections  
— Weak connections

## Symbols

- ☆ Sectoral association
- R&D public and private organisation
- △ Public sector departments and public regional agency
- ◇ Farmer association, Cooperatives, Profit and non-profit producer groups
- ▭ Local Governments and local development associations
- Inexperienced producers
- Experienced producers (independent producers and private companies)
- Private advisors, project developers, up and downstream firms
- ⊠ Other actors

# 5 | The *SFC* – Spatial configuration



## Legend:

- ☆ Sectoral association
- R&D public or private services
- ◇ Farmer association
- ◊ Cooperatives
- ◆ Producer group
- Experienced producer (independent producers and private companies)
- Inexperienced producer (independent producers and private companies)
- △ Public regional agencies
- [- -] Local governments and local development associations
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## 5 | The *SFC* – Innovation patterns

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- The CSF illustrates how social interaction becomes a powerful tool capable of enhancing systemic innovation, that is mostly incremental in its nature and resorting to processes of imitation and informal collective learning experiences to solve practical problems, within which farmers act as knowledge co-creators and exchangers.
  - In the case of mature producers, collaborative innovation processes take place in their own networks, involving other experienced producers (national and abroad), buyers and researchers who are largely outside the CSF.
  - They rely on incremental innovation processes, products and marketing. In their innovation processes, they combine scientific, synthetic and tacit knowledge, aiming at continuously improving their production practices (e.g. irrigation and fertilizer dosing and timing) and adjusting their products to market demand.

## 6 | Key findings

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- ❖ Cluster built on various asymmetries:
  - Geographical (Central-Northern vs. Southern)
  - Experience (Inexperienced vs. Experienced)
  - Cognitive (Starters vs. Optimisers)
  - Cohesion (Tensions vs. Stability)
- Still it has shown able to deliver knowledge and information to small-scale young inexperienced producers
- By proving a learning platform with interaction opportunities for actors, namely producers with relevant distances: geographical, experience and cognitive
  - Challenge is how to enhance SFC cohesion and long run stability

## 7 | Lessons learned

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- ❖ The CSF illustrates that the facilitator function is important and that it might assume different configurations:
  - a)** bridging and brokering analytical and synthetically knowledge delivered by researchers;
  - b)** enabling the bridge between different actors.
- ❖ Pioneers, best farmers or innovation-led farmers appear to be good bridging communication facilitators (overcoming cognitive distances)
- ❖ The inclusiveness can be a critical feature of knowledge and innovation networks focused on productivity and sustainability gains, such as the case of the OG designed under the EIP-AGRI framework, because when there is a segregation between farmers with more access to scientific and technical knowledge and the ones that have less ability to do that, the goals of EIP-AGRI will be attained only in a limited level.

## 7 | Lessons learned

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- ❖ Inclusiveness can be achieved by knowledge and innovation networks in spite of geographical and cognitive distances, when farmers share common goals (such as the competitiveness of the sector)
- ❖ Imbalances and tensions within knowledge and innovation networks caused by geographical and cognitive distances between key actors might be surmounted with wise governance structure, namely through the inclusion of best/pioneer farmers and ensuring the representativeness of the different types of actors: sectoral associations, advisory services and researchers.
- ❖ Agglomeration economies based networks, which are very important in some agricultural sectors (e.g. fruit, wine) and in countries or regions where small-scale farm is significant, can in fact be the grounds for knowledge and innovation networks in the sense wanted by the EIP-AGRI, since inclusiveness and facilitation functions are accounted for properly.



# Thanks!

## Acknowledgments

We acknowledge funding from the European Commission, 7th Framework Programme through the project PRO AKIS (Prospects for Farmers' Support: Advisory Services in European AKIS, <http://www.proakis.eu/>). This work does not necessarily reflect the view of the European Union and in no way anticipates the Commission's future policy in this area.

This work is supported by: European Structural and Investment Funds in the FEDER component, through the Operational Competitiveness and Internationalization Programme (COMPETE 2020) [Project No. 006971 (UID/SOC/04011)]; and national funds, through the FCT – Portuguese Foundation for Science and Technology under the project UID/SOC/04011/2013.