



# Agriculture and nobility in Lombardy. Land, management and innovation (1815-1861)

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## ABSTRACT

The paper aims to reassess the contribution of the nobility in the nineteenth-century economic transformation of Lombardy in northern Italy, focusing on its role in agricultural development. Relying on ongoing archival research into thousands of documents such as correspondence, notarial deeds, probate records, accounting books, the article attempts to demonstrate that noblemen acted in an entrepreneurial manner, supported the progress of techniques and innovation, and played a leading role in the modernisation of the sector. The paper reconsiders the contribution of noble families both to the enhancement and management of their lands and to the elaboration and application of agricultural innovation.

## KEYWORDS

Agriculture; nobility; land; management; innovation; Lombardy; Italy

## Introduction

Since the 1980s scholars have increasingly interpreted the process of the decline of European aristocratic classes as a transformation that proceeded rather slowly over the course of the nineteenth century: the social and cultural influences of the landed aristocracy would last until at least WWI. The debate opened up by Arno Mayer in the early 1980s drove studies in this direction: he identified a strong persistence of the *old regime* and of the values of the nobilities in Europe, indicating the Great War as the point at which the old order, while trying to defend itself, truly collapsed (a collapse which would finally end only with the Second World War). In England, a long debate took place on the role of 'gentlemen capitalism' in the building of the Empire (Cain & Hopkins, 2016, f.e. 1993). Research studies in Spain, France, Germany, Austria, and Belgium have found new evidence to suggest the enduring role of the nobility in the economic capitalistic transformation of the nineteenth century (Clark, 1984; Higgs, 1987; Hagen, 2002; Malatesta, 2004; Moeller, 1986; Pedlow, 1998). Recent estimates of the wealth of Sweden's nobility have led to the conclusion that as late as 1900 they represented an important economic force (Bengtsson, Missiaia, Olsson, & Svensson, 2018). All these studies made an important contribution to the re-evaluation of the social and economic weight of the nobility throughout the century. However, they still did not lead to a conclusive change of perspective and framework on the issue. The nobility has continued

to be considered as a conservative force, trying to adapt to and survive the economic and social changes much more than playing a propulsive role in transformation.

In Italy, some research studies have emphasised the ability of a single nobleman or noble family to deal with the economic evolution (Biagioli, 2000; Coppini, 1988; Felisini, 2017; Fumi, 2014; Moroni, 1997; Rollandi, 1998). However, as noblemen as a class were supposed to maintain a *rentier* mentality, their entrepreneurship seemed to be an exception. For much of the nineteenth century, the endurance, or the survival, of the nobility's social and economic power was still based on large-scale land ownership (Malatesta, 2000). Extensive land ownership was a traditional kind of property, with connotations of status, normally handed down over the generations and eventually belonging to the agricultural sector, whereas economic progress was linked to industry and industrialisation. Therefore, historians have often considered it as a traditional conservative investment, not worthy – with only a few exceptions – of particular attention from the point of view of entrepreneurial attitudes and management capabilities. In southern Italy, the survival of *latifundum*, despite being managed according to the trend of international commercial trade (Petrušewicz 1989, Nardone 2004), led to the nobility being considered backward and conservative. Also, regarding northern Italy and Lombardy, the traditional view considers the nobility, due to its cultural attitude, as reluctant to undertake businesses other than land ownership (Cardoza, 1997; Levati, 1997).

By contrast, the main objective of the paper is to reassess the contribution of the nobility in the nineteenth-century economic transformation of northern Italy, focusing on its role in agricultural development particularly in the wealthy region of Lombardy. The article relies on ongoing archival research whose aim is to be systematic, collecting economically relevant documents held in public and private archives, concerning titled families. In Lombardy, nobility represented on average 0.12% of the regional population and 0.22% of those in the province of Milan (Jacini, 1857, pp. 40–41) and owned 30–40% of land in the middle of the century. The number of noble families in Lombardy was substantially stable during the century, even though it decreased from 805 in 1828 to 751 in 1840 (*Elenco*, 1828, 1840). In 1895, the number rose again to 767 (Jocteau, 1993, p. 23). In 1854 the aristocracy consisted of a group of 3409 people, nearly half of whom (1492) were living in the province of Milan, where 454 noble families were registered in 1858 (ASM, 1858, *Araldica*). Thousands of items of correspondence, notarial deeds, probate records, fiscal sources, reports, evaluations and accounting books have been already collected.

As a result, it seems that the nobility contributed to agricultural development either by investing, managing, applying new methods or machinery to production over their land or by personally participating in the elaboration and diffusion of such innovations. Therefore, the article is divided into two parts. The first section reconsiders the role of noblemen in the enhancement and management of their land; the second part highlights their contribution to the elaboration, circulation and application of agricultural innovation. The final aim is to demonstrate that noblemen acted in an entrepreneurial manner, supported the progress of techniques and innovation, and played a leading role in the modernisation of the sector.

## 1. Land, improvements and management

### 1.1. Property and improvements

Lombardy was the wealthiest Italian region even before Unification (1861) and would be at the helm of Italian industrialisation in the twentieth century. Until Unification, its rich

90 agriculture represented the bulk of the economy, providing increasing exports of silk, dairy  
91 products and cereals. A large proportion of investments and improvements in the sector  
92 continued to come from noblemen, who were still the largest landowners in the area.

93 Scholars have underlined the endurance of land ownership by the nobility in Lombardy  
94 (Meriggi, 1987, pp. 11–114; Romani, 1963, p. 96). Since the eighteenth century a huge con-  
95 centration and rationalisation of properties owned by noblemen took place, through the  
96 acquisition of common land and small properties (Faccini, 1988). The nobility's land owner-  
97 ship was extended or reinforced in the first part of the nineteenth century, thanks to expro-  
98 priated Catholic Church estates or, to a smaller degree, to public sales of former common  
99 properties (Cova, 1986). Throughout the century, the province of Brescia saw a decrease in Q4  
100 land ownership expansion by the nobility (Tedeschi, 2009). However, noblemen acquired  
101 land all over the Kingdom of Lombardy-Venetia, as very wealthy Lombards bought lands  
102 near Verona, Vicenza, and Padova (Stato della coltivazione a riso nella Lombardia, 1843).  
103 Genoese noblemen were also extending their properties beyond Liguria, in Piedmont and  
104 Lombardy.

105 According to some reliable estimations, in 1835 noblemen owned one-third of the lands  
106 in the high plain and hills near Como and Milan (Brianza), where small properties together  
107 with large plots were the rule (Czoernig, 1838; Romani, 1957, pp. 70–73, 74 n. 9). In 1841, in  
108 the province of Crema, they owned more than 40% of the agricultural land and forestry  
109 (Antonietti, 1982). In the area of Milan, in 1844 noblemen's properties would account for  
110 almost 40% of the territory (Litta Modignani, Bassi, & Re, 1844, I: 186). Around Inzago (Milan),  
111 the nobility still owned more than 50% of land in 1886–1887 (Riva, 1984–85). In 1861 noble-  
112 men were still among the biggest landowners and, above all, the aristocratic predominance  
113 was even more striking at the very highest levels of land ownership, as the noblemen's plots  
114 were on average eight times the size and value of those not owned by noblemen (Czoernig,  
115 1838; Banti, 1996, pp. 66 and f.).

116 The value of noblemen's properties and the rich Lombard agriculture of the nineteenth  
117 century was the result of long term human work and investments which started in the Middle  
118 Ages. The Po valley had a high degree of diversification of soil and climate, but its wealth  
119 did not originate in the natural environment. Throughout the centuries, landowners invested  
120 huge amounts of capital in building an efficient and articulated irrigation system, in reclaim-  
121 ing heaths and swamps and in improving land. After the crisis of the sixteenth century, a  
122 new wave of recovery and investments started in the second half of the eighteenth century,  
123 when the international prices of food commodities and the value of land rose again (Faccini,  
124 1988). As in the rest of the peninsula, agricultural development in nineteenth-century  
125 Lombardy followed two main processes: the further expansion of fertile soil through reclama-  
126 tion, deforestation, and tillage and the more intensive exploitation of the old plots of  
127 land by increasing market-oriented production, particularly silk in northern Lombardy and  
128 cattle farming and rice cultivation in the low Po valley (Bevilacqua, 1989; Caizzi, 1972). The  
129 Lombardy nobility played a relevant and sometimes pioneering role in both processes.

130 As we will see more clearly in the second part of this article, following the 'agrarian activ-  
131 ism' movement which began in the eighteenth century and which was spreading throughout  
132 Europe at the time, many noblemen, who were agronomists themselves or who were inspired  
133 by technological and scientific progress, were aiming at modernising and renewing agricul-  
134 ture, improving their land with new agricultural techniques (ABR, 1850–1860; ASM, 1847–  
135 1865). To this end they supported the establishment of institutes for agricultural education

136 and also the creation of model farms, such as that of Corte Palasio (Pugliese, 1923; Zaninelli,  
137 1962). They provided much of the leadership for the most important improvement societies  
138 and actively participated in the organisation of the Italian Scientists Congresses. Social and  
139 local meetings and lectures discussed agricultural issues (including vegetal and animal dis-  
140 eases); numerous articles and brochures were published and circulated among them.  
141 Additionally, noblemen travelling for business or leisure around the world collected, sent  
142 and experimented with seeds of cereals, rice, silkworms, exotic fruits, plants, in a continuous  
143 transmission of knowledge in an attempt to discover new opportunities for agriculture  
144 (*Annali*, 1826–1827, 1827–1830, 1830, 1831–1833, 1834–1843; *Giornale agrario*, 1844–1853;  
145 *Annali*, 1854–1857).

146 Noblemen tried to earn as much as possible from their land and it seems that they were  
147 often (although not always) successful in the economic exploitation of their rural properties  
148 (many references to the issue can be found in their abundant correspondence and in the  
149 property balance sheets; as an example see ASM, *Litta Modignani; Sormani; Brambilla*  
150 *Archives*). Their land was essential to the economy, supplying commodities such as hemp,  
151 linen, silk, wood, and untapped raw materials (minerals), waterpower (renting ancient water  
152 rights and old cereal mill-sites to be transformed into silk or cotton mills) and in addition,  
153 the land was used to provide security for the borrowing of capital.

154 Many landowners were increasingly involved in commercial agricultural activities and  
155 invested in innovations and experimentation, introducing new kinds of plants and cultivation  
156 techniques, agricultural tools such as innovative ploughs or threshing machines (Gualdo,  
157 1842; Dossena, 1843), and in canal-building for irrigation, costing millions of lire (Canetta,  
158 1976, p. 112 and f.; Litta Modignani et al., 1844, p. 123). Yields increased, farm prices rose,  
159 and so did the value of rental incomes, which doubled from the beginning of the century,  
160 reaching unequalled heights until the middle of the century (Jacini, 1857, p. 45). In the 1850s  
161 every pertica (654,5179 square metres) of a good irrigated area could command 8.58 Austrian  
162 Lire in rental income, while in the high plain it was between 5.24 and 6.55 A. Lire (Canetta,  
163 1976, p. 128).

164 In Lombardy, the areas of irrigated land totalled 427,000 hectares in 1857, out of total  
165 agricultural land of 1,132,000 hectares; while residual unreclaimed land amounted to only  
166 about 25,000 hectares (Jacini, 1857, p. 60). Dairy (milk, butter, cheese), rice and pasture  
167 became the main areas of production in the low irrigated plains, which was internationally  
168 recognised by contemporaries as one of the most advanced European agricultural areas,  
169 close to having a perfect cultivation system. In the dry high plain and hills, silk in particular  
170 was the most popular commodity in production. Silk has been defined as the main leading  
171 sector of the Lombardy economy (Cafagna, 1989). In the 'Bonelli-Cafagna model', an influ-  
172 ential interpretation of Italy's economic development, the profits earned from the export of  
173 silk gave northern Italy the opportunity to launch banks and credit institutions, which in  
174 turn stimulated investments in industry, paving the way for industrialisation. Land and silk  
175 were a rational investment, not a sign of backwardness (Bonelli, 1978; Cafagna, 1983a, 1983b,  
176 1989). Within Lombardy, the quantity of mulberry trees tripled from 1796 to 1834; the pro-  
177 duction and export of silk grew and in the 1830s Lombardy was the region that produced  
178 and exported the greatest amount of this product in Italy, also collecting silk produced in  
179 Veneto (about 75% of exports consisted of reeled silk), while more than 50% of the silk  
180 manufactured in Europe was produced in Italy. The capital accumulated in this sector by  
181 landowners, manufacturers and merchant-bankers would be decisive in furthering

182 investments in financial activities and later in the new industries of the second industrial  
183 revolution; indeed, the silk industry would deploy its propulsive role after Unification  
184 (Federico, 2005).

185 The first half of the century saw the emergence of new economic activities, directly con-  
186 nected to the European process of development. The region was moving forward in a first  
187 wave of industrialisation, based upon the cotton industry, new textile factories and mechan-  
188 ical workshops. Faster circulation and transmission of technological innovations and scientific  
189 achievements successfully linked northern Italy to Paris, Lyon, Mulhouse, London, Manchester,  
190 Zurich, etc. Part of this progress was due to the strong commercial and economic relation-  
191 ships which merchants and industrialists exploited all over Europe. Businessmen from France,  
192 Switzerland, Austria, Germany were also coming to Italy and establishing their businesses  
193 in Milan, Turin, and Genoa (Poettinger, 2011). Milan, in particular, was becoming the com-  
194 mercial and financial centre of Lombardy: the city hosted the headquarters of the main  
195 regional business firms, which were moving there from the other provinces or from abroad.

196 However, the new emerging forces were not antagonistic to noblemen landowners: in  
197 other words, the 'rise of the bourgeoisie' did not cause the 'decline of the nobility'. The origins  
198 and behaviour of the local élite drove matters in a different direction. Traditionally, the aris-  
199 tocracies of Lombardy were civic aristocracies living in the cities (about half of them were  
200 concentrated in the province of Milan) whose members' wealth had commercial or financial  
201 origins. They were systematically open to the exponents of the emerging families able to  
202 gain wealth and prestige. Noblemen followed a practice of osmosis and incorporation, which  
203 could ensure the endurance of their central civil role, also blocking in advance any possible  
204 political dissent. Co-opting new non-noble families – through inter-marriage or direct  
205 upgrades thanks to the solid patrimony acquired in finance or trade – was the norm (Meriggi,  
206 1987, p. 135). During the Restoration, co-optation through marriage in the nobility's circles  
207 continued and in 1827, around 36% of noblemen resident in the province of Milan were  
208 married to non-noble ones (ASM, 1827).

209 The origins and relative openness of the aristocratic élite can help to explain why noble-  
210 men and bourgeoisies often followed similar investment strategies, sharing the same initia-  
211 tives and ventures. The nobility's assets were based on real estate and particularly on land,  
212 which would be improved and enhanced during the century, profiting especially from the  
213 expanding silk trade. However, during this period, the nobility increasingly supported new  
214 economic ventures, the construction of railways and infrastructures, financial initiatives and  
215 manufacturing (Conca Messina, 2014). The main representatives of the nobility made the  
216 first risky attempts to introduce steam ships onto rivers and lakes, founding several naviga-  
217 tion companies (which almost failed due to the fragmentation of the system of water trans-  
218 port). They founded (1823) and guided what was soon to become the main financial  
219 institution in Lombardy, the Savings Bank of Lombardy Provinces. The Savings Bank allocated  
220 most of its investments to long-term mortgage loans (30% in 1830, 63.5% in 1835, 76.3% in  
221 1841 and 80% in the 1850s). Twenty-five percent of its lending until 1850 was allocated to  
222 noblemen landowners (Cova & Galli, 1991, pp. 83, 91), but it also supported some industrial  
223 vanguard companies both by directly funding the managing partner and by supporting  
224 those bankers who played the role of limited partner (Cova & Galli, 1991, pp. 82, 83, 88 and  
225 f.). During the turmoil of 1848, part of the nobility (considered responsible for the riot) was  
226 punished and obliged by Austrian authorities to pay high land taxes and enforced loans.  
227 From that moment on, the political and social constraints increased. Nevertheless, some

228 years later they were creating – together with the wealthiest bankers and entrepreneurs the  
229 Silk Bank (*Cassa interinale per le sete*), supporting the project for a local Commercial Bank,  
230 investing in the railways of Lombardy-Venetia, substituting fixed capital and adopting the  
231 use of steam in the silk industry in the provinces of Como, Bergamo, and Milan (Conca  
232 Messina, 2007). After Unification, with the agricultural crisis, many noblemen would have a  
233 similar reaction to that of Italian and European landowners, increasing diversification and  
234 investing in new financial and industrial initiatives, public utilities and local transport, urban  
235 housing, and public debt.

## 236 237 238 **1.2. Management and organisation**

239 If we focus on the management of their estates, documents lead us to reconsider the idea  
240 of noblemen as a whole class living apart from (and unaware of) their businesses. Noblemen  
241 took care of, supervised and managed their patrimony mostly by acting as a sort of ‘corporate  
242 director’ (Beckett, 1988), making vital decisions about the type and amount of investments,  
243 expenditures, lending and borrowing, selling and buying.

244 The correspondence regarding the administration of the estates contains daily letters in  
245 which members of the noble family were dealing with economic estimates. They wrote very  
246 accurately and in great detail about supporting their assessments with calculations. They  
247 evaluated reparations or innovation, advised on plant cultivation systems or breeding meth-  
248 ods, expressed concern about upcoming harvests, dealt with prices for the selling of food-  
249 stuffs, discussed the best solution for rents or the profitability of investing in new companies  
250 and economic activities, etc. (ASCM, *Barbò*; ASM, *Serbelloni, Litta Modignani*; ASCM, *Belgiojoso*,  
251 3; AFT, *Cristina Trivulzio*, 60–61; ASM, *Sormani Andreani Giussani Verri*, 324, 373, 374, 487–489,  
252 622–6233; ASM, 1806–1856, *Litta Modignani*; ASM, 1857–1862, *Clerici di Cavenago*; ASV,  
253 *D’Adda*). They also appointed and supervised the management team, assessing grievances  
254 and smoothing relationships on the estates. Noblemen appear to have been at the heart of  
255 a wide network, investigating, gathering information and making final decisions. Moreover,  
256 they were at the centre of a network of suppliers and sellers (also at an international level)  
257 of services, goods and technical tools. The closest similarity is that of a family business with  
258 large capital and estates. Constant attention was paid to updated information on prices and  
259 market trends by consulting specialised journals and daily bulletins. Noblemen analysed  
260 market trends and prices, the best times to sell, costs and benefits, and tried to foresee the  
261 potential profit or the level of capital remuneration which could be expected. They often  
262 shared and compared their information with that collected by other noblemen and  
263 landowners.

264 To manage such a large patrimony, complex administration systems were the rule, some-  
265 times originating from the early-modern period, and updated to meet the new organisa-  
266 tional necessities. Usually, the head of the noble family was in charge of dealing with the  
267 administration of the patrimony, even though consultation with the other members was  
268 the norm. Here it should be stressed that the patrimony was made up of different parts,  
269 plots, nurseries, buildings, which belonged to the family as a whole, but were specifically  
270 attributed (for the purposes of inheritance, donation, right of use) to one or more members  
271 of it (brothers, sons, their wives), so that rents, investments, reparations, and expenditure  
272 in many cases concerned single portions of the estates and had to be agreed with these  
273 family members.

274 The noble family was the head of a hierarchical structure consisting of the delegated  
275 general administrator and one or more offices with lawyers, attorneys, notaries, engineers  
276 and bookkeepers, based in the town. The general administrators might also be noblemen  
277 or they might come from the professional bourgeoisie. Depending on the central manage-  
278 ment, the land in the countryside was organised into different branches (*Agenzia*), each one  
279 under the supervision of a rural agent with the help of engineers and land surveyors. Most  
280 wealthy noblemen worked their way through copious daily correspondence with the general  
281 administrator, who had to inform them about every problem that emerged and also had to  
282 carry out all the orders received about investments, profits and agricultural innovation which  
283 the noblemen often wanted to introduce (plants, practices, land reclamation). The letters  
284 noblemen wrote were full of advice concerning the maintenance of the farms and general  
285 cultivation (ASM, 1838). Constantly, and especially during the summertime, the noblemen  
286 visited their estates in person. The general administrator, in turn, could only supervise the  
287 house's affairs and so he appointed many other employees and consultants (a central office  
288 was nearby) to keep the accounts, give periodical reports, visit the properties, gather infor-  
289 mation about the economy and enterprises for investment (engineers, lawyers, notaries,  
290 accountants, stewards) (ASM, *Litta Modignani, Sormani, Serbelloni, Crivelli Giulini, Sormani*  
291 *Andreani Giussani Verri, Clerici di Cavenago*; AFCAG, *Litta*, FVM, ABR, AFT, Trivulzio di Belgiojoso,  
292 ISEC, *Zaccaria*; ASD, *Greppi, ASV, D'Adda*). The administration process was accompanied and  
293 supported by thousands of accounting books, balance sheets, notarial deeds, reports, eval-  
294 uations, which for every family culminated in an extensive archive which was carefully kept  
295 and which went back for decades or centuries.

296 Since the eighteenth century, the nobility had paid great attention to diversifying the  
297 distribution of their properties between the two main environments of the high and low  
298 plains. The goal was both to face unfavourable climatic events, plant or animal diseases, or  
299 at least war damage and to be able to respond to international and local changes in the level  
300 of foodstuff prices and demand (Faccini, 1988; Archive Lucini Passalacqua). Living in their  
301 villas in Milan or in the provincial towns (where they also owned houses and shops which  
302 were rented out to the common people), they owned or built up residential mansions (*ville*)  
303 on or near their land. They used to move there in the summer, or to visit them during the  
304 silkworm egg breeding season, or during the cereal and grape harvest times. Many mansions  
305 were spread throughout Lombardy, located in villages or along the main canals in the low  
306 plain or on their land and near the lakes in the high plain and hills.

307 Usually, the noble family relied on different types of rural organisation, depending on the  
308 size of the plots and the type of soil and climate, in a variable arrangement. They directly  
309 managed (*ad economia*) just part of their land, usually that adjacent to their residential homes  
310 in the country and gave it over to woods, plant nurseries (mainly mulberries), vegetable  
311 gardens, while renting out the rest.

312 The part of all the land which was managed directly by the noble family (*ad economia*),  
313 relied on the employment of a farmer (*agente*), who would be daily in touch with the general  
314 administrator, who in turn updated the landlord constantly about the weather, the harvests,  
315 the potential problems or the progress of the land. Some land could be handed over to direct  
316 management if the lord aimed to introduce specific improvements or if the tenant failed in  
317 its management.

318 The rented properties were a constant matter of interest for the owner. It is worth under-  
319 lining that all the land was managed with the aim of improving yields and value, taking into

320 consideration the kind of soil, the availability of water and local agricultural uses. All the  
321 rental agreements included improvements that were established by the land owners accord-  
322 ing to the evolution of local and international markets, following increased demand for silk,  
323 linen, crops, rice, dairy products and wine. They could consist of new plantations (mulberries,  
324 vines, and poplars), new agricultural uses (grasses), development of plant nurseries, inno-  
325 vation in irrigation systems, and the like.

### 328 **1.2.1. The high plain**

329 The land on the dry high plain – where silk, cereals and wine were the main items of pro-  
330 duction – could be rented to a tenant for cash or could fall under the general supervision of  
331 an agent. The latter solution was increasingly adopted. In both cases the land relied on  
332 labour-intensive cultivation and was broken up into small plots and sharecropped by farm  
333 labourers (*massari* or *pigionantii*). The large plots in the irrigated low plain (40 to 60 hectares,  
334 in which rice or grass, cow breeding and dairy products were the main enterprises) were  
335 rented out as a whole for cash to tenants. In the province of Pavia (low plain) in 1852 17.4%  
336 of the land was cultivated directly, while nearly 70% was rented out and the rest was given  
337 over to sharecropping (Jacini, 1857, p. 286).

338 During the Restoration, international demand for raw silk and thread increased at an  
339 unprecedented rate, as did prices and opportunities for creating wealth in all social classes  
340 of Lombardy involved in the production, trade and credit of silk, from planting mulberry  
341 trees to producing cocoons, from the reeling process to the sale of the semi-finished product  
342 on the European markets (Federico, 1997).

343 Not surprisingly, the landowners considered the value of the cocoon harvest as a key  
344 revenue (Serpieri, 165–166). The agreements between owners and farm labourers usually  
345 fixed the payment of rents in foodstuffs through the supply of a certain amount of wheat,  
346 and the sharecropping of silk cocoons and wine. However, the production and selling of silk  
347 was totally under the control of the owner. The plantation of mulberry trees was also man-  
348 aged by the owner. The landowner had ownership of the mulberry leaves, and distributed  
349 silkworm eggs to each farm labourer, according to their ability to cultivate them. At the end  
350 of the process, all the silk cocoons were collected by the owner, and their value assessed to  
351 offset the farm labourers' debts.

352 In the countryside, every available space was utilised to make way for mulberry trees, and  
353 the area of the foothills was described as an unending forest. In 1815, cocoon production  
354 in Lombardy totalled 8–9 million kg, but doubled in the next two decades to almost 23  
355 million in 1847. In the 1850s, the estimated production of a 'reasonable year' was between  
356 20 and 25 million kg, and was worth around 80 million lire, figures that were more than twice  
357 those of Piedmont (Conca Messina, 2009; La storia di un progetto, 1844; Moioli, 1981,  
358 pp. 251–255).

359 Large properties were able to produce large quantities of cocoons. In many cases, land-  
360 lords built reel manufacturing facilities on their land, which they could modernise with new  
361 systems and machinery and where they could seasonally employ their young female farm  
362 workers. Between 1811 and 1835, and over the next 20 years, the number of steam reeling  
363 basins tripled, and increased even further when the number of steam reeling factories  
364 increased. By 1854 they amounted to 25% of the basins in the census (Moioli, 1993).



Sometimes, the reeling factories were rented to specialised entrepreneurs. In this case, the landowner had to cooperate by carrying out repairs and introducing innovation into the buildings used for production, and by supplying the local workforce to be employed. In the middle of the century the 3,000 reeling factories in Lombardy were spread throughout the area and were sometimes still located on the lands themselves, but pioneering plants run by new silk entrepreneurs for both reeling and throwing also started to appear and made the region among the most technically advanced (Tolaini, 1994, 1996).

As landlords were large producers, they were able to influence the level of cocoon prices and, therefore, the prices of silk. Agreements and contracts for the sale of cocoons were settled in the months before the harvest, according to sale prices that another noble landowner (specified by name) selling cocoons would have been able to command at harvest time. In this way a web of references spread every year through the countryside, linking one harvest to another, one owner to another, with the aim of keeping the price level as high as possible. After the 1860s, agreements might also be reached according to prices on the Milan market (*all'adequato*) (ASM, *Sormani-Andreani*, b. 341; *Crivelli*, b. 22, 31; *Discorso sull'agricoltura*, 1846; Federico, 1992).

### 1.2.2. *The low plain*

Another common way to earn money from large properties was to rent the land out to a tenant for many years (usually nine, seldom 12 or more) for a substantial annual payment in cash (plus some free services and foodstuff supplies). This happened especially (though not exclusively) in the low plain, where the land owned was larger and the cultivation and organisation of production had to be directed centrally by a farmer who had to deal constantly with specialised workers (such as the grower and the dairyman). Adopting Carlo Cattaneo's definition (Cattaneo, 1853), a well consolidated historiography considers the tenants of the low plain to be the real capitalists and agricultural entrepreneurs, to whom the improvement and high profits of lands should be ascribed whereas the property owners have been often depicted as absent and interested only in rents. By contrast, what emerges from the extensive correspondence in the vast archives of the noble families is quite a different picture.

It is indubitable that tenants acted as entrepreneurs in being able to deal with costs and the efficient use of economic factors. They had to be prosperous enough to pay substantial amounts of cash for machinery and to access funds (more than three times the amount of the annual rent, according to Litta Modignani et al., 1844, I: 132); to provide enough livestock (cows, horses) and agricultural tools; to sell the crops, the dairy products, and all the other products at the right time and price them competitively to merchants on the local market. They also had to maintain a number of employees: the most important were the agent (*fattore*), in charge of the management of all the agricultural works and who hired temporary workers for planting and harvesting; the dairy men (*casaro*) who supervised the production of milk and cheese; the supervisors of the water sources (*camparo*). Some of them became so wealthy and respected that they became owners themselves.

However, the landowner had an active role in the improvement of the agricultural firm and, sometimes, in the marketing of the produce. For example, dairy production was controlled by the dairy men, who were generally conservative and reluctant to change their systems of production and the tenant had no authority in the matter. The sector would be

412 the object of many interventions from local agricultural institutions led by noblemen before  
413 Q5 being able to advance in the systems of production and matters of hygiene (Besana, 2012).  
414 Furthermore, noblemen were also the owners of dairy aging stores near Milan where the  
415 cheese was gathered and stored before being sold. One example is the 14 stores owned by  
416 the Visconti di Modrone family in 1854 in Corsico (a total of over 89 local stores), capable of  
417 storing 10,000 wheels of cheese (more than 11% of total local trade).

418 Moreover, it was up to the property owners to provide the capital to repair and renovate  
419 the farmhouses, the cattle sheds, and the haylofts; the silos; the irrigation and hydraulic  
420 system; the buildings for processing foodstuffs, such as corn and rice mills, milk and dairy  
421 stores and production buildings, silk spinning machines, and the like. They were all necessary  
422 investments to maintain or increase the value and rental income of the land, but also to  
423 increase the amount and the quality of production, and meet the demand of the markets,  
424 which was a common interest of owners and tenants alike. However, the core of the con-  
425 trasting interests was that the expenditures of tenants were related to an immediate return  
426 from the farm, exploiting its sources, while landlords looked at the long-term value of the  
427 land and at the increase of future returns (Mingay, 2000).

428 Good cooperation between the tenant and the landlord could often encourage increased  
429 investment in the fixed capital allocated by the landlords. In this way, some technical inno-  
430 vations could be tried out or introduced by the owners, such as new, more suitable buildings,  
431 machinery, preservation and processing tools and systems. For example, between 1828 and  
432 1843 the Serbelloni family enlarged several farmhouses, built about 30 new small cattle  
433 sheds and a cheese factory in Cornaredo (ASM, 1828–1854). In the land owned by Cavagna  
434 Sangiuliani near Pavia, self-financed spending (using revenues) for unscheduled repairs and  
435 conservation increased from one-sixth/ of the total owners' expenditures at the beginning  
436 of the century, to one-third in the middle of the century (Romani, 1957, 126 n. 23, Archive  
437 Cavagna Sangiuliani in Zelata). Later, spending for repairs on the Andreani family's land near  
438 Lodi represented more than one-third of all the outgoings in the years 1869–1872 (tax  
439 excluded) and amounted to 45% of the value of the net revenue (ASM, 1869–1872).

440 Many circumstances placed the tenants in an inferior position to the owners, so much so  
441 that they have been defined as their 'serfs', thus underlining their lack of independence  
442 despite their contribution of capital and organisational skills (Cantoni, 1851; Romani, 1957,  
443 pp. 96 and f.; 104, n. 32). In this respect, the social and economic prominence of the nobility  
444 has to be taken into serious consideration. The objective of the rental contracts was 'improve-  
445 ment', but how, when and where this was to be done had to be agreed with the landlords.  
446 The landlords had a plan for innovation which had been devised together with their experts  
447 and engineers and they were not at all keen on giving the tenants free rein to improve their  
448 land, since any innovation which was not previously agreed might give rise to compensation  
449 claims from the tenants (ASM, *Notarile u.v.*, 503–505; 876–877; 989–993; 1088).

450 This is why, as far as possible, all improvements required by the landowner were described  
451 and clarified in a technical document and changed in every contract (e.g. ASM, *Notarile*,  
452 50324, 50608; ASM, 1800–1872; ASM, *Litta Modignani*, 19, 20, 23, 24, 25; AFT, 27, 28, 30, 34,  
453 37; Archivio Storico Diocesano di Milano (ASD), 1840–1861; ASV, 1803–1861). Although the  
454 signed agreements were the result of old forms prepared by notaries, their content was  
455 always different and adapted to the different types of soil, environment and revenue  
456 expected. All the contracts denied the tenant any possibility to introduce significant inno-  
457 vations without the written authorisation of the landlord, granted on a case by case basis.

458 Thus, the agreements carefully listed and detailed the duties of the tenants: the amount  
459 and type of new plants to be introduced; the work and intervention on plants, woods, land  
460 and water to be done; the rotation to be respected, the number (and sometimes the breed)  
461 of cattle, horses, oxen which had to live on the land to fertilise and work it; the animals that  
462 could not be kept (such as, in the low plain, goats and sheep) and many other specific duties  
463 (penalties included) and (limited) rights. Furthermore, tools and provisions used by the  
464 tenant were mortgaged in favour of the lessor for the rental period; the tenant, in order to  
465 be appointed, had to give guarantees (sureties); his management, balance sheets and results  
466 were constantly under scrutiny and the subject of reports by the central administration: if  
467 found unruly or inefficient, the landlord would terminate the rental contract and substitute  
468 him. The tenant did not have the right to sell hay harvested from the farm, had to use the  
469 milk from the farm to produce butter or cheese, could not freely manage the plants, and in  
470 any case, the landlord's agent had the right to control and invigilate the tenant's management  
471 of the farm at any time (ASM, *Notarile u.v.*, 877, 1046; 1062, 1088, 1089).

472 Obviously, the arrangements could be not all be respected, and tenants carried out work  
473 even without the owner's permission. However, the control of the owners was very strict  
474 and based on their local agents and technicians. The archives contain several documents in  
475 which the trusted engineer or *agrimensore* evaluated and reported to the landowner about  
476 the suitability and costs of any innovations proposed by the tenants (see e.g. ASM, *Litta*  
477 *Modignani, Sormani, Serbelloni*). It was only if the proposed innovation was found to be  
478 consistent with good estate management that the landlord agreed and paid compensation  
479 for the costs incurred by the tenants. Objections to any innovations could lead to a long  
480 dispute which usually annoyed the landlords and penalised tenants. At the end of the rental  
481 period, a balance sheet was drawn up by the agents of the landowners, accounting for credits,  
482 debts and enhancement. But the payment of compensation for the cost of improvement  
483 carried out by tenants was generally not compulsory (even if it had been authorised) – in  
484 some cases it was explicitly not due – and in any case it always had to be judged and eval-  
485 uated as truly worthwhile for the property by the expert agent or engineer of the landlord,  
486 who had the final word.

487 The real goal for landlords was to find a good and loyal tenant. Former herdsmen, relatives  
488 of farmers, agents or also tenants usually originated from the local countryside, had some  
489 agricultural experience and varying levels of skills and knowledge. The landlord evaluated  
490 their social and professional reputation, gathering information from the local parish priest,  
491 attorneys, and compatriots. As tenants were often part of a family specialised in managing  
492 land (a very remunerative profession, if well conducted) they were sometimes recommended  
493 by other landlords who knew their family and put their names forward to noblemen friends.  
494 Good reputation was part of the capital for these families. This was also of great importance  
495 because tenants were usually able to act as representatives for their landlords' interests in  
496 the local municipalities. It was not a guarantee of success, but a social system of personnel  
497 selection.

498 Sometimes the rent was put up for public action, especially when the landowner could  
499 not rely on a good trusted tenant. Even when they were carefully selected and engaged,  
500 they might still not have been clever or talented enough to manage the farm well. Tenants  
501 might be unable to make the expected profit from the rented land; they could fail to reach  
502 the goal of improving value and productivity; or they could be forced to delay and skip rent  
503 payments; they could also prove incapable or unfair in representing the owners' interests in

504 the local municipal Council (ASM, 1848; Riva, 1984–85). If they proved able to successfully  
505 manage the land under the supervision of the owners, landlords kept them for a long time.  
506 By contrast, if they were not satisfied with the tenants' management or behaviour, noblemen  
507 often rescinded the contract and sometimes decided to return the property to their own  
508 direct administration (ASM, 1845–1851).

## 511 **2. Innovation and institutions**

512 Commitment towards the efficient management of agricultural resources was a highly  
513 esteemed activity among noblemen as well as among the emerging class of rural entrepre-  
514 neurs (Jacini, 1857). Some of the most prominent experts in agronomy operating in Lombardy  
515 during the first half of the nineteenth century, such as Vincenzo Dandolo and Ignazio Lomeni,  
516 boasted noble titles. This was not a specific feature of Lombardy but a common characteristic  
517 in the early nineteenth-century Italian peninsula, where the class of noble landowners pro-  
518 duced some of the most renowned experts in agronomy and agricultural entrepreneurs  
519 (Biagioli, 2000; Gottardi, 2011; Gaspari, 1993; Pazzagli, 1985, 1998; Romeo, 2012). In Lombardy,  
520 the contribution to agricultural development could even be seen and used as a way for  
521 noblemen coming from other states to have their title acknowledged by the Milanese author-  
522 ities. This is testified by the case of the Genoese marquis Marcello Saporiti, a subject of the  
523 Sardinian king, landowner in Vercelli (Piedmont) and resident in Milan, who in 1823 based  
524 his claim to have the right to use his title in Lombardy on the merit of having presented a  
525 new rice threshing machine invented by Tuscan mechanic Giuseppe Morosi to King Charles  
526 Emmanuel IV (ASM, 1823; Moioli, 1999).

527 Initiatives in support of agricultural innovation and development were not limited to  
528 individuals who were particularly responsive to innovation. The nobility was at the centre  
529 of a network and institutional system that played a key role in the production and circulation  
530 of ideas among the states of northern Italy and well beyond its borders.

531 Individual initiatives were encouraged and often promoted by central authorities, whose  
532 interest in innovation and economic development grew during the Enlightenment. Such an  
533 interest resulted in the creation of a myriad of national, regional and provincial scientific  
534 societies and academies throughout Europe, which largely replaced universities as centres  
535 of scientific research and development (Stapelbroek & Marjanen, 2012). Noblemen were  
536 among the founders and most active members of these institutions, which saw the coop-  
537 eration of the brightest minds and most successful entrepreneurs of society to promote the  
538 public good and economic development.

539 Regarding Lombardy, the primary role of nobility in the advancement of agriculture and  
540 related industries is evident when we look at the institutions established to this end in  
541 Milan. This is the case of the Istituto Lombardo-Veneto (hereafter I.L.), founded by Napoleon  
542 and maintained by the Habsburg monarchy after the Restoration as a natural progression  
543 of the Patriotic Society established by Maria Theresa in 1776 (Pecchiai, 1917, Augello &  
544 Guidi, 2000). The institute responded to the need for innovation in Lombardy agriculture  
545 by providing academic studies, advising the government on specific issues, and promoting  
546 new research through prizes and competitions (Robbiati Bianchi, 2007).

547 Members of the local nobility do not only appear among the founders of the institute.  
548 As they had done in the Patriotic Society (Società Patriotica di Milano, 1783), they maintained  
549

550 a primary role in its direction and management. Between 1840 and 1870 noblemen held  
551 the office of president for 15 years, that of vice-president for 17 years, that of secretary for  
552 10 years and that of vice-secretary for 15 years (Istituto Lombardo Accademia di Scienze e  
553 Lettere, 1989). In the middle of the century, their leadership was undisputed: the I.L. presi-  
554 dent, vice-president, and vice-secretary had noble titles, and so did 15 out of 18 honorary  
555 members (the highest rank among the I.L. associates), 5 out of 18 salaried fellows, 6 out of  
556 17 non-salaried fellows, 6 out of 32 correspondents in Lombardy, and 11 out of 50 corre-  
557 spondents outside Lombardy (Istituto Lombardo di Scienze Lettere ed Arti, 1845, 1852).  
558 While correspondents acted as key points of reference for the collection of information  
559 relevant to the advancement of different economic sectors, the fellows and honorary mem-  
560 bers were experts responsible for processing this information in more organic research or  
561 reports. The list of affiliations of Count Vincenzo Dandolo, which included more than 20  
562 societies and academies in different Italian states, Germany and France (Compagnoni, 1820),  
563 gives us an idea of the amplitude of this international network as well as the role of I.L. fellows  
564 in enriching connections within its hubs.

565 The institute's actions show the relevant contribution of noble members to the society's  
566 activity and reveal that agriculture and the related industries, in line with the spirit of the  
567 institute, were at the centre of their interests. Between 1802 and 1888, noblemen authored  
568 521 out of the 4,334 studies, speeches and reports presented at the institute. Those concern-  
569 ing topics related to agriculture ranged from methods and techniques for the breeding  
570 of silkworms, the farming of high-quality species, or the introduction of new cultivations to  
571 more theoretical studies on hydraulics, chemistry, natural sciences – useful for the improve-  
572 ment of the irrigation system or the study of diseases in plants –, or cultural traditions such  
573 as the civic use of land, considered as a major obstacle to the fertilisation of the heaths of  
574 northern Lombardy (Reale Istituto Lombardo di Scienze e Lettere, 1891).

575 Besides presenting studies and reports on academic research, the I.L. members were  
576 called to assess the profitability of new inventions and encourage their diffusion. This hap-  
577 pened, for example, in 1841, when the engineer Luigi De Cristoforis and the naturalist  
578 Giuseppe Balsamo Crivelli were called to assess the effectiveness of the American plough  
579 on the initiative of another nobleman, Carlo Tinelli, renowned for having introduced porce-  
580 lain manufacturing into Lombardy and for spending large sums of money to acquire devices  
581 and hire qualified technicians from abroad. After a close comparison with the Milanese and  
582 the Belgian ploughs, the American model was warmly recommended for adoption across  
583 the Lombardy provinces (Cavallera, 2003; Istituto Lombardo di Scienze Lettere ed Arti, 1841).

584 The institute favoured the circulation of knowledge through the organisation of scientific  
585 readings by selected authors and the exchange of publications with similar institutions  
586 within and outside Lombardy. An analysis of the books collected and the conferences organ-  
587 ised by the I.L. confirms a special relationship with Tuscany, encouraged by the exponents  
588 of the Milanese and Tuscan nobility by virtue of their common interests in agriculture and  
589 the reformation of the education system (Moroni, 2003). In this period Tuscany – in particular  
590 Florence, the seat of the Accademia dei Georgofili – played a leading role in the transmission  
591 of modern agricultural theories and methods originating from other European countries,  
592 especially France (Biagioli & Pazzagli, 2004). As early as 1820, Marquis Cosimo Ridolfi, founder  
593 of the first agrarian institute in Italy, was invited by the I.L. to give a talk about the scientific  
594 advancements in Tuscany and his work on the implementation of the 'monitorial system'  
595

596 created a few years earlier by Joseph Lancaster and Andrew Bell for the education of the  
597 poor (Robbiati Bianchi, 2007). A few years later, the Tuscan agronomist Giuseppe Rossi per-  
598 sonally donated his works on the production and commercialisation of wine to the I.L.  
599 (Istituto del Regno Lombardo-Veneto, 1838).

600 The I.L. was also repeatedly invited to share its expertise with foreign institutions, such  
601 as the Society for Science, Agriculture and Arts in Lille and the Irish Academy of Science  
602 (Istituto Lombardo di Scienze Lettere ed Arti, 1841). The relationship with the British Isles  
603 appears to have been particularly meaningful. In 1847 the British government asked for  
604 expert advice to solve the problem of the Irish famine by investigating the advanced irriga-  
605 tion system and capitalistic exploitation of the land in Lombardy (Robbiati Bianchi, 2007).

606 Lombardy was internationally acknowledged as a major cultural and technical point of  
607 reference for high farming since the eighteenth century (Bigatti, 2016). This prosperity was  
608 achieved through a long-established set of practices enabling such an efficient exploitation  
609 of land that in the mid-1840s, 476 out of 530 square miles of the Milanese province, situated  
610 between the Ticino and Adda rivers, were made up of land suitable for cultivation. (Litta  
611 Modignani et al., 1844, II).

612 Over the course of the nineteenth century, appropriate technical education for agrono-  
613 mists, farmers, tenants and cheese makers became increasingly important to agricultural  
614 development. Lombardy was traditionally weak in this respect (Zaninelli, 1962) and the I.L.  
615 became the government's main reference point for agricultural education. The region had  
616 a well-educated and experienced group of engineers and surveyors (*agrimensori*), whose  
617 technical cooperation was invaluable during the creation of the Cadastre of Maria Theresa  
618 in the eighteenth century. Their key role in the transformation of the agricultural sector  
619 increased as they supported and regulated the building, administration and use of the water  
620 system, with its dense network of navigation and irrigation canals. The progress of the natural  
621 sciences, which could potentially influence agricultural practices, however, made it necessary  
622 to constantly update knowledge. In 1829 some noblemen members of the I.L. and other  
623 experts proposed the foundation of an Academy of Agriculture and Natural Sciences in Milan  
624 for the teaching of subjects (such as mineralogy, zoology, practical agronomy, and agricul-  
625 tural chemistry) that were still lacking in public schools, but the government did not actively  
626 support the initiative. Aware of the scarce willingness of rural workers to have new techniques  
627 and practices imposed on them from above, the I.L. members also sought to create technical  
628 agricultural institutes for farmers and agents, model farms and farmer associations (Robbiati  
629 Bianchi, 2007; Istituto Lombardo Accademia di Scienze e Lettere, 2015). One of these schools,  
630 established at the suggestion of Ignazio Lomeni in 1835, was opened in the park at Monza  
631 and originated from direct contacts with Marquis Cosimo Ridolfi (Pazzagli, 1990).

632 The emergence of agronomy as a science and its application to the development of  
633 agriculture in northern Italy, particularly in Lombardy, was a slow and hard-fought process  
634 (Fumi, 1990; Zaninelli, 1990). Exponents from the local nobility appear to have played a role  
635 in enhancing both public and private agricultural education at academic as well as practical  
636 levels. However, the input came from the élite, and had to deal with widespread indifference  
637 or scepticism from farmers and farm labourers regarding the abandonment of traditional  
638 practices.

639 The expertise and dynamism of some prominent members of the Lombardy nobility in  
640 agriculture and other related industries explain their presence in the three technical com-  
641 mittees (on agriculture, mechanics, and chemistry) established in the early 1840s by another

institute of Milan, the Society for the Encouragement of Arts and Crafts (hereafter SEAC), and why two of those involved in the committee for Agriculture (Lorenzo Taverna and Ignazio Vigoni) were called to direct the institute in the mid-1850s (Lacaita, 1990).

The commitment of Lombardy noblemen to innovation can also be inferred by the prizes they awarded using their own capital or through the institutes of which they were members, as well as by the prizes they were able to win as an acknowledgement of their own work and investments. From 1816, the I.L. granted a prize for agricultural and industrial innovation every two years and from 1842 a similar prize was regularly awarded by the SEAC; on a private level, awards were established by Ignazio Lomeni, Marquis Fermo Secco Comneno, and Luigi De Cristoforis — who in 1841 invited applicants to produce a report on ways to enhance manufacturing production without harming agricultural interests and set up at his own expense a prize in recognition of outstanding research in the techniques to improve the reeling of silk (Istituto Lombardo di Scienze Lettere ed Arti, 1841). As can be seen in Table 1, during the first half of the nineteenth century the IL regularly awarded noblemen for their contribution to the development of agriculture in both Lombardy and Veneto. The prize-winning projects clearly show the commitment of nobility to dealing with all the different aspects of agricultural development, from technical innovations to land reclamation and the increase of market-oriented crops.

The prizes awarded to noblemen were in a minority compared to the total amount of acknowledgements granted by the institute. This evidence shows that, along a small but dynamic privileged elite, new ranks of experts, technicians, and entrepreneurs of non-noble origin were growing in importance in the primary sector, and testifies to the willingness of the IL to enhance their contributions in the general interest.

The leading position of the noblemen experts in agronomy and related disciplines is confirmed in the Congress of Italian Scientists held in Milan in 1844 (directed by Count Vitaliano Borromeo), where they led the “Agronomics and Technology” section, and held offices dedicated to “Geology, Geography, Mineralogy” and “Botanical Studies and Vegetal Physiology” (Diario della sesta riunione degli scienziati italiani, 1844). In the days before the

**Table 1.** Noblemen members of IL awarded (1816–1857).

Noblemen	Medal or prize	Object	Year
Cusani Confalonieri Carlo	Prize	Steam spinning mill	1816
Lomeni Ignazio	Silver medal	Wine fermenter	1824
Lomeni Ignazio	Silver medal	Wine press	1826
Gera Francesco	Gold medal	Chinese silkworm and mulberry	1827
Minotto Giovanni	Silver medal	Steam machine to produce spirit	1827
Visconti di Modrone Carlo	Gold medal	New drainage system	1830
Spini Pier Antonio	Prize	Tillage and fertilisation of overgrown fields	1832
Molin Antonio	Prize	Drainage of 1500 plots of land on the adige river and renovation of farm labourers' buildings	1835
Turina Ferdinando di Casalbuttano	Prize	Enhancing productivity of 5,000 pertiche of land through drainage and the construction of irrigation channels	1839
Tinelli Carlo	Prize	Introduction of the american plough in lombardy	1843
Villa Carlo	Prize	Drainage of his property and the construction of irrigastion channels	1845
Beccaria Bonesana Giulio	Prize	For enhancing the productivity of his land	1857

688 Congress, they opened a 'Milanese Depot' of wines in order to allow Italian products to be  
689 discovered at the upcoming meeting of scientists. The initiative was part of the efforts led  
690 by various Italian landowners of noble origin to emulate France in the production of quality  
691 wines and was aimed at encouraging the production and sale of this valuable product  
692 (Commissione Enologica Italiana, 1844). Propensity towards innovation, thus, not only con-  
693 cerned production but extended to the demand side, with the active search of new markets  
694 within and, possibly, beyond the state confines.

695 Prominent exponents of the most advanced ranks of the Lombardy nobility also actively  
696 encouraged emulation of technology from more advanced European countries through  
697 their participation in international exhibitions of manufactured products. In 1851 the  
698 Chamber of Commerce of Milan officially sent members Luigi de Cristoforis and Antonio de  
699 Kramer to London for the Crystal Palace Exhibition. On his return to Milan, de Kramer  
700 brought back new equipment and gave speeches about what he had seen, convincing the  
701 Societies for the Encouragement of Arts and Crafts of Milan and Padua to jointly purchase  
702 some examples of agricultural machinery suitable for northern Italian cultivation. (*Lo*  
703 *Spettatore. Rassegna letteraria, artistica, scientifica e industriale*, 1857; Robbiati Bianchi, 2007).  
704 From 1843 De Kramer also contributed to the activities of the SEAC as a teacher, being  
705 appointed to the first school and chemistry course established by the institute.

706 Another way of enhancing developments in agriculture was through specialised journals.  
707 This means was used by the nobleman Ignazio Lomeni (1779–1838), internationally renowned  
708 for his essays on the breeding of silkworms and the cultivation of mulberries and rice, as  
709 well as for the invention of a new machine to press grapes (Canetta, 1887). Along with Count  
710 Luigi Bossi, Lomeni was the editor of and main contributor to the *Annali Universali di*  
711 *Agricoltura, Economia Rurale e Domestica* (renamed *Annali Universali di Agricoltura, Industria*  
712 *ed Arti Economiche* and then *Giornale Agrario Lombardo-Veneto*), a Milanese periodical pub-  
713 lished from 1826 onwards for the diffusion of new agricultural techniques (Berengo, 2012).  
714 From 1854 to 1858 the journal was under the editorial supervision of the nobleman Francesco  
715 Peluso (Della Peruta & Cantarella, 2005).

716 Beyond the institutional circles, the aristocratic network that spread within and outside  
717 Lombardy represented a powerful means for the transmission of new practices and ideas  
718 at an informal level. The case of Count Vincenzo Dandolo (1758–1819), translator and prop-  
719 agator of the main European treaties of modern chemistry in Italy and a pioneer for the  
720 development of sheep farming and the silk industry (Pederzani, 2014), is particularly note-  
721 worthy in this respect. One of the most recalled initiatives of Count Dandolo, the introduc-  
722 tion of merino sheep in Lombardy, was conducted by following the steps of the Pastoral  
723 Society of Chivasso, led by Counts Benso of Cavour and supported by the main aristocratic  
724 families of Piedmont. The Society's initiative was the execution of the first experiments  
725 conducted on the merino sheep by Count Carlo Lodi and other noblemen who had founded  
726 the Ultramontane and Piedmontese Agrarian Society in 1785 (Romeo, 2012). To establish  
727 and maintain contacts with the Pastoral Society, Dandolo relied upon his friend Luigi Bossi,  
728 an intellectual from the Milanese nobility who was a member of many scientific societies  
729 and academies throughout Europe and commissioner of the Cisalpine Republic in Piedmont  
730 Q6 (Carta, 1835; Dandolo, 1804; Sebastiani, 1971; Società di Agricoltura di Torino, 1805). To  
731 improve the silk industry, Dandolo invented a cocoonery that allowed a saving of from half  
732 to two-thirds of mulberry leaves, established an agrarian school on his property to instruct  
733 new silkworm producers from different parts of northern Italy, and started to test new



734 spinning and weaving machines. The count further spread his ideas with the support of  
735 publications and conferences, which excited curiosity and led to emulation especially  
736 among his peers. Many noblemen from the Mantova and Verona areas personally visited  
737 the establishments of Dandolo's collaborators to witness first hand his new techniques and  
738 some of them, like the Marquis of Canossa and Count Solari, also participated in testing  
739 the cocoonery (Dandolo & Compagnoni, 1820). The aristocratic network was also useful to  
740 Count Ludovico Barbiano di Belgiojoso, who duplicated the experience of Count Ettore  
741 Silva for the cultivation of mulberries (ASCM, Fondo Belgiojoso, 277). Similarly, members  
742 of the Lombard nobility personally contacted Cosimo Ridolfi in Tuscany to have their agents  
743 and farmers instructed at his institute or to find skilled personnel who had been trained in  
744 Tuscany (Pazzagli, 2008).

745 The introduction of new techniques, machines, or crops sometimes failed or did not  
746 prosper. But even unsuccessful attempts demonstrated that non-marginal segments of the  
747 Lombard nobility shared — and contributed to enhance — values oriented towards effi-  
748 ciency improvement and technical change.

749 The nobility was deeply involved in the silk industry in many aspects of production  
750 and trade. This became apparent with the outbreak of pebrine in the 1850s, which deter-  
751 mined great losses in production and a response from the nobility at both informal and  
752 institutional level. In 1858 the SEAC created a committee to investigate and find possible  
753 solutions to the silkworm disease. The committee included the above-mentioned agron-  
754 omist Francesco Peluso, the naturalist Giuseppe Balsamo Crivelli and Count Camillo Casati,  
755 chosen for his expertise in the breeding of silkworms (Società di Incoraggiamento d'Arti  
756 e Mestieri, 1858). At the same time, private contacts among peers proved useful to noble  
757 landowners and silk producers in purchasing high-quality silkworm seeds imported from  
758 Asia (ASM, 1856a; ABR, 1856). Among them there were also those who, like Count Pompeo  
759 Litta and Modesto Gavazzi, members of a noble family of great silk manufacturers, per-  
760 sonally travelled to present-day Uzbekistan in search for a better raw material  
761 (Gavazzi, 2003).

762 In the aftermath of Italian political unification, the Lombard nobility continued to promote  
763 advancements in agriculture despite the emergence of new ranks of rural entrepreneurs  
764 and indeed worked in close collaboration with them. Exponents of the Milanese nobility  
765 were among the founders and leaders of the Milanese Comizio Agrario (1866–1923) and the  
766 Lombard Agrarian Society (founded in 1862), established as a means of promoting scientific  
767 and financial improvements in Lombardy agriculture. Both institutions represented the entire  
768 category of landowners, which at the time already counted a majority of non-noble landlords  
769 (Braga, 1990; Brianta, 1994).

770 Those who were not at the forefront of agricultural innovation in many cases fully partic-  
771 ipated in the administration of their properties. The private correspondence of Lombardy  
772 noble families reveals that in many cases owners were attentive managers of their agricultural  
773 possessions or closely controlled them (ASM, 1856b; ASCM, Fondo Barbò; ISEC, Archive Lucini  
774 Passalacqua; Corgnati, 1984).

775 The management of agricultural resources also captured the attention of noblemen intel-  
776 lectuals. Luigi Bossi published an annotated edition of Melchiorre Gioia's works about rural  
777 administration (Bossi, 1829). The member of a family who strongly relied upon the collabo-  
778 ration of good managers (AFCAG, 1816), Count Pompeo Litta Biumi, dealt with the inevitable  
779 problem of the control of large properties in a report presented at the I.L.: aware that most

780 great landowners could not be expected to leave their villas in Milan and become expert  
781 farmers, he insisted on the importance of choosing capable and reliable agents in the coun-  
782 tryside (Robbiati Bianchi, 2007).

783 As a result of this interest in the exploitation of the main source of prosperity in Lombardy  
784 at the time, it is not surprising that Cosimo Ridolfi's apprentices who went to work as  
785 farmers on the land of Lombardy noble families pointed to the power and control exercised  
786 by the general agents, who held control over all activities in the countryside in constant  
787 communication with the owners, as the main feature of the local productive system  
788 (Pazzagli, 2008).

789 The cases mentioned so far were the most active exponents of a class composed of gen-  
790 erally prominent families who experienced continuous fortune by virtue of their ability to  
791 manage their rural properties in accordance with the needs of the market. Their success was  
792 ensured by the cooperation of competent farmers and agents, but also by a long-established  
793 tradition of agricultural management nurtured by the scientific revolution and enlightened  
794 reforms. In the mid-1850s, all these subjects had concurred to make Lombardy the most  
795 productive area in Europe, with more than a half of its territory devoted to regular cultivation  
796 (1,152,700 hectares) with only residual portions of infertile land (Jacini, 1857).

## 798 **Conclusion remarks**

799 The Milanese nobility, or at least the most advanced segments of this group, were thus able  
800 not only to defend their own interests, but to fully participate in the process of modernisation  
801 that characterised the Lombardy economy and society between the eighteenth and nine-  
802 teenth centuries (Banti, 1989; Meriggi, 1992). Despite the loss of their leading role as public-  
803 office holders (Levati, 1997, 2001), they maintained a key function in promoting, orienting  
804 and supporting the local economy in collaboration with new ranks of entrepreneurs. This  
805 would explain the words used by the German jurist Carl Mittermaier to describe the  
806 Lombardy aristocracy in his 1844 essay on the condition of Italy: an 'active and industrious  
807 class within an expanding civil society' aimed at presenting itself as the guarantor of social  
808 cohesion by no longer acting as a group assimilated to public power, but as a private elite  
809 (Meriggi, 1988).

810 To conclude, in the nineteenth century, gentlemen's *esprit du rentier* did not stifle the  
811 *esprit de l'entrepreneur* in Lombardy (De Maddalena, 2000). New entrepreneurial initiatives  
812 allowed a number of Lombard noble families to consolidate their position in the primary  
813 sector and, in some cases, to play a leading role in the country's agricultural development.  
814 Not all the efforts were crowned with success. But the capital and energies spent in invent-  
815 ing, testing, improving, adapting, and spreading more or less valuable innovations testify  
816 to a mentality oriented towards risk and efficiency that was the necessary precondition for  
817 the creation of new profit-making opportunities in this sector and to survive its crises. The  
818 division between a rentier nobility class and a productive modernising bourgeoisie has to  
819 be smoothed. The sources kept in public and private archives also point to the need to  
820 reassess the role of the nobility in other economic sectors, calling into question the scope  
821 and the nature of this group's historical decline. How far Lombardy followed a distinctive  
822 path with respect to the rest of the peninsula is still an open question, which deserves  
823 further studies and research.  
824  
825

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