

Learning to Farm: the Diffusion of the Agronomical Knowledge in the Eastern Lombardy from the Napoleonic age to the WWI

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Working paper without notes and references: please do not quote.

The aim of this paper is to show the pattern used for the diffusion of agrarian knowledge in the Eastern Lombardy (the province of Brescia) from the Napoleonic age to the early 20th century. Today this area is one of most important agricultural district in Italy and it is also interesting for a great variety of pedologic areas and agricultural environments such as valleys (where spaces left for cereal were very limited), Morainique hills, plain (dry and irrigated) and the Riviera of the lakes of Garda and Iseo which have specific microclimates. This means that farms in the Eastern Lombardy produced the main cereals, and also wine, olive oil, fruits (in particular lemons, apples, walnuts and chestnuts). Besides, most of peasants were silkworm breeders and produced cocoons, that is the most rentable product in Italian agriculture during the great part of the 19th century. Finally, many people were transhumant cattle-breeders and they produced butter and cheese.

The paper especially shows that the diffusion of the agrarian knowledge was characterized by different phases depending on relevant changes in the Eastern Lombard society (in particular in the distribution of the land properties) and in the policies of the different governments (the French one until 1814, the Austrian one from 1814 to 1859, than the Italian one) about the education in agronomics. Besides, the paper illustrates the agrarian schools which were established in the Eastern Lombardy during the second half of the 19th century and the model of education in agronomics they followed. Finally, the paper indicates how the improvement of the landowners and peasants' agronomical culture actually helped the development of the agrarian production in the countryside of the Eastern Lombardy.

1. Before the birth of the Kingdom of Italy: learning to farm without the agrarian schools

During the first half of the 19th century the diffusion of knowledge in agronomics and the improvement of agricultural sciences and technologies were in particular based on the results of new experiments and studies made moreover by nobles and priests who owned land and were interested in agronomics. The results of the experiments and in general all information about studies in agronomics were presented in meeting by the Ateneo of Brescia (born in 1802, it was an institution grouping scientists, agronomists, persons of letters who shared their studies) and they were published in the proceedings of the sessions and/or in some relevant agrarian reviews as the «Annali dell'agricoltura del Regno d'Italia», «Annali Universali di Statistica», «Annali Universali di Tecnologia», «Giornale Agrario Lombardo-Veneto». These reviews were important because they had relevant links with other European reviews and created a real network concerning all innovations in the agrarian world. Besides, these reviews were available in the Ateneo's library and so its members could have a full access to all new information about agronomics.

The articles published in reviews represented the main way for the diffusion of information about agronomics in the Eastern Lombardy. They also gave news about trends and perspectives of the regional and European markets and suggestions concerning investments in agriculture. People writing in these reviews were normally landowners and farmers and they were not afraid to show their "secrets" concerning the methods they used for tilling, planting, fertilizing etc.: there were no patents for new methods of rotation and cultivation and this evidently favoured their diffusion. Besides, when the innovation was represented by new agrarian machines or equipment there were no problem for people who tried to copy them: these latter were not so complicated and there did not exist a real international market for these products. Finally, some small variations allowed to create a new machine and no inventor could control all European countryside and verify if a farmers had copied, integrally or partially, his machine without permission.

This means that in the Eastern Lombardy it was possible to have access to all European news concerning agricultural sciences and technologies and markets: so landowners could follows the

suggestions and advice of the best agronomists and improved their productions and yields. However, the access to the information in agronomical news was only reserved to great landowners and scholars who were able to buy and read the Lombard agrarian reviews and the proceedings of the pluriannual sessions of the Ateneo. The small landowners and, in general, most of peasants continued to follow the traditional way for cultivating, ploughing, breeding etc.: in these cases the innovations were not expensive and they usually increased the production without modifying the number of peasants employed, so they were not followed only because they were not known. Besides, some landowners who were informed of new modern productive systems, did not make high investments to be requested for adopting new technologies: a relevant share of the landowners who were able to have a full access to information was in fact represented by aristocratic “rentiers” who invested few money to improve the production and yields of their land: they were not interested to innovation and their land was managed by tenants or sharecroppers or peasants (as the “fattore” who perfectly knew the quality of the land and he was also an expert in the administration of the farm and in the organization of the workforce): these latter normally did not read agrarian reviews and did not know the new rotations and technologies.

This situation evidently avoided the general development of the agriculture in the Eastern Lombardy: there existed some modern farms where landowners (or their tenants or sharecroppers) used the most innovative productive systems, but the great part of the countryside remained backward. However, some changes progressively arrived and were related to government’ policy on the taxation of the land. French and moreover Austrian government in fact introduced a new cadastre (land registry) which increased a lot the taxes on the land: the real level of taxation were not very high, but the Eastern Lombardy was used to the very low taxation existing during the Republic of Venice, that is before the French invasion (1797). So the “fiscal shock” for landowners was relevant and it progressively modified the division of the land properties between the nobility, the bourgeoisie, the moral and ecclesiastical institutions (pious places, hospitals, congregations of charity, parishes, etc.) and municipal possessions (the common land).

In particular the members of the nobility which in Napoleonic age represented the largest landlords in most of the communities of the plains saw their properties reduced because of: a) the division of the properties of the nobles related to the decrease of marital alliances among noble families and of legal links (as the fideicommissums and birthrights), which had allowed the patrimony/inheritanes to stay in the hands of a single person; b) the great increase of taxes which complicated the management of farms. These farms, henceforth of reduced dimensions and subjected to new taxes were not able to produce enough income for the requirements of the noble landlords whose expenses were still quite important. The financial crises of the noble families increased and nobles had to sell a part of their properties to bourgeois investors who disposed of much money. This allowed the development of the properties belonging to big families of traders or notables (lawyers, notaries, doctors) coming from the city, but also of the not aristocratic landlords coming from the main villages of the country. The first ones had incomes from their activities or trade, while the second ones took advantage of the increase of the cereal production and particularly of the silkworm’s exploitation. They also profited by the development of small factories connected to the primary sector (silk mills, spinning mills, flour mills and presses for farm productions) and by the expansion of Lombard markets and fairs where they easily sold the products of their farms or cattle-breeding, that is the cereals (in particular the wheat, and maize, and rye), the forages (in particular the clover), the wine, the mulberry leaves, the cocoons, the butter and the cheese.

New landowners showed a wider acceptance of risk than the nobility that preferred secure incomes and did not invest to improve the productivity of their land. New landowners’ investments in farms were initially limited to lands situated near the city. Then, with the arrival of the local buyers purchasing lands within their communities or within the nearby communities, the large and average non-nobility properties also turned to the low plains and the hills. They also took profit by the new cadastral system which increased the taxation on land, but at the same time it favoured landowners who increased their production. The value of the land was in fact fixed for a long period

(at least twenty years) and considered the average production of each type of land: so if landowners produced more than the expected average harvest they did not pay any tax on the part in excess. This evidently stimulated the landowners to produce more, but the growth of the agrarian production was obviously possible only if landowners who knew new productive system could invest in new rotations and technologies. New landowners had the money for this and moreover wanted to increase their production and yields: moreover they were very interested in all agrarian innovations and they read agrarian reviews and wanted to improve of the peasants' agrarian knowledge. If the workforce had better professional skills and worked better, there were obviously more possibilities to increase the farm productions and increase the earnings.

Furthermore the quality of tenants increased too: new taxation on land obliged landowners to increase the rent and so only best tenants could continue their activity. Please note that the workforce in the Eastern Lombardy was scarce: farmers had to call people coming from the Alpine valleys for the harvest. So it was not possible to reduce peasants' wages, that is to transfer on them a part of new taxes. Besides, the new agrarian machines were expensive and moreover they were not able to substitute the workforce in the most rentable activity, that is the silkworm breeding (this also explains why most of articles in Lombard agrarian reviews concerned the mulberries, the silkworms, the cocoons and the spinning). So landowners and tenants could reduce the effects of the new taxation on land only if they increased their yields.

The improvement related to new cadastral law allowed to Eastern Lombardy to increase the total production, but the limited diffusion of the agrarian knowledge continued to reduce the number of landowners who could introduce new rotations or use new technology. Landowners who wanted to invest in new agrarian school represented a minority and, moreover, public authorities did not support, and sometimes, banned the projects concerning the creation of schools for peasants. This in particular happened in the 1820s because promoters of the schools were considered some subversives as they belonged to the movement in favour of the Italian independence: so, even if during all meetings organized by the Ateneo of Brescia its members proposed the establishment of new agrarian schools in the town and in the countryside, no project was realized until the Austrian government, that is until 1859).

At the half of the 19th century, when the new Austrian cadastre came into force and definitively substituted the Napoleonic cadastre (that is the level of the taxation on the land which begun to grow from the 1811 arrived at the top), the situation concerning the diffusion of the agrarian knowledge in the Eastern Lombardy was very different by the members of the Ateneo' aims. Even if there were a reduction of the share of simply "rentiers" who did not invest for improving their land properties, there existed less farms where new productive system was applied and there were no agrarian schools for improving the peasants' knowledge in agronomics. The agrarian reviews and the proceedings of the sessions of the Ateneo remained, as it happened at the beginning of the 19th century, the only real efficient instrument for the diffusion of the innovations in agronomics: this obviously means that most of peasants could not know them because they were not able to read.

2. The Kingdom of Italy and the birth of the agrarian schools

New relevant changes for the agrarian sector in the Eastern Lombardy arrived during the 1850s. The crises linked to the diseases of the most important production for the incomes of most of farms (that is the pebrine for the silkworms and the oidium for the vineyards which strongly reduced the productions of the cocoons and wine): this got quicker the variations in land properties (the decline nobility was replaced by the middle class) and modified the attitude of farmers. It was no more possible to have the great earnings ensured by the sales of cocoons (sometimes they represented the 50 per cent of the total) and wine and it was necessary to improve the yields of other productions. So new landowners belonging to big families of traders and notables (as lawyers, notaries, doctors) made relevant investments for improving their farms and they were obviously interested at news concerning agronomics. They in particular tried to diversify the products of their farms and in particular they wanted to increase the production of cereals, forages and cattle-breeding (which was

now also made in permanent stalls, and not only by the transhumance from the plain to the Alpine valleys). They in particular decided that the progress of farming depended on the quality of the workforce: so they increased the demands for the permission to create new agrarian schools where the sons of small landowners (or of tenants and sharecroppers) learned new modern systems for cultivating, breeding and, in general, managing farms. The improvement of the professional skills of the peasants became fundamental and Austrian government had to understand that agronomical education was different by the movement for the independence of Lombardy from the Habsburg empire. However only in the 1858 it started the project of the Società d'incoraggiamento all'industria agraria e manifatturiera per la città e provincia di Brescia: it was an institution with the aim to establish a technical school for the improvement of the agriculture, the arts and the handicraft. Funds were in particular raised for the creation of the sections of agriculture, mechanics and chemistry: however the project was stopped in 1859 because of the second Italian independence war which involved the Lombardy and in particular the Eastern one.

The end of the war eliminated the problem of the Austrian prohibitions: the Lombardy was in fact annexed to the Kingdom of Sardinia (which became the Kingdom of Italy in 1861). This institutional change obviously modified the perspectives for the creation of the agrarian schools in the countryside of the Eastern Lombardy. The new State did not reduce the taxation on the land (as landowners hoped), but it increased the public financing in favour of the diffusion of agronomical knowledge. So, in Brescia in 1861, the public authorities and new landowners created a new agrarian institution, the Comizio Agrario: it had to develop all the studies concerning agronomics and in general all activities having the aim to develop the agriculture of the Eastern Lombardy. The Comizio Agrario had to promote and partially finance the reclamation, irrigation, reforestation, the improvement of pastures, breeding techniques and productive system in the dairy sector: besides, it created a special cooperative charged to gave farmers fertilizers and seeds at a low price.

It is evident that the birth of the Comizio Agrario helped a lot the agrarian sector and in particular it allowed new landowners to realize their projects about the peasants' education in agronomics: no political prohibitions could in fact stop them and they could also receive a public financial help. So they could attempt their main goal, that is the training of a new class of peasants with better agrarian knowledge: the improvement of the peasants' know how could allow new farms of the Eastern Lombardy to improve their yields and, at the same time, reduce the production costs thanks to the new professional skills of the most of people working in the countryside. Besides, the better education in agronomics also allowed to use the modern innovations (as agrarian machines, chemicals fertilizers and hybrid seeds) which gradually arrived in the Eastern Lombardy during the second half of the 19th century.

During the 1860s, the Comizio Agrario promoted and then enlarged the new section in agronomics of the Technical School existing in Brescia. In 1877, in the outskirts of Brescia, it favoured the creation of the Scuola di Agricoltura della Bornata, that is the first Eastern Lombard school exclusively dedicated to the scientific and technical training for students who were more than 15 years old and they had the elementary licence. This school received a great legacy by Giuseppe Pastori (and in 1889 assumed his name): these funds allowed to enlarge the laboratories, the rooms for lessons, the lodgements for students and, furthermore, it allowed to organize new trainings in zootechnics and in dairy technology in a village of the plain (Orzivecchi). Besides, students had to know how to manage a farm and to estimate the value of the rural real estate, and the accountability and all agrarian contracts and laws. So the "Pastori" progressively became one of the most important in Italy and its experiments concerning cereals, forages, vines, dairy products, and also cattle (in particular cows) allowed to improve the quality of agrarian production of the Eastern Lombardy and also the knowledge in agronomics for a relevant share of peasants managing the farms in the Eastern Lombardy. Most of landowners and tenants of the Eastern Lombardy wanted to assume the graduates of the "Pastori": these latter, who became more than 150 at the end of the 19th century and frequented all the three years vocational trainings, were peasants (usually

sons of small landowners, small tenants, sharecroppers etc.) and diffused their knowledge in the countryside. Their good results were a relevant example for other peasants.

Other two minor agrarian schools were founded during the 1880s: the Convitto Agrario Girolamo Chiodi in Bagnolo Mella (it started the lessons in 1885), and the Scuola d'orticoltura e d'albericoltura di Bogliaco (it began in 1888). The first school had not enough money to become a relevant school as the Pastori: so it gave a scholarship and a lodgement for "poor but clever and meritorious young peasants", but they did not receive the same graduation of the "Pastori". The second school was established in the Riviera of the Garda Lake and prepared people had a wide knowledge in the horticulture and in the trees, in particular the orchard. Finally, in 1895 the Colonia Agricola di Remedello was born: it offered the same vocational trainings of the "Pastori", but the ecclesiastic congregation which managed it had also the aim to show that most of peasants, if they had an adequate knowledge in agronomics and received the funds for the start up and were grouped as small landowners in cooperative, could manage a farm and obtained very good results. This school was supported by the catholic movements which wanted to demonstrate that there existed a different way from those proposed by the socialist movement and by the capitalist system.

From their birth to the eve of the WWI all these agrarian schools trained thousands of students and strongly improved the quality of people working in the farms of the Eastern Lombardy. Besides, the results obtained by graduate students in managing farms became very interesting for other old farmers who adopted the new modern methods to cultivate and correctly use new chemical fertilizers and hybrid seeds. Based on new books and experiments made in the new agrarian schools and on the examples given by their former student, the new knowledge network concerning news about agronomical sciences and technologies could now include also peasants with few assets as small landowners, small tenants and sharecroppers. This obviously helped the improvement of the production of the countryside.

Furthermore, both the public administration and the socialist and catholic movements (which represented the majority of people working in the agricultural sector at the beginning of the 20th century) thought that the diffusion of agronomical knowledge had to involve all villages of the Eastern Lombardy, in particular those situated in the Alpine valleys. So they created the Cattedra Ambulante, that is a public institution (financed by the provincial administration and some agrarian institutions and country banks) whose aims were to coordinate the activity of farmers and breeders and to promote the diffusion in the whole province of new more efficient productive systems. The Cattedra Ambulante had to help farmers and peasants to know the new agronomical techniques and by this way to grow the crops and the agrarian yields. The agronomists working in the Cattedra Ambulante had a good knowledge of agronomics and veterinary sciences: they organized lectures, courses, evening classes, trainings and also some special itinerant offices where they gave advices to Lombard farmers and breeders. In fact all agronomists were itinerant, they visited all farms and cattle-breeding of the province and informed the owners about all innovations in agronomics and zootechnics: this obviously allowed a capillary diffusion of the news in all the province.

So, while agrarian reviews maintained their relevance for the improving the knowledge of students and member of high society interesting in agronomics, the conference in the farms or in the villages (at the city hall or in the oratory of the parish) allowed to have a knowledge network that was everywhere in the province: all peasants, also they lived in the Alpine valleys, could know how to improve their productions and yields without getting infertile their land because of the not correct use of chemical fertilizers. Following the suggestions of agronomists of the Cattedra Ambulante, peasants also learnt to better exploit their land and so they changed the rotations and/or the cultivated plants for increasing their earnings.

There were obviously some farmers who refused to follow the suggestions made by agronomists, but, at the same time, most of the farmers adopted the new system for cultivating and breeding: these innovations allowed to increase production in quantity and quality. In some sectors the rising were very high (in particular for forages and dairy products), in others they were less relevant (e.g. the wine), but in general the earnings received by farmers increased. So there was an important

result if we consider that the incomes linked to the silk-breeding were strongly reduced in comparison with those existing in the first half of the 19th century.

The enlarging of number of peasants having a higher knowledge in agronomics obviously favoured the general augmentation of productions and yields, but this fact depended on another relevant factor: the birth of rural cooperatives. During the second half of the century the knowledge network concerning innovations in agronomics in fact promoted the relevance of the creation and diffusion of the cooperation system in the countryside. This means that the increase of the number of peasants having a good knowledge of agronomics was also related to the diffusion of the rural cooperatives (and of friendly societies for the cattle breeders too). The assemblies and conferences organized for members of the rural cooperatives were in fact the occasion for illustrating the new productive system and agrarian machines. Furthermore, the cooperatives allowed peasants to buy seeds and fertilizers at a cheap price and they had the money for buying or renting new seeders, reapers, ploughing machines etc. This means that the knowledge network concerning agronomics in the Eastern Lombardy gave information on innovations, but it also created the conditions for a better learning of the news by people living in the rural villages: learning more to improve farming and so the productions and the quality of life in the countryside.

Finally it is important to note that the positive results of the diffusion in all the countryside (valleys included) of the knowledge in agronomics represented an example for the development of the other relevant sector of the economy of the Eastern Lombardy, that is the industry. At the end of the 19th century the Eastern Lombardy was in fact one of the most industrialized areas in Italy: a lot of factories were quickly created in the outskirts of the town (Brescia) and the main villages in the valleys (where factories used the hydroelectricity) and in the border between hills and plain. The idea that the improvement of the professional skills was fundamental to develop the production was copied for the industrial sector. The aim was to prepare better young workers for the new mechanical and metallurgical factories: so, in the last two decades of the 19th century new professional schools for blacksmiths, carpenters, fitters etc. were established and others vocational courses were directly organized by factories (in these cases they were more specialized in relation with the needs of the enterprise).

At the eve of the WWI war the situation of the agrarian sector of the Eastern Lombardy was very different from those existing at the half of the 19th century: productions and yields were higher and this depended on new technologies, but also on the great improvement of the peasants' know how. Innovations in agrarian machines, fertilizers, seeds and rotations were in fact used by farmers (landowners or their tenants, sharecroppers) and workforce who had access to all news about the agrarian sector. At the half of the 19th century this only arrived at a minority: sixty-five years after the base knowledge concerning innovations in agronomics and zootechnics was possible for most of peasants. Besides, the aim to increase the agrarian productions using also the maximal diffusion of the know how of the people living in the countryside continued to be shared by public institutions and landowners and peasants organizations: this obviously offered very good perspectives for the future and in fact the Eastern Lombardy progressively became (and it continues to be) one of most important areas in Italy for the agriculture.