



Changes in production practices, trade and quality assessment of Protected Designation of Origin Parmigiano-Reggiano cheese from XIX to XXI century.

Mario Zannoni¹

¹ Organismo Controllo Qualità Produzioni Regolamentate, Reggio Emilia, Italy
e-mail :mariozan@ocqpr.it

Paper prepared for the 145th EAAE Seminar “Intellectual Property Rights for Geographical Indications: What is at Stake in the TTIP?”

April 14-15, 2015

Parma, Italy



Copyright 2015 by author. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Abstract

The first known formal assessment of Parmigiano-Reggiano quality dates back to 1867 and was done by a commercial company to promote trade. In 1934, the Consortium, a collective organization of producers, introduced controls to improve market image by using a mark of quality. Beginning in 1954, and continuing after the PDO recognition by the European Union in 1992, the government became an actor in the qualification process of Parmigiano-Reggiano. Evolution and changes in the quality control of Parmigiano-Reggiano were influenced more by the demands of the trade than by changes in production practices due to the modernization of the process.

Keywords: Parmigiano-Reggiano Cheese, Designation of Origin, Trade, Quality Control

JEL code: N 53, N54.

1. Introduction

Parmigiano Reggiano cheese is a collective mark protected by the EU denomination “Protected Designation of Origin” (PDO). In European legislation the PDO is a mark of quality.

Quality is a term with many possible meanings and for a processed product sold on the market quality is influenced by a large numbers of factors, it is a dynamic concept (Galizzi, 1998). In the case of a PDO we have a regulated standard of quality. The qualification of such a product foresees specifications for production practices and product characteristics in order to have a specific product linked to a given traditional area of production (Tregear et al.,2004).

The more the product is sold on the wider market, the more is the need for quality marks to explain the features of the product to consumers who are ignorant about it. In this sense, on a world scale, there are few relevant PDOs on the global market like Parmigiano-Reggiano cheese (for example there are Parma Ham, Roquefort cheese, Feta cheese), so qualification over the last 50 years has become not only an indispensable tool but also a more complex system.

The qualification criteria of a PDO are the results of an agreement between the actors in the production chain, the technicians, institutions and the trade. Such a qualification should make clear the distinctive nature of the product which is the basis of his “typicity”.

According to Barjolle et al. (Barjolle et. al., 2005) one of the key factors for the success of a PDO is the “specificity” and within the specificity we find: typicality, price, convenience, symbolic component and taste. Two French authors (Letablier et Nicolas, 1994) go further and write: “le dispositive d’évaluation de la typicité est la dégustation”.

Sensory evaluation is thus important for the specificity and, for a PDO, sensory qualification has to consider certain steps: I) verify if there are differences between products; II) divide the products into different categories; III) define the profile of the product (Sauvageot, 1994).

Traditional tests done by the experts of the PDO are normally carried out using the senses, so the above mentioned model could be applied even if in this case point III will not normally be developed because the aim of the classification is only to avoid bad quality products reaching the market and not to define the characteristics of the ideal product.

The PDO control of Parmigiano-Reggiano was carried out by experts and in this paper we will see the development of such controls. Considering nevertheless that production is a dynamic process

and that the cheese has changed in these centuries (Zannoni, 2010 and 2013), there are a couple of questions to be discussed:

- When and why were qualification and control introduced and how were they matched with *changes in processing* over time?
- How have *trade and law regulations* influenced the qualification criteria of Parmigiano-Reggiano in the past and now?

Through an historical review of practices over the last 150 years we shall try to answer to these questions.

This paper nevertheless deals with quality evaluation of the final product (the cheese wheel ready for the market) and not in quality evaluation of Parmigiano-Reggiano in a more general sense (the brand, health, the process, the convenience, the emotional values, etc.).

2. Technology, trade and quality evaluation from XIX century to the present

2.1 Historical notes about Parmigiano-Reggiano cheese until XVIII century

The Protected Designation of Origin (PDO) Parmigiano –Reggiano is a cheese whose origins date back to the XIII century. It is a cheese of great size produced with partially skimmed milk. Considering that this cheese requires a large amount of capital both in terms of land for pasturage and as well as in the number of cows coupled with some technical skill, the product was costly and aimed at wealthy clients. The cheese also had a lengthy conservation quality which eased shipping and trade. This cheese was thus suitable for export as is confirmed from various historical proofs starting with the year 1254 (Zannoni, 2013). Trade in this cheese expanded in XVI century when the fashion of the Italian Renaissance (also in cooking practices) spread all over Europe.

At these times there was a sort of qualification of the product done by expert dealers of cheese but we do not know what criteria they employed.

In the early XVII century, with its commercial success, the first attempt to create a type of Geographic Indication as *Parmigiano* cheese appeared (Zannoni, 1999). This type of cheese which “ran in the world” gave origin to the first attempt to introduce a rule concerning the linking of this cheese with the area of production and a determined production process. The Duke of Parma Ranuccio I, very attentive to developing the agro-food potential of his small state, decided to officially define the characteristics of the *Parmigiano* brand. In an act of the Duke’s notary (i.e. an official law for the state of Parma), it was stated that in future all the cheese dealers should use the word *Parmigiano* only for cheeses produced and ripened in the Parma area. It is worth noticing that the Duke was also Duke of Piacenza, but as the *Piacentino* cheese had an inferior status to the *Parmigiano*, it was stated that even if the *Piacentino* was ripened in Parma then it retained its title of *Piacentino*. This act was written in 1612 and it could be seen as a princely eccentricity, but it is not. In fact in years 1617-1623 the Duke of Bavaria Maximilian I renovated the old palace of Schweige (today Schleissheim, near Munich) building there a cheese plant for Parmesan cheese (Horn, 1980). This was probably done in consequence of the Duke’s appreciation of the product, but also to show the people his modernity and open mindedness. Baroque culture has first to amaze. Almost in same years (1621-1630) the *Generalissimus* of the Austrian empire, Albrecht Wallenstein, started to rebuilt the city of Jicin, capital of his fief in Bohemia, in the Italian style. He also imported cheesemakers from Parma to produce Parmesan cheese there thus becoming self-sufficient (Mair-Waldburg, 1974). Ranuccio I in Parma was probably aware of what happened and

wanted to defend the international trade of his most important product, thereby giving rise to a forerunner of a Geographic Indication.

Parma was the most important commercial centre for the cheese, but it was produced both in the duchies of Parma and Modena (where the cheese was named respectively *Parmigiano* and *Reggiano*). The followers of Ranuccio I were not very interested in commercial practices, so in the XVIII century the product underwent a grave commercial crisis due to less scrupulous production practices in Parma and to more efficient marketing practices of the nearby Lodigiano cheese in Austrian Lombardy (Zannoni, 1999).

It is worth noticing that the first book with a commercial description of the features of Parmigiano cheese we have found, was not written in Italy but in France in 1748 and re-edited several times (Savary, 1760). France was in fact the most important importer of this cheese and the dealers needed information on how to recognize the real product.

In the late XVIII century in the duchy of Parma there were also the first attempts to link the price of the local cheese to the quality of product. In the cities some consumers were willing to pay more for quality, but the authorities cracked down on this practice which was not “culturally” acceptable for them. At that time with the typical *ancién regime* mentality of a regulated society, the government thought of himself as the body in charge of the rules and the defender of the consumer. The fact that the dealer sold products which they claimed were of a higher quality at prices outside the official list decided by the government, was seen as an attempt to deceive the customers. (State Archive of Parma, 1795).

2.2 The XIX century

The XIX century saw a turn around in production and quality with Bibbiano, in the province of Reggio Emilia, as the promoting force. With the unification of Italy in 1860 all the internal customs barriers in Italy were removed, trade increased and new modern practices were introduced. For the *Parmigiano* and *Reggiano* it was a critical time with problems in product quality and the disorientation of producers faced with the new situation. As every crisis offers opportunity, some farsighted dealers from the village of Bibbiano thought about a new way to trade the *Reggiano* cheese. Aware of the opportunity to sell the product easily throughout the national territory using the new railway network, they had the “new” idea to introduce a quality marking for the cheese. At that time technology showed almost no development and many cheeses could not be matured correctly due to an excessive microbiological growth. In Bibbiano, 11 small cheese factories were active (Municipal Archive of Bibbiano, 1861) and the quality of their product was high due to good pasture for cows and the great skill of the cheesemakers (Sani, 1958), but this information was shared only by people living in the province of Reggio Emilia.

Lead by the Mayor, G.B. Venturi, Bibbiano firstly undertook a promotion campaign for the product, sending it to every exhibition of work and industry in Italy and abroad in the 1860s; the results were many medals won. Then, in 1864, a manual for the production of the cheese was printed by a Bibbiano cheesemaker. Having prepared both a marketing and technical base, the time was ripe and in 1867 a trading company *La Società Anonima Bibbianese pel commercio del formaggio* was formed by four dealers from Bibbiano (Iotti, 1996). They also introduced a quality control and a quality mark. The quality control in XIX century was done, like today, with a small iron hammer and a sort of needle. By tapping with the hammer the sound showed the presence of cavities due to anomalous fermentation and by pricking the cheese with the needle and then sniffing it, it was

possible to have an idea of the aroma of the product. Using the senses of hearing and olfaction the expert was able to qualify the cheese. The evaluated product was then divided into three categories: first quality, commercial quality and rejects.

Innovative for the area was the introduction not only of a quality control but also of a quality sign, a red stamp, on the best cheese wheels.

The success of *La Bibbianese* was remarkable. In ten years sales rose and the renown of the cheese of Reggio Emilia too because other cheese factories and dealers followed the example. Parma renewed its efforts and there, too, quality and sales began to rise. This success resulted mostly from two factors: attention to the customer demands and attention to the product quality. In 1885 the *Bibbianese* was disbanded, the market became too big for the small company and both the *Reggiano* and *Parmigiano* were now firmly established on a national scale.

Success brought also the seeds for a new decline, cheese factories sprang up *like mushrooms* and attention was centred on producing a large quantity of cheese to sell with the now well known and appreciated names of *Reggiano* and *Parmigiano* forgetting the quality measures. The numbers of rejected wheels thus exceeded the usual limit of 30% arriving at 50% of the production of many cheese factories bringing bankruptcy to many cheese makers who were also the owners of the cheese.

2.3 From XX to XXI century

At the end of XIX century the processing technology was the one handed down since the Middle Ages and the building features of cheese factories were those of XVII century. Quality control using a hammer and needle was introduced in late XIX century following the marketing success of the product in Italy and abroad. Hammer and needle were efficient in finding low quality articles and they were an important improvement on the sole recourse to sight and smell, even the smell of the entire storage room, used previously.

At this time we had no technical improvement in process, but this better system of qualification was introduced at the request of the trade.

To cope with the lasting quality problems the Zootechnical and Cheesemaking School, founded in Reggio Emilia in 1874, introduced, at the end of the XIX century, the whey starter in the production process (Zannoni, 1999). In this way the lactic acid bacteria in cheese fermentation prevailed over dangerous bacteria. Shortly afterwards, in 1908, the steam generator was introduced in the process, giving much more precision and accountability to the important step of cooking the curd. Some years later, around 1915, salting in brine was first used leading to a much better diffusion of salt throughout the cheese, thus preventing bacteria from destroying the wheels. In the meantime the farms left the pastures for the much more profitable cultivation of fodder for the cows.

The results of these innovations were that the amount of second quality cheese sharply decreased and the aspect and taste of the final product was somewhat different. The cheese had far fewer small holes and was less tasty and pungent. For some consumers this was positive, for others negative, but it was evident that no one was able to describe how the cheese should be. At the time no institution was in charge of defining rules for the production of the *Parmigiano-Reggiano* and the recently introduced food legislation in many European states (Stanzani, 2005) was only aimed at protecting the population from the danger of unhealthy foods.

Table 1. Principal changes in production practices and effect on the cheese (about 1910)

<i>Innovation</i>	<i>Effect on the process</i>	<i>Changes in cheese</i>
End of pasture, cultivated green fodder	Less aroma substances in milk	Less aroma in cheese
Cows feeding with concentrates	Change in microbial flora	Change in aroma of cheese
Whey starter	Mesophilic lactic acid bacteria predominating in kettle milk	Less holes in cheese, less fermentation aroma from unfavourable bacteria, more standardisation of product
Steam heating	Better temperature control and more efficiency in process	Better homogeneity of production batches, bigger wheels
Brine bath	Better salt diffusion in cheese and less growth of bacteria	Less undesired fermentations with holes in the cheese, Bigger wheels

The tasting of the cheeses was not yet able to define the qualities of the Parmigiano-Reggiano in this period of technological innovation, and it was written that “a degustation code” for the Parmigiano-Reggiano had not yet been found (A.D., 1905).

In practice, the decrease in the number of low quality wheels was so appreciated by the trade that the innovations were eagerly accepted and it was not necessary to adjust the control practices.

Around 1930 the economy went into recession and the dairy sector in Italy was not spared. The cheese prices went down sharply and new figures emerged in the domination of the Parmigiano-Reggiano production chain.

The first to act were the local government institution in charge of agriculture, trade and industry the *Consigli Provinciali dell'Economia Corporativa*. These institutions had been active since the beginning of the century (at that time with the name of Chambers of Commerce and *Comizi Agrari*) to promote the development of agriculture. In 1934 the *Consigli* of Parma and Reggio Emilia published the “Collection of customs and practices” used in their provinces. A section was devoted to the trade of Parmigiano-Reggiano with a description of the test used to qualify the cheese batches. (*Usi e Consuetudini*, 1934)

These documents were a detailed description of what was already happening, but the innovation was in the organisation of the information and the possibility of using it in law.

In the meantime something new happened also with the producers. The terrible crisis was the motive to overcome the provincial quarrels between Parma, Reggio and Modena about the denomination of the cheese. The first wanted to have the name *Parmigiano*, the second, *Reggiano* and the third, as it would have been impossible to use *Modenese* because this term was not recognized by the market, asked for the cheese to be called *Grana Emiliano*. After 40 years of periodical discussions, the fall of 60% in prices in the period 1930-1934 was the catalyst which brought together the producers who formed the first Consortium whose goals were to mark the cheese produced in the area of origin, then to promote trade, consumption and improvement in production (Zannoni, 1999). The firebrand to be employed over the wheels was a small masterpiece of compromise to Italian local pride. It contained the words: *Parmigiano*, *Reggiano* and the abbreviation of the name of the consortium: C.G.T. or *Consorzio Grana Tipico* so, more or less, all the three name proposals were respected.

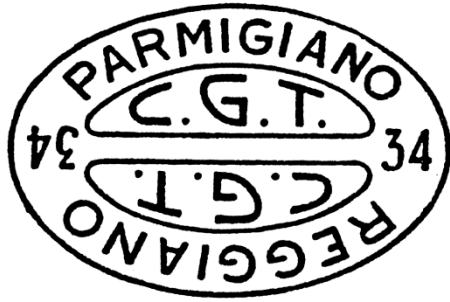


Figure 1. Firebrand for the 1934's *Consorzio* marking.

Please take note that it can be used in two different way: with the word *Parmigiano* above for the cheese produced in Parma or turned upside down with the word *Reggiano* above for the cheese produced in Reggio. In both cases the shortening C.G.T, i.e. *Consorzio Grana Tipico*, liked by the Modena people, is clearly readable being written in two ways.

In 1935 the consortium started to act and it was evident that to produce a quality product with specific characteristics some guidelines to the process had to be shared by the producers, so a small handbook was published by the consortium. The handbook, called *Agenda del casaro*, had also a short description of the sensory characteristics of the final product (Zanoni,1935). The firebrand of the consortium was put only over the wheels found to be of good quality which had been checked by the consortium inspectors using the guidelines published by the *Consigli Provinciali* the previous year.

The consortium was a volunteer organisation and only a few of the cheese factories initially joined the organisation, but the quality tests, always done with the hammer and the needle, now had validity in front of the law being published by a government agency. Later many cheese factories joined the consortium.

It is interesting to note that in this period there was no particular technical improvement to justify changes in the qualification of the product, but as was the case in the late XIX century, control innovations were introduced following trade problems.

The idea of a quality mark on the wheels guaranteed by a collective organisation did not appear in the mid '30s without a commercial reason. In these years in fact, following an increase in the standard of living of the Italian population, the product begun to be available on the tables of the Italian middle class whereas before it had been a product intended for wealthy people. A mark identifying the Parmigiano-Reggiano was thus necessary for people of different Italian regions without any knowledge of the product.

The success of the consortium was remarkable, the quality marking gave a product guarantee to the dealers and slowly the mark became recognised also by consumers. The consortium also started to do some timid promotion.

In 1939 a state law gave the first official obligation for Parmigiano-Reggiano: the fat content had to be 32% of the dry matter (Savini, 1946). A lower fat content meant lower quality and the state

intervention was for consumer protection. It is also important to notice that the “new” name of the cheese was thus made official by this law.

After the war the European improvements in economy and trade lead to the Stresa conference of 1951 which was the first international agreement as to Denomination of Origin (DO) for cheeses. At this conference nine European countries agreed to a mutual recognition of their DOs (Consorzio Formaggio Parmigiano-Reggiano, 1995).

Following the conference, the Italian government published a law in 1954 about the Protected Designation of Origin (PDO) in Italy with official recognition of the task of the consortia which also had to publish a regulation of production. It is worth noticing that the duty of checking the application of these regulations was attributed to the same consortium, as a subject different from the producer. The aim of the Italian Ministry of Agriculture with this new law was to protect both producers and consumers putting into place a set of rules acceptable for all the stakeholders. It is interesting to notice that in this case the tradesmen were already used to the activities of the consortium in terms of control and marking which also had positive effects on the consistency of the commercialised product and on customer satisfaction. In these conditions the tradesmen accepted the new state of things without particular problems.

At this point the government gave mandatory guidelines to the consortium as to how to write its charter and these guidelines included a detailed description of the final product, the so called *standard*. It was the first time that a description of the product, including sensory features, was attributed value in front of the law. In the meantime the production area underwent another introduction of innovations, among them the increased acidity of the whey starter and mechanical milking. At that time milk was also regularly analysed for content and the government started introducing checks on the hygienic quality of milk.

Table 2. Changes in production practices and effect on the cheese (about 1950)

<i>Innovation</i>	<i>Effect on the process</i>	<i>Changes in cheese</i>
Diffusion of Holstein Friesian cows	Increase in milk production, decrease in milk protein (casein), problems in rennetability of milk	Increase in quantity produced, less cheese yield, new cheese defects
Mechanical milking	Mastitis (udder inflammation), different bacteria and less bacterial variety in milk	Increase in quantity produced New cheese defects
Very acid whey starter	Thermophilic lactic acid bacteria in kettle milk	Fewer cheese defects. <i>Acidic</i> cheese paste with fewer small holes. Less aromatic complexity, more standardisation of product

In these conditions given the constraints on the Ministry of Agriculture on one side and the changing production environment on the other, the task of writing a standard employable by the controllers was not easy. The task, which took about one year, was carried out by a group of technicians lead by professors Tromellini and Bertozzi of Reggio Emilia and the description was then included in the Decree n. 1269 of 1955 (Consorzio Formaggio Parmigiano-Reggiano, 1995). The standard had an organoleptic description as well as the dimensions and minimum weight of a wheel; the standard of 1934 was taken as a basis for this new description.

In XX century changes went much faster than in the previous century, so the agricultural sector like other production sectors underwent various changes and Parmigiano-Reggiano cheese, too, introduced innovations.

Around the year 2000 the Parmigiano-Reggiano producers did regularly use climatisation of milk and cheese storage rooms to avoid spoilage by dangerous bacteria. The cows were fed mostly with hay and not green fodder and the cowsheds were now pens where the cows were free and not tied.

HACCP was introduced by the state and limits to the number of bacteria in milk as well. Under pressure from the trade, ISO 9001 norms were introduced in many cheese factories and, for the first time, plants for the grating and vacuum packing of cheese had to introduce quality certification mostly for safety control.

Table 3. Changes in production practices and effect on the cheese (about 2000)

<i>Innovation</i>	<i>Effect on the process</i>	<i>Changes in cheese</i>
Feeding with hay	Stability in milk quality all year round	Whiter cheese, less aroma complexity
Milk cooling	Less bacterial growth in milk	Fewer defects and less aroma complexity, more standardisation of product
Hygienic norms as to bacteria content in milk	Less bacteria in milk	Fewer defects and less aroma complexity, more standardisation of product
Diffusion of lorries with refrigerated milk tanks	Less bacterial growth in milk	Fewer defects and less aroma complexity, more standardisation of product
Climatisation (cooling) of the storage rooms	Less bacterial growth in cheese, lower moisture loss	higher cheese yield, fewer discarded wheels, more standardisation of different production batches

The situation became more complicated following the application of the European Union Council Regulation 2081/92 on the protection of Geographical Indications and Denominations of Origin for agricultural products and foodstuffs (Consorzio Formaggio Parmigiano-Reggiano, 1995).

The new laws recognised the PDO at European level, but introduced some new constraints for producers. PDOs can be recognised only by EU member states, but management of the PDOs of each country is the responsibility of the individual state's ministry of agriculture. The consortia proposed the rules, but now checking has to be done by an external certification body. The EU wants to protect producers and consumers of these quality foodstuffs using internationally accepted criteria of product certification via ISO norms (EN 45011:1998 and later EN/ISO IEC 17065:2012).

The new law became operative for Parmigiano-Reggiano in 1998; then, in the years following 2000, with the integration of the European market and the increase in the globalisation of trade, the PDO underwent a sharp increase in controls on the process and on the final product.

In those years, more institutions were carrying out checks on Parmigiano-Reggiano.

A) Public authorities participated in:

- Health controls for the microbiological and contaminants of milk and cheese and HACCP. The controls are carried out by national public health authorities.
- PDO controls for the application of the official production process and checks on the final characteristics of the product. These controls were carried out by a certification body accepted by the Ministry of Agriculture (third party control).

B) Large Retailers promoted quality systems with audit standards and third party inspection:

- BRC controls carried out mostly in processing plants for portioning and grating cheese (most widespread voluntary certification schemes for foodstuffs in Europe);
- Other certifications schemes for different reasons, but mostly for quality control in the supply chain and final product. These controls are done by inspectors from the retail group or hired by them in order to avoid risks in the final product and protect their reputation and liability.

C) The Consortium of Parmigiano-Reggiano, acting as internal control auditor for its members (i.e. all the cheese factories producing Parmigiano-Reggiano) does third party tests for the qualification of the final products ready for market (before the checks by the certification body).

To summarize, the official controls carried out on the final product are presently:

- Expert test (*tapping*) by inspectors of Consorzio Parmigiano-Reggiano on every wheel;
- Expert test (*tapping*) by inspectors of the certification body (Organismo Controllo Qualità Produzioni Regolamentate) on a portion of samples;
- Analysis of preservatives and fat content by the certification body on random samples;
- Sensory analysis by the certification body on a portion of samples;
- Microbiological and chemical analysis when requested by the health national authorities.

It is interesting to notice that the Consorzio Parmigiano-Reggiano, with the approval of public authorities, introduced various changes in official production practices of the PDO in order to adjust the process to the ever changing production environment.

From 1954-1955, changes were introduced in 1973, 1983, 1990, 2002, 2006 and 2009. As mentioned before, in the years following 2000 changes became more frequent due to developments in the production environment. Such changes affected the final controls which were adjusted to facilitate the modifications introduced.

3. Conclusion

Over time we have noticed changes in the Parmigiano-Reggiano environment as normal for every manufacturing activity ; changes in socio – economic situation, in trade, in technology, in legislation etc.. such changes affected the controls carried out on the final product.

Initially in XIX century quality control and marks were done by a trading company, in the following century this activity was undertaken by the consortium. In XXI century quality control and marks by the consortium were paired with the same controls plus sensory tests done by the certification body. There was also the analysis and HACCP demanded by health authorities. Processing plants, mostly those for grating and packaging of the cheeses, introduced voluntary quality certification schemes with related controls under pressure from large retail groups to protect their image and liability on the market.

Generally speaking, the controls carried out today on the product are mostly done using human senses: tapping for hearing the sound and sensory analysis for the taste. The finding of specific features, so important for a PDO, cannot avoid the use of senses in product qualification. Some chemical analysis and, rarely, microbiological analysis, are also used but only to verify respect in terms of health laws and not with the purpose of qualifying the product for market. On some

occasions private firms employ x-rays on the wheels already marked by the Consorzio experts as a further quality control. FT-NIR spectrometers for non destructive qualitative and quantitative analysis are also under evaluation by the Consortium of Parmigiano-Reggiano cheese.

Qualification is a technical practice, but, as we have seen, the reason of its use and the results it can bring has more to do with trade than with the process or changes in the product. Now the controls on the product have two main purposes: 1) that the cheese has the desired features for trade, 2) that the product respects the PDO regulation which is under the protection of law. This is a delicate equilibrium between the features desired by the trade and the registered official rules, taking also in account that the regulation does not cover every details of the production and the actors in the supply chain have often different interests.

The aim of having the fewest rejected cheese by the quality control of the consortium has been now reached, and the result of a more standardised cheese, well adapted to supermarket sale, has also been reached. Cheese is also milder in aroma/taste thus being appealing for a larger share of consumers. Success seems everywhere, but, as history has taught us, success also brings some threats. A milder cheese with less aroma complexity and less grainy texture will be easier to imitate on an industrial scale.

In the past, small scale farms with limited money and knowledge had a strong sense of belonging and they were bound to the production traditional practices of Parmigiano-Reggiano. Today the farms are larger with much more technical competence, money to invest and dependence on the market. Cheese factories are much larger than before with costly modern equipment and less manpower. The majority of cheesemakers and farmers are less inclined to respect the traditions due to the direct importance the retail groups have on the performances of their establishments. The quality systems, ISO 9001 or BRC and other retailer's quality certifications were introduced for giving stability to the product batches, thus facilitating the selling of the cheese. For big retail groups respect of the PDO regulations is required by law. The real importance of PDO control now derives from being an official control required by a law of the European Community and, in this sense, the quality control, introduced in 1935 by the consortium to improve trade, is now an official control to accomplish the law.

Now in the production area PDO regulations are accepted, but some see them as a block to progress and free enterprise, some see them as the last defence from standardisation and banalisation of the product; an equilibrium has to be found allowing for innovations in line with the principal traditional features of the product.

In the past the policy of Parmigiano-Reggiano has been to undergo the inevitable changes in production brought about by changes in the technical, social and economic environment, always keeping some sensory features that make it specific and different from other types of cheese produced on an industrial basis.

Specificity is also the concept at the basis of the PDO policy. Origin alone does not make a product a Protected Designation of Origin. This is also the challenge for the future. In defining the future path for the production of Parmigiano-Reggiano the actors within the supply chain have to find an equilibrium amongst themselves generating rules which allow the product to retain a distinctiveness that can be detected by tests whose validity are recognised.

References

- A.D.(1905), Il formaggio di grana e le sue esigenze, *L'agricoltore reggiano*, n.3.
- Barjolle D., Chappuis J.M., Dufour M. (2005). Key success factors of competitive position for some Protected Designation of Origin (PDO) cheeses. In Hocquette J.F., Gigli S. (eds), *Indicators of milk and beef quality*. EEAP Publication n.112, Wageningen: Wageningen Academic Publishers, 245-262.
- Consorzio del Formaggio Parmigiano-Reggiano (ed.) (1995). *Legislazione sul Parmigiano-Reggiano*. Reggio Emilia: Olivi.
- Galizzi G. (1998). I formaggi DOC/DOP nel nuovo contesto competitivo. *Il Latte* 23: (7), 76-85.
- Horn E. (1980), *Bayern Tafel – Vom Essen und Trinken in Altbayern, Franken und Schwaben*. München: Prestel Verlag.
- Iotti M. (1996), *Storia del formaggio di grana “Parmigiano-Reggiano” (1200-1995)*. Reggio Emilia: Futurgraf.
- Letablier M.-T. and Nicolas F. (1994). Genèse de la “typicité”. *Science des Aliments* 14 : 541-555.
- Mair-Waldburg H. (1974), *Handbuch der Käse - Käse der Welt von A – Z - Eine Enzyklopädie*. Kempten: Volkswirtschaftlicher Verlag.
- Municipal Archive of Bibbiano (1861) , *Historical archive*, n.35.
- Raccolta di consuetudini commerciali ed agrarie vigenti in provincia di Parma* (1934). Parma: Consiglio Provinciale dell'Economia Corporativa.
- Sani E. (1958), *Il “Parmigiano-Reggiano” dalle origini ad oggi*. Reggio Emilia: AGE.
- Sauvageot F. (1994). Les sciences de l'aliment et le concept de typicité ou Le chercheur en sciences de la nature a-t-il quelque chose à déclarer sur la typicité d'un produit alimentaire? *Science des Aliments*, 14: 557-571.
- Savary J. (1760), *Dictionnaire universel du commerce, d'histoire naturelle et des art et métiers*, Copenhagen: Claude Philibert.
- Savini E. (1946), *Analisi del latte e dei latticini*. Milano: Ulrico Hoepli.
- Stanzani A. (2005), *Histoire de la qualité alimentaire XIX et XX siècle* , Mesnil sur l'Estrée: Seuil.
- State Archive of Parma (1795), Series: *Fondo Stato ed affari esteri*, n. 42.
- Tregear A., Arfini F., Belletti G., Marescotti A. (2004). The impact of territorial product qualification processes on the rural development potential of small-scale food productions. XI World Congress of Rural Sociology, Trondheim, Norway – July 25-30.
- Usi e consuetudini vigenti in provincia di Reggio Emilia* (1934). Reggio Emilia: Consiglio Provinciale dell'Economia Corporativa.
- Zannoni M. (1999), *Il Parmigiano-Reggiano nella storia*. Parma: Silva Editore.
- Zannoni M. (2010). Evolution of the sensory characteristics of Parmigiano-Reggiano cheese to the present day. *Food quality and preference* 21: 901-905.
- Zannoni M. (2013). Factors Influencing the Sensory Features of Parmigiano-Reggiano from the Renaissance to the Present Day. In Ceccarelli G., Grandi A., Magagnoli S. (eds), *Typicality in History – Tradition, Innovation and Terroir*, European Food Issues n.4. Brussels: P.I.E. Peter Lang, 403-420.
- Zanoni G. (1935), Il Parmigiano con la carta di identità. *La domenica dell'agricoltore* 17:5.