PROSCIUTTO DI PARMA (PARMA HAM)

PROTECTED DESIGNATION OF ORIGIN

(Specifications and Dossier pursuant to Article 4 of Council Regulation EEC no. 2081/92 dated 14 July 1992)

ANNEXES

SECTION A REFERENCE DOCUMENTS

Law No. 506 dated 04 July 1970
Law No. 26 dated 13 February 1990
Presidential Decree No. 83 dated 03 January 1978
Ministerial Decree No. 253 dated 15 February 1993

SECTION B REFERENCE DOCUMENTS

Measure defining analytical qualitative parameters.
Directive on the slicing and packaging of Parma Ham.
Blank sample pack of pre-sliced Parma Ham.

SECTION C REFERENCE DOCUMENTS

Definition of processing area
Definition of area of origin of raw materials
Excerpt of law No. 142 dated 19 February 1992
Exemplifying digest of relevant articles:
- the use of whey and grains in the diet of "heavy pigs";
- breeds that are fit and unfit for the production of "heavy pigs";
- research studies on the characteristics of subcutaneous fat in "heavy pigs"

Bibliographic material on the production of Italian heavy pigs
Specimen of the breeder's certificate
Directive on the procedures for filling in and handling breeder's certificates
Specimens of application forms for breeding farms and abattoirs
Specimen of numbered abattoir firebrand ("PP")
Specimens of the seal

Specimen of the seal application report
Specimen of the certification brand (fire-branding) report
Partial copy of the producer's report
Imprint of the Ducal Crown trademark

SECTION D REFERENCE DOCUMENTS

Bibliography of publications containing historical references to various aspects of Parma Ham, in particular pig breeding in the Po Valley and in Parma, production and marketing of Parma Ham.
Copy of the "Notice for reporting salted pork meats and wholesale trading of same" published by the Governor of Parma on 21 April 1764, which includes also bone-in ham ("prefciuto con l'offo").
Copy of an abstract of the "Topographical Glossary of the Dukedoms of Parma, Piacenza and Guastalla" by Lorenzo Molossi, printed in 1832/34, which makes explicit reference to the breeding of "swine" intended for the production of dry-cured hams.
Copy of various pages of the 1915 bulletin of the Parma Chamber of Commerce containing, in the section dedicated to dry-cured meats, "aged ham".
Abstract of the Registrar of Companies of the Parma Chamber of Commerce, which testifies to the incorporation, in the 1920s and 1930s, of ham producing companies.

SECTION E REFERENCE DOCUMENTS

Specimen of the application form requesting producer authorisation
Photographs of the processing stages of Parma Ham.

SECTION F REFERENCE DOCUMENTS

EEC Regulation No. 3220/84;
Commission Resolution dated 21 December 1988
Commission Resolution dated 20 November 1989
Decree of the Ministry of Agriculture and Forestry dated 24 February 1989
Copy of articles containing notes on the tie between production and the defined geographical area.

SECTION H REFERENCE DOCUMENTS

Record of registration of the "Ducal Crown" trademark of 1963
Record of registration of the "Ducal Crown" trademark of 1973 (amending the 1963 registration)
Ministerial Decree dated 9 October 1978 - Annex 4
Registration certificate of the "Ducal Crown" trademark of 1987 (essential for WIPO registration)
Ministerial Decree dated 26 August 1991
Ministerial Decree dated 9 October 1978 - Annex 3
Ministerial Decree dated 04 August 1986

SECTION A

PRODUCT NAME: PROSCIUTTO DI PARMA (PARMA HAM)

Since 1970 the designation of origin “Prosciutto di Parma" has been legally protected at a national level by Law No. 506 dated 4 July 1970 and was subsequently recognised as a PDO with EC Regulation No. 1107 dated 12 June 1996 pursuant to EEC Regulation no. 2081/92 .

SECTION A REFERENCE DOCUMENTS

A.1: Law No. 506 dated 04 July 1970
A.2: Law No. 26 dated 13 February 1990
A.3: Presidential Decree No. 83 dated 03 February 1978
A.4: Ministerial Decree No. 253 dated 15 February 1993

SECTION B

PRODUCT DESCRIPTION, RAW MATERIALS USED AND MAIN PHYSICAL, CHEMICAL, MICROBIOLOGICAL AND ORGANOLEPTIC CHARACTERISTICS.

The designation of origin ‘Parma Ham’ is exclusively reserved for ham that is marked in a permanently identifiable way, is obtained from the fresh legs of pigs born, bred and slaughtered in any one of the Regions specified in Art. 3 of Ministerial Decree No. 253 dated 15 February 1993, produced in compliance with the legal and regulatory provisions, matured in the typical production area as defined in Art. 2 of Law No. 26 of 13 February 1990 for a minimum of 12 months from salting. The weight refers to bone-in hams at the time of application of the above-mentioned certification brand.

The distinctive features of Parma Ham are as follows:

a) curved exterior: without distal part (trotter), devoid of external blemishes likely to impair the product’s image, with exposure of the muscular part above the head of the femur (best end) limited to 6 centimetres (short trimming);

b) weight: as a rule, between eight and ten kilograms, and anyway not less than seven;

c) colour when sliced: uniformly ranging from pink to red, marbled with white fat;

d) aroma and flavour: mild and delicate flavour, slightly salty with a fragrant and distinctive aroma;

e) fulfilment of predetermined analytical parameters.

The criterion adopted for selecting the qualitative parameters is based on a combination of organoleptic qualities and chemical parameters. This method has led to the identification of

the following parameters: salt, moisture and soluble nitrogen content (proteolysis index). It is known, as a matter of fact, that high-quality ham must contain a limited quantity of sodium chloride and moisture, whereas an excessive proteolysis index has been found to adversely affect the consistency of the lean meat.
For each of the three parameters mentioned above a confidence range has been calculated that is translated into reference values to ascertain whether or not a sample of hams, randomly selected in a processing plant, belong to the reference population and can therefore be considered as representative of the average characteristics of Parma Ham.
The ranges for the above parameters are:

Moisture:	59.0% - 63.5%
Salt:	4.2% - 6.2%
Proteolysis index:	24.0% - 31.0%

The values that define the ranges of each parameter do not refer to a single ham sample but to the average of the hams sampled in the production plant, from which only a lean fraction from the biceps femoris is taken.

The raw materials (fresh pork legs) used for the production of Parma Ham have the following characteristic features:
- fat consistency: it is assessed by determining the iodine number and/or linoleic acid content both on the inner and outer fat layer of the leg subcutaneous panniculus adiposus. For each sample, the iodine number and the linoleic acid content shall not exceed 70 and 15% respectively;
- subcutaneous fat layer: the thickness of fat on the outer portion of trimmed fresh legs, measured vertically at the head of the femur (best end), should be about 20 millimetres for the fresh legs used for the production of Parma Hams weighing between 7 and 9 kilograms, and about 30 millimetres for those used for the production of Parma Hams weighing more than 9 kilograms.

This layer shall not, however, be thinner than 15mm and 20mm respectively for the two categories of fresh legs, including the rind.

At the “coronet” the fat layer shall be such as to prevent detachment of the rind from the underlying muscular fascia;

- weight of fresh legs: trimmed fresh legs should preferably weigh between 12 and 14 kilograms but in no case less than 10 kilograms;

- quality of meat: fresh legs of pigs affected by full-blown myopathies (PSE, DFD, evidence of the consequences of phlogistic or traumatic processes, etc.) that have been certified by a vet at the abattoir shall be excluded from protected production;

- with the exception of refrigeration, fresh legs shall not undergo any preservation treatment, including freezing. Refrigeration means that legs shall be kept at a core temperature between –1 C° and + 4 C° during storage and transportation;

- legs from pigs slaughtered less than 24 hours and more than 120 hours before shall not be used.

Once the certification brand has been applied, Parma Ham can also be sold de-boned, in pieces of various shapes and weights, or sliced and duly packed. Should it not be possible to

retain the certification brand on the product, this shall be affixed to the package in an indelible and permanent way under the supervision of the Certification Body. In these cases, packaging operations shall be carried out within the typical production area. Parma Ham can be packaged in modified atmosphere or vacuum packages of variable size, shape and weight. All Parma Ham packs shall bear a common part on the top left corner consisting of the Consorzio del Prosciutto di Parma certification mark and the wordings "Prosciutto di Parma". Denominazione di origine protetta ai sensi della legge 13 febbraio 1990 n° 26. Confezionato sotto il controllo dell'organismo incaricato ("Parma Ham". Protected Designation of Origin pursuant to Law No. 26 dated 13 February 1990.Packaged under the supervision of the Certification Body). Furthermore, the common part shall have the characteristics and comply with the conditions specifically established by the Directive concerning Slicing and Packaging Operations.
The Directive that governs this subject matter defines the chemical-physical and commercial characteristics of the product to be used, in particular with regard to size and maturation period. All operations, from the initial de-boning phase down to final slicing and packaging, are carried out under the direct supervision of inspectors belonging to the Certification Body (refer to Section G for further details).

SECTION B REFERENCE DOCUMENTS

Measure defining analytical qualitative parameters.

Directive on the slicing and packaging of Parma Ham.

Blank sample pack of pre-sliced Parma Ham.

Other reference documents:

- Law No. 26/90 (Section A)
- Ministerial Decree 253/93 (Section A)
- Production directions on pig breeding (Section C)

SECTION C

DEFINITION OF GEOGRAPHICAL AREA AND COMPLIANCE WITH THE PROVISIONS OF ARTICLE 2, PARAGRAPH 4

The typical production area of Parma Ham – as identified by Law No. 26 dated 13 February 1990 and before that, by law No. 506 dated 4 July 1970 – includes the territory of the province of Parma (Emilia-Romagna region, Italy) located South of the Emilia Road, at a distance therefrom of not less than 5 km, and up to a maximum altitude of 900 metres, bordered by the River Enza to the East and by the Stirone stream to the West.

The processing plants (ham curing plants) and the slicing and packaging plants shall be located within the area defined in point C.1, where all the processing phases of the raw material shall take place in compliance with these Specifications.

The raw material comes from a geographical area that is larger than the production area, and which includes the administrative districts of the following Italian Regions: Emilia-Romagna, Veneto, Lombardy, Piedmont, Molise, Umbria, Tuscany, Marche, Abruzzo and Lazio (Italy).

C.4 The above area of origin of the raw material is strictly defined by Law No. 26 dated 13 February 1990, as amended by Article 60 of Law No. 142 dated 19 February 1992 and Ministerial Decree No. 253 dated 15 February 1993.

All the pig breeding farms that supply the legs used for the production of Parma Ham, all the abattoirs authorised to carry out their preparation as well as all the cutting plants that are part of the protected production chain shall be located within the above area of origin.

To meet the requirements set forth in Section F regarding the production of the raw material pursuant to Article 2, paragraph 5 of EEC Regulation No. 2081/92, the following special conditions and provisions shall be complied with:

BREEDS AND REQUIREMENTS OF PIGS INTENDED FOR THE PRODUCTION OF PARMA HAM

- Animals, either purebred or derived from the standard, traditional Large White and Landrace breeds, as improved by the Italian Herd Book, are accepted.

- Animals derived from the Duroc breed, as improved by the Italian Herd Book, are also accepted.

- Animals belonging to other breeds, either cross-breeds or hybrids, are accepted provided they derive from breeding or cross-breeding programmes carried out with aims consistent with those pursued by the Italian Herd Book for the production of heavy pigs.

- In accordance with tradition, animals that carry antithetical traits, with particular reference to stress sensitivity (PSS), nowadays objectively identifiable “post mortem” and on matured products are not allowed.

- All animals whose legs do not conform to these production requirements are in any case excluded; as for the characteristics of fresh pork legs, the relevant requirements are contained in Section B above.

- Purebred animals belonging to the breeds Belgian Landrace, Hampshire, Pietrain, Duroc and Spotted Poland are excluded.

OTHER REQUIREMENTS AND SPECIAL CONDITIONS

- The genetic types used shall ensure the achievement of heavy weights with high degrees of efficiency and, in any case, an average weight per lot (live weight) of 160 kilograms with more or less 10%.

- The minimum slaughtering age is nine months and can be inferred from the tattoo affixed in accordance with Article 4, paragraph 3 of Ministerial Decree No. 253/93.

- The use of boars and sows is excluded.

- Pigs shall be slaughtered in very good health conditions and perfectly drained of blood.

C.6.3. FEEDING OF PIGS INTENDED FOR THE PRODUCTION OF PARMA HAM

- The table below contains the different types of feed allowed and the relevant quantities and methods to be used.

- Feed shall be preferably prepared in liquid form (swill or mash) and, according to tradition, with the addition of whey.

Feed admitted up to 80 kilograms of live weight.

All types of feed that can be used during the fattening period, in suitable concentration, as well as those listed below. The presence of dry matter from grains shall not be lower than 45% of the total.

Corn gluten flour and/or corn gluten feed	d.m.:	up to 5% of the d.m. in the ration
De-stoned carob beans	d.m.:	up to 3% of the d.m. in the ration
Fish meal	d.m.:	up to 1% of the d.m. in the ration
Soybean extraction meal	d.m.:	up to a maximum of 20%
Distillers	d.m.:	up to 3% of the d.m. in the ration
Buttermilk*	d.m.:	up to a maxim of 6 ltrs/head per day
Lipids with a melting point higher than 36 C°	d.m.:	up to 2% of the d.m. in the ration
Protein lysates	d.m.:	up to 1% of the d.m. in the ration
Corn silage	d.m.:	up to 10% of the d.m. in the ration

d.m.= dry matter

Feed admitted during the fattening phase

The presence of dry matter from grains during the fattening phase shall not be lower than 55% of the total.

Corn	d.m.:	up to 55% of the d.m. in the ration
Kernel and/or corncob mash	d.m.:	up to 55% of the d.m. in the ration
Sorghum	d.m.:	up to 40% of the d.m. in the ration
Barley	d.m.:	up to 40% of the d.m. in the ration
Wheat	d.m.:	up to 25% of the d.m. in the ration
Triticale	d.m.:	up to 25% of the d.m. in the ration
Oats	d.m.:	up to 25% of the d.m. in the ration
Minor grains	d.m.:	up to 25% of the d.m. in the ration
Bran and other by-products of wheat processing	d.m.:	up to 20% of the d.m. in the ration
Dehydrated potato***	d.m.:	up to 15% of the d.m. in the ration
Cassava***	d.m.:	up to 5% of the d.m. in the ration
Pressed beet pulp silage	d.m.:	up to 15% of the d.m. in the ration
Expeller pressed flax	d.m.:	up to 2% of the d.m. in the ration
Dried exhausted beet pulp	d.m.:	up to 4% of the d.m. in the ration
Apple and pear residue; grape and tomato skins as supplement carriers	d.m.:	up to 2% of the d.m. in the ration
Whey*	d.m.:	up to a maximum of 15 ltrs head/day
Buttermilk*	d.m.:	up to a maximum intake of dry matter of 250 grams head/day
Dehydrated aflalfa meal	d.m.:	up to 2% of the d.m. in the ration
Molasses**	d.m.:	up to 5% of the d.m. in the ration
Soybean extraction meal	d.m.:	up to 15% of the d.m. in the ration
Sunflower extraction meal	d.m.:	up to 8% of the d.m. in the ration
Sesame extraction meal	d.m.:	up to 3% of the d.m. in the ration
Coconut extraction meal	d.m.:	up to 5% of the d.m. in the ration
Corn germ meal	d.m.:	up to 5% of the d.m. in the ration
Peas and/or other leguminous seeds	d.m.:	up to 5% of the d.m. in the ration
Brewer's and/or torula yeast	d.m.:	up to 2% of the d.m. in the ration
Lipids with a melting point higher than 40 C°	d.m.:	up to 2% of the ration

d.m.= dry matter

- In order to obtain a high quality subcutaneous fat layer, the maximum linoleic acid content allowed is 2% of the dry matter in the diet.
- Maximum tolerances of 10% are allowed.
- Whey and buttermilk, collectively, shall not exceed 15 litres/head/day (*).
- If combined with slops the total nitrogen content shall be lower than 2% (**).
- Dehydrated potato and cassava, collectively, shall not exceed 15% of the dry matter in the ration (***).

- The term “buttermilk" refers to the by-product of butter processing, whereas whey is the by-product of curdling.

REQUIREMENTS FOR BREEDING PIGS INTENDED FOR THE PRODUCTION OF PARMA HAM

Breeding phases:

- The breeding phases are defined as follows:

suckling: first four weeks with the sow;
weaning: from the 5th to the 12th week;
piglet fattening: from 30 to 80 kilograms of weight;
fattening: from 80 to 160 kilograms of weight and above.

- The breeding techniques are aimed at obtaining heavy pigs, which can be achieved through reasonable daily weight increases, as well as at producing carcasses that fall within the central classes of EEC classification ("U", "R" and "O").

In order to achieve this objective, feed must be distributed in rations, preferably in liquid form or as a mash, with the addition of whey according to tradition.

- Breeding facilities and equipment shall ensure animal welfare.
- Shelters shall be fitted out with proper insulation and ventilation systems to guarantee optimum temperatures, effective air circulation and removal of noxious gases.
- Floors shall be characterised by the lowest possible percentage of cracks and shall be constructed with water-resistant, thermal, and antiskid materials.
- Depending on the type of diet, all facilities and equipment shall be properly resistant to corrosion.

Except for any additional clarification provided in Section G below, the control system put in place to guarantee compliance with the special conditions for the production of raw materials and the obligations imposed on all the parties of the production chain protected by current standards and specifications, is governed by the provisions described in detail in the Control Plan set forth by the Ministry of Agricultural, Food and Forestry Policies:

- To be part of the protected production chain, breeders shall be authorised in advance and coded by the Certification Body.
- For this purpose, interested breeders shall file an application with the Certification Body that arranges their coding and provides the documentation established by these production Specifications.

- Each recognised breeder shall apply an indelible tattoo bearing its identification code on the hind legs of each piglet within the thirtieth day from the latter's birth.

- In the event a tattooed pig is transferred to another breeding farm, the latter shall have been previously coded by the Certification Body and shall apply a new indelible tattoo bearing its own identification code in any case prior to slaughtering. Coding and tattoo application procedures are established by the Certification Body. In the above case, to meet all the requirements associated to animal welfare, the second tattoo can be replaced by indicating the code of origin applied according to the procedures established in § C.8.4 on the documents accompanying the pig batches in each transaction or transfer and in the records and cross-checks carried out by the control structure. Product traceability is ensured also by the recording procedures adopted by the abattoir, subject to systematic validation and inspection by the Certification Body.

- Tattoo referred to in the previous point.

Stamping is carried out via the application of an indelible and permanent (even post-mortem) tattoo on the side of both the piglet's legs by a special compression tool, on an area located just above a horizontal line starting from the knee-cap and corresponding to the lower part of the biceps femoris.
The tattoo reproduces the breeder's alphanumeric identification code, defined in a special directive issued by the Certification Body as well as an additional alphabetic letter that depends on the month in which the animal was born.
Tattoo application is the breeder's responsibility.

- Tattoo referred to in the previous point.

This tattoo reproduces the breeder's alphanumeric code and is applied to both legs of all pigs accompanied by the certificate envisaged by these production Specifications.
The tattoo shall be applied in such a way to be indelible and permanent, including post mortem, on the side of the pig's leg, covering a maximum surface area of 45mm (height) times 85mm (width), and making sure it does not overlap with the first tattoo.
The breeder shall apply the tattoo preferably within the animal's eighth month of age.

- The breeder shall issue a certificate for all pigs intended for slaughtering, stating the animal's conformity with the requirements specified in points C.6 and subsequent ones.

- Upon transferring the pigs to the abattoir, the breeder shall draw up, in triplicate, the certificate referred to in the previous point, stating conformity with production requirements, one copy of which shall be sent to the slaughterer and one to the Certification Body. The certificate consists of pre-numbered and coded forms provided by the Certification Body. The breeder shall sign the certificate after having entered the number of pigs, intended destination, shipping date and abbreviation of the genotypes used.
- The criteria and procedures for filling-in, handling, use and circulation of certificates are governed by the approved control plan.

- The abattoirs that are willing to supply fresh legs for the production of Parma Ham shall file an application with the Certification Body to get the necessary authorisation.
- Said application shall be accompanied by all the necessary documents certifying the possession of the health authorisation and compliance with the hygiene and safety requirements envisaged by the current legislation.
- The Certification Body shall assign an identification code to the abattoir and supply the firebrand referred to in the following point.

- The slaughterer shall apply the indelible firebrand on fresh legs that are intended for the production of Parma Ham. The firebrand shall be affixed on the rind in a clear and visible way in accordance with the directions given by the Certification Body.
- The slaughterer shall apply the indelible firebrand on the fresh legs of pigs delivered with the above specified certificate and after having ensured compliance with the requirements specified in Section B above.
- The firebrand bears the identification code of the abattoir where slaughtering has taken place.
- The slaughterer shall attach to each lot of fresh legs, fire-branded as specified in this point, a specimen or a copy of the certificate issued in accordance with the provisions set forth above.
- In the event that the original certificate issued by the breeder refers to pigs whose legs are intended for different plants or separate supplies, for each delivery of fresh legs bearing

the above fire-branded stamp the slaughterer shall send to the ham factory a copy of the same certificate together with any other document that may be required by the Certification Body.

- Any cutting plant that is part of the protected production chain shall attach to the documentation accompanying the fresh legs intended for the production of Parma Ham, a photocopy of all the documents envisaged by the administrative and health provisions in force on the transfer of pork sides or other cuts from one of the authorised abattoirs, and a copy of the certificate referred to above.
- Cutting plants are also subject to inspections.
- Only fresh legs from authorised abattoirs that bear the indelible firebrand and are accompanied by the required documentation can be used for the protected production of Parma Ham.
- Upon arrival of fresh legs intended for the production of Parma Ham at an authorised production plant, an inspector appointed by the Certification Body shall check the accompanying health documentation as well as the documents envisaged by the points above, and in particular:

a) the breeding farms and abattoir, the cutting plant (if any) and the date of shipment to the curing plant;
b) the number of fresh legs that bear the breeding farm tattoo and the abattoir firebrand;
c) the absence of treatments other than refrigeration.

- Upon salting, a seal certifying the start date of curing shall be affixed to the fresh legs.
- In order for the seal to be affixed to the fresh legs, the producer shall file a relevant application with the Certification Body that, through its inspectors, shall monitor the proper execution of all operations.
- In any case, before salting, the producer shall affix the seal in such a way to be permanently visible.
- The seal shall record the month and year of the curing start date; this date shall correspond to the production date in accordance with the applicable legislation governing the health monitoring system for meat.
- The inspector of the Certification Body shall prohibit the affixing of the seal on:

a) legs deemed unfit for protected production;
b) legs that are not accompanied by the required documentation and/or do not bear the breeding farm tattoo and/or the abattoir firebrand;
c) legs from pigs slaughtered less than 24 hours and more than 120 hours before.

- Should non-conformities be detected at a later date, the seal shall be removed by the inspectors of the Certification Body who will draw up a specific report.
- At the end of the operations referred to in the preceding point, a report specifying the following information shall be drawn up for each lot intended for protected production:

a) details of the accompanying health certificate;
b) salting date;
c) number and overall weight of the fresh legs on which the seal has been affixed;
d) number and overall weight of the fresh legs deemed unfit or subject of dispute;
e) number and overall weight of the fresh legs on which no seal has been affixed and held back at the plant to be returned to the supplying abattoir or to be sent to another plant.

- The actual affixing of the seal shall be recorded in a special register separately for each lot.
- The report shall be drawn up in duplicate; one copy shall be kept by the curing plant and the other shall be sent to the Certification Body.
- The inspector of the Certification Body can identify the legs considered unfit and not subject of dispute, whenever deemed necessary, by applying specific marks written on the report.

- During the actual curing stages, the inspectors of the Certification Body can carry out controls and inspections with the purpose of checking and testing the meat, making sure that registers and any other necessary documentation are properly kept, as well as monitoring that curing methods comply with current legislation and relevant regulations.
- In cases of dispute or pending the outcome of inspections, the inspectors of the Certification Body shall identify the relevant product with specific marks.
- The inspectors of the Certification Body shall attend the actual affixing of the Certification brand after having checked that the following requirements are complied with:

a) completion of the minimum required maturation period, after having checked the registers, documents and seals, and including the month in which the seal was affixed in said period.
b) conformity with processing procedures;
c) presence of the commercial characteristics established by these Specifications;
d) conformity with the analytical parameters.

- Before affixing the certification brand, inspectors shall test with a needle a sufficient number of hams so as to effectively assess their quality; if necessary, inspectors shall test the product by cutting a maximum of 5 hams per thousand or a fraction of a thousand, which will then remain with the producer.
- The organoleptic features are assessed as a whole since only very small deficiencies can be offset.
- The certification brand is fire-branded on the ham rind on more than one point, if requested, in such a way as to remain visible up to the complete consumption of the product.
- The Certification Body keeps the dies for the branding tools; the tools shall bear the producer identification number and shall be given to the inspectors by the Certification Body when hams are fire-branded.
- Every time hams are fire-branded with the certification body, the inspectors of the Certification Body shall fill in a special report, which indicates:

a) the number of hams to be fire-branded with the certification brand;
b) the curing start date;
c) the details for product identification found in the relevant register;
d) the total number of hams on which the certification brand is applied and the date thereof;
e) the number of hams deemed unfit for protected production;
f) the number of hams which are subject of dispute.

- The hams subject of dispute shall be kept aside by the Certification Body which entrusts them to the producer after having made sure that all necessary precautions and possible identification marks have been adopted to prevent them from being replaced or otherwise tampered with.
- The producer shall be given a copy of the report, where it can have its remarks added, and it can require, within three days, a new technical examination with the involvement of the "Stazione Sperimentale per l'Industria delle Conserve Alimentari" (Experimental Station for the Food Preserving Industry) of Parma, with the power to appoint its expert.
- Hams unfit for protected production shall be deprived of the seal; this annulment operation shall be carried out by the producer in the presence of the inspector of the Certification Body.
- All operations of certification brand application and annulling of the seal shall be recorded in a special register.
- The producer shall keep, for each single curing plant, a special register organised in monthly sheets; records shall be entered in the register monthly sheets corresponding to the month and year on the seal.

- The register shall specify:

a) progressive order number and date of each record;

b) the number of legs with indication of the seal application date and of the supplying abattoir;

c) the number of legs with seal received from another curing plant;

c) the number of legs with seal sent to another curing plant;

e) the number of legs whose seal has been removed;

f) the number of hams with certification brand with indication of the report progressive number and date of the relevant fire-branding operations;

- The register shall also record, in a special section, any decisions, remarks and measures taken by the inspectors of the Certification Body regarding mistakes or irregularities found during inspections.

Supervisory activities shall be carried out by a Certification Body duly authorised in accordance with EN 45011.

- As part of the general inspection activity aimed at monitoring strict compliance with all applicable regulatory requirements by parties of the protected production chain and, in particular, at ensuring respect of the production requirements, the Certification Body shall:
- provide breeders with pre-addressed and pre-numbered certificates and ensure that they are used properly;
- provide slaughterers with numbered indelible firebrands and ensure that they are used properly;
- provide slaughterers with numbered indelible firebrands and ensure that they are used properly;
- provide producers with metal seals and ensure that they are used properly;
- affix the firebrand stamp on hams that comply with all necessary requirements;
- carry out inspections at breeding farms and abattoirs to monitor compliance with production requirements;
- carry out inspections during processing operations to ensure they comply with applicable regulations and traditional practices.

SECTION C REFERENCE DOCUMENTS

C.1: Definition of processing area
C.2: Definition of area of origin of raw materials
C.3: Excerpt of law No. 142 dated 19 February 1992
C.4: Exemplifying digest of relevant articles:
- the use of whey and grains in the diet of "heavy pigs";
- breeds that are fit and unfit for the production of "heavy pigs";
- research studies on the characteristics of subcutaneous fat in "heavy pigs".

C.5: Bibliographic material on the production of Italian heavy pigs
C.6: Specimen of the breeder's certificate
C.7: Directive on the procedures for filling in and handling breeder's certificates
C.8: Specimens of application forms for breeding farms and abattoirs
C.9: Specimen of numbered abattoir firebrand ("PP")
C.10 Specimens of the seal
C.11: Specimen of the seal application report
C.12: Specimen of the certification brand (fire-branding) report
C.13: Partial copy of the producer's report
C.14: Imprint of the Ducal Crown trademark

Other reference documents:

- Law No. 26/90 (Section A) - Ministerial Decree No. 253/93 (Section A)

SECTION D

EVIDENCE OF PRODUCT ORIGIN WITHIN THE GEOGRAPHICAL AREA.

INTRODUCTION

The Italian agri-food sector features products that stand out for the raw materials used, strong specificity of production processes and definition of their production area.

Protected Designation of Origin products with their guaranteed origins and production techniques are subject to a series of controls that ensure specific quality characteristics. In addition to this, another fundamental element is the fact that products are the result of a combination of natural, environmental and human factors determined by deeply rooted relationships that have been established over the centuries between farming and product processing.

This series of relationships has pervaded and evolved with the history of the people and places that have generated them. For this reason, a historical, cultural and legislative description of the birth and history of a food product is definitely the best and perhaps the only way to illustrate its distinctive characteristics.

The indication of the elements proving that the product originates in the geographical area referred to in the designation shall necessarily include all the elements dealt with about the area as established in Section C above. Specifically:

- Parma Ham certainly originates in the geographical area referred to in Section C above and its characteristics are essentially due to the geographical environment, including the relevant natural and human factors. Furthermore, as indicated in point C.2, its processing takes place exclusively inside the defined geographical area;
- at the same time, the raw material that is used in the preparation of Parma Ham originates in the defined geographical area indicated in Section C, where the production takes place, and its characteristics are essentially due to the environment, including the relevant natural and human factors.

HISTORY OF THE PO VALLEY PIG

The pig is an omnivore that is easy to feed and relatively easy to domesticate. Hence its transition from a wild pig to a domesticated one has taken place many times and in many different areas, starting from various pig breeds and sub-breeds. This is why each “cultural region” has its “own pig” and the Po Valley is no exception.

For centuries and in every cultural area or region, the pig had only been partially domesticated. Only in fairly recent times has the pig become a true “domestic pig”, meaning completely dependent on humans. Lately, this dependency has been emphasized through improved breeding techniques that have led to an animal called the “technological pig” or “industrial pig”.

While some studies, research and documentation suggest that the pig was domesticated in Europe, it was probably already domesticated when first imported from Asia, European autochthonous swine being domesticated afterwards (the existing wild boar, known as Sus scrofa ferus, is supposedly the descendant of these pigs). Nevertheless, through crossbreeding of the imported Sus vittatus and the autochthonous Sus Scrofa, the domestication process of the pig primarily took place in Mediterranean Europe. It is apparent that during the prehistoric

age, pig domestication mainly took place in Northern Italy (Alps, Pre-Alps, Po Valley) and this depended on the type of vegetation that was predominant at the time. The pig is a "wild" animal that mainly eats berries and fruit found in forests or woods, such as acorns.
We can therefore assume that semi-domestication of the pig occurred in Northern Italy, primarily in the Po Valley area and especially within the Celtic civilization.
In all likelihood, during the slow passage between prehistory and history, the Po Valley was inhabited by several "types" of pig that differed in size and habits. All belonged to a single biological "species", which meant reciprocal fecund crossbreeding was possible.
The wild boar (Sus scrofa ferus) roamed freely in the vast woodlands and/or marshes of the plains and in the undergrowth of the hills and mountains. It ate woodland fruit, especially acorns, and was a hunting prey. Herds of relatively large semi-domesticated pigs that may also have bred with wild boars, lived in the woods surrounding human settlements. Humans would capture piglets for food. Smaller, tamer pigs lived near villages and homes, in close contact with humans, and were fed with leftovers.
Right from the beginning of human civilization, the pig has taken on two aspects: that of a wild animal, in contrast to grazing animals such as sheep, and that of an "urban" animal as well.
Information on pig breeding during the Etruscan period and in the Po Valley, also mentioned by Dancer (1984), may be found in the writings of Polibius (Storie, XII, 4) and that of M.T. Varrone (De Re Rustica, II, 4, 9).
Very interesting recent studies have been made of an Etruscan settlement from the 5th century B.C. found at Forcello (Bagnolo S. Vito, near Mantua) by Olivieri del Castillo (1990). Of all the bones unearthed, 60% came from pigs. Pigs were slaughtered at two or three years of age, which means that the Etruscans of the Po Valley bred swine on a permanent basis, specifically for pork. Studies show that they raised small-sized sows and boars (wither height: 65-75 centimetres at the time of slaughter). These animals were similar to the ones raised in another Etruscan city of the Po Valley, Spina, and comparable to the pre-Roman swine breeds, with a height and size that were much smaller than those of more ancient breeds.
This was basically the situation in the Po Valley at the onset of the Roman domination, when Polibius mentioned the magnitude of the oak forests and the abundance of pigs. Further confirmation comes from Strabone who said that the Emilia region supplied the entire country of Italy with pork and live pigs: "So many acorns are gathered in the oak forests of the Po Valley that most pigs slaughtered in Italy, used for domestic consumption and for feeding the Roman legions, come from that area" (Polibius, 2nd century B.C.).
From the writings of Columella, we know that there were "rational" permanent pig breeding farms during the Roman era. Sows and their piglets were raised in separate pens. Columella recommended installing a raised step before each pen to prevent the sows from escaping. Proof of this has been found in the archaeological digs at the Settefinestre farm recently excavated in Tuscany and described by Carandini and Settis (1979). It must therefore be assumed that, at least in the most "modern" farms the Romans carried out a rational and intensive pig-breeding programme, in which breeding animals were selected. Animals were fed a specific diet that was supplemented with grazing, which can be assumed by the "step" that was installed to keep the sow in its pen or removed to allow its exit.
During the great farming and demographic crisis of the 3rd and 4th century A.D., uncultivated areas and woodlands expanded and consequently the wild and semi-wild raising of pigs prevailed over the raising of grazing animals (sheep, goats and cattle). An additional push in this direction came from the subsequent invasions of troops from Eastern and Northern Europe. The Longobard invasion (569 A.D.) was especially decisive and the invaders gradually introduced economic and dietary customs that differed from those of the Romans.

The typical habits of semi-nomadic civilizations, which exploited what nature offered spontaneously, spread through the Po Valley thus using the forest with its fruit and "by-products", of which the pig was one of the most important (Baruzzi and Montanari, 1981).
In the areas of the Po Valley that were invaded by the Longobards (Longobardia which became Lombardy), pig breeding increased and was also extended to woods, especially in oak forests.
The Longobard pig breeding culture was also prevalent in the Parma and Modena areas and the entire Veneto region.
During the Middle Ages, pig breeding was so important among forestry and pastern activities that forests were "measured" not in terms of area, but according to the pig population. For example, it was said "the Alfiano Forest can fatten 700 pigs", and this data was considered very useful (Baruzzi and Montanari, 1981). According to Longobard laws, herds of at least thirty pigs were "headed" by a boar called "sonorpair" or by a sow called "ducaria" (Baruzzi and Montanari, 1981; Grand-Delatouche, 1968). Pig herds were tended by a swineherd, who was frequently called a serf and "bound" to the land, who took care of the pigs during "difficult" periods.
Temporary shelters, called "porcaritie" in Medieval documents, were set up in the forests when the weather worsened. During the winter the pigs were brought back home for brief periods of stabling, during which time fattened animals were slaughtered. A prime indication of the importance of the chief swineherd (magister porcarius) comes from the Rotari Edict of 653, which stated that if the chief swineherd was killed or injured, his owner would receive the highest possible sum in compensation, equal only to the amount paid for a master craftsman.
According to the abundant iconography recently collected and discussed by Baruzzi and Montanari (1981), medieval pigs in the Po Valley were slim and thin. They had long, slender legs and were dark red or blackish in colour. There were also animals with a lighter skin or animals with "bands" such as the "cinta senese" (Siena Belted species).
The migration from the forest to the pigsty occurred once farming recovered with the resulting demographic development. This began in the 10th and 11th centuries and continued at varying degrees in connection with the expansion of farmland and the prohibition of the use by the community of forests and woods, which were acquired by the ruling classes for wild game "Res Regalis". Piero De Crescenzi, a 13th century agronomist from Bologna, wrote: "They must be fed acorns, chestnuts and similar items or beans, barley or wheat, because these products not only fatten them but give the meat a delicious flavour".
When share-cropping was introduced (Roda, 1979-80), pig breeding began to decline but more importantly it changed. The farmer continued to keep a few pigs on the farm to which he dedicated most of his time because he no longer worked in the forests (Montanari, 1979 – Baruzzi and Montanari, 1981).
Nevertheless, according to a report on Parma written at the end of the 18th century by Du Tillot and recently brought to light and discussed by Dall'Olio (1983), at that time pig production was still closely tied to grazing and acorns; therefore, the outcome depended on the production of them, consequently there were good years and bad years according to the amount of acorns produced.
Pork consumption in Parma was relatively high at the end of the 18th century (4,500 pigs were slaughtered each year, and mainly consumed in monasteries and convents) and the setting up of two abattoirs for pigs similar to the Bologna Slaughter-house was recommend.

NOTES ON PORK CONSUMPTION IN THE PO VALLEY REGION

Precise information on pork consumption can be obtained through the study of prehistoric bone samples dug up in front of caves or early human settlements (*terramare*). Etruscans,

Gauls (documentation from Athenaeum exists on the latter) and especially the Romans from the Po Valley used pork extensively. According to Susini (1960), few Roman communities, like the one in Bologna, have left such a conspicuous number of references to craftsmen and professionals, among these that of "suarius". Since Bologna was at the crossroads between the Emilia Road, the roads leading to the Apennines and the Po River estuary, a large merchant and craftsman class had already formed during the flourishing Bolognese Etruscan period. The same thing occurred in other towns along the Emilia Road – Parma, for example, where the road intersected with the Parma River and the Apennine roads that led to the Tyrrhenian Sea. The latter would grow with the development of the Luni Port, from where food produced in the Parma area could easily arrive by sea to Rome.
Animals that were rarely less than a year were slaughtered: bones unearthed in archaeological sites show that the animals were usually between one and two years old and some were even three or four (Marcuzzi and Vannozzi, 1981; Barker, 1973; Tozzi, 1980). This extended rearing period was due to the genetic traits of the breeds that were wild, grew slowly and whose diet was certainly inadequate and lacking the necessary nutrients.
Most animals were slaughtered in November and December, and always in the winter (Marcuzzi and Vannozzi, 1981). According to the extensive iconography available, the slaughtering technique consisted of stunning the animal with a blow to the head, cutting its jugular vein or stabbing its heart. The blood was collected, then the bristles were removed with fire and boiling water. The animal was then divided into halves and then cuts. The cuts were either eaten immediately or preserved.

HISTORICAL NOTES ON HAMS FROM THE PO VALLEY

Salting was a fundamental way to preserve meat. Its origins go back to the dawn of mankind. It was certainly "discovered" several times over and in different parts of the world. Salting was used for several types of meat, but especially for seasonal meat, pork and fish in particular. "Nothing is more useful than salt and sun", wrote Pliny the Elder in the 1st century B.C. and Isidoro Di Siviglia repeated these same words in the 7th century. The first important, even if "indirect" evidence of salted pork legs (prosciutto or proto-prosciutto) in the Po Valley comes from the previously mentioned archaeological studies of Olivieri del Castillo (1990) at Forcello (Bagnolo S. Vito near Mantua) on an Etruscan settlement from the 5th century B.C. Among the many pig bones found (nearly 30,000 were unearthed!), there were very few from the haunches. This fact cannot be accidental and leads us to believe that pork legs were used elsewhere, exported after being salted and then transformed into *prosciutto* or *proto-prosciutto*. Hams may even have been exported to Greece, where they were quite famous. We can assume the Ancient Greeks were familiar with prosciutto also from their use of words such as "kolia" and "perna" (Aristophanes, Plutus, Luciano: Lessifane XXIV, 6).
The Romans were well acquainted with ham, which they called "perna" (Varrone, De Lingua Latina). This word is also found on a tavern sign (Tacca, 1990). Q. Orazio Flacco (Satira II, verses 116-117) wrote about the use of the ham bone for medicinal purposes (Marcello Empirico – De medicamentibus Fisycis razionalibus). In his De Re Rustica, Columella (1st century A.D.) says: "All animals, especially the pig, must not drink anything on the day before slaughter so the meat will be drier... When you have slaughtered the pig....carefully de-bone it; this will make the salted meat less prone to decompose and it will last longer....Use toasted salt....and fill all parts in which the bones have been left, with lots of salt. After placing the slabs or pieces on planks, place heavy weights on top so the liquids can drain. Remove the weights on the third day and diligently rub the salted meat with your hands. When you have finished, sprinkle it with finely ground salt and store it this way; don't forget to rub it with salt every day until it has matured.

If the weather is good while you are rubbing the meat, leave it under salt for nine days. But if the weather is cloudy, you must bring the salted meat to the tub after 11 or 12 days. Afterwards, shake off the salt and rinse carefully with fresh water so that no salt remains. After letting it dry a bit, hang it in the meat larder where, if it still contains some water, it can be smoked for a while until it dries completely. This type of salting can be done well during the winter solstice, but also during February as long as it is before the Ides". Clearly, some advice is still valid: pay attention to the parts nearest to the bone, use very dry salt, squeeze the meat to extract the liquid, slaughter the pig during the winter (from 21 December to the first half of February), and so on.
Nevertheless, this refers to de-boned, salted meats that have been partially dried by heat and not smoked, not the “dry-cured ham” as we know it today, even though it is prepared with a similar technique.
To find information on the preservation of whole pork haunches through “prosciugamento” or drying (coming from the term “perxuctus” or “prosciugatissimo” – very dry in English), we must go back to the days of Cato the Censor who in his De Agricoltura (2nd century B.C.) wrote that the pork legs had to be placed in layers inside a dolium earthenware jar. Each layer had to be covered in salt and the layers must never touch. After 12 days, the salt had to be removed from the pieces of meat, washed carefully, set out to dry in the air for two days, coated with oil and vinegar and then hung on a stick near the fireplace.
Also in this case the meat was not smoked but only dried by the warm air.
During the Middle Ages, which provide more precise information, it was customary to cut the pig in half, longitudinally, creating two “halves” that weighed relatively little (Messedaglia, 1943-44) and were preserved under salt.
When the pig was not preserved whole, its prime cuts – the haunch or ham and “gambuccio”, “scamarita” (part of the back near the haunch; Sella, 1937) and shoulder – were salted. Less valuable cuts were not salted because of the high price of salt.
The important role of salt in the preservation of meat, fish and cheese and as an essential element in a primarily vegetarian diet, due to its potassium content, always fuelled intense trading of this staple. As recent authors have described and discussed in great detail (Meyer, 1981), salt from the coastal saline zones (Venice, Comacchio, Cervia) was transported to the Eastern Po Valley primarily along the Po River and its tributaries. Due to the cost, not for transportation but for duties because it was considered an indispensable staple, the people tried to produce it themselves; using rock-salt mines and particularly the saline sources inland.
The Po Valley, which was gradually formed by sedimentation, contains great amounts of fossil sea salt, deep within its layers of impermeable clay. For this reason, numerous salt-water ponds and springs can be found on the plains, in the hills and in the mountains (Marenghi, 1963).
The salt-water springs of the hills surrounding Parma near the towns of Salsomaggiore and Salsominore were famous (Baruzzi and Montanari, 1981; Bonatti, 1981). Saltworks sprang up in these places and probably date back to the Roman era (Bonatti, 1981; Drei, 1939).
It is evident that a certain type of technology was needed to process meat and preserve it with salt. Right at the start of the 9th century, Charlemagne’s capitulary on management of Royal Enterprises prescribed that "Omino praevidendum est cum omni diligentia it quicquid manibus laboraverint aut facerint, id est lardum, siccamen, sulcia, niusaltus... omnia cum summo nitore sint facta vel parata".
The pig produced provisions that had to last an entire year. Besides the salted parts that were preserved at length, there were others that had to be used immediately (entrails and blood...) and some “mid-term” bits consisting of stuffed pork products such as salami, boiled pork sausage, stuffed pig’s trotter, *cappelli da prete*, *bondiole* and other types of typical pork sausages.

There was clearly an ancient pig-rearing tradition in the Po Valley that intensified with the Longobard domination. Several meat preservation techniques such as salting were developed in this vast area over the centuries, but since there was an almost endless series of "variations", it is impossible to determine a separate origin and historical motivation for each. One of these, for example, is typical of the Bologna area and dates back to the Roman era at least. Meats and fats were finely chopped to obtain a mixture to which salt and spices were added to preserve it. The mixture could be cooked (mortadella), or eaten raw (sausages and salami) or after boiling (pork sausage and stuffed pig's trotter). Further west, in an area where iodized salt with bromide and small amounts of saltpeter rose to the surface (Marenghi, 1963), a preservation technology was developed in which a large number of mid-sized pork legs were salted and "dried" in a dry environment, as indicated by Cato the Censor.
With the advent of the agrarian revolution at the beginning of this millennium, deforestation and water control occurred in the Po Valley; farmed areas increased while uncultivated areas declined. Consequently, swine grazing became less important, but a new opportunity arose: whey, a by-product of cheese production, especially in the Grana Cheese areas (Parmigiano-Reggiano, Grana Padano) and other cheeses in the Veneto region. While the agrarian revolution led to the reduction and disappearance of most of the animals living in the wild, it did not affect the pig, which found itself advantaged as demonstrated in the works of Tanara (1965) and Landi (1969). The evolution of the Po Valley pig's diet at the end of the 19th century was associated with a change to swine populations due to the introduction of British "white breeds" that were fairly large and especially suited for the production of lard. As a result, larger hams were produced.
Despite the changes in the diet and populations of reared pigs, several indispensable characteristics remained for the production of dry-cured ham (matured) from the Po Valley:
- "Slow" body growth, therefore the slaughtering of "mature" pigs and not those with "young" meat;
- "Heavy" animals with large, meaty legs and a thick subcutaneous layer of fat.
Salt has always been and still is used to preserve pork – especially prime cuts such as the leg and thus ham – in the Po Valley.
While the preservation technology was basically the same, it could vary considerably depending on the zone and on several essential weather conditions, which eventually led to a distinction between pig breeding and ham curing.

CONCLUDING REMARKS ON HAMS FROM THE PO VALLEY

Pig breeding

Pig farming has always existed in the plains and hills of the Po Valley, initially because these areas were covered with oak forests that provided acorns used to fatten the omnivorous pig. The animals were later raised and fattened on products from the dairy farms (whey) and other vegetables such as corn. Thus, the area has always been known for its pig farms.

Ham maturation

The meat salting process can be done in any environment having the correct temperature and humidity characteristics. Pigs were normally slaughtered and their meat processed between December and February. The above mentioned ancient authors recommended different salting periods depending on the weather conditions. The following maturation process requires instead an environment that is not too humid. Owing to the need of a relatively low humidity environment, the maturation of ham developed in the hills surrounding the plains: in the hills surrounding Parma (which were also chosen because salt was available locally) and later on Modena to the South and the Veneto region to the North of the Po Valley. The maturation process is therefore an activity of the hillside and neighbouring areas, where the

climate is not too humid especially during the summer months after slaughtering. The maturation process must indeed preserve hams for at least one year following slaughtering. There was a saying that "to make a Po Valley ham, the pig must have passed two winters and the ham two summers", which meant having a "mature" pig and a "matured ham".
A direct line thus links the Po Valley ham from its origins (probably in the 5th century B.C. and documented in the 2nd century B.C.) to the present day with a precise distinction and definition of:
* pig breeding territories: low plains;
* maturation areas: foothills and hillsides;
* type of pig: "mature" and with sufficient subcutaneous fat;
* treatment with a limited amount of salt ("mild" hams) depending on the "age of the pig"
* absence of other "preservatives" especially smoke
* possibility of a long maturation process (leading to a natural, intense flavour) due to the "age of the pig", a limited amount of salt and distinct features of the maturation environment.
The long history of Po Valley hams proves their common origins, strictly tied to the environmental and cultural unity of the Po Valley. Common aspects are the particular characteristics of pig breeding farms in the plains and the maturation process in the foothills and hillsides, the distinct quality of the pig, which has maintained its "maturity" despite changes to the population and diet, and the pig's relatively heavy weight together with a certain layer of subcutaneous fat. All are indispensable elements for a "prolonged maturation process" and are even more important because less salt is used to give the ham its naturally intense flavour.
The indubitable "uniqueness" of the Po Valley ham has not prevented the emergence of "variations", some of which are well-defined and with a certain history (*Prosciutto di Parma, Prosciutto di San Daniele, Prosciutto di Modena* and *Prosciutto di Veneto*).
These variations concern several aspects, for example the shape of the ham, but especially the extent and quality of its "natural flavour" derived from endogenous ageing processes, determined by:
* quality (maturity) of the pigs;
* maturation environment;
* production techniques.

PROSCIUTTO DI PARMA (PARMA HAM)
Several historical documents talk about the vocation of Parma for the production of deli-meats not only with reference to Parma Ham, but also other lengthily matured products, such as *Culatello* or *Culattello*.
In "Secchia Rapita" (The Stolen Pail) written by A. Tassoni and published in 1622, the "head chef" during the Council of the Gods was Master Presciutto ("translation" of the dialect Persutt or Parsutt). The origin of the word "prosciutto" (ham) is somewhat clear: it is "perxuctus" which means "very dried meat".
Spalla or shoulder ham – which normally refers to the shoulder ham from the town of S. Secondo (*Spalla di San Secondo*), located in the plains of Parma near the River Po – is a fairly large pork cut corresponding to the shoulder that is salted and dried for a short period of time, then cooked before use. It was mentioned in local documents as early as 1100. According to Allodi and Drei, on the basis of their research in the documents of the Parma Archives, shoulder ham is also referred to using the Latin word "Spatulam".
Culatello, which is traditionally produced in the lowlands of the Parma province, is made from part of the pork leg. It is preserved with a little salt and is then dried in the air. The existence of Culatello was first mentioned in 1322; in Bonaventura Angeli's History of the City of Parma, published at the end of the 16th century, he wrote that during the magnificent

wedding which took place in 1322 between Andrea dei Conti Rossi and Giovanna del Conti Sanvitale, the newly-weds received “superb Culatellos” as a gift from their cousins, the Pallavicino Marquises from Busseto and the Rossi Counts from Zibello.
These two deli-meats from Parma, especially Culatello or Culattello (from “culatta” or rump), produced in the plains and thus in a humid environment, deserve mention because they provide an insight into the relationship between the technologies of the plains (Culatello) and the hillsides and foothills (Prosciutto). Consequently, one may better understand the evolution of the production of Parma Ham and its close ties with the territory.
It may be assumed that the experience gained over the centuries with the “curing” of shoulders and especially rumps led to the production of lightly salted, “mild” Parma Ham, when it was first produced with success in favourable environments with low humidity. As the Parmesan hills had this sort of environment, the encounter between the technology from the plains and the salt from Salsomaggiore was possible.
There are many historical documents that deal with Parma Ham from several points of view:
* Pig farming in Parma.
Besides general data that was the same throughout the Po Valley, pig breeding was a great tradition of Parma, as proven by the various sayings and proverbs in dialect. The following publications deal with pig breeding and relative techniques:
- Landi, O. "*Commentario delle più notabili e mostruose cose d'Italia*" (Commentary on the most notable and monstrous things in Italy) -Venice, Bariletto, 1569;
-Manuscript on Agriculture written in the 18th century by an anonymous author (1744);
- Spaggiari, P.L. "*Insegnamenti di Agricoltura parmigiana del XVIII sec.*" (Lessons on Parma Agriculture in the 18th Century)
- Silva, Parma, 1964.
- Anonymous "*Trattato sopra i Majali*" (Treatise on Pigs) dedicated to His Excellency, Mederico-Luigi-Elia Moreau Saint-Mery;
- Jacini, S. "*Relazione finale sui risultati dell'inchiesta agraria*" (Final report on the agrarian survey results)- 1884;
- Rozzi, U. "L'allevamento suino in provincia di Parma" (Pig breeding in the Parma province)- 1932;
- Rozzi, U. "I suini" (Swine)- Parma, 1937;
- Cassella, P. e O. "Manuale per l'allevamento del maiale" (Manual of Pig Breeding)- 1880;
- Lemoigne, A. "Torniamo all'antico?" (Should we go back to old times?) - Parma, 1893;
- Strobel 1844.
* Parma Ham Production and Marketing.
There are several historical notes on Parma Ham, among which the following are worthy of note:
- 1309: Butchers’ Statute, ASP, Common Fund, Sec. 1, Series XXII b. 1959. (mention of *prosciutto*, referred to as “*bassa*”).
- 1386: *Pacta ordines et statuta dacy douane salis* (1386) (ASP Common Fund, b. 1765) quot. A. Tacca - Perna et Parma, 1990) - (first mention of *Prosciutto di Parma*)
- around 1440: Dall'Olio, E. "Sagre, mercati e fiere di Parma e Provincia" (Festivals, markets and fairs in Parma and its province), 1979.
- 1589: Menu for the Marcantonio Colonna -Orsina Peretti marriage (Furositto, R.-addition to "Trinciante" del Cervio - Roma, Burchioni, 1953).
- 1503-1545: (Census) Consumi di sale pro-capite nella pianura e collina parmense (Per-capita salt consumption in the plains and hills of Parma) - from A. Tacca - Perna et Parma, 1990.
- 1500-1600-1700: Calmieri e "Gridari" diversi sui prezzi degli alimenti (Fixed prices and different “edicts” on the price of foodstuffs) – among which bone-in and boneless ham.

- 1768-1799: Acquisti di Prosciutto dalla Corte Borbonica (Ham Purchases by the Bourbon Court) -A. Tacca, 1990.
- 1700 (first half): Situazione delle Miniere del Sale nel parmense (Situation of Salt Mines in the Parma area) - Di Noto, S. (by) "Le Istituzioni dei Durati Parmensi nella Prima Metà del Settecento" (The institution of Durati Parmensi in the first half of the 18th century), 1980 (page 164 et seq.)
- 1700: Nevertheless, according to a report on Parma written at the end of the 18th century by Du Tillot and recently brought to light and discussed by Dall'Olio (1983), at that time pig production was still closely tied to grazing and acorns; therefore, the outcome depended on the production of them, consequently there were good years and bad years according to the amount of acorns produced. Pork consumption in Parma was relatively high at the end of the 18th century (4500 pigs were slaughtered each year, and mainly consumed in monasteries and convents) and the setting up of two abattoirs for pigs similar to the Bologna Slaughter-house was recommend.
- 1899: Micheli, G. "Le Corporazioni Parmensi d'arti e mestieri" (The Parma Guilds)- Battei, Parma, 1899
- 910: Distribuzione del sale Salsomaggiore (Salsomaggiore salt distribution) -A. Tacca, 1990, pag. 136.
- 1860-1915: Prime Ditte che si occupano della produzione del Prosciutto di Parma (The first factories engaged in the production of Parma Ham – Reports and Bulletins from the Chamber of Commerce and Arts of the Province of Parma – Exhibition catalogues.
- 1937: Bianchi, M. "Le specialità della nostra industria salumiera" (Specialties of our deli-meat production) -1937, p. 96.

* Morphological Characteristics

Information on morphological characteristics (size, shape, etc.) of Parma Ham in ancient days can be found in several still life paintings. One such still life showing a Parma Ham that perfectly corresponds to today's version, was painted by N. Levoli in the 17th century ("Still life with ham", oil on canvas, Parma, private collection - quot. A. Tacca - Perna et Parma, 1990).

According to available documentation, the production of Parma Ham was analogous to the production of other types of ham in the Po Valley. Pigs were bred in the plains and the maturation of hams took place in the foothills and hills.

Furthermore:

* pig breeding was an ancient Parmesan tradition linked to the Celt – Longobard civilizations in the Po Valley;
* after the 18th century, both public institutions and private citizens were involved in pig breeding;
* pigs were bred throughout the Parma plains and were fed on acorns from the oak forests (semi-wild breeding). Afterwards whey was used as feed, which implies a close tie between the pig breeding farm and cheese dairy that produced Parmigiano-Reggiano cheese;
* the salting of pork was an ancient tradition in the Parma area, which was already famous for its products in the 14th century, also because local "saltworks" provided the salt;
*Parma Ham production (like other Parmesan pork deli-meats) didn't use smoke or preservatives except for salt and controlled humidity and temperatures;
* Parma Ham was already mentioned in the 14th century and many sources have confirmed its productive and commercial continuity;
* the morphological characteristics of Parma Ham in the past, especially its size, can be assumed from still life paintings by artists who lived and worked in Parma;
* the industrialization of the Parma Ham production process has passed through a craftsman phase which has maintained the product's traditional characteristics.

EVOLUTION OF THE MATURATION PROCESS FOR PARMA HAM SINCE THE EARLY 20TH CENTURY.

At the beginning of the 20th century, Parma Ham gradually became a popular and commercial success. At that time, in fact, foundations were laid that favoured two events of fundamental importance for the sector's development:

- the introduction of the cold storage room in the production process;
- the initial steps towards changing production methods by building the first plants equipped to handle the maturation of large amounts of hams.

Prior to the introduction of the cold storage room, the people who skilfully used the winter season for curing ham (fresh meat could not be preserved in the summer due to the high temperature) prepared enough hams to satisfy local needs and the early demands from the Parma market.

These ham "curers" based their work on empirical notions. There were disturbing unknown factors and unpredictable aspects in ham-making. Discovering and identifying the root of the problems that harmed the maturation process meant ensuring the product's future; this is what the pioneers in the sector did as they attempted to achieve this goal using any means available. Guglielmo Bonati gives what is perhaps the only information on such episodes that took place at the beginning of the 20th century. In his memoirs, he describes the technology adopted at the time and the future prospects for the sector. Those were the days preceding the advent of the refrigerator, which was expected to revolutionize the ham "curing" process because it would allow fresh hams to be preserved even during the summer months. However, according to his memoirs, refrigerators "made the situation worse" because early experiments gave extremely disappointing results. The dream had been shattered.

That was a very difficult period in the history of Parma Ham: companies in the area went bankrupt and huge amounts of money were lost. Everyone was familiar with the salting process, but strategies for solving problems that occurred during the maturation phases were still unknown, and no school in the world could teach this subject. Years were needed before the origin of these problems could be determined and, after various attempts, it became apparent that the main factor was not the cold, but humidity. Therefore all curers strove to control the temperature to prevent humidity from forming.

The production tips in Bonati's memoirs (52 years of experience) were certainly courageous and far-reaching and they soon became useful to people who believed in them. Two important factors emerged during the period between the two world wars: the technique for preparing ham was perfected thanks to the vast experience of the curers and company capital was consolidated that, together with other factors, consequently led to expansion in the sector.

Regarding the second fundamental event – changes in production – it should be borne in mind that ham maturation became a relatively important business in the twenties. Up until the Second World War however, the restricted market, caused by limited domestic consumption that was still not balanced by export flows, influenced the flexible production policy based on market needs. Early "curers" based predominantly in Langhirano and Collecchio were family-run businesses that primarily used seasonal workers. In the fifties, however, the spread of more favourable farming and animal breeding conditions combined with an increase in per capita income, that had greatly decreased and practically disappeared during World War II, helped change this static situation that distinguished the period between the two wars. While the development of the Parmesan cheese-making industry gave a boost to the pig breeding industry, due to the new and more rational feeding based on whey and grain waste products, the higher per capita income – which started out at very low levels – triggered an increase in spending on consumer products, especially food, and a general increase in the standard of living of the population.

As a consequence, the market grew in size and breadth. Contacts with neighbouring provinces increased and, slowly through capillary expansion, the product became well known not only in Italy, but also abroad.
This larger market, however, became a problem for small family-run businesses. In the past, this business model was able to handle the demand of modest production volumes and the static absorption pattern without the need for a specific company organisation, whereas the production activities that in the meantime had reached considerably large volumes and geographically wider and more dynamic markets, could no longer keep its old structure, but had to adopt a new one.
In the light of this need, several operators used their private savings to expand their companies or to build new factories. This favoured a gradual increase in production volumes and the gradual abandonment of the family-run business model. While not all companies followed this path and preferred to maintain their original status, the change strongly affected the development of the entire sector.
Due to market development and increased consumption, the ham curing industry in towns located in the foothills (Langhirano, Collecchio, Felino and Sala Baganza) started to spread to the valleys of the province. Notably, thanks to the savings from the areas neighbouring with the mentioned towns, curers could receive loans or contributions of fresh pork legs to be processed. Therefore, the considerable economic and commercial prospects and the time-tested suitable environment turned the people who had profitably invested in the sector into entrepreneurs.
This was also one of the reasons behind the spreading of the ham maturation sector into new areas, namely the towns of Corniglio, Neviano and Palanzano (near Langhirano), Calestano (near Felino and Sala Baganza) and Varano, Pellegrino, Traversetolo and Montechiarugolo in the foothills.
In 1963 a group of 23 ham producing companies founded the *Consorzio Volontario fra i Produttori del Prosciutto Tipico di Parma* (Voluntary Consortium of Typical Parma Ham Producers).
The objectives of this entity were to defend, distinguish and guarantee the production and sale of the local ham, to protect the name of "Prosciutto di Parma" from trade name infringements, imitation, counterfeiting, and acts of unfair competition to the detriment of the authentic product, and to obtain legal recognition of the name "Prosciutto di Parma", i.e. a law for the protection of the designation of origin.
This law was passed in 1970 and the rest is recent history.

CONCLUSIONS

On the basis of archaeological, historical and linguistic information; traditions, existing iconography as well as scientific data on biology, pig breeding and food processing technologies, especially on meat preservation through the process of salting, the following can be proved.
On a social and cultural level but especially on the basis of the production experience developed and cherished by tradition, the Po Valley region is a "unity", also regarding its pig breeding farms and processing of prime cuts, such as the leg that is used to make ham.
The Po Valley region has originated a unique "model" for the domestication and breeding of pigs and the production of dry-cured hams. Over the years, this model has changed to create the varieties that have become *Prosciutto di Parma*, *Prosciutto di San Daniele*, *Prosciutto di Modena* and *Prosciutto Veneto*.
Concerning Prosciutto di Parma, it has been proven that ancient production techniques, which have survived throughout the centuries, have been applied and enhanced through personal experience inherited over the years. These techniques have evolved together with the complex

evolution of historical, economic and social circumstances and their continuity has never been broken. This demonstrates how the specific qualities of Parma Ham are inherently and closely connected and depend upon irreplaceable and unique natural, environmental and human factors.
Further confirmation of these conclusions can be found in historical analysis and information contained in Section F that mentions and develops the issues, focusing in particular on the connections with the geographical area.

SECTION D REFERENCE DOCUMENTS

Bibliography of publications containing historical references to various aspects of Parma Ham, in particular pig breeding in the Po Valley and in Parma, production and marketing of Parma Ham.

Copy of the "Notice for reporting salted pork meats and wholesale trading of same" published by the Governor of Parma on 21 April 1764, which includes also bone-in ham ("prefciuto con l'offo").

Copy of an abstract of the "Topographical Glossary of the Dukedoms of Parma, Piacenza and Guastalla" by Lorenzo Molossi, printed in 1832/34, which makes explicit reference to the breeding of "Swine" intended for the production of dry-cured hams.

Copy of various pages of the 1915 bulletin of the Parma Chamber of Commerce containing, in the section dedicated to dry-cured meats, "aged ham".

Abstract of the Registrar of Companies of the Parma Chamber of Commerce, which testifies to the incorporation, in the 1920s and 1930s, of ham producing companies.

SECTION E

PRODUCTION METHOD OF PARMA HAM

Parma Ham production procedures are provided for under Italian Law No.26 dated 13 February 1990, Ministerial Decree No. 253 dated 15 February 1993 and, more recently, by EEC Regulation No. 1107 dated 12 June 1996. The procedures and requirements relating to the raw material, as set out in Sections B and C above are hereby confirmed.
The production of Parma Ham includes the following 9 stages:
1. Separation
2. Cooling
3. Trimming
4. Salting
5. Resting
6. Washing - Drying
7. Pre-maturation - Trimming
8. Smearing
9. Sampling - Maturation

Separation

The pig shall be:

- healthy, rested and shall not have eaten for 15 hours.

Slaughter takes place if the above requirements are met; afterwards legs are separated from the sides.

Cooling

Hams shall be stored in special cold rooms for 24 hours:

- to bring the pork leg temperature down from 40°C to 0°C;
- to favour the trimming of meat that becomes harder at lower temperatures.

During the cooling stage, hams have a weight loss of about 1%.

Trimming

Through trimming, which means removing fat and rind, the ham is given its typical "chicken leg" round shape.

Trimming is carried out for two reasons, one being merely aesthetic, the other technical, namely that of favouring salting.

During these operations, hams with even the slightest imperfection are discarded.

After trimming, hams lose up to 24% of their weight in fat and muscle.

Apart from refrigeration, the pork legs that are used for the production of Parma Ham must not undergo any other preservation treatment, including freezing.

Salting

Refrigerated and trimmed pork legs are sent by abattoirs to salting plants; it is extremely important that salting is carried out on legs that have been kept at a correct and constant temperature; as it happens, an excessively cold leg absorbs little salt, while a leg that has not been sufficiently refrigerated may spoil. Salting involves the use of wet and dry salt. The rind is treated with wet salt, while lean parts are sprinkled with dry salt.

No chemicals, preservatives or other additives are used. Hams do not undergo smoking.

Hams are stored in cold rooms at a temperature ranging from 1°C to 4°C at about 80% humidity. After 6-7 days of storage in these cold rooms, which are known as first salting rooms, hams are taken out of the cold rooms, the residual salt is removed and pork legs are sprinkled again with tiny amounts of salt. Hams are stored back in another cold room, which is known as the second salting room, where they remain for 15/18 days depending on their weight.

During this period of time, hams slowly absorb salt and lose some of their moisture. At the end of the salting period, the weight loss is about 3.5-4%.

Resting

After removing all residual salt, hams are stored in so-called resting rooms for a period ranging from 60 to 90 days at about 75% humidity and at temperatures of 1-5°C. During this stage, hams are meant to "breathe" without getting too wet or too dry. The air in the rooms is changed at frequent intervals. The absorbed salt penetrates deeply and is evenly distributed in the muscle mass. During the resting phase, the weight loss is about 8-10%.

Washing - Drying

Hams are washed with lukewarm water, after which the rind is scraped to remove any residual salt or impurities. On dry and windy sunny days, hams are dried naturally, otherwise they are dried in special drying rooms.

Pre-maturation

Pre-maturation takes place in large rooms with opposing windows where hams hang on the traditional racks known as "*scalere*". The windows are opened depending on the rations of internal/external humidity and internal humidity/product moisture. These ratios shall ensure a gradual and possibly constant drying.

After the pre-maturation phase, hams are beaten to give them their typical rounded shape. Sometimes, the hollow surrounding the best end is sprinkled with pepper to keep the contact area dry. During this stage the weight loss is about 8-10%.

Smearing

The hollow surrounding the best end, exposed muscular parts and any cracks are covered with a layer of smear, i.e. ground pork fat mixed with a bit of salt and ground pepper and, if necessary, rice flour. Smearing has the purpose of softening the surface muscular layers, preventing them from drying up too quickly compared to the inner layers, and allowing an additional loss of moisture. Smear is not considered an ingredient under the Italian Law.

Sampling and maturation

After smearing and upon reaching the 7th month of age, hams are moved to the "cellars", which are cooler and less ventilated than pre-maturation rooms. Before being moved, hams are subject to sampling, which is a fundamental stage in the life of hams. During this phase a special needle, made of horse bone and having the unique feature of being able to rapidly absorb and release the product aroma, is inserted into various points of the muscular mass and then sniffed by experts who are gifted with special olfactory capabilities and are able to establish whether the curing process is going well.

During the maturation phase, important biochemical and enzymatic processes take place giving rise to the characteristic ham aroma and flavour. During maturation, hams lose about 5% of their weight.

When hams are 12 months of age and after various inspections carried out by the inspectors of the Certification Body, the "Ducal Crown" firebrand is affixed.

AUTHORISATION OF PRODUCERS AND SUITABILITY OF PROCESSING PLANTS

- Companies wishing to produce Parma Ham shall be authorised by the Certification Body following the filing of an application specifying:

a) registration with the Chamber of Commerce, Industry, Artisan Crafts and Agriculture of Parma;

b) company name and registered office;

c) address of the processing plant, its production capacity and details of the health authorisation conforming with the current legislation.

- Upon authorisation, the Certification Body gives an identification number to the producer. This number is part of the certification brand referred to in Article 1 of Law No. 26/90.

- The applicant shall bear all costs arising in connection with the obligations envisaged under these Specifications and all expenses incurred for the required audits by the Certification Body or by the applicant.

- To be declared suitable for the production of Parma Ham, curing plants shall possess all the hygiene and health authorisations provided for by the legislation in force and shall be equipped with:

a) a room for the receipt and initial treatment of pork legs;

b) cold rooms equipped with all the necessary machinery and installations to maintain humidity and temperature at the levels required by the legislation in force regarding the salting and resting stages;
c) other independent rooms required for maturation operations.

- Maturation rooms shall be furnished with windows that are large enough to ensure optimum ventilation and adequate change of air. These rooms can be supplied with equipment needed to maintain the right balance and environmental thermal and hygrometric characteristics.

SECTION E REFERENCE DOCUMENTS

Specimen of the application form requesting producer authorisation

Photographs of the processing stages of Parma Ham.

Other reference documents:
- Law No. 26/90 (Section A)
- Ministerial Decree No. 253/93 (Section A)

SECTION F

EVIDENCE OF TIES WITH THE GEOGRAPHICAL ENVIRONMENT

INTRODUCTION
The elements presented in Section D proving the origins of Parma Ham and related raw material in the geographical areas respectively defined, give ample evidence (through historical accounts) of the close and profound bond between agricultural production and product transformation within the area of origin. These bonds have been strengthened and confirmed by the development of social, economic and production factors, as well as by the human expertise that has built up and consolidated over the centuries. In the defined area where the raw materials (pigs and pork) originate, there are recurrent and distinguishing geographic and environmental factors, as well as farming experiences, which will be thoroughly explained in points F.2 and subsequent ones. Concerning the smaller processing area where all recognized ham factories are located, the unique combination of environmental, climatic, natural and human factors gives rise to a unique example.

EVOLUTION OF HEAVY PIG BREEDING IN CENTRAL AND NORTHERN ITALY.
From the many bone fragments unearthed in numerous excavation sites, it may be assumed that pig, cattle and sheep breeding first developed in Northern Italy during the Neolithic period.
However, as proven by the equal proportion of bone fragments found, animals were initially bred to purely satisfy the needs of the family or village.
Only in the Etruscan period a sort of stable and specialised animal breeding was carried out with the purpose of producing pork and beef, wool, milk and its derivatives. These products were used to meet local needs and exports.

The excavation sites at Forcello are a case in point. This Etruscan settlement (5th century B.C.) situated south of Mantua and on the right bank of the Mincio River, is not far from Andes, the town where the poet Virgil was born.
A large number of archaeological findings was unearthed here, including 50,000 animal bone fragments of which 60% from pigs. This clearly indicates the Etruscans' preference for pig breeding, closely followed by sheep and cattle.
A study of the bones has shown that the pigs were slaughtered when they were between 2 and 3 years old, and the remains of hind legs were proportionally missing. Pig breeding has always been one of the most important sectors of farming in Italy.
According to the livestock census of 1908, in Italy there were 2,507,798 pigs, of which 322,099 were sows.
In 1926, according to Fotticchia, 2,750,000 pigs were bred in Italy: 1,400,000 in Northern Italy and 570,000 in Central Italy.
From the turn of the century up until World War I, there were three types of traditional breeding in Italy:

- family-run-farms, once the most prevalent type in the Po Valley, which raised a small number of animals that were well-tended and fed with kitchen scraps and vegetables. These animals were mainly slaughtered to feed the family, but some were sold to local butcher's shops. This type of breeding gradually disappeared as specialised animal breeding farms developed;
- wild or semi-wild pig breeding was prevalent along the Apennine Mountains and foothills, in the Lombardy, Veneto and Friuli Prealps, where scrub and oak forests are plentiful;
- industrial breeding was already prevalent in Lombardy and Emilia in the last century because it was associated to dairies, owing to the exploitation of their by-products (i.e. whey and buttermilk), flour milling (flour, bran and fine bran) and rice hulling (rice husks).

Modern pig breeding as we know it today first appeared in Italy in 1872. That year, in fact, the Ministry of Agriculture, through the Experimental Institute for Zootechnics of Reggio Emilia, imported the first Yorkshire breeding pigs from the UK to some of the provinces of the Po Valley.

INDIGENOUS BREEDS

Italy was home to many indigenous breeds. However, with the introduction of Yorkshire pigs and repeated cross-breeding to obtain fatter, faster-growing pigs with less bone mass, these local breeds gradually lost importance and their identity.
The most widespread breeds bred in Central and Northern Italy, still present at the beginning of World War I were:

- Piedmont: There were two local breeds in Piedmont. One was the Cavour pig with a black coat, drooping ears and white mask, which was bred on the right banks of the Po River. The other was the Garlasco pig, which was bred on the left banks. It was a smaller breed with a reddish-gold hide and coat. Both breeds were sturdy, fast-growing and suited to grazing.
- Lombardy: The large Lombard breed with reddish-black coat and white spots was large, easy to fatten and it could reach up to 200-220 kilos of weight.
- Emilia: The Parmigiana breed was found throughout the areas of Parma and Piacenza and in part of the Reggio Emilia area. It has a dark grey coat with sparse black bristles. A very prolific, tall, sturdy breed, it grazed for most of the year.

The Bolognese pig, which was larger than the Parmigiana breed, had short, sparse bristles and a deep purplish-red skin. It was found in a larger area (Bologna, Modena and part of the Reggio Emilia area, Manua and Veneto). Its meat, as Marchi mentioned in his book written

in 1914, “made *Zamponi di Modena* (stuffed pig trotters) *mortadella*, *spalle*, *bondole di Bologna* famous”.

- Romagna: The dark brown Mora Romagnola breed was found throughout the region. Stanga (Suinicultura practica, 1992) referred to it as a sub-species of the Bolognese pig. The Romagnola pig was tall (80-90cm at the withers) and known for its cylindrical trunk, curved back and especially for its crest, “formed by strong thick bristles running down the spine” (Ballardini).
- Veneto: Besides the Lombard and Romagnola breeds, Veneto was also home to the Friulana breed. This rustic pig could be raised easily as a grazing animal or in a pen. Although its meat was very tasty, the animal was not a good breeder.
- Tuscany: Three breeds were raised on this land, which was home to holm-oak, oak, chestnut and Adriatic oak forests and ideal for pig grazing: the Siena Belted, the Cappuccia and Maremmana pigs. The most important was the Siena Belted: a long, tall pig with a cylindrical trunk, convex back and frequently retracted ventral line.

Other features of this breed are a very long head, small ears facing forward and a slate grey coat with fine, bushy bristles. It has a white stripe that starts from the withers, runs down the shoulders, circles the trunk and even touches the front legs. The Siena Belted pig was prolific and fast-growing. Dondi accurately describes it, saying “The excellent meat is very tasty. Deli meats from Siena are famous, especially the sausages, mortadella and hams that are produced in great quantities by local plants that primarily use local animals raised in the hills of Siena”. Mascheroni (Zootecnica speciale, 1927) states: “This breed is raised and fattened in the forests during summer and winter. It only returns to the pigsty at night. It primarily feeds on acorns from oaks and holm-oaks, whose production varies, and its diet is supplemented with mash, chestnut flour, corn and bran”.

- Umbria: The Umbrian pig population, generically called Perugina, varied greatly between mountain areas and the plains.

The “scrub” pigs that lived in the mountains had a dark coat covered with thick bristles, a long head and droopy ears. These rustic, strong pigs lived in herds in the forests. There were also Perugina pigs in the hills and plains that were very similar to the Cappuccia breed from Tuscany. These tall pigs had a medium-sized head and drooping ears, convex back, slanting rump and rather slim haunches and buttocks. They had a slate grey coat with sparse bristles and almost always white markings on their limbs.

They were reared as semi-wild grazing animals in the woody areas of the hills and plains. If there were no grazing areas, they were bred for producing suckling pigs. Only a few animals were fattened for meat.

FROM AUTOCHTHONOUS BREEDS TO MODERN PIG FARMING

The replacement of local pig breeds with selected, more productive species – a process that had already begun at the end of the last century – took place very slowly and gradually, especially in the first few decades. This was not due to difficulties in acquiring and introducing new breeds in the primary sector, but because breeding techniques developed just as slowly and gradually.

As long as wild and semi-wild grazing systems were, in many regions, the most common and less expensive way to fatten a pig, the animal sturdiness, resistance, suitability for grazing and, generally speaking, its ability to scavenge for food, were indispensable conditions and priorities.

During the period between the two World Wars and also after the great increase in dairy farms in the Po Valley, farms connected with dairies increased their demand for suckling pigs and porkers. Farms that bred pigs for fattening preferred large and sufficiently rustic animals

that would eat whey, bran and flour. The offspring of Yorkshire Large Whites, cross-bred with local species, were ideal.
At the same time, since the wild and semi-wild pig grazing system used in Emilia Romagna, Tuscany and Umbria was in decline due to deforestation, there was an increase in sow breeding to produce piglets, which were sought after by pig-fattening farmers in the Po Valley.
This subdivision of roles in pig farming by different regions favoured and accelerated the existing cross-breeding process of pig populations – especially the rustic, good-sized Romagnola, the Siena belted, the Perugina and the Cappuccia –with faster-growing and more selected Large White boars.
Despite the growth in the number of industrial pig farms, the custom of fattening pigs up to a weight of 160-180 kg and more was prevalent and increased during this particular period.
The reason lies in the fact that both pig breeding farmers and industrial pig farms decided to breed heavy pigs.
Then as now, the industry needed heavy carcasses whose mature meat could provide cured and matured products, ham being at the foremost, with those superlative oganoleptic qualities that have brought Italian deli-meat products worldwide fame.
Dairies in the Emilia and lower Lombardy regions that mainly produced "Grana" cheese, started production in the spring after cows had given birth and calves had been weaned. Production terminated at the end of November, when cows were dried off.
Pigs, bred for the consumption of whey and buttermilk were therefore bought in March and weighed about 35-45 kilos (store pigs). They were sold after the dairies closed during the winter, which was the best time for meat processing because refrigerators still did not exist. During the 9 to 10 months in the pigsty, pigs reached 160-180 kilograms in weight. Heavy pigs therefore satisfied the needs of the market and those of the dairies.
As a matter of fact, a one-year cycle was a better way to absorb reproduction costs and to contain losses for illness and death, which were much more frequent during periods of acclimatisation. This system was criticised for the large amount of feed needed during the last fattening stage to have 1 kilo weight increase. However, one should bear in mind however that during this stage, more than one third of the diet's nutritional value came from fresh whey, which was readily available.
Large White boars and local sows were cross-bred for several years, also after World War II. Due to repeated cross-breeding to obtain animals that were more suited to the dairies, the autochthonous breeds decreased in number and were eventually replaced by a population with the same characteristics as the Large White breed.
"Smoky" pigs (Large White x Romagnola) from the Cesena market and "grey" or "spotted" pigs from Tuscany (Large White x Siena Belted) were already present in a few Lombard dairy pigsties at the beginning of the fifties. During that same period, due to better information about diet and the development of the animal feed industry, specialized pig breeding farms that were not connected to dairies made their appearance.
Owing to these new developments, the pig population in Italy, especially in the north, grew considerably.
From an average population of 3,320,000 pigs in the five-year period from 1951 to 1955, the population grew to 4,800,000 in 1962.
As dairy production increased, so did the number of dairies and pig fattening farms. Also contributing to the increase in the number of pigs were specialized pig breeding farms without grazing land that were not connected with dairies. These farms were run by entrepreneurs that came from other non-agricultural businesses and focused more on pig reproduction than on pig fattening.

There was an increase in farms registered with herd books. A serious selection programme of Large White and Landrace breeds was launched with the help of Genetic Control Centres set up by the Ministry of Agriculture (1960).
The foundations were therefore laid for modern pig farming. The aim was always the production of heavy pigs that met the requirements demanded by a processing industry in continuous and rapid expansion
Many important new technologies were introduced in pig breeding farms between 1960 and 1970, especially concerning reproduction.
In just a few years, breeding farms went from having a small number of pens containing just a few pigs, a necessary measure to prevent dangerous diseases from spreading among the piglets, to rearing sows in completely automated industrial breeding farms.
These new factors, which permitted the production of piglets in the intensive pig breeding systems of the Po Valley, changed the balance that had lasted for many decades between the northern regions, which were mainly dedicated to fattening pigs, and central zones, specialised in reproduction.
While pig farming in the north strengthened and grew, the Romagna area and the central Italian regions started reorganising the entire pig farming industry.
The pig population in Italy grew from 4,800,000 heads in 1962 to 9,014,000 in 1981, with an average growth rate of 4.4%.
In the following years, until 1987, the number of pigs continued to grow but at a slower rate compared to the previous decade. Due to the need for reorganization of the system mentioned earlier, this development was less evident in Central Italy.
In recent years, a number of environmental laws have been passed in several regions in the north that have made it more difficult to maintain current structures and find suitable areas for new farms. As a result, the basis has been laid for an increase in the number of pig breeding farms in homogeneous areas of Central Italy where heavy pig production is an ancient tradition as well.

INTRODUCTION
There is an additional element – modern, scientifically proven and regulated by EEC laws – that proves the tie between raw material and geographical area according to a series of specific and vocational requirements.

While it is true that zootechnic productive characterizations strictly depend on Designation of Origin product requirements to the point that they assume special, exclusive and distinct qualities with regard to the geographical area, likewise, recognition of this distinction – which defines the link discussed in this document – confirms this assumption.

The distinctive characteristic that links the territory, farming and the processing of the Parma Ham PDO product (*Prosciutto di Parma DOP*) can be indubitably summed up in the expression “heavy pig”, which is frequently mentioned in this section and previous Section D. The expression is also mentioned in the same national law protecting the product and, in form and substance, is always referred to in these Specifications, particularly with regard to the production requirements mentioned in Section C.

It is therefore absolutely pertinent to underline that the definition of heavy pig, has been formally recognized by the European Community through legislation on the commercial classification of pig carcasses.

EEC-Regulation No. 3220 dated 13 November 1984 is the latest update that has been introduced by the Commission on this subject.

Entered into force on 1 January1989, this regulation introduced objective measuring methods for evaluating the percentage of lean meat in carcasses, subdividing them into five

commercial classes with the letters of the acronym EUROP and the possibility for each country to introduce a special class called “S”.

Regarding the application of this regulation, Italy was the only country where two pig populations were recognized:

a) "light pigs", slaughtered at weights in line with European averages

b) "heavy pigs", slaughtered at a weight of 150-160 kilos and whose meat is used for processing.

Consequently, on 21 December 1988, a Resolution of the Commission authorised the distinction between “light” carcasses (dead weight < 120 kilos) and “heavy” carcasses (dead weight > 120 kilos), with subsequent application of two clearly different formulas used for commercial evaluation.

Concerning national laws, notably the competent ministry drew up a plan to implement Article 3, paragraph 4, of the above-mentioned EEC Regulation No. 3220/84, to determine evaluation criteria for meat quality that can be associated with those for the quality of lean meat.

If the two separate Italian pig populations dealt with in EEC-Regulation are considered an acknowledgement of the existence of different requirements that are identical to the requisites in these Specifications, then the type of pig found within the defined area and tied to the area by specific historic, economic and social reasons is the “heavy pig”.

Therefore, recognition of the presence of two profoundly different populations within the same country constitutes a formal anticipation of the acknowledgement of the bond that ties both to their respective geographical and economic contexts.

In short, the explanation above means that:

- only the so-called “heavy pig” provides the raw material used for Parma Ham production;
- the EEC has acknowledged, through its Resolution of 21 December 1988, that only Italy is home to two different pig populations, one “light” that is in line with European averages, and one “heavy”, which conforms with the needs of the deli-meat industry that is traditionally and historically established and documented;
- said recognition has led to authorisation of the definition of two carcass categories with the consequent application of clearly different formulas in their commercial evaluation;
- laws regulating the two Italian pig populations acknowledge the existence of specific requisites that are the same as the ones set out by the provisions of these Specifications and that identify the “heavy pig” category that, as extensively documented, exists in the defined area owing to precise historic, social and production reasons;
- EEC recognition therefore constitutes a substantial acknowledgement of the tie with the geographical context of reference.

TYPICAL PRODUCTION AREA

As already mentioned in Section B, the typical production area of Parma Ham includes the territory in the province of Parma located South of the Emilia Road, at a distance therefrom of not less than 5 kilometres, up to an maximum altitude of 900 metres, bordered by the River Enza to the East and by the Stirone stream to the West. This area is favoured by exceptional ecological, climatic and environmental conditions. This is the only place where the unique and essential breeze that “dries” Parma Ham blows, making it mild and unequalled. This breeze, which comes in from the sea on the Versilia coast, gently blows through the olive and pine trees of the Magra Valley. It then becomes drier as it rushes over the Apennine passes

(Cisa, Lagastrello, Cirone). It acquires the heady fragrance of chestnut trees before it blows to dry the hams in the Parma valleys. To take advantage of this breeze, the production plants are placed transversally to the airflow. The plant's numerous, large windows allow the circulation of air, which decisively contributes to the enzymatic and biochemical processes that give rise to Parma Ham.
These biochemical transformations, which take place during the long maturation stage, follow a precise trend thanks to the ecological conditions in the Parma valleys, which are unmatched in any other place in Italy.
This is all the more evident when Parma Ham is compared with other products that undergo artificial treatments to give them the appearance, but nothing more, of a lengthily maturation. Owing to their high salt content and exposure to air conditioned rooms, because of the absence of the ideal natural conditions, these products dry quickly and take on an appearance similar to that of Parma Ham that undergoes a rational and natural maturation process, yet they lack the characteristic flavour, aroma and mildness.

The area "upstream" the typical Parma Ham production area is further characterised by the lack of production factories that may pollute the environment with liquid and/or gas emissions. This characteristic is protected by Law No. 26 dated 13 February 1990, which states: "To protect the conditions of the production environment upon which the organoleptic and commercial characteristics of Parma Ham depend, the introduction of first-level noxious industries – identified in Article 216 of the Consolidated Act of Sanitary Laws approved through Royal Decree No. 1265 dated 27 July 1934 – and any other business that might jeopardize the environmental balance of the area must be approved beforehand by the regional committee for air pollution responsible for that territory". Adoption of such strict laws (for "first-level noxious industries", the national law considers almost all manufacturing activities, even cattle farms) can only be justified by a deep-rooted awareness of the objective needs to protect and safeguard the environment.

Current national laws, which are an integral part of these Specifications in form and substance, are a consolidation and resulting codification of the course that human and productive factors have taken, in specific geographical and environmental contexts, in clearly identified and defined areas that produce the raw material intended for the preparation and processing of Parma Ham.

SECTION F REFERENCE DOCUMENTS

EEC Regulation No. 3220/84;
Commission Resolution dated 21 December 1988
Commission Resolution dated 20 November 1989
Decree of the Ministry of Agriculture and Forestry dated 24 February 1989

Copy of articles containing notes on the tie between production and the defined geographical area.

Other reference documents:
Bibliographic references already given in Section D, point D.6.;
- Bibliography already attached to Section D.

SECTION G

INSPECTION STRUCTURE PROVIDED FOR BY ARTICLE 10 OF EEC REGULATION N°2081/92

Each stage of the production process is monitored by recording all the relevant inputs and outputs. In this way and through the inclusion in specific lists of breeders, slaughterers, meat cutters, producers, curer and ham cutters managed by the supervisory body, as well as through the timely reporting to the supervisory body of the amounts produced and in compliance with the obligations set in the above sections and in the control plan, full traceability of the product is guaranteed. All natural persons or companies included in the relevant lists are subject to the control of the supervisory body in compliance with the production Specifications and the relevant control plan.

SECTION H

SPECIFIC REQUIREMENTS CONCERNING APPEARANCE, IDENTIFICATION AND LABELLING OF PARMA HAM

INTRODUCTION

Current Italian laws and regulations set forth specific rules for the identification of Parma Ham in terms of production identification within the production chain (raw materials), final preparation and appearance when sold.

Current legislation provides for the use of tattoos, seals and brands to identify the protected products throughout the various processing stages, where the products need to be identified and certified from its raw material to the matured ham and beyond.

As mentioned in Section C, the following steps are provided for within the protected production chain:

- tattoo/s referred to in Section C affixed by the breeder;
- firebrand referred to in Section C affixed by the slaughterer;
- metal seal referred to in Section C affixed by the producer;
- "Ducal Crown" firebrand referred to in Section C affixed in the presence of the inspectors of the Certification Body.

The first specimen of the five-pointed "Ducal Crown" firebrand that includes the word "Parma" dates back to 1963 and has since been modified by subsequent measures, the last one of which – published in the "Gazzetta Ufficiale della Repubblica Italiana" (Official Journal of the Italian Republic) of 31 August 1991 – was Ministerial Decree dated 26 August 1991. The "Ducal Crown" firebrand is affixed at the end of the maturation period on hams that, after the necessary inspections have been carried out, meet all the product and quality requirements provided for by the Specifications. The "Ducal Crown" is meant to identify and authenticate Parma Ham, in that it both distinguishes the product from other dry-cured hams giving it authenticity and guaranteeing that it has passed through all the necessary production stages, which have all been identified by the parties concerned. Since 1 October 1991, the "Ducal Crown" certification brand has been accompanied by the producer identification code, granted by the Consorzio del Prosciutto di Parma upon the company's authorisation. Only the presence of the "Ducal Crown" certification mark together with the producer code gives the

product its legitimate qualification as Parma Ham no matter what form the product is presented in i.e. bone-in, de-boned, sliced or pre-packed. In the "Ducal Crown" certification mark present on the packs of sliced and pre-packaged product, the producer's identification code located under the same trademark is replaced by a code identifying the company carrying out the slicing and packaging operations, which is different from that of the producer.
The Consorzio del Prosciutto di Parma holds custody of the dies of the tools required for the application of the certification brand, which shall be given to the Certification Body. These tools, owned by the Protection Consortium, shall be given to the Inspectors when affixing the certification brands onto the hams. While using these tools for fire-branding, Inspectors shall have full responsibility for their custody; management and use shall be subject to disciplinary and judicial measures, in cases of negligence, omission or improper use. In conclusion, the most important element that distinguishes Parma Ham – or better still the only formal discriminating factor – when presenting the product for sale is the "Ducal Crown" trademark. Only in the presence of this firebrand shall the use of the designation of origin be legitimate and legal: without the "Ducal Crown" a product shall not bear the designation on its label or packaging, on any sales documentation or during the sales operation (whole, sliced, pre-packed or retail sale in pieces). Moreover the "added value" that the "Ducal Crown" certification mark presents has been confirmed by the fact that there have been frequent cases in which fake "crown" certification brands have been affixed to common hams, thus breaching the legal requirements provided for by both special and general regulations
Also the graphic reproduction of the "Ducal Crown" trademark is not freely available to anyone (not even when dealing with authentic products): this graphic design, whichever way it is used, is reserved for the Consorzio del Prosciutto di Parma, which is entitled to authorise third parties, from time to time and for individual and specific initiatives, to reproduce the graphic symbol of the certification brand, imposing the conditions, limitations and controls that it deems appropriate. Any unauthorised reproduction of the certification brand is liable to criminal or civil prosecution.
It has already been mentioned that the affixing of the Ducal Crown firebrand is chronologically the last element that identifies and qualifies the protected product; the certification brand can indeed be affixed only on hams bearing the "C.P.P." metal seal affixed at the beginning of curing. This metal seal whose symbol was approved by Ministerial Decree dated 9 October 1978 (published in the Official Journal of the Italian Republic on 19 October 1978) bears the month and year when curing started and is applied by the producer on fresh pork legs that arrive at the curing plant and are intended for protected production. This seal is an essential item when calculating the minimum maturation period and, furthermore, it counts as the production date in compliance with the current national laws on the health monitoring system for meat.
The seal shall be affixed to the fresh pork legs that are supplied by approved abattoirs that have the numbered firebrand granted to each one for identification purposes, and that are accompanied by the relevant health and product documentation proving the pork legs material and quality characteristics, including compliance with the objective parameters specified in Section B; the seal shall not be affixed to fresh pork legs that do not comply with the above-mentioned requirements. Any misuse of the seal shall be prosecuted by law.

Seal: a ring with CPP embossed on the surface and the date of beginning of curing, indicating the month (the first three letters of the month name) and the year (the last two digits of the year in Arabic numbers).
The indelible firebrand affixed by the abattoir is made up of a standard base, bearing "PP" acronym, and an alphanumerical code (one letter and two digits) identifying the authorised

abattoir. The abattoir affixes its firebrand on the fresh pork legs of pigs arriving from recognised breeding farms and accompanied by the relevant certificates of origin and of conformity with the production provisions applicable to the breeding stage and with the quality requirements that are applicable to fresh pork legs intended for protected production. The numbered abattoir firebrand, that identifies each slaughtering company, plays an important role not only from the point of view of full traceability of all hams during curing (and often also after maturation) but also in terms of control.
Firebrand: made up of the "PP" acronym and a mobile identification code for the abattoir consisting of one letter and two numbers to be placed under the acronym instead of the dots.
The requirements for labelling Parma Ham – whether whole bone-in, whole packaged, cut in pieces or sliced – do not exclude, of course, the general provisions set forth in particular by Legislative Decree No. 109 dated 27 June 1992 that in turn implements EEC Directives 89/395 and 89/396 governing labelling, guise and advertising of food products. These rules have been adopted in the production Specifications approved with EEC Regulation no. 1107 dated 12 June 1996.

The Specifications themselves require that the following mandatory indications be reported for each of the different ways Parma Ham is presented for sale:
a) for whole Parma Ham bone-in:
- "Parma Ham – protected designation of origin";
- the address of the production plant;
b) for whole Parma Ham packaged or packaged in pieces:
- "Parma Ham – protected designation of origin";
- the address of the packing plant;
- production date, if the seal (referred to in section H) is no longer visible;
c) sliced or pre-packed Parma Ham:
- all packets shall have a part that is common to all, located on the top left corner complying with all the characteristics and conditions established by the Directive Concerning Slicing and Packaging Operations and anyway indicating the "Ducal Crown" certification mark and the wording:
* Prosciutto di Parma denominazione di origine protetta ai sensi della Legge 13 febbraio 1990 n° 26 e del Regolamento (CEE) n. 1107 del 12.06.1996 (Parma Ham Protected Designation of Origin pursuant to Law No. 26 dated 13 February 1990 and EEC Regulation no. 1107 of 12.06.96;
* Packaged under the supervision of the Certification Body.
- location of the packaging plant;
- production date (beginning of curing, i.e. the date embossed on the seal referred to in Section H).

It is forbidden to use qualifying adjectives such as "classic", "authentic", "premium", "super" as well as any other qualification, designation and attribute in addition to the sales designation, except for "boneless" and "sliced".
It is forbidden to use, in lieu of or in addition to the protected designation, any other geographical denomination or qualification of the product even if relating to municipalities included in the typical production area referred to in Section C.
The prohibitions set forth in this Section H also apply, in so far as they are compatible, to advertising and promotion of the protected ham in whatever form.
It is forbidden to use the geographical denominations relating to the municipalities included in the typical production area including variations, distortions, derivations or abbreviations of the same in the style, corporate name or trademark unless the entrepreneur concerned is able

to demonstrate that said denomination was already in use – with reference to ham – before Law No. 506 dated 4 July 1970 came into force.

SECTION H REFERENCE DOCUMENTS

Record of registration of the "Ducal Crown" trademark of 1963
Record of registration of the "Ducal Crown" trademark of 1973 (amending the 1963 registration)
Ministerial Decree dated 9 October 1978 - Annex 4
Registration certificate of the "Ducal Crown" trademark of 1987 (essential for WIPO registration)
Ministerial Decree dated 26 August 1991
Ministerial Decree dated 9 October 1978 - Annex 3
Ministerial Decree dated 04 August 1986
Other reference documents:
- Law No. 26/90 dated 13 February 1990 (Section A);
- Ministerial Decree No. 253/93 dated 15 February 1993 (Section A);
- Bilateral Agreements (Section I)

SECTION I

MANDATORY REQUIREMENTS ARISING FROM NATIONAL AND/OR INTERNATIONAL PROVISIONS

Parma Ham PDO, already protected at a national level and based on a series of bilateral agreements and covenants, is currently protected pursuant to EEC Regulation No. 1107 dated 12 June 1996.
Parma Ham PDO is protected against any type of violation pursuant to the Community and national legislation in force and the Consorzio del Prosciutto di Parma vested by the Ministry of Agricultural, Food and Forestry Policies carries out activities of protection, promotion and monitoring of the market pursuant to articles 14 of Law 526/99.