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### TYPES AND COMPONENTS OF CHEESES PRODUCED IN THE WORLD

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At the end of 2013, the EU definitively ratified the conclusion of the milk quota regime as of 31 March 2015, introducing the so-called "Milk Package" which contains specific measures for stabilizing the market and defending producers' income [1-2].

Overall, the salable quantity of milk produced in Emilia-Romagna, which between 2007 and 2009 had undergone the sharpest downsizing since the beginning of this decade, after a modest recovery in 2010 showed a decidedly expansive trend in 2011 and 2012, followed by a modest retreat in 2013, which did not prevent a +6.5% compared to 2008. The use of Parmigiano Reggiano™, which absorbs 85% of the regional cow's milk, has grown even more markedly, as well as the quantity of cheese produced, reaching +14.9% in the five-year period 2008-2013 [2].

Table 1 Milk collected from farms by the dairy industry by type (quantity in quintals) year 2013

Cow's milk	Sheep's milk	Goat milk	Buffalo milk	Total
24.299.083	9.894	780	2.814	24.312.571

#### Types of cheese

Drawing inspiration from the above definitions, it seems appropriate to briefly describe the different types of transformation of milk into cheese that can be produced in a dairy. Each of them corresponds to a different process, the use of its own equipment and systems and the presence of more or less specific risk factors.

Based on the raw material and its treatments, the semi-finished products, the type of processing and the resulting finished product, cheeses can be classified according to at least eight criteria [3].

Table 2 Types of cheese according to the preparation process

№	According to the preparation process	Types of cheeses
		• Cow's milk cheeses

1	Depending on the type of milk used, you will have	• Pecorino cheeses from pecorino milk
		• Goat's cheeses from goat's milk
		• Buffalo cheeses from buffalo milk
		• Mixed cheeses when they are produced with mixtures of milk types
2	Based on the heat treatment of the milk you will have	• Raw milk cheeses
		• Pasteurized milk cheeses.
3	Based on the fat content you will have	• Fat cheeses
		• Semi-fat cheeses
		• Light cheeses
		• Low-fat cheeses
4	Depending on the consistency of the paste, you will have	• Soft cheeses
		• Semi-hard cheeses
		• Hard cheeses
		• Raw cheeses
		• Semi-cooked cheeses
		• Cooked cheeses
5	Based on the manufacturing process of the paste, you will have	• Blue-veined cheeses
		• Stretched-curd cheeses
		• Pressed-curd cheeses
		• Melted curd cheeses
6	Depending on the type of rind, you will have	• Bloomy rind cheeses
		• Washed rind cheeses
		• Smoked cheeses
7	Based on the cheese's maturing times, you will have	• Fresh cheeses
		• Medium-mature cheeses
		• Slow-maturing cheeses

### Milk – Thermal Treatments

The milk may undergo an initial heat treatment or not: we therefore speak of "pasteurized milk" cheeses or "raw milk" cheeses [2-3].

Pasteurized milk cheeses. Cheese is made from pasteurized milk if it has undergone the heat treatment of pasteurization. In this case the milk is heated to 72°C for 15 seconds. The effect is to eliminate any pathogenic bacteria and of reduce microflora (both caseophilic and harmful). In these cases, seeding by grafting or starter is necessary. Pasteurization is typically used in fresh and soft cheeses. A pasteurized milk cheese is Gorgonzola [4-5].

Raw milk cheeses. The raw milk is sent to the initial phases of rest and/or acidification at a temperature of about 38°C which is similar to that of milking. In this case, the positive bacterial microflora of the milk is kept unchanged with specific effects on the organoleptic characteristics of the cheese. Usually, raw milk

cheeses undergo the cooking of the paste. A raw milk cheese is Parmigiano Reggiano and it is typical of slowly matured hard cheeses but also of the numerous medium-aged mountain pasture or alpine pasture cheeses (formagelle, robiola, stracchini, tome, etc.) [6-7].

#### Milk – Fat Content

The percentage of fat in the cheese varies according to the type of milk used and the type of skimming it is subjected to. The cheeses are then differentiated into fat cheeses, semi-fat cheeses and low-fat cheeses, although the percentage of fat is always at least 20%. The percentage of fat also varies according to the origin of the milk: buffalo and sheep's milk are generally fatter than cow's or goat's milk [6].

**Fat cheeses** Fat or whole milk cheeses are those cheeses such as Dolomiti or Casolet, whose fat content is higher than 42%. They are the cheeses with the highest amount of lipids.

**Semi-fat cheeses.** Semi-fat cheeses are those cheeses such as Asiago whose fat content is generally between 35% and 42%. Usually produced in mountainous areas, they provide for the partial skimming of the milk used for production [5-7].

**Light cheeses.** Light cheeses are those cheeses such as Quark, whose fat content is generally between 20% and 35%. Fresh cheeses and hard cheeses with significant skimming fall into this category, however rather limited in terms of types present [7-8].

**Low-fat cheeses.** Low-fat cheeses are those cheeses with a fat content of less than 20%. There are very few low-fat cheeses since producing a cheese means, in a very simplistic way, concentrating the fat contained in the milk by dehydrating it. There are various types of cheeses on the market defined as low-fat which are subjected to a further skimming process during processing, however this process tends to impoverish the taste of the cheese. In reality, most of the dairy products that can be legally classified as low-fat are dairy products and not cheeses (for example, fresh and skimmed ricotta).

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