

## **When Innovation Meets Tradition: The Case of “Riso & Rane” Rural District in Lombardy Region**

Giovanni Ferrazzi<sup>1</sup>, Vera Ventura<sup>1</sup>, Sabrina Ratti<sup>2</sup> and Claudia Balzaretto<sup>2</sup>

<sup>1</sup>*Department of Economics, Management and Quantitative Methods, Università degli Studi di Milano* <sup>2</sup>*Department of Health, Animal Science and Food Safety, Università degli Studi di Milano*  
[giovanni.ferrazzi@unimi.it](mailto:giovanni.ferrazzi@unimi.it)

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### **ABSTRACT**

Lombardy, with 87.393 hectares of rice is one of the leader region for this production in Italy and in the European Union (EU) too. This area is characterized by a strong connection with tradition both in terms of agricultural landscape and food culture. Nevertheless, during the last decade, farmers faced increasing competitiveness issues, mostly related to EU subsidies losses, market prices and the technical constraints of the traditional rice supply chain: provider of technical means, farmers, brokers and rice mill. In this scenario, the “Riso e Rane” Rural District (R&RD) supports farmers in improving competitiveness through innovation. The aim of the paper is to investigate the innovation in the rice supply chain related to the specific action of R&RD, that accounts for 60 farms. Starting from the direct survey carried out on the district productive structures, we investigate the farms' degree of innovation related to the adoption of a new model of supply chain. The case study areas is characterized by rice that represents the most important culture with 2.773 hectares (more than 58% of the district Utilized Agricultural Area (UAA)). In 2012, R&RD won a regional project titled “Buono, Sano e Vicino” with the aim to help local rice farmers developing an alternative supply chain in which the district grow into the local actor to increase farmers bargaining power and promotes new market strategies. To make this the attention was focused on one of the most important variety of Italian rice: Carnaroli. The main results of the study showed that the project was able to innovate the traditional supply chain in all the four innovation areas according to OECD (2005): product, process, market and organization. In conclusion, our results suggest that the R&RD is able to respond to farmers necessities in term of market competitiveness and to improve the sustainability of local food system.

**Keywords:** *Innovation, Rural District, Supply chain*

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### **1. INTRODUCTION**

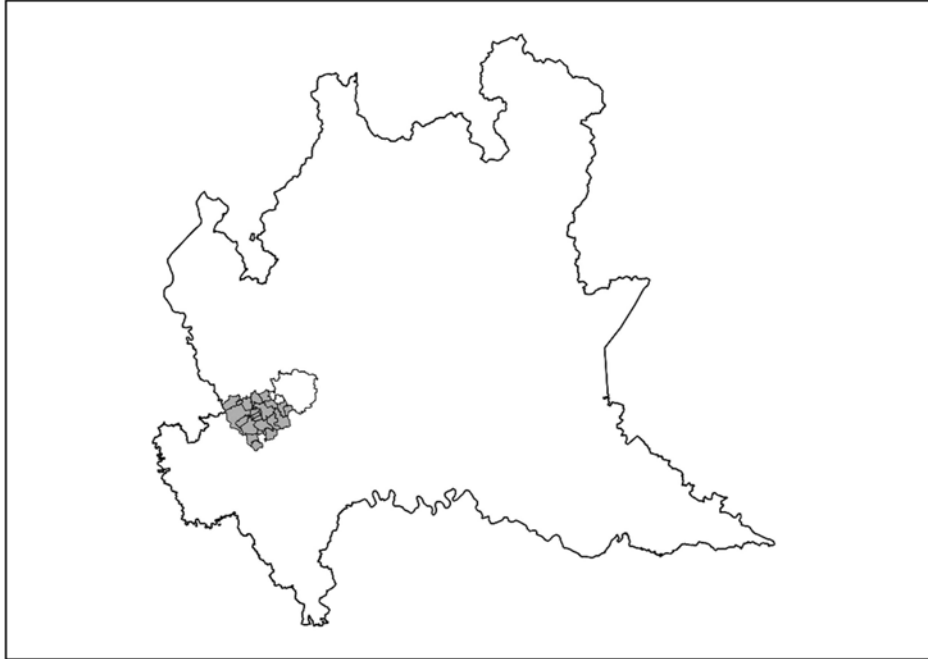
Italy is the European leader for rice cultivation with 1.339.000 tons (48%) of EU total production. The other relevant rice producers EU Countries are Spain (30%) and Portugal (8%) (Eurostat, 2014). Italian rice production is located almost exclusively in four provinces: Vercelli, Novara, Pavia and Milano. This high concentration reveals a strong connection between agricultural tradition, in terms of landscape, product and agronomical technics, and the competitiveness of the rice supply chain. Otherwise, this scenario is affected by several problems. First of all, in the last decades rice producers lost economic gain principally due to the increase of production costs (Istat, 2014). Second, for issues related to the change of Common Agricultural Policy (CAP), as the reduction of CAP subsidies for rice product. Furthermore, the structure of rice supply chain appears too closed to innovation. In particular, farmers are not able to influence the competitiveness variables due to the market power of processing companies. In fact, despite an average

farm size greater than other agricultural enterprises (Ferrazzi, 2014), the extreme fragmentation of rice producers is the main obstacle for influencing commercial relationships with companies upstream and downstream of the production process. This aspects lead to the stiffness of the supply chain and to the conflictuality between the different players involved, as reported by Casati (1999). In this scenario, it is extremely interesting the development of rural districts (RD) that could be a strategic element for the concentration of agricultural production. These organization structures derive from the concept of Cluster, defined as a “geographic concentrations of interconnected companies and institutions in a particular field” (Porter, 1998), and from the Marshallian Industrial District (Becattini, 1989 and 2000; Cecchi, 1992; Porte and Ketels, 2009; Toccaceli, 2015). Nowadays, RD have been recognized by the Common Agricultural Policy (CAP) as one of the principal tools for the development of rural areas in the framework of the LEADER approach (EC, 2016). Italy and, in particular, Lombardy region has chosen to implement these policies starting from 2001, with a specific Italian law (Legislative Decree 18 may 2001. N. 228 ). Scientific literature confirms the key role of farmers’ networks as driving force for the success of Local Food Systems (LAS). This typology of local-scale organizations are useful for the development of agricultural areas, supply chain sustainability and local traditions preservation (CIRAD-SAR, 1996; Dunne et al., 2010; Feenstra, G., 2002; Hardesty, S.D., 2008). In particular, European Commission (2007) highlight LEADER approach and local development as fundamental for the introduction of innovations in rural areas. Building on the above described Italian scenario this paper aims at investigate the role of rural districts to support farmers in improving competitiveness through innovation. More specifically, this work is focused on the capability of rural districts to promote innovations in the LAS. After investigating Lombardy agricultural system, the study analyzed rice production identifying this product as one of the most relevant in terms of economic value and traditional aspects. Then the paper investigate the farms’ degree of innovation related to the adoption of a new model of supply chain through a specific case study, named “Riso & Rane Rural District” (R&RD), a Lombardy rural district characterized by rice production. Furthermore, we investigate the relationship between innovation and competitiveness in rice farms, by providing some evidences about the strategic role of a new model of rice supply chain and its direct effect – along with other inputs – on products, processes, markets and organization. In summary, the paper intends to answer the following research questions: could a rural district support farmers in improving competitiveness through innovation? Moreover, what is the role of R&RD in driving the rice farms on decision, investments and marketing strategy and innovations in the supply chain? For these purposes, the paper focused on the new model of supply chain promoted by R&RD related to the Research Project titled: ‘Buono, Sano e Vicino’, having Carnaroli rice variety as the most representative example of this new model of agricultural chain.

## 2. METHODOLOGY

2.1 Case Study description The case study is represented by R&RD born in 2011 thanks to the effort of a small number of local agricultural farmers; The R&RD accounts for 23 municipalities near Milano (fig. 1) and 62 agricultural enterprises specialized in rice production. Data was obtained from different sources: direct survey with farmers as well as specific data on the R&RD and national and international literature.

**Figure 1: Riso & Rane Rural District**



Source: own elaboration

R&RD rice production, with 2.773 hectares, accounts for 23% of Milan (3,2% of Lombardy) total rice area, (table 1). Moreover, R&RD farms are characterized by higher values of UAA/farm in comparison with the regional and provincial mean data.

	<b>R&amp;RD</b>	<b>Milano</b>	<b>Lombardy</b>
<b>N° municipalities</b>	23	134	1528
<b>N° farms</b>	62	2.358	54.333
<b>UAA (ha)</b>	4.738	64.862	986.826
<b>UAA per farm (ha)</b>	76,4	27,5	18,2
<b>UAA rice (ha)</b>	2.773	12.117	91.807

**Table 1: R&RD at a glance**

Source: own elaboration on ISTAT and R&RD data.

In 2012, R&RD won a regional project titled “Buono, Sano e Vicino” with the aim to help local rice farmers developing

an alternative supply chain in which the District, acting as a local player, helps to increase farmers bargaining power and promote new market strategies. In order to achieve this target, innovative ideas were necessary. The attention was focused on traditional Lombardy rice varieties: Carnaroli, Arborio, Baldo, Roma, Sant’Andrea, Vialone Nano. In particular, R&RD chose Carnaroli rice variety as the most representative example of this new model of agricultural chain, according to the evidences derived from a preliminary market research. The project was finalized to:

- underline principal characteristics of this product,
- identify the most important elements of innovation,
- define a common strategy at district level.

2.2 Direct survey among farmers Agricultural enterprises data were collected by a direct vis-à-vis survey, developing an ad hoc questionnaire divided into four macro areas: 1) Structural data; 2) Economics and management; 3) Agronomics; 4) Innovation. Each macro area was composed of different sub categories according to table 2. Data were statistically analyzed using SPSS (SPSS/PC Statistics 18.0 SPSS Inc., Chicago, IL).

**Table 2: subcategories of the four macro areas**

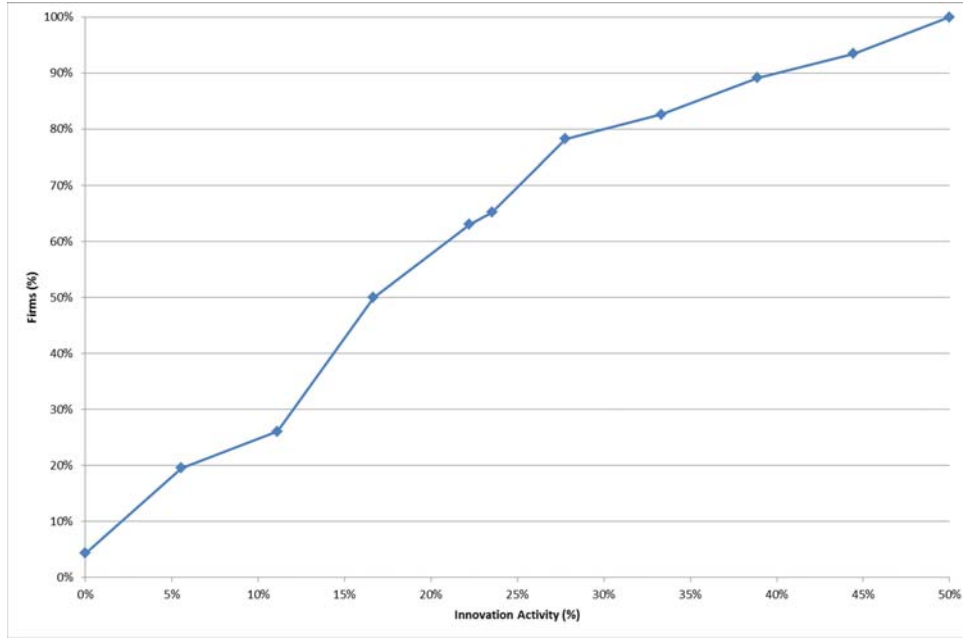
Macro area	Sub categories
Structural data	Socio-economic data Multifunctionality
Economics management	and Inputs Management Quality and certification Business sentiment Management of the final product
Agronomics	District Rice cultivar Maize cultivar Other cultivar Breeding
Innovation	Innovations introduced over the past five years

Source: own elaboration.

### 3. RESULTS and DISCUSSION

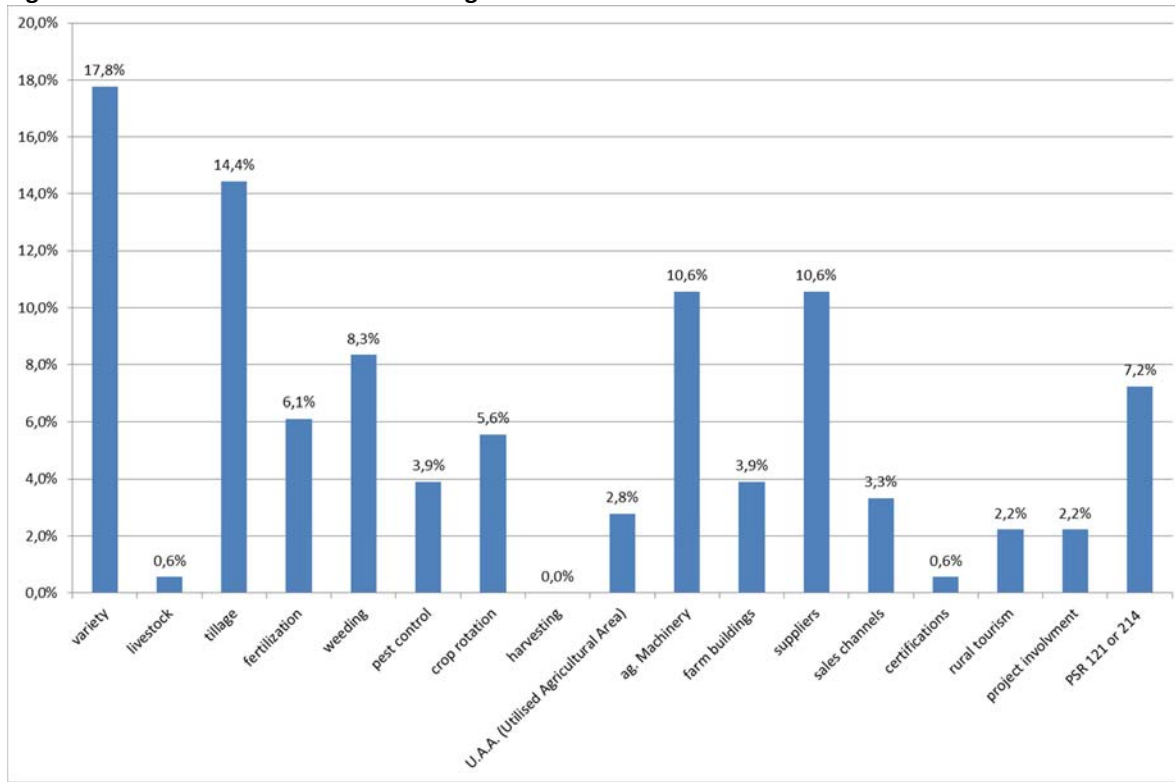
3.1 Results of the survey A special attention was dedicated to the modernization of agricultural structure and management: for this purpose, the direct survey included several questions relating to innovation interventions introduced in the farmers over the past five years. As reported in the figure 2, almost of all the respondents introduced at least one element of innovation. However, the most innovative farmers (that have applied from 30 to 50% of the proposed solutions) represent only 20% of the total respondents.

**Figure 2 – Farmers innovations in R&RD**



Source: own elaboration.

Figure 3. Distribution of innovation among R& RD farmers



Source: own elaboration

In terms of propensity to innovation, figure 3 reveals that the most frequent innovation interventions among R&RD farms regard changes in rice variety (17.8%), followed by the change of tillage (14.4%) and, in smaller proportions, the change of agricultural machinery or suppliers (10.6% both). In particular, the introduction of innovation relative to suppliers, is directly attributable to the activity of the R&RD that has closed agreements with different technical means suppliers. Finally, the analysis shows lacking lack in innovative measures concerning market aspects. A further aspect of interest disclosed by the survey is farmer's perception of the District, and the role that they assign to District (table 3). Data reveals that the production planning is considered the priority for 30.7% of the respondents, followed by of product promotion or exploitation.

**Table 3: Farmers' perception about the role of R&RD district**

<b>You think that the affiliation to the District can help you in:</b>	<b>%</b>
planning production	30,71
product promotion/exploitation	24,34
label/certification	17,23
selection of suppliers	14,61
selection of technical means	9,74
other	3,37
nothing	0,00

Source: own elaboration.

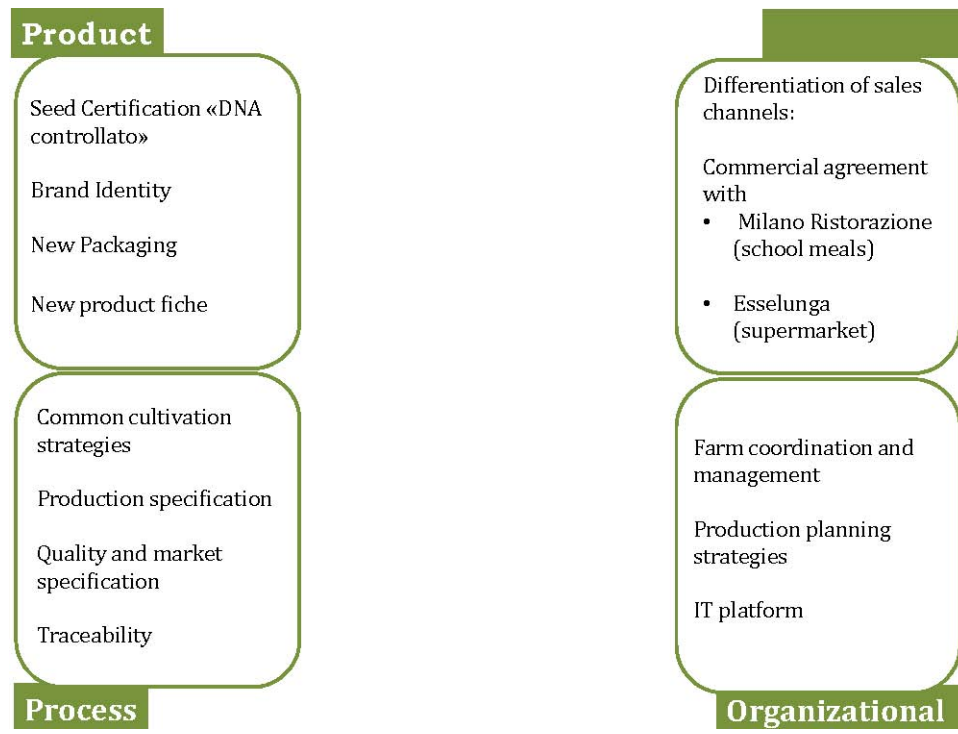
### 3.2 Introducing innovation

The survey analysis highlighted the need to develop strategies to introduce innovation at local level, mostly related to innovative systems for the rice supply chain, and able to side or even substitute the traditional chain. In order to achieve this target, innovative ideas were necessary: the specific actions developed by the District ( Figure 4) included:

- 1 Product innovation: a) the introduction of the innovation "DNA-controllato" (DNAcertified) methods of variety certification for Carnaroli rice, the most representative rice variety in Lombardy: the main achieved target was the complete traceability (EC178/2002)of Carnaroli rice variety; b) the development of the R&RD brand identity, including the R&RD logo and new packaging for the rice product. Furthermore, the District promoted the development of common product fiches.
- 2 Process innovation: the need for a complete traceability of the product, together with high quality standards requirements have led district to introduce a common cultivation strategies both in terms of crop choice, production techniques and control strategies.
- 3 Organizational innovation: at this level, the changes introduced in the previous step (product, process) required new management strategies at district level. To facilitate this process a technology platform for sharing farms' information was built .
- 4 Market: during the project the district has identified new markets for R&RD branded rice.

Nevertheless, the main outcome of the project rely on the fact that the introduction of multiple innovation interventions at product, process and organizational level allowed the reshaping of the market sector as well. More specifically, the abovementioned innovations lead to the possibility of a commercial agreement with Esselunga SPA, one of the main supermarket actor at Lombardy level, for the direct sale of R&RD rice products.

Figure 3. R&RD Innovative pathways



Source: own elaboration.

#### **4. CONCLUSION**

The focus of this paper was analyzing the links between the R&RD, innovation inputs, innovation outputs and productivity in the rice supply chain. The main results of the project is that the development of the District allowed to convey many successful elements of innovation: more specifically with regards to the variety of innovations, which together covers all of the innovation typology internationally identified by the OECD : product innovation , process, market and organization. The study showed that the R&RD represents a strategic element to introduce innovation at the local level. In addition, the District activity allowed the creation of an alternative and highly innovative system in the rice supply chain, able to side or even substitute the traditional chain. Furthermore, this new system gives the agricultural farmers the possibility to enhance their own management skills and directly enter new markets like supermarkets and mass catering.



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