**Analysis of the socio-economic performances of producers' associations and their propensity to introduce innovations in the agri-food sector**

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This PhD thesis research aims to examine the innovation processes in the agricultural sector, deepening the propensity to introduce innovation by producers’ associations such agricultural cooperatives in Apulia region (southern Italy). This research will contribute to: (i) enhance knowledge about the factors that favour the innovation adoption of agri-food cooperatives, (ii) verify the effectiveness of the applied methodology and the achievement of interventions objectives and, (iii) propose corrective and/or improvement actions.

**Analisi dei risultati socioeconomici delle imprese in forma associativa e della loro propensione all’introduzione di innovazioni nell’agroalimentare**

Questo progetto di tesi di dottorato si pone come obiettivo la disamina dei processi di innovazione nel settore agricolo, con un approfondimento sulla propensione ad introdurre innovazione da parte delle imprese associate quali le cooperative agricole della regione Puglia (Italia meridionale). Questa ricerca contribuirà a: (i) ampliare le conoscenze in merito ai fattori che favoriscono l’implementazione di innovazione da parte delle imprese cooperative agroalimentari, (ii) verificare l’efficacia della metodologia applicata ed il raggiungimento degli obiettivi di intervento e, (iii) proporre azioni correttive e/o di miglioramento.

# **1. State-of-the-Art**

Europe 2020 Strategy proposes a new model of growth and economic development - smarter, more sustainable and more inclusive - calling for research and innovation to operate in a strong connection with the needs of people and businesses. Consistently, the 2014-2020 programming for the use of European Funds and related national co-financing has provided, among its thematic objectives, to strengthen research, technological development and innovation and promote the competitiveness of small and medium-sized enterprises (SME), the agricultural sector and the fisheries and aquaculture sector in a logic of sustainable growth (Piano strategico per l’innovazione e la ricerca nel settore agricolo alimentare e forestale 2014-2020).

Innovation represents a key factor in addressing the challenges of the future concerning environmental sustainability and increasing business competitiveness. In this context, cooperation could be an incentive factor for innovation in the agri-food sector, contributing to the balancing of market relations according to bargaining power and distribution of added value. The relationship between demand and supply of innovation is often impeded by difficult communication and physical limits between those who propose innovation and those who must adopt it. Therefore, it is necessary to facilitate the relationship between researchers and companies. The research project will concentrate on enhancing the propensity for innovation of individual companies and production cooperatives in Apulia’s agricultural sector. Consequently, this analysis will help to improve the efficiency and effectiveness of the activities conducted by the associated agri-food companies and it will favour the positive and concrete development of local communities.

To achieve the stated objectives, a theoretical context analysis has been undertaken, as a first step of this doctoral research, through the bibliographic research’s activity aimed at carrying out a systematic literature review. The main objective is to identify methodologies, theories or tools to measure the innovation impact in the agri-food sector and, secondly, to subdivide the results obtained according to specific classification criteria, that could bring out impact categories worthy of further study. More specifically, the aim is to focus attention on the factors that favour the innovation adoption by agri-food companies and on the effects that innovation can have on economic, social and environmental sustainability.

Therefore, using the *focus group* technique have been selected keywords used in the search strings: "Innovation"; "Agri-food"; "Assessment"; "Indicators" and "Agriculture", and have been identified the following six research questions:

1. DEFINITION OF INNOVATION;
2. TEORY OF INNOVATION;
3. DETERMINANTS OF INNOVATION;
4. BENEFITS OF INNOVATIVE AGRICULTURE ADOPTION;
5. TYPES OF INNOVATION TECHNOLOGY IN FARMER LEVEL;
6. TYPES OF ASSESMENT METHODS OF AGRICULTURE INNOVATION.

The Scopus database was used for material collection how it was made by Silvestri *et al.* (2022). This paper has been chosen as a model for the methodology used. Scholars consider Scopus to be among the best databases to produce a reliable bibliometric survey (Durán-Sánchez *et al.*, [2018](https://link.springer.com/article/10.1007/s11367-022-02032-1#ref-CR61)). Scopus offers a high level of singularity (Sánchez *et al.*, [2017](https://link.springer.com/article/10.1007/s11367-022-02032-1#ref-CR220)) and broad data coverage (Salim *et al.*, [2019](https://link.springer.com/article/10.1007/s11367-022-02032-1#ref-CR217)), making it one of the most comprehensive and comprehensive scientific databases (Chadegani *et* *al.*, [2017](https://link.springer.com/article/10.1007/s11367-022-02032-1#ref-CR36)). In methodological terms, a literature review allows investigation of a given topic through both qualitative and quantitative content analysis (Hill, [1995](https://link.springer.com/article/10.1007/s11367-022-02032-1#ref-CR110); Seuring and Muller, [2008](https://link.springer.com/article/10.1007/s11367-022-02032-1#ref-CR224)).

The search strings used in Scopus have been “Agri-food” OR “Agriculture” AND “Innovation” AND “Assessment” OR “Measurement” OR “Evaluation”. In the Scopus search, the research criteria were “Title, Keywords, Abstract”.  Finally, the following filters have been set:

* Year (2015 to 2023);
* Country (Italy);
* Publication stage (Final);
* Language (English);
* Subject area (Environmental Sciences; Agricultural and Biological Sciences; Social Sciences; Economics, Econometrics and Finance; Business, Management and Accounting);
* Document type (articles and reviews).

The search on Scopus produced 1185 results. Of these, 113 were selected, depending on their ability to answer research questions. These articles and reviews will be the basis of the proposed activities.

# **2. PhD Thesis Objectives and Milestones**

Within the overall objective mentioned above this PhD thesis project can be subdivided into the following activities according to the Gantt diagram given in Table 1:

A1) **Innovation adoption** determination of the factors affecting the adoption of innovation (A1.1) and benefits of innovative agriculture adoption(A1.2) to focus on the factors that favour the adoption of innovation of agri-food companies and the benefits of innovation adoption.

A2) **Assessment method** determination of the types of assessment methods (A2.1) and indicators (A2.2) used by the selected articlesto identify the mathematical model capable of measuring innovation. More specifically focusing on specific analysis models that will analyse economic, social, and environmental sustainability.

A3) **Method and data collection** to define the method to be used (A3.1) and to perform data collection (A3.2). Once the method has been defined, it is necessary to prepare the dataset of the associated agri-food companies to be examined.It will be necessary to choose supply value and production sector.

A4) **Application of the method to the case study** the dataset developed in the previous activity.

A5) **Writing and Editing** of the PhD thesis, scientific papers and oral and/or poster communications.

***Table 1***Gantt diagram for this PhD thesis project during the next 2 years (2023-2025).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Activity Months | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** | **22** | **23** | **24** |
| A1) | ***Innovation adoption*** |   |   |   |  |  |  |  |   |   |  |  |  |  |   |  |  |  |  |   |   |  |  |  |  |
|  | 1) Factors affecting |   |  |   |  |  |  |  |   |   |  |  |  |  |   |  |  |  |  |   |   |  |  |  |  |
|  | 2) Benefits |   |  |   |  |  |  |  |   |   |  |  |  |  |   |  |  |  |  |   |   |  |  |  |  |
| A2) | ***Assessment method*** |   |   |   |  |  |  |  |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |  |  |
|  | 1) Assessment methods |   |   |   |  |  |  |  |   |   |  |  |  |  |   |   |  |  |  |   |   |  |  |  |  |
|  | 2) Indicators |   |  |   |  |  |  |  |   |   |  |  |  |  |   |  |   |  |   |   |   |  |  |  |  |
| A3) | ***Method and data collection*** |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |  |  |  |   |   |   |   |   |  |
|  | 1) Method |   |  |   |   |   |  |  |   |   |   |   |  |  |   |  |  |  |  |   |   |   |   |  |  |
|  | 2) Data collection |   |  |   |  |  |   |  |   |   |  |  |   |  |   |  |  |  |  |   |   |  |  |   |  |
| A4) | ***Application*** |   |  |   |  |  |   |   |   |   |  |  |   |   |   |  |  |  |  |   |   |  |  |   |   |
| A5) | ***Thesis and Paper Preparation*** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |

# **3. Selected References**

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