



CHEESES, BUTTERS, CREAMS

P.D.O.
THE BEST PROOF OF
AUTHENTICITY

INFORMATION PACK



45 CHEESES, 3 BUTTERS, 2 CREAMS.



CHEESES, BUTTERS, CREAMS

P.D.O.
THE BEST PROOF OF
AUTHENTICITY

GUARANTEE OF ORIGIN

SAFEGUARDING KNOW-HOW

CONTRIBUTION TO LOCAL ECONOMIES

DIVERSITY OF FLAVOURS

COLLECTIVE APPLICATION BY PRODUCERS AND CHEESE-MAKERS

PDO CHEESE, BUTTER AND CREAM PRODUCERS

The crux of the matter...

In France, 45 cheeses, 3 butters and 2 creams have been awarded Protected Designation of Origin (PDO).

This official mark of quality is identified by its red and yellow logo. Only the authorities can grant a PDO, and they do so only as a result of an application submitted collectively by a group of producers under a federative structure known as an «Organisme de Défense et de Gestion» (ODG – defence and management body).

The PDO guarantees consumers that the product has been produced entirely within the designated geographical region, from the production of the milk through to the ripening of the cheese. The products produced under the PDO draw their authenticity and distinct character from the natural factors and human capital in their geographical area¹. The production conditions for each PDO are laid down in specifications validated by the government. These are monitored regularly by independent bodies. For complete transparency, this information is available to consumers at www.inao.gouv.fr.

Cheese, butter and cream PDOs guarantee authentic, high-quality products that have been manufactured with due regard to the environment and animal welfare. The PDO sector is dynamic. It safeguards jobs in rural areas and in particular disadvantaged agricultural areas (mountains, piedmont and intermediate zones, etc.).

Clearly, by definition, a PDO cannot be delocalised. A PDO is owned collectively, and is based around people and their expertise.

The PDO sector also deploys resources in research and innovation to reinforce methods and develop products sustainably. And how could it do otherwise? **A PDO draws its identity from a terroir*. It has no future unless it safeguards this same terroir* for future generations.**

Key figures

1 strictly defined origin for each PDO, which can be recognised by the red and yellow logo which proves its authenticity.

Dairy PDOs sustain **2.8** direct jobs for every 100,000L of milk processed. Across the French dairy industry as a whole, the figure is 1 job per 100,000L.

France has **50** dairy PDOs: 45 cheeses, 3 butters and 2 creams.

54% of PDOs are located in less-favoured farming areas, meaning that they help challenging geographical areas to produce economic value.

92% of French people eat PDO cheeses, butters or creams.

430 processing or ripening facilities are involved in producing PDO dairy products.

The first cheese Designation of Origin was obtained for Roquefort in **1925**. It later became a Controlled Designation of Origin and then a Protected Designation of Origin.

Each year, more than **6,200** PDO specification audits are carried out at farms producing milk and facilities producing and ripening cheese.

In France, **18,000** dairy farms are involved in producing PDO products.

In 2014, **233,018 tonnes** of French PDO cheeses, butters and creams were sold.

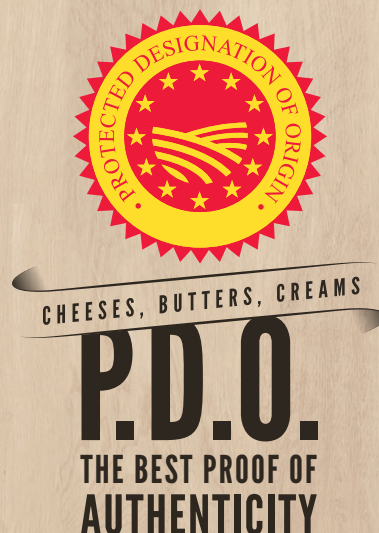
In 2014, PDO cheese, butter and cream sales by manufacturers and ripeners were worth **€1.8 billion**.

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PDO, THE MOST FINEST PROOF OF AUTHENTICITY



For a Protected Designation of Origin product, every stage of the manufacturing process, from farm to fork, is carried out using recognised know-how within a single geographical area. This is what gives the product its characteristics¹. PDO is an official mark of quality awarded by the authorities, following an application submitted collectively by a group of producers under a federative structure known as an «Organisme de Défense et de Gestion» (ODG - defence and management body).

PDOs, OFFER STRONG GUARANTEES AND EFFECTIVE PROTECTION

- **All stages of production take place** within the production area (milk production, processing and ripening). This is the key guarantee of a PDO.
- **Protection against copycats.** A product with a designation of origin cannot be copied! For example, a cheese cannot be called Reblochon unless it is produced under the PDO. Similarly, all Cantal is PDO, and so on, there's no alternative!
- **Safeguarding know-how.** Because PDO products cannot be produced by just anyone, using any old method, each and

every stage in their manufacture is carefully laid down in the specifications and strictly controlled by an independent certification body.

- **Contribution to local economies.** PDOs stimulate economic activity, often in regions where farming is challenging.
- **Complete transparency.** With a PDO product, nothing is hidden. Every last detail is set out in black and white in the specifications.
- **Diversity of flavours.** When you choose a PDO cheese, butter or cream, you select one of fifty very different products, with tastes as varied as the people and terroirs* that produce them. With PDO products, flavours are anything but standardised!

PRODUCTION AREAS FOR THE 50 PDOS

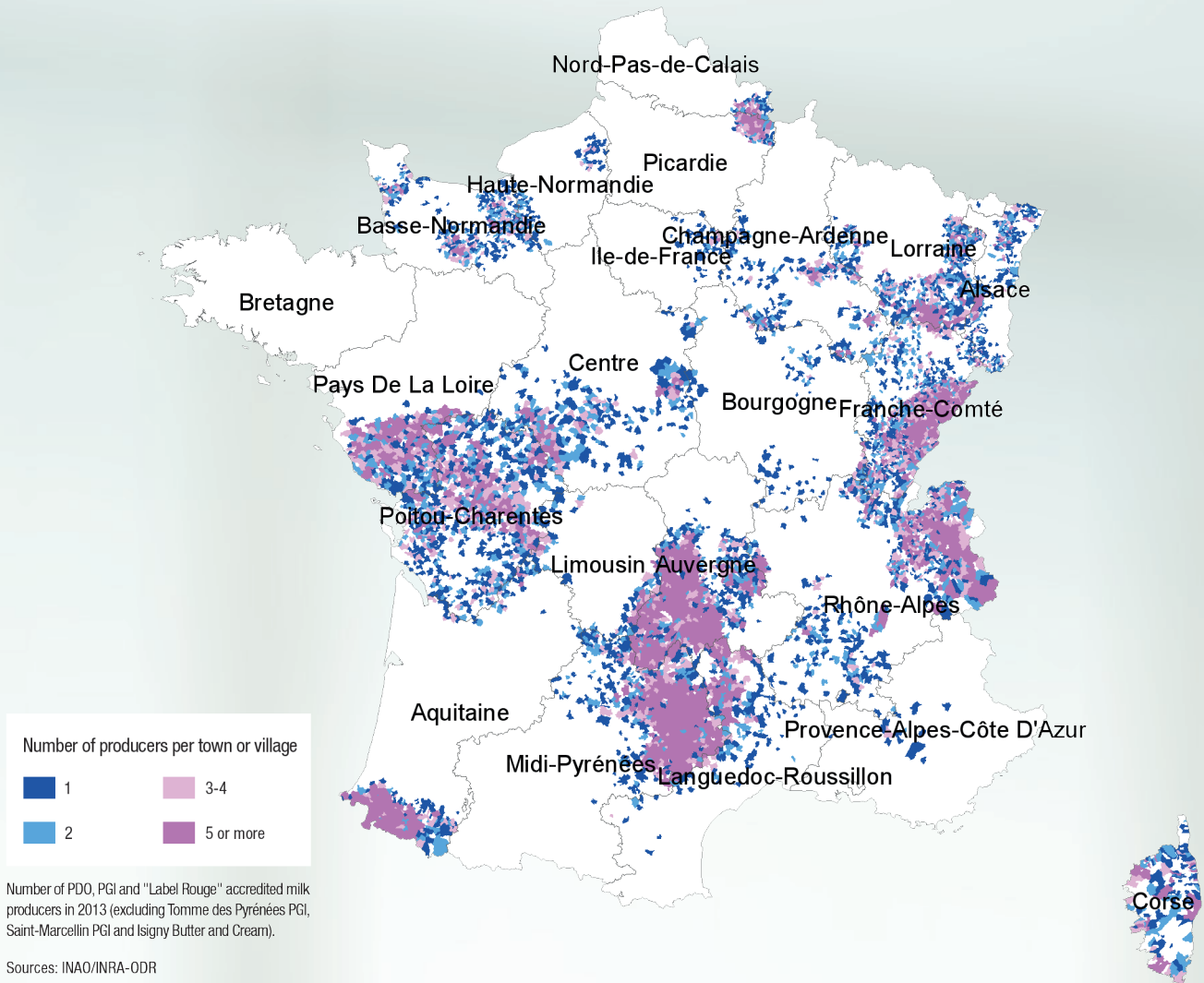


1925

The first cheese Designation of Origin was obtained for Roquefort in 1925. So as far back as the 1920s, preserving our gastronomic heritage and guaranteeing to the consumer that their cheese came from a specific geographical area was considered important.

KEY PDO STATISTICS

ACCREDITED MILK PRODUCERS



NUMEROUS SECTORS ARE INVOLVED IN PDO PRODUCTION APPLICATIONS

The designation of origin concept originated in France, notably thanks to the efforts of the wine-growing sector from 1935 onwards. The country is Europe's cheese, butter and cream PDO leader in numerical terms with 50 PDOs registered, just ahead of Italy, with 48.

Behind these 50 PDOs are 20,300 milk producers and 430 processing and ripening workshops which keep the products flowing day to day. A high percentage of French milk producers are committed to at least one set of PDO specifications: 22% of dairy cow farmers, 96% of dairy sheep farmers and 46% of goat farmers. In total, 800,580 cows, 1,532,000 sheeps and 583,000 goats are farmed in compliance with PDO specifications.

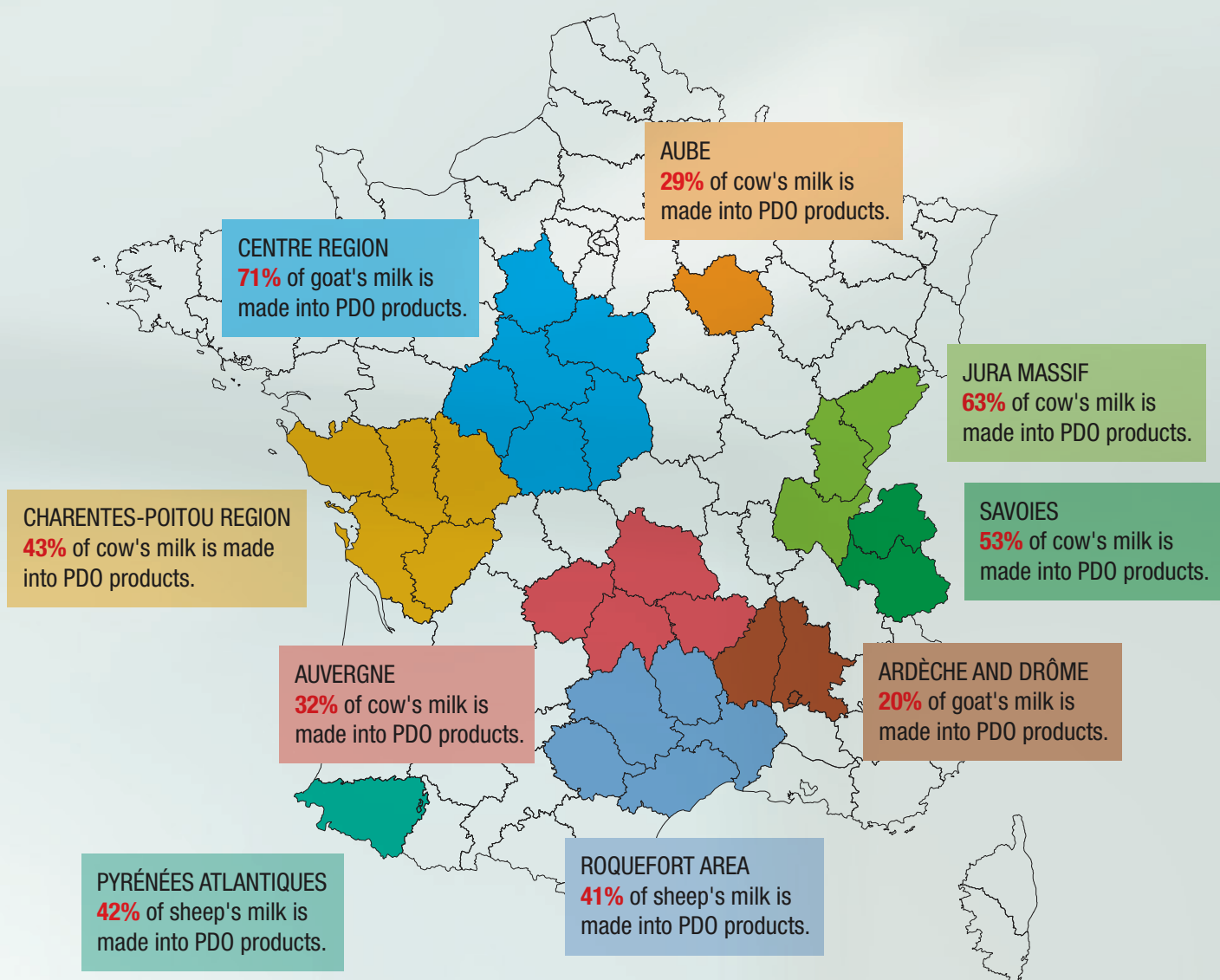
45 cheeses, **3** butters, **2** creams.

18,000 milk producers, 1,290 of whom make farmhouse products.²

430 processing and ripening workshops.²

225,618 tonnes of cheese, butter and cream sold, of which 74.8% are made with raw milk and 8.3% are farmhouse produced.³

74% of raw-milk matured cheeses are PDO products.³



A STRONG SECTOR OF THE ECONOMY IN THE VARIOUS REGIONS

In France, the proportion of milk collected used to produce PDO dairy products is 9.6% for cow's milk (2,347m litres), 12.3% for goat's milk (56m litres) and 38.9% for sheep's milk (101m litres). In some regions, particularly where an area specialises in a PDO, the percentages can be much higher. So, in the Jura massif, 63% of cow's milk is used to make PDO products. In the Savoies, the figure is around 53%.

Looking at goat's milk, 71% of production in the Centre region is used to make PDO products. In areas where sheep's milk dominates, the Pyrénées Atlantiques and the Roquefort zone, 42% and 41% respectively of milk is used to produce PDOs.

It is clear that the dairy industry in these zones depends heavily on

PDO products, although selling 100% of the milk produced in an economic necessity for farmers.



THE IMPORTANCE OF PDO CHEESES, BUTTERS AND CREAMS IN THE ECONOMY

DAIRY PDOS DRIVING THE ECONOMY IN THE REGIONS

PDO cheeses, creams and butters are important economic drivers in the regions where they are produced. They generate direct jobs on the farms and in the workshops where the cheese is manufactured and matured. The specific know-how and production conditions required by PDOs generate 2.8 times more direct jobs per litre of milk produced than France's dairy industry as a whole. To this must be added indirect and induced jobs, such as services to farmers, technical institutes, laboratories and tradespeople. For each direct agricultural job, 5 jobs are estimated to be induced.⁷

These jobs are due to the specific production conditions for PDOs, which are more labour-intensive, the additional value created and the more balanced spread of jobs across the sectors. On average, PDO milk is worth 20% more than conventional milk⁸ and in the majority of cases, GlS* command a price premium⁹ which pays for the specific conditions required to achieve them. PDOs increase

the attractiveness of production areas, with farm creation and business set-up strategies directly linked to the presence of the PDO. Lastly, it has been proved that PDOs have an ability to slow down economic restructuring (more small production facilities survive and less businesses close), thereby helping preserve the fabric of agriculture and the food industry.

Factory gate sales of PDO dairy products amounted to €1.8bn in 2014. This represents 11% of French dairy company sales (and 25% of sales of «matured cheeses»¹⁰). With market sales worth over €2.6bn, PDO products are important to the retailers who sell them, and especially to the country's 3,200 cheesemongers. For 72% of them, PDO products account for over half of sales by value.¹¹ At 13,400 tonnes, export represents 6% of total production. The PDO export niche is thriving, as the products are the flagships of French gastronomic expertise across the world.

THE ECONOMIC IMPORTANCE OF PDO/PGI CHEESES IN THE EU

As of 30 September 2015, there were 186 PDO cheeses registered in Europe. When first sold under their respective labels, PDO and PGI cheeses achieved sales of €6,307bn, and accounted for 10% of total European cheese production by volume in 2010. Between them, just three countries – Italy, France and Greece – produce a large proportion of the cheeses sold under Geographical Indication labels: 90% by volume and 88% by value. With sales estimated at €1.57bn, France is the second-largest producer of cheeses sold under GlS*, after Italy with €3.43bn. French Gl* cheeses are the fourth-largest group of Gl* products by value (10% of the total value of GlS* excluding wine) after Italian cheeses (22%), German beers (14%) and Italian meat products (12%)¹².

€1.6bn the value of PDO cheese sales, equal to 25% of the total value of dairy company cheese sales.⁴

2.8 direct jobs per 100,000L of milk processed, compared to 1 job per 100,000L for the French dairy industry as a whole.⁵

13,000 processing and ripening jobs.⁵

45,000 jobs on dairy farms.⁵

13,400 tonnes of PDO dairy products exported (including 11,700 tonnes of cheeses).⁶

THE PDO MARKET AND CONSUMERS

92% of French households eat PDO dairy products at least once a year.¹³

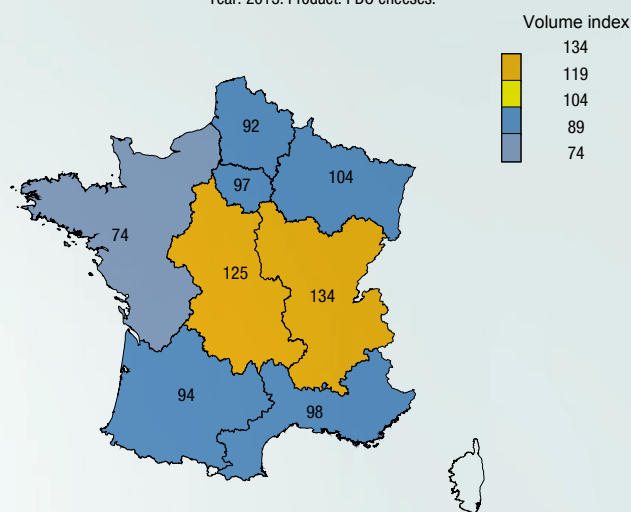
€13.84 : the average price per kilo paid by the consumer for PDO cheeses.¹⁴

4.3kg : the average quantity of PDO cheese purchased per household (all channels, excluding food service).¹³

STRUCTURE OF FRENCH PDO MARKET¹⁴

PURCHASES PER HOUSEHOLD BY VOLUME REGIONAL INDICES

Year: 2013. Product: PDO cheeses.



Just like non-PDO cheeses, most PDO cheeses are purchased in hypermarkets and supermarkets (71% and 68% of market share respectively). Nevertheless, there are some important distinctions: PDO cheeses have a stronger presence in specialist channels such as cheesemongers, direct sales and markets (11,9% compared to 3.9%). Conversely, they have a weaker presence in grocery discounters (12.5% compared to 15.9%). They are generally more popular in the regions where they are produced. The other specificity of PDO cheeses in hypermarkets, supermarkets and grocery discounters is their place on the cheese counter, where PDO cheeses produce proportionally five times as many sales (as a percentage of total sales) as their non-PDO counterparts (40% for PDO cheeses vs 8% for non-PDO cheeses).

Although almost all French households (92%) consume PDO products, buying an average of 4.3kg per household, there is a definite revenue and life cycle effect favouring their consumption. As a general rule, the heaviest consumers of PDO cheeses come from the higher socio-economic classes and the middle to senior age groups. Households without children or with children aged 11 to 24 also buy more of them than other families.

PDO LOGO RECOGNITION WOULD BENEFIT FROM A BOOST

In France, the PDO logo achieves an aided recognition score of 23% with people aged 15 and over. Consequently, there is ample scope to increase awareness of this official

mark of quality to guide consumers in their buying decisions. Nevertheless, awareness in France is higher than the European Union average of around 14 – 15%. PDO is however an advantage for those seeking access to the market, as retailers are specifically looking for products from this segment. PDO cheeses also boost sales for cheesemongers, as they are able to sell other types of product alongside them.⁸

23% : PDO logo aided recognition score, people aged 15 and over in France.¹⁶

91% of consumers mostly or completely trust PDO products.¹⁷

PDOS AND LOCAL AREAS

BY DEFINITION, PDO PRODUCTS HAVE STRONG LOCAL ROOTS*

Dairy PDOs represent an economic activity that cannot be delocalised, par excellence. By definition, they are required to be produced within a specific terroir*, and cannot be made anywhere else! Consequently, the sectors that produce them develop very strong local roots, and become stakeholders in the local economy, helping it prosper. The 50 dairy PDOs play an active role in local culture: all production areas offer visits and direct sales outlets for almost all PDOs, 337 stops on 7 regional «cheese routes» visited by

700,000 people and 26 annual cheese festivals, as well as taking part in over 350 local festivals and a host of other events. They offer a local network of sales outlets for local people and constitute a tourist attraction for visitors. What is more, tourist offices, departments and regions have recognised their importance. Over 34 dairy PDOs promote their products via such structures, which have a vocation to champion the local area and its heritage.

Dairy PDOs are often located in difficult-to-farm areas, and are a great way to derive value from challenging land. As such, 54% of the 12 million hectares of UAA* covered by PDOs is located in less-favoured areas (23% of UAA* in mountain areas, 4% in piedmont areas and 27% in simple less-favoured areas). Of milk produced in mountain areas, 30% is used to produce PDO cheeses, 28 of which are located in terroirs* wholly or partly situated in mountain areas.



54% of the 12 million hectares of Utilisable Agricultural Area covered by PDOs are located in less-favoured areas.¹⁸

41 PDOs lie wholly or partly across a regional nature park or national park.¹⁸

70% of milk for PDO cow's milk cheeses comes from mountain areas.¹⁸

100% of dairy PDOs welcome visitors (to farms and/or dairies).¹⁸

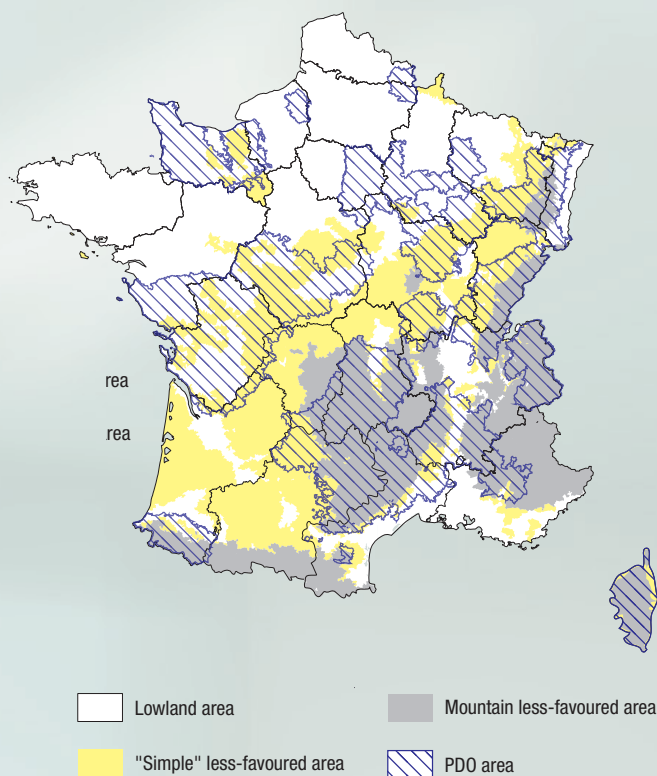
97% sell their products directly.¹⁸

IMPORTANT HERITAGE

Landscapes are an essential element of a region's identity. As the main users of rural areas, farmers play an essential role in the creation, maintenance and upkeep of our varied landscapes. Consequently, by the methods they specify, PDOs make a direct contribution to the upkeep of emblematic landscapes including orchards and meadows in Normandy, mountain pastures in Savoie and the Pyrenees, grassy plateaux in the Massif Central and grasslands in the Jura. It is not surprising therefore that 41 PDOs lie wholly or partly across a regional nature park or national park (a total of 14% of the UAA* is situated in regional nature parks).

Maintaining these methods is also important for nature and biodiversity, as 43% of UAA* in PDO zones lies within a Natura 2000 area. The PDO sector also has a direct impact on biodiversity in terms of animal breeds, as in 60% of cases specifications require given breeds. These include 19 native breeds, 4 rare breeds and 2 very rare breeds. PDOs also safeguard microbe biodiversity, which is kept alive by processing know-how, in particular cheeses made from raw milk.

LESS-FAVOURED FARMING AREAS



PDOS AND THE ENVIRONMENT

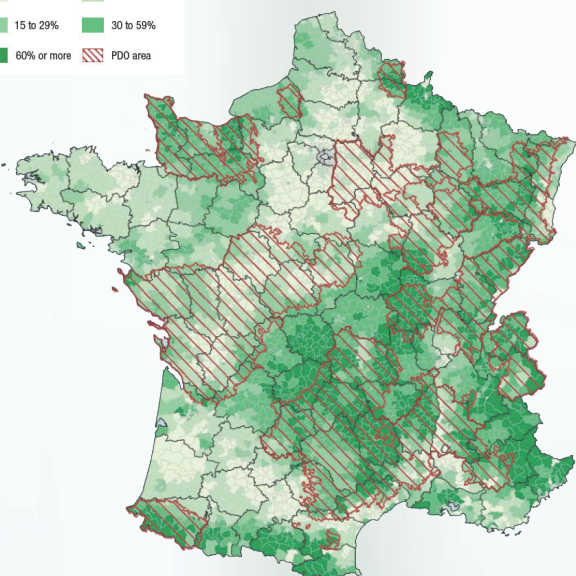


THE IMPORTANCE OF GRASS

Grass plays an important role in the specifications of 80% of PDOs in the form of, for example, a minimum proportion of the animal's feed ration or a minimum grazing period.

Beyond the well-documented differences it creates between cheeses on a sensory level, grass also has a number of other well-recognised benefits: it contributes to the mosaic of the landscape, supports insects in its flowered grasslands, regulates the environment in a number of ways (by filtering water, limiting soil erosion, controlling biological invasions and resisting disruptive and extreme weather conditions), constitutes a refuge for biodiversity and contributes to carbon sequestration, etc. Research estimates the non-market value of ecological services provided by grasslands at €600 per hectare per year. This covers regulation services (carbon sequestration, water filtration, pollination and cultural services including landscape amenities), excluding production services. Calculating this figure for the permanent grassland in PDO geographical areas gives a total of €2,583m of eco-systemic services²⁰.

PROPORTION OF PERMANENT GRASSLAND (PG) IN UTILISABLE AGRICULTURAL AREA (UAA*) IN 2010



Source: agricultural census 2010

FOOD SELF-SUFFICIENCY & LINKS TO THE TERROIR*

In all PDOs, links to the terroir* mean that cows, goats and sheep must be fed mainly on feed originating from within the designated origin area. Consequently, for dairy PDOs, 70 to 100% of the fodder ration must originate from within the geographical area. Often, farms must be self-sufficient. A number of innovative experiments²¹ have been set up in various geographical areas between cereal and livestock farmers, and sometimes involving feed manufacturers, to set up supply chains specific to the geographical area. These have led to transport cost savings, more local supply and improved traceability. They are an example of win-win partnerships within the local economy.

CONSTANT INNOVATION

TO REDUCE THE IMPACT OF THE PDO SECTOR

In the PDO sector, savings and ecology always go hand-in-hand. Efforts are therefore continuing to identify the areas which consume the most energy, water, external inputs, etc. A wide range of solutions have been put in place: milk pre-coolers for milking operations, energy audits, heat recovery systems for milk tanks, solar hot water production, improved feed and concentrate self-sufficiency, optimisation of grass usage, optimisation of collection rounds, wood-fuelled boilers, etc. The PDO sector is innovating continually to reduce its environmental impact.

Over **80%** of PDOs include a high proportion of grass-fed milk in their specifications.

100% of PDOs require at least 50% of the herd's daily feed ration to come from within the geographical area.

500kg of carbon per hectare per year : net quantity of carbon sequestered by permanent grasslands.

€600 per hectare per year : non-market value of ecological services provided by grasslands.¹⁹

PDO FARMS & GREENHOUSE GASES

Livestock farming is the only sector which helps reduce greenhouse gas emissions through the way it functions, as carbon is sequestered in grassland soils and in hedges. Let us take grassland as an example. It sequesters an estimated 0.5 tonnes net of carbon per hectare per year, the equivalent of 1.83 tonnes of CO₂¹⁹. A hedge sequesters 152kg per linear metre per year, the equivalent of 460kg of CO₂²³.

Consequently, depending on the proportion of grass used, dairy farms compensate 5 to 30% of their GHG* emissions²³ through

carbon sequestration. Because the specifications place a strong emphasis on grass, the data for PDO production is particularly advantageous. A life cycle analysis for Epoisses cheese has shown that carbon sequestration in grasslands compensates 24% of emissions, making net GHG* emissions 0.84kg CO₂ equivalent per litre of milk²⁴. For French farms overall, the net footprint varies from 0.8 to 1.1kg CO₂ equivalent²³. Research into reducing GHG emissions has also been conducted in dairies, and the results are sometimes surprising. For example, in addition to their technological qualities, the wooden boards on which cheeses stand as they ripen sequester large quantities of carbon. Moreover, the environmental impact of milk must be considered relative to its high nutritional value²⁵. In terms of nutritional quality, dairy products have few substitutes.

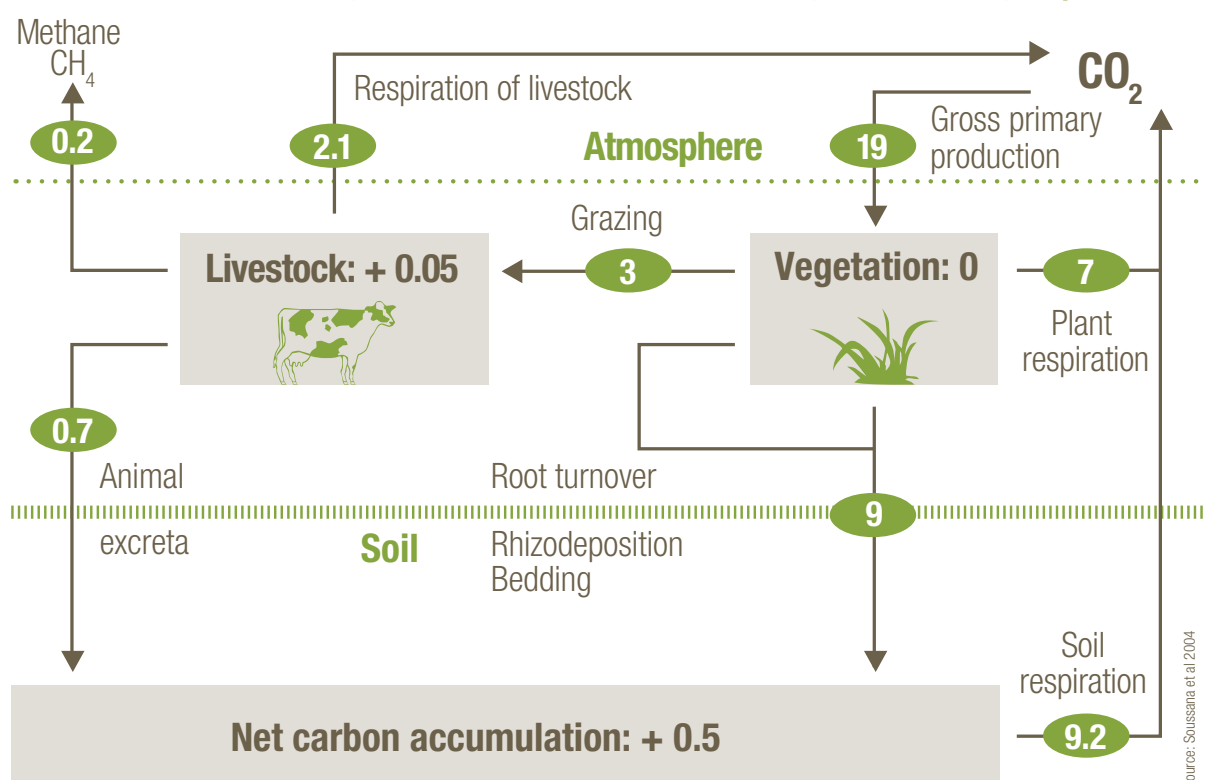
CARBON SEQUESTRATION UNDER GRASSLANDS HOW DOES IT WORK?

Grasslands fix atmospheric CO₂ through photosynthesis. A high proportion of the carbon sequestered then accumulates in the soil. For pastures, a proportion of the CO₂ fixed by the plants is returned to the atmosphere through respiration after the animals have consumed the fodder. A small amount is lost

as methane, and a final part is returned to the soil in the animals' faeces (directly when grazing or as manure). In parallel, a large amount of carbon is returned to the soil as organic matter when leaves decompose, roots are renewed, etc.

The difference between the quantities provided to the soil and rejected in the atmosphere (CO₂ from respiration and methane) is the net quantity of carbon stocked in the soil. Let us take grassland as an example. It sequesters an estimated 0.5 tonnes of carbon per hectare, the equivalent of 1.83 tonnes of CO₂. We use the term «carbon sink».

Carbon flows for pasture (in tonnes of carbon per hectare per year)



Source: Soussana et al 2004

PDOS AND KNOW-HOW

100% of PDO specifications require specific and collective know-how.

COLLECTIVE KNOW-HOW

In contrast to private quality marks, PDOs provide official recognition of collective know-how. There are no secret recipes or unknown ingredients here – a PDO recognises a product which is different thanks to the material and non-material know-how used to make it; know-how which is shared by all operators and governed by specifications.

The cheesemaking know-how of France's various regions has been formed from the inventive ways to process and store milk developed in local areas. It reflects the need to adapt to a raw material which is by its very essence variable: non-standardised milk, the composition of which varies day by day and season by season.

LIVING KNOW-HOW

From the farmer to the ripener, all the links in the chain have their own highly technical know-how: optimising grazing according to the growth stage of the grass, controlling the health qualities of milk while encouraging the development of the flora required by the cheese-maker, matching processing choices to the characteristics of the day's milk, adapting the ripening process to the potential of each cheese, etc. Professionals practising these honourable crafts work constantly to hone their long-standing and complex know-how.

THE SECTORS INVEST IN RESEARCH, INNOVATION AND TRAINING

Authenticity and progress are not mutually exclusive. Dairy PDOs have long invested in research and innovation to facilitate the work of operators, improve product quality and safety and develop a better understanding of factors related to the terroir*, among other aims. Naturally though, the traditional methods which make the products so special remain sacrosanct! Striking a delicate balance between tradition and modernity is a permanent challenge for PDOs.

Since 2008, CNAOL has organised the «Cheese and Terroirs*» combined technological network (www.rmtfromagesdeterroirs.com). This network is an interface between research, education and the PDO cheese sector. It initiates research on subjects of major importance for the future of the sector: managing milk and cheese microbe ecosystems, maintaining specific know-how and developing resources; sustaining sectors in their local areas and keeping both them and farms in business; boosting the social acceptability of sectors, etc.

On a regular basis, PDO sectors also work directly with research and development bodies such as INRA*, ENIL*, regional research clusters, universities, the livestock farming institute and Actalia. To transfer knowledge to operators, 89% of ODGs* (defence and management bodies) also provide training and technical support to their members. Knowledge about terroir* cheese production is also communicated to the institutions which train the farmers and cheese-makers of the future. It is vital to pass knowledge down to future generations if PDO production is to survive long-term.

réseau
Fromages de Terroirs



THE HEALTH BENEFITS OF PDO CHEESES

Cheeses are the quintessential natural food, made of the simplest ingredients: milk, rennet, salt and lactic cultures. In addition, the production process for a PDO cheese is generally defined in the specifications, making it available and transparent for all consumers.



FEW SUBSTITUTES IN TERMS OF NUTRITIONAL QUALITY

Dairy products (cheese, milk and yoghurt) are one of the seven reference food groups. They are essential to health. Cheeses provide the largest amounts of calcium and phosphorus. They are also rich in zinc, retinol and vitamin B12.

Additionally, they are sources of vitamins B2 and B9 and iodine, among other nutrients. They constitute a high-quality source of protein, thanks to their digestibility (> 95%) and their particularly well balanced essential amino acid composition²⁵.

THEY CONTAIN FAT! YES, BUT...

Dairy fat has particular nutritional benefits. It is very diverse, containing over 400 different fatty acids, and provides Saturated Fatty Acids (SFAs*) including good short – and medium – chain SFAs. The place of these SFAs in the diet has been entirely re-established in the reference intakes recommended by the AFSSA* (French agency for food safety). Dairy fat also contains 30% monounsaturated fatty acids and 3 to 4% polyunsaturated fatty acids, with a highly favourable $\omega 6$ to $\omega 3$ ratio²⁶.

Unlike the fatty acids transformed via industrial processes to partially hydrogenate oils (the fatty acids found in some bakery products and ready meals), the trans fatty acids in dairy products do not have any negative effects on cardiovascular health²⁷ at the consumption levels seen in France.

CHEESE FLORA SUPPORTS IMMUNE SYSTEMS

Cheese flora contain a wide variety of microbe species – 300 species of bacteria and 70 species of yeast have been identified in raw milk alone!²⁸ Thanks to this diversity, cheese flora may interact favourably with gut microbiota, producing beneficial changes²⁹. This microbial diversity is a function both of the flora in milk (which is richer when products are manufactured from raw milk, as is the case for 74.5% of PDO cheeses) and of the traditional methods used²⁸. The very rich and specific flora of PDO cheeses are what makes them so delicious, as they are the main sources of the aromas and flavours that develop in the cheeses.

The raw milk's microbial flora is also capable of protecting cheeses from pathogen contamination. It has been demonstrated that the traditional wooden equipment used in processing certain PDOs is protected by complex biofilms, again limiting pathogen contamination.²⁸

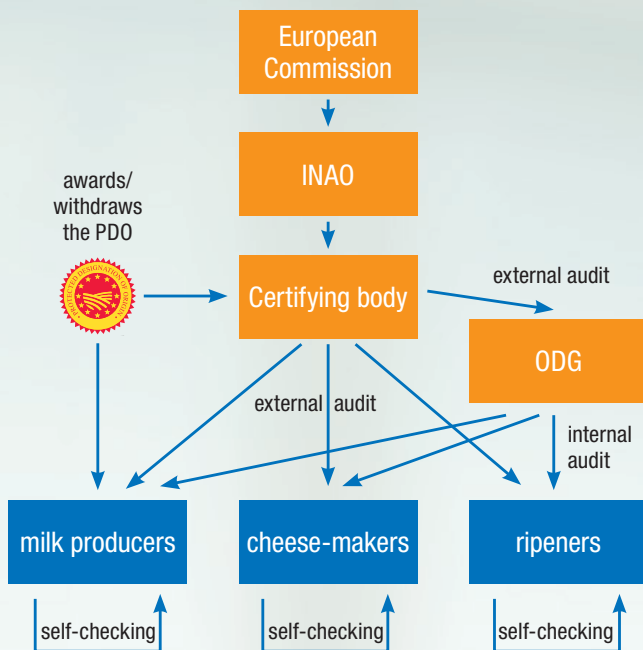
Furthermore, research has pinpointed the consumption of raw milk as a factor which reduces the risk of allergies, asthma, hay fever and atopy more generally.²⁸⁻³⁰

THE FLAVOUR OF THE TERROIR*, NUTRITIONAL COMPOSITION & ORGANOLEPTIC QUALITIES: A WINNING TRIO

Grazing, as set out in the specifications, is often one of the key factors in a dairy PDO's link with its terroir*. In particular, it has a significant impact on the product's sensory characteristics. Closely linked to this, it has been demonstrated³¹ that for cow's and goat's milk cheeses, a diet based on grazed fodder has an impact on fat-soluble micronutrient content (fatty acids, vitamins A and E and carotenoids): the higher the proportion of grazed grass in the ration, the more vitamins A and E and carotenoids the cheese will contain. For cow's milk cheeses, the higher the proportion of grazed grass, the richer the cheese will be in monounsaturated and polyunsaturated fatty acids, carotenoids and vitamin E. In addition to their health benefits, these polyunsaturated fatty acids also make cheeses more supple and aromatic³². The $\omega 6/\omega 3$ ratio is also improved by grass-based rations, which further boosts the product's nutritional profile³².

PDOS AND QUALITY AUDITS

AUDIT SYSTEMS FOR PDOS



A COMMON CORE OF AUDITS FOR THE DAIRY INDUSTRY

In France, milk and dairy products are subject to numerous monitoring and control plans operated by processors and the authorities. Samples are systematically taken on farms and in dairies, and analysed in laboratories. Each year, over 108 million analyses are carried out by French interbranch laboratories.

AN ADDITIONAL AUDIT SYSTEM FOR PDOS

In addition to the audits to which the dairy industry as a whole is subject, operators producing under a PDO are required to undergo an additional three levels of auditing to guarantee to consumers that they are complying with specifications.

- **Self-testing.** The producer and the cheese-maker are required to record their methods, provide traceability and comply with specifications.
- **Internal audit.** Internal auditing is carried out by product unions as part of the support they provide to sector operators to help them continually improve their methods. This task accounts for 25% of a product union's workload.
- **External audit.** External auditing is essential to any control system. Here, it is carried out by COFRAC* – accredited independent certification bodies.

The system as a whole is overseen by the Institut National de l'Origine et de la Qualité (INAO French national institute of origin and quality), and also by the European Commission, which governs the PDO label. Under this system, 6,256 audits were carried out in 2012 on farms and at dairies involved in producing PDO cheeses. The products are also tasted by organoleptic evaluation panels to check that they are entitled to use the designation of origin. As well as complying with the required production conditions, the flavour of the product must match the sensory profile defined in the specifications. In 2012, a total of 2,710 samples of French PDO cheeses, butters and creams underwent evaluative tasting.

To constantly improve quality and bring the flavours and aromas of the terroir* to the fore, the PDO sector strives for continual improvement.

6,256 audits were carried out in 2012 on farms and at dairies involved in producing PDO cheeses.³³

2,710 samples of French PDO cheeses, butters and creams underwent evaluative tasting in 2012.³³

3 levels of auditing: self-checking, internal auditing and external auditing.

1/4 of a cheese, butter or cream union's time is spent carrying out checks.¹⁸

€3,900,000: total cost of internal and external controls specific to the PDO sector.³⁴

A FEW EXAMPLES OF PDO PRODUCTION RULES

A strong link to a terroir* is what makes a PDO product different: in contrast with other indications of quality, there can be no «one-size-fits-all» set of specifications. PDO products are special because specific production conditions are set for each one of them.

To demonstrate the range of points covered by PDO specifications, here are 50 non-exclusive examples of measures, taken from each one of the 50 dairy PDO specifications in place.

TIGHT CONTROLS ON ANIMAL FEED



TOME DES BAUGES: no fermented fodder permitted.

RIGOTTE DE CONDRIEU: list of allowable supplementary feeds.

PICODON: no GMO feed permitted. No transgenic cultures may be planted anywhere on a farm producing for the PDO.

BROCCIU: animals are mainly fed by rough grazing.

THE IMPORTANCE OF GRASS IN THE RATION



CHAOURCE, BLEU D'AUVERGNE, FOURME D'AMBERT: 150 days' grazing minimum.

PONT-L'ÉVÊQUE: 180 days' grazing minimum.

SAINT-NECTAIRE: 90% of grasslands must be permanent pasture.

PÉLARDON: 210 days' grazing minimum: rough grazing and local pasture.

A LINK TO THE TERROIR* REINFORCED BY THE GEOGRAPHICAL AREA'S SELF-SUFFICIENCY



ÉPOISSES: 85% of the dry matter content of the herd's total ration and 100% of roughage fodder must come from the geographical area.

LANGRES: 80% of the dry matter content of the ration must be produced on the farm.

BLEU DE GEX: 100% of fodder must be from the geographical area.

CAREFULLY DEFINED SPECIFIC PROCESSING METHODS



CAMEMBERT DE NORMANDIE: milk must be renneted in basins.

CROTTIN DE CHAVIGNOL: pre-drained on canvas before draining in a truncated cone mould. Turned at least once to give the cheese its characteristic shape.

CHARENTES-POITOU BUTTER: cream is allowed to ripen biologically for 15 hours.

BRIE DE MEAUX: manual moulding in thin layers using a traditional «pelle à brie» ladle.

ISIGNY (BUTTER AND CREAM): product may not be frozen.

MORBIER: central black stripe is obtained only by manually smearing with vegetable carbon.

REBLOCHON: cheese is made twice a day on the farm, straight after milking. The milk used is not refrigerated.

SELLES-SUR-CHER: volume salting before moulding is not permitted.

CHEVROTIN: made on the farm only.

ROQUEFORT: made from raw, whole milk whose protein and fat content has not been standardised.

MANAGED RIPENING METHODS



Minimum ripening times are always set, and depend on the technology (e.g.: Bleu des Causses 70 days; Maroilles 35 days; Munster 21 days; Neufchâtel 12 days).

CHABICHOU DU POITOU: cheeses may not be stored in a modified atmosphere.

THE IMPORTANCE OF TRADITIONAL EQUIPMENT



ABONDANCE: cheeses are ripened on rough-cut spruce boards.

FOURME DE MONTBRISON: after unmoulding, the cheeses are ripened on resinous wooden racks.

MONT D'OR: hooped with spruce wood after unmoulding.

SALERS: cheese is made in a special wooden vat called a gerle.

BANON: cheeses are wrapped in chestnut leaves and tied with raffia.

SAINTE-MAURE DE TOURAINE: a strand of cereal straw engraved with an identification number is placed inside the cheese.

HISTORIC LOCAL DAIRY BREEDS



COMTÉ: French Montbéliard or Simmental cattle only.

LIVAROT: Normandy cattle only from 1 May 2017.

OSSAU-IRATY: Basco-béarnaise, black-headed Manech or red-headed Manech sheep only.

CANTAL: 100% of cows and heifers born and raised in the geographical area.

PRODUCTIVITY IS MANAGED TO ENSURE QUALITY



BEAUFORT: maximum of 5,000kg of milk maximum per lactating cow per year, on average.

ROCAMADOUR: 10 goats maximum per hectare of main grazing land.

LAGUIOLE : maximum of 6,000kg of milk per dairy cow per year.

BLEU DU VERCORS SASSENAGE: 1 dairy cow per hectare of UAA*.

VALENÇAY: 12 goats maximum per hectare of grazing land.

ENVIRONMENTAL AND HERITAGE MARKERS



BRESSE BUTTER AND CREAM: 40 metres of hedges per hectare of UAA* of non-irrigated maize.

MAROILLES: at least 100 linear metres of hedges per hectare of main grazing land.

MÂCONNAIS: spreading doses limited to preserve natural flora. Rules govern mineral manure (grazing area cannot be used within 21 days of spreading) and organic manure (only from within the area, traceability, analytical tracking, organic manure of non-agricultural origin to be buried and grazing area may not be used within 8 weeks of spreading).

ANIMAL-WELFARE ELEMENTS



CHAROLAIS: 1.5m² minimum of straw-bedded area per goat in the goat shed.

POULIGNY-SAINT-PIERRE: maximum of 3 goats authorised per linear metre of trough.

BRIE DE MELUN: straw is required as bedding, and a minimum quantity is set during the period when the animals are entirely housed indoors.

USEFUL POINTERS

Definitions and acronyms

AFSSA : Agence Française de Sécurité Sanitaire des Aliments (French Food Safety Agency).

COFRAC : Comité Français d'Accréditation (French accreditation committee).

ENIL : Ecole Nationale d'Industrie Laitière (French national dairy college).

GHG: Greenhouse gases.

GI: Geographical Indication. Term covering official quality labels based on a product's origin. For Europe, these are PDO and PGI.

INRA : Institut National de la Recherche Agronomique (French national institute for agronomic research).

ODG : Organisme de Défense et de Gestion (defence and management body). A defence and management body is the collective body responsible for defending and managing a product covered by an official identification and quality mark. ODGs must be recognised by the INAO.

SFA: Saturated Fatty Acids.

TERROIR : a geographical area defined based on a human community which has built up a set of cultural features, knowledge and practices based on interactions between people and the natural environment.

UAA: Utilisable agricultural area (UAA) is a standardised notion in European agricultural statistics. It covers arable land (including temporary grazing, fallow land, crops under cover, family gardens, etc.), permanent grassland and permanent crops (vineyards, orchards, etc.).

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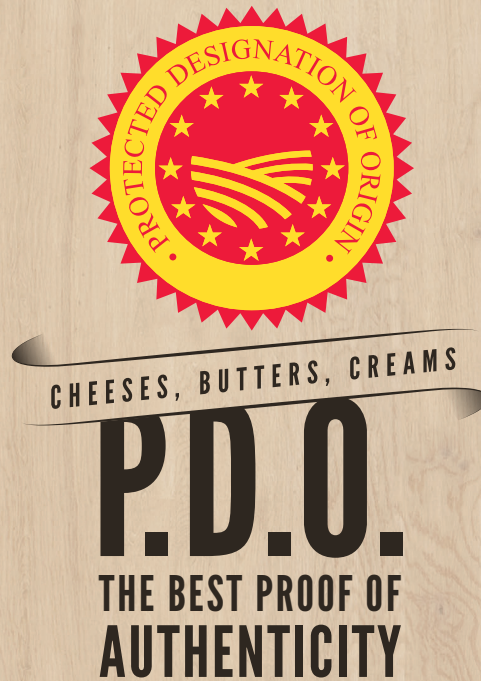
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