PARMIGIANO-REGGIANO – PDO

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1. Parmigiano-Reggiano

1.1. Description of the product

Parmigiano Reggiano P.D.O. is a hard, cooked and slowly matured cheese, made from raw cow’s milk, partially skimmed, and produced by cows whose feed consists mainly of forage grown in the area of origin. The milk may not undergo any heat treating and no additives may be used. It is exceptionally rich in proteins, lipids, calcium and phosphorus. The secrets of this cheese are three vital characteristics: conservation of an extremely high food potential, inimitable flavour and easy digestibility.

Parmigiano-Reggiano shall have the following characteristics:

- cylindrical shape with slightly convex or virtually straight sides, with flat faces with a slightly raised edge;
- sizes: diameter of the flat faces ranging from 35 to 45cm, side height ranging from 20 to 26cm;
- minimum weight of each wheel of cheese: 30kg;
- external appearance: rind of a natural straw colour;
- colour of the cheese paste: between light straw-coloured and straw-coloured;
- characteristic aroma and taste: fragrant, delicate, flavoursome but not pungent;
- texture of the cheese paste: finely granular, splitting into slivers;
- thickness of rind: about 6mm;
- fat content on dry matter: 32% minimum.

The consistence of the cheese depends mainly on the degree of maturing, granular texture, with the typical presence of crystals composed mainly by the amino acid tyrosine. This indicates that the cheese has been aged for a proper time. The rind or crust in its natural formation is integral, has a healthy appearance of an old gold shade.

These characteristics stem from the specific features of and selection criteria applied to the milk used raw on a daily basis in copper vats, coagulates with calf rennet with high chymosin content, from the curing in saturated brine and prolonged maturation period.

1.2. Production process

Every day, the milk from the evening milking is partially skimmed by natural surface skimming in open steel tubs, where the fatty part spontaneously rises to the surface. The milk may not undergo centrifugation, may be chilled immediately after milking and kept at a temperature not lower than 18°C.

As soon as the whole milk from the morning milking arrives from the farm, within two hours from the completion of each milking, the skimmed on, from the previous evening milking, is poured into the typical bell-shaped copper cauldrons. Calf rennet and fermented whey, rich in natural culture of lactic ferments obtained from spontaneous acidification of the whey remaining from the cheese-making process of the previous day, are added. There are
1100 L of milk per vat, producing two cheeses each (16L milk/Kg cheese). The vats shall be used only once a day. 15% of the vats may be used for a second cheese-making process.

A portion of the milk from the morning milking, up to maximum of 15%, may be set aside to make cheese the following day. In this case, the milk shall be kept at the dairy in special steel containers; if chilled, its temperature may not be lower than 10°C.

The milk coagulates in around 10 - 20 minutes at 30 – 34°C, and the curd is broken up using a traditional tool called “spino” and cooked. The cooking process reaches 55°C during 10 – 12 minutes. The granules are then given the time to sediment at the bottom of the vat (45 – 60 minutes), so as to obtain a solid mass. These operations shall be performed by the end of the morning. After sedimentation for around thirty minutes, the cheese mass is cut into two parts and wrapped in a tissue and transferred to the appropriate moulds to form the wheels.

The cheese is put into a stainless steel, round form that is pulled tight with a spring-powered buckle so the cheese retains its wheel shape. After a day or two, the buckle is released and a plastic belt imprinted numerous times with the Parmigiano-Reggiano name, the plant's number, and month and year of production is put around the cheese and the metal form is buckled tight again. The imprints take hold on the rind of the cheese in about a day.

After that, the salting is performed by immersing the wheels in brine. It is a process of salting by absorption which, within less than a month, closes the production cycle and opens the cycle of maturation. Then, each cheese is placed on wooden shelves that can be 24 cheeses high by 90 cheeses long or about 4,000 total wheels per aisle.

The wheels are matured for a period of at least 12 months. The cheese wheels are laid out in long rows in the silent maturation rooms. The cheese is allowed to rest on wooden tables where the outside of the cheese dries forming a natural crust without being treated in any way and therefore remaining perfectly edible. In summer, the room temperature in the maturing facility may not be lower than 16°C. During maturation, Parmigiano-Reggiano gains its typical granular structure, and when cut it into slivers, it becomes crumbly and soluble.

The experts of the Consortium examine each cheese one by one. With his hammer, the expert taps the cheese at various points while listening carefully to the way the crust takes the blows. This tells him what is going on inside in much the same way as a stethoscope does.

The cheese is then pierced with the screw-needle to extract a minute sample of the contents. The resistance of the cheese indicates something of its internal consistency, and the sample enables the expert to judge the aroma and degree of maturation.
After the Control Body’s inspection, a mark is fire-branded onto the individual cheeses which meet the requirements of the Protected Designation of Origin (PDO). Each cheese is given a unique, progressive number using a casein plate and this number remains with it just like an identity card. All identifying marks and the dotted inscriptions are removed from any cheeses which do not meet the PDO requirements. Lines or crosses all the way around the cheese inform consumers that they are not getting top-quality Parmigiano-Reggiano.

Once the cheese is ready to be sold, it can be pre-package, grated or portioned. In order to guarantee the authenticity of it, all of these operations must be carried out in the defined geographical area and immediately afterwards packaged, without any processing or addition of substances likely to modify its conservation properties or original organoleptics characteristics.

2. Geographical area

2.1. Description of the geographical area

Both the production of milk and its transformation into Parmigiano-Reggiano are produced exclusively in the provinces of Parma, Reggio Emilia, Modena and parts of the provinces of Mantua and Bologna, on the plains, hills and mountains enclosed between the west of the Reno River and the east of the Po River.

2.2. Races

It is only allowed to use the milk from certain breeds, like Frizona (40L/day/cow), Vacca Rossa (30L/day/cow), Vacca Bianca Modenese and Vacca Marrone (20L/day/cow).
2.3. Description of the feed

The composition of the feed for dairy cows shall be based on the use of forage grown in the area of production of Parmigiano-Reggiano cheese. In the daily feed, at least 50% of forage dry matter shall be provided by hay.

The feed base, consisting of forage, shall be appropriately supplemented with feeds balancing the supply of the various diet nutrients. The total dry matter supplied by feeds shall not exceed the total dry matter supplied by forage (forage/feed ratio not lower than 1).

Dairy cows shall not be fed with fodders that may confer anomalous aromas and flavours to the milk and alter its technological features, nor with fodders that may be sources of contamination or are badly preserved.

In the feeding of dairy cows:

- at least 50% of forage dry matter shall be supplied by forage produced on the farm land, granted that it is located in the area of production of Parmigiano-Reggiano cheese;
- at least 75% of forage dry matter shall be supplied by forage grown in the area of production of Parmigiano-Reggiano cheese.

2.4. Description of main social

Its unique and inimitable taste is the return from a long journey through nine centuries of history, passing through a fertile countryside stretching from the Apennines to the river Po.

According to legend, Parmigiano-Reggiano was created in the course of the Middle Ages in Bibbiano, in the province of Reggio Emilia. Its production soon spread to the Parma and Modena areas. Historical documents show that in the 13th and 14th centuries, Parmigiano was already very similar to that produced today, which suggests its origins can be traced to far earlier.

The huge amount of historical and scientific literature concerning Parmigiano-Reggiano is evidence of its fame, quality and increasing usefulness. Ancient sources mention in general a hard and aged “caseus” without further specifications. The first real literary document dates back to the 14th century when Giovanni Boccaccio stated through the words of Calandrino, that at that time his greatest aspiration was to live “on top of a mountain of grated Parmigiano cheese”. From the recipe books we learn that in the 15th and 16th centuries Parmigiano-Reggiano was already widely used in many dishes also outside the Cisalpine region. It became increasingly famous and sought after. It is mentioned by many writers, diplomats and travelers who, during their visits to Italy between the 17th and 19th century, wrote about it in their diaries, showing great appreciation. The importance of this product reached such a level that writers travelling in Italy wanted to learn more about the area in which it was made.

Today, all this allows us in many cases to have descriptions which portray certain aspects of the past and of a society which still today is largely unknown.
Recent history is essentially the history of how the approximately 600 small artisan dairies of the area of origin (that encompasses about nine thousand milk producers) have obtained, by Law, the recognition of their determination in preserving the processing method and the very high qualitative level of the product thanks to precise rules, applied with strict conformity, self-discipline and control. Today like eight hundred years ago Parmigiano Reggiano is the result of a recipe with unrepeatable components: use of milk solely from the area of origin, unchanged artisan production techniques, absolute lack of fermentation inhibitors, colourings, preservatives or similar and natural aging.

In human terms, in addition to the historic relevance of the cheese in the local economy, it should be noted that the complex operation to which Parmigiano-Reggiano is subjected are the fruit of traditional cheese-making techniques established over the centuries in this production area and faithfully handed down as consistent local practices.

2.5. Environmental

In terms of the natural factors involved, particular attention should be draw to the soil characteristics of the land within the defined geographical area, extending from Appenine ridge to the Po, in combination with climate conditions which have a direct influence on both the composition of the natural flora and the specific fermentation characteristics of the product.

The peculiar physical, chemical and microbiological properties of the milk which ensure the specific characteristics and quality of Parmigiano-Reggiano cheese are basically due to the manner in which the dairy cows are fed, on a basis of fodder from the original area, strictly excluding the use of silage of any kind.

The minimum twelve month maturing period, carried out within the geographical area defined by virtue of its specific climatic conditions is a necessary phase in order to ensure that the product obtained from the processing of the milk can acquire, through particular enzymatic processes, the characteristics proper to a Parmigiano-Reggiano cheese.

2.6. Economic aspects

In spite of its widespread renown, Parmesan production was relatively small until the early 1900s, when it expanded dramatically. Facing competition from cheaper imitation products, dairy farmers joined ranks to form the Conzorzio del Formaggio Parmigiano-Reggiano (the Consortium) in 1934. Since that time, the Consortium, which represents the interests of some 409 dairies in an area encompassing around 3,676 milk producers, has actively promoted consumer awareness of the uniqueness of Parmigiano Reggiano. It also plays a key role in upholding the product’s name and defending it against improper use.

- Numbers of dairies: 409
3. **Different varieties of Parmigiano-Reggiano**

3.1. **Description of different varieties of this cheese**

- **Parmigiano-Reggiano**
  The application of the "PARMIGIANO-REGGIANO" mark identifies the cheese that was recognized as being of the first category (first grade - zero - one) during the grade selection test for the conformity to P.D.O. standards. The wheels having the market characteristics of the first category bear marks of origin (the dotted inscription, etc.) and the oval hot iron branded mark.

- **Prima stagionatura**
  This name identifies the Parmigiano-Reggiano cheese that shows limited or medium-sized defects in the mass and/or rind structural texture, which do not affect the typical organoleptic features of the product. Besides the hot iron branded mark, a special mark consisting of parallel lines is stencilled all around the cheese rind. When the cheese has matured for 18 months, the mark Extra or Export can be added.

- **Parmigiano-Reggiano EXTRA**
  It is the Parmigiano-Reggiano cheese that, after 18 months of maturation, has passed an additional quality assessment test upon request of the cheese holder.

- **Parmigiano-Reggiano EXPORT**
  Like the EXTRA mark, it is Parmigiano-Reggiano cheese that, after 18 months of maturation, is classified as "first grade" by the experts of the Consortium.

- **"GRATED" Parmigiano-Reggiano**
  The "Parmigiano-Reggiano" designation can be used to denominate the grated product obtained from whole wheels that comply with the standards established by the Regulation.

To give consumers more and clearer information about the qualities of Parmigiano-Reggiano sold in packs, three stamps are used. These identify the minimum maturity of the cheese in the pack, with three strengths. Use of these stamps by Parmigiano-Reggiano packing companies is optional. The three stamps are:
Matured for more than 18 months lobster-coloured stamp
**Features:** Distinctive milk base, with vegetable notes such as grass, cooked vegetables and at times flowers

Matured for more than 22 months silver stamp
**Features:** The flavour of this cheese is more distinctive, with notes of melted butter, fresh fruit and citrus fruits as well as overtones of dried fruit. The cheese has a balanced mild yet full-flavoured taste, with a crumbly, grainy texture.

Matured for more than 30 months gold stamp
**Features:** This cheese, with the highest nutritional values, has a drier, crumblier and grainier texture. Its strong flavour and notes redolent of spices and dried fruit prevail.

### 3.2. Traceability system

Tracking and tracing along the Parmigiano-Reggiano chain would be an extremely powerful marketing strategy, in order to inform consumers of the origin of both the milk and the cheese made from it. However, this remains an open problem for the chain. In fact, the marking procedure carried out by the Consortium allows tracing the whole chain up to the farmer providing the milk used for each wheel produced. Milk is delivered separately if coming from different farms and it is also kept separate during the processing phase, such that, after 12 months of ripening, when each wheel is officially marked by the Consortium, the mark carries the codes of both the farmer and the processor, together with the quality classification established by the Consortium (a special marking band engraves the month and year of production onto the cheese, as well as its cheese dairy registration number and the unmistakable dotted inscriptions around the complete circumference of the cheese wheel).

Unfortunately, this tracing is lost during the wholesale and retail phases. In fact, since 60% of the product is still sold as whole natural wheels, freshly cut in the sales outlet (either traditional shops or specialty corners in super/hypermarkets), the information on the mark cannot reach the final consumer. Even for the remaining 40% of the final market, where Parmigiano-Reggiano is sold with a specific packaging that can carry consumer information (vacuum packed pieces, snacks and ready grated cheese), the only information that sometimes is available is the processor code, typically if this same processor has also carried out the ripening phase.
3.3. Branding strategies

The first thing to notice is that Parmigiano-Reggiano is increasingly marketed together with Grana Padano. Companies are increasingly widening their product portfolio and diversifying their supply in order to offer retailers a product mix of the two Grana cheeses. Together with this diversification strategy, traders tend to implement a set of product differentiation strategies, which consist in offering quality differentiated cheese (i.e. different ages, different quality categories classified by the consortium, different suppliers), improving packaging, offering different type of products (whole natural, snacks, grated). In addition, they tend to implement specific retail strategies, selling differentiated products in different retail channels, both in different regions of Italy and overseas.

The success of these new marketing strategies by traders crucially depends on the presence of a brand policy, which can be either the brand of the processor or the brand of the ripener/wholesaler. At present, only 40% of Parmigiano-Reggiano sales are in the form of packed products (vacuum packed pieces, snacks, grated cheese), which can carry an additional brand.

4. Description of main sensorial characteristics

<table>
<thead>
<tr>
<th>Sensations</th>
<th>Descriptors</th>
<th>Parmigiano-Reggiano (12 month ageing)</th>
<th>Parmigiano-Reggiano (24 month ageing)</th>
<th>Parmigiano-Reggiano (36 month ageing)</th>
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</thead>
<tbody>
<tr>
<td>Visual</td>
<td>Yellow intensity</td>
<td>Light straw yellow</td>
<td>Intermediary</td>
<td>Straw yellow</td>
</tr>
<tr>
<td></td>
<td>Presence of crystals (tyrosine)</td>
<td>No crystal</td>
<td>A medium quantity</td>
<td>A plenty quantity</td>
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<tr>
<td></td>
<td>Attractiveness</td>
<td>Attractive</td>
<td>Attractive</td>
<td>Very attractive</td>
</tr>
<tr>
<td>Olfactive</td>
<td>Intensity</td>
<td>Medium</td>
<td>Medium</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
<td>Fresh fruit</td>
<td>Melon</td>
<td>Melon, pineapple, citrus</td>
<td>Melon, pineapple</td>
</tr>
<tr>
<td></td>
<td>Dry fruit</td>
<td>Hazelnut</td>
<td>Almond, nuts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Floral</td>
<td>Yellow flowers</td>
<td>Yellow flowers</td>
<td>Roses</td>
</tr>
<tr>
<td></td>
<td>Dry vegetable</td>
<td>Hay</td>
<td>Hay, grass</td>
<td>Hay, grass</td>
</tr>
<tr>
<td></td>
<td>Cave</td>
<td>Mold</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spice</td>
<td>Nutmeg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lactic</td>
<td>Butter, milk, yogurt</td>
<td>Melt butter, milk</td>
<td>Butter, cream</td>
</tr>
<tr>
<td>Animal</td>
<td>Cow</td>
<td>Cow</td>
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<tr>
<td>Abnormal</td>
<td>Ammoniac</td>
<td>Ammoniac</td>
<td>Ammoniac</td>
<td></td>
</tr>
<tr>
<td>Pleasure</td>
<td>High</td>
<td>High</td>
<td>High</td>
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<thead>
<tr>
<th>Taste/Tactile</th>
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<tbody>
<tr>
<td>Salt</td>
<td>Medium intense</td>
<td>Medium intense</td>
<td>More intense</td>
</tr>
<tr>
<td>Acid</td>
<td>More acid</td>
<td>Less acid</td>
<td></td>
</tr>
<tr>
<td>Pungent</td>
<td></td>
<td>A little pungent</td>
<td></td>
</tr>
<tr>
<td>Umami</td>
<td>Medium intense</td>
<td>Medium intense</td>
<td>More intense</td>
</tr>
<tr>
<td>Bitter</td>
<td>A little bitter</td>
<td>A little bitter</td>
<td>A little bitter</td>
</tr>
<tr>
<td>Texture</td>
<td>Humid, grainy, softer</td>
<td>Intermediary</td>
<td>Grainy, soluble, crumbly, dry</td>
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<tr>
<td>Pleasure</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Balance</td>
<td>Good</td>
<td>Good</td>
<td>Great</td>
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<tr>
<th>Retrolfactive</th>
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<tbody>
<tr>
<td>Persistence</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Fruit</td>
<td>Melon</td>
<td>Lemon, pineapple</td>
<td>Melon, lemon</td>
</tr>
<tr>
<td>Vegetable</td>
<td>Herbs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lactic</td>
<td>Milk, butter</td>
<td>Milk, butter, yogurt</td>
<td>Butter, cream</td>
</tr>
<tr>
<td>Spice</td>
<td></td>
<td></td>
<td>Nutmeg</td>
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<tr>
<td>Abnormal</td>
<td>Ammoniac</td>
<td>Ammoniac</td>
<td>Ammoniac</td>
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<tr>
<td>Hedonic pleasure</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
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5. SWOT analysis

**Strengths**
- Consumer perception of high quality
- Product differentiation in terms of packaging
- International reputation
- Distinctive intrinsic quality

**Weakness**
- Fragmentation of the production
- Poor brand positioning
- Few processors carrying out the ripening phase
- Significantly higher prices for Parmigiano-Reggiano, which stimulates massive promotions by both wholesalers and retailers that penalize Parmigiano-Reggiano
- one of the most imitated agricultural products in the world
<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increasing popularity of Mediterranean and Italian food</td>
<td>• Modern retailers Private Label competition</td>
</tr>
<tr>
<td>• reputation of the PR brand all over the world</td>
<td>• Increase in food consumption away from home and related substitution of Parmigiano</td>
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<tr>
<td>• Increasing consumer awareness of PDO recognition and PDO product characteristics</td>
<td>Reggiano with cheaper products</td>
</tr>
<tr>
<td>• Increasing efficiency of the Consortium in preventing fraudulent imitation both on the Italian and the international markets</td>
<td>• better chain organization of Grana Padano</td>
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</tbody>
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6. References


Specification of the parmigiano reggiano cheese - parmigiano reggiano cheese production standards – August 29th 2011


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370879141?&recordStart=0&filter.dossierNumber=&filter.comboName=Parmigiano%20reggiano&filterMin.milestone__mask=&filterMin.milestone=&filterMax.milestone__mask=&filterMax.milestone=&filter.country=&filter.category=&filter.type=&filter.status= (30/01/2012)